350 S. FIFTH AVE. DEVELOPMENT

350 S 5TH AVENUE ANN ARBOR, MI 48104

CITY OF ANN ARBOR - ANN ARBOR HOUSING COMMISSION (AAHC)

727 MILLER AVE ANN ARBOR, MI 48103 (734) 794-6720 www.a2gov.org



500 GRISWOLD SUITE 1700 DETROIT, MI 48226 313.983.3600 smithgroup.com

	UNIT DESIGNATION		W01	W02	W03	W04	W05	W06	W07	E01	E02	E03	E04	E05	E06	E07	E08	E09	E10	E11	E12	E13	
	ANSI TYPE A		В	В	В	В	Α	В	В	В	В	В	А	В	В	В	В	В	В	В	В	В	
	GSF		696	587	641	731	698	592	727	622	883	846	657	715	626	724	658	841	655	568	646	616	
	RENTABLE SF		651	549	607	703	653	548	682	582	844	815	630	677	594	687	628	813	629	545	620	604	
	NO. OF BEDS		1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1	
	NO. OF BATHS		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	GSF								<u> </u>									<u> </u>					TOTAL
BASEMENT	14224																	<u> </u>					0
LEVEL 01	13707								<u> </u>														0
LEVEL 02	14467								<u> </u>									<u> </u>					0
LEVEL 03	17702					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	16
LEVEL 04	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 05	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 06	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 07	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 08	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 09	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 10	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 11	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 12	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 13	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 14	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 15	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 16	17722		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
LEVEL 17	13122									1	1	1	1	1	1	1	1	1	1	1	1	1	13
LEVEL 18	8339	igspace								1		1						1		1		1	5
		_																					
TOTAL BUILDING	311947	1		13	13	14	14	14	14	16	15	16	15	15	15	15	15	16	15	16	14	16	294
TOTAL NSF FOR UNITS		8	3457	7138	7886	9842	9148	7677	9543	9307	12666	13036	9444	10160	8904	10298	9424	13006	9430	8724	8685	9663	192437

VOLUME I OF I

ISSUED FOR:
IN PROGRESS SCHEMATIC DESIGN

ISSUE DATE: 22 DEC 2022 14177.000

PROJECT SHEET INDEX NOTES SHEET NUMBER SHEET NAME DISCIPLINE, UNLESS OTHERWISE NOTED: GENERAL PROJECT COVER SHEET PROJECT SHEET INDEX AND GENERAL PROJECT INFORMATION CONSTRUCTION OF THE PROJECT. BUILDING CODE SUMMARY CV100 ALTA SURVEY CS100 DIMENSIONAL LAYOUT PLAN DISCIPLINE AND MAY REQUIRE REFERENCE TO DRAWINGS UTILITY PLAN OF ANOTHER DISCIPLINE. AS SUCH, DO NOT DISTRIBUTE FIRE ACCESS PLAN OR UTILIZE PARTIAL SETS OF DRAWINGS. STRUCTURAL STRUCTURAL ABBREVIATIONS AND LEGEND STRUCTURAL GENERAL NOTES STRUCTURAL GENERAL NOTES SPECIAL INSPECTION SCHEDULE OTHERWISE NOTED. TYPICAL CONCRETE FLOOR FRAMING PLAN TYPICAL STEEL FLOOR FRAMING PLAN FOUND AT THE FRONT OF EACH DISCIPLINE'S PORTION OF ARCHITECTURAL THE DRAWING SET AND ARE LISTED IN THE SHEET INDEX. ARCHITECTURAL ABBREVIATIONS AND SYMBOLS FLOOR PLAN - COMPOSITE FLOOR PLAN - COMPOSITE BASEMENT LEVEL FLOOR PLAN - EAST BASEMENT LEVEL FLOOR PLAN - WEST LEVEL 1 FLOOR PLAN - EAST OTHER DISCIPLINES. LEVEL 1 FLOOR PLAN - WEST LEVEL 2 FLOOR PLAN - EAST LEVEL 2 FLOOR PLAN - WEST LEVEL 3 FLOOR PLAN - EAST LEVEL 3 FLOOR PLAN - WEST LEVEL 4 TO 16 FLOOR PLAN - EAST COORDINATION ONLY. LEVEL 4 TO 16 FLOOR PLAN - WEST LEVEL 17 FLOOR PLAN - EAST LEVEL 17 FLOOR PLAN - WEST LEVEL 18 FLOOR PLAN - EAST LEVEL 18 FLOOR PLAN - WEST LEVEL 19 AND ROOF PLANS EXTERIOR BUILDING ELEVATION - SOUTH EXTERIOR BUILDING ELEVATION - WEST EXTERIOR BUILDING ELEVATION - NORTH CODE OR REGULATION. **EXTERIOR BUILDING ELEVATION - EAST** BUILDING SECTIONS IDENTIFY AND NOTIFY THE ARCHITECT OF CONFLICTS BUILDING SECTIONS FIRE SUPPRESSION ABBREVIATIONS AND SYMBOLS PLUMBING/ ABBREVIATIONS /SYMBOLS/GENERAL NOTES REVIEW AND COORDINATE THE WORK OF ALL OTHER DOMESTIC WATER RISER DIAGRAM SANITARY AND VENT RISER DIAGRAM STORM WATER RISER DIAGRAM NATUAL GAS RISER DIAGRAM MECHANICAL MECHANICAL ABBREVIATIONS AND SYMBOLS WORK OF THAT PARTY. BASEMENT LEVEL HVAC & HVAC PIPING PLAN - EAST BASEMENT LEVEL HVAC & HVAC PIPING PLAN - WEST LEVEL 1 HVAC & HVAC PIPING PLAN - EAST LEVEL 2 HVAC & HVAC PIPING PLAN - WEST M2.3.E LEVEL 3 HVAC & HVAC PIPING PLAN - EAST LEVEL 3 HVAC & HVAC PIPING PLAN - WEST LEVEL 8 HVAC & HVAC PIPING PLAN - EAST LEVEL 8 HVAC & HVAC PIPING PLAN - WEST LEVEL 17 HVAC & HVAC PIPING PLAN - WEST M2.18.E LEVEL 18 HVAC & HVAC PIPING PLAN - EAST M2.18.W LEVEL 18 HVAC & HVAC PIPING PLAN - WEST LEVEL 19 HVAC & HVAC PIPING PLAN - EAST MECHANICAL DIAGRAMS MECHANICAL DIAGRAMS MECHANICAL DETAILS THE FLOOR AREA FOR THE 350 SOUTH FIFTH DEVELOPMENT IS MECHANICAL SCHEDULES PUD AND UNDERLYING D1 ZONING. THE 294 UNITS ARE BROKEN DOWN INTO TWO SEPARATE, BUT ELECTRICAL ABBREVIATIONS AND SYMBOLS ADJACENT AND CONNECTED TOWERS: ELECTRICAL SCHEDULES a. 17 STORY WEST TOWER ELECTRICAL SITE PLAN ELECTRICAL ONE-LINE DIAGRAM ENCLOSED TENANT AMENITY SPACE ELECTRICAL RISER DIAGRAM ELECTRICAL RISER DIAGRAM ENLARGED PLANS 3. FLOOR 2: SUPPORTIVE CLINIC, TENANT OPERATED FIRE ALARM STORE, ADMINISTRATIVE OFFICES, TOILET ROOMS AND FIRE ALARM ABBREVIATIONS AND SYMBOLS GENERATOR SPACE TRASH ROOM, HOUSING UNITS AND MECHANICAL SPACE ROOM, BIKE PARKING, LOADING AND TRASH ROOM, AS WELL AS COMMERCIAL RETAIL TENANT SPACE VICINITY MAP

PROJECT GENERAL

THE FOLLOWING PROJECT GENERAL NOTES APPLY TO THE ENTIRE DRAWING SET AND ARE NOT SPECIFIC TO ANY ONE

> THE DRAWING SET AND SPECIFICATIONS (PROJECT MANUAL) ARE COMPLEMENTARY AND ESTABLISH DETAILED MINIMUM REQUIREMENTS FOR THE DESIGN AND

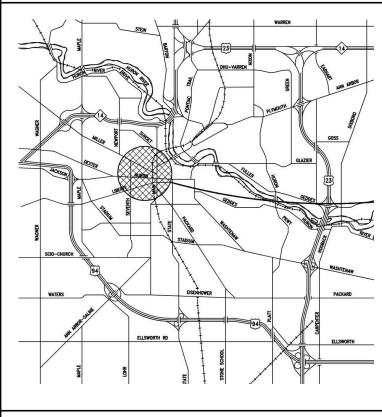
- THE DRAWING SET CONSISTS OF ALL SHEETS LISTED BY THE SHEET INDEX. THE WORK DESCRIBED BY THE DRAWINGS OF ANY ONE DISCIPLINE MAY BE AFFECTED BY THE WORK DESCRIBED ON DRAWINGS OF ANOTHER
- COLUMN GRID LINES IDENTIFIED BY A LETTER DESIGNATION ARE PARALLEL, UNLESS OTHERWISE NOTED. COLUMN GRID LINES IDENTIFIED BY A NUMBER DESIGNATION ARE PARALLEL AND ARE PERPENDICULAR TO THOSE WITH LETTER DESIGNATIONS, UNLESS
- 4. DISCIPLINE GENERAL NOTES, SYMBOLS AND DEFINITIONS APPLICABLE TO EACH DISCIPLINE'S DRAWINGS MAY BE
- UNLESS INDICATED OTHERWISE, THE 'ARCHITECTURAL' SERIES DRAWINGS TAKE PRECEDENCE FOR THE FINISHED APPEARANCE AND LOCATION OF ALL EXPOSED ELEMENTS OF THE WORK OF ALL TRADES, INCLUDING THAT WORK WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF
- 6. THE DRAWINGS MAY MAKE REFERENCE TO OR ILLUSTRATE ITEMS WHICH ARE NOT PART OF THE WORK OF THE CONTRACT. THESE "NOT IN CONTRACT" ITEMS AS INDICATED ARE REFERENCED OR ILLUSTRATED FOR THE CONTRACTOR'S REFERENCE, INFORMATION AND
- ALL PARTS OF THE WORK, INCLUDING BUT NOT LIMITED TO MATERIALS, METHODS, OR ASSEMBLIES, MUST COMPLY WITH THE REQUIREMENTS OF THE GOVERNING CODES AND REGULATIONS OF ALL FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION OVER THE PROJECT, AS WELL AS THOSE GREATER REQUIREMENTS INDICATED BY THE CONTRACT DOCUMENTS. NO PART OF THE CONTRACT DOCUMENTS MAY BE CONSTRUED TO REQUIRE OR ALLOW WORK CONTRARY TO A GOVERNING
- BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE SO AS TO ALLOW REASONABLE AND ADEQUATE TIME FOR THE CONFLICT TO BE RESOLVED WITHOUT DELAYING THE WORK. ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS MUST BE APPROVED IN ADVANCE BY THE ARCHITECT AND OWNER.
- PARTIES PERFORMING WORK AT THE PROJECT, INCLUDING BUT NOT LIMITED TO, DELEGATED DESIGN ENTITIES, TRADES AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS, WHICH MIGHT AFFECT THE

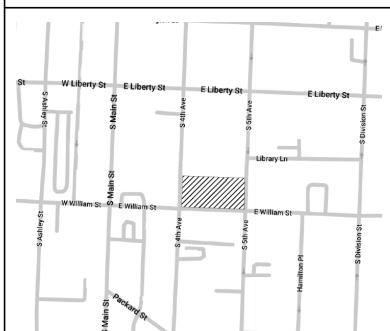
PROJECT DESCRIPTION

THE ANN ARBOR HOUSING COMMISSION (AAHC) IS DEVELOPING A 294 UNIT, 312,000GSF MIXED-INCOME MULTI-FAMILY RESIDENTIAL FACILITY ON AN EXISTING 34,928SF (.75 ACRE) PARKING LOT SITE IN ANN ARBOR, MI. THE SITE IS BOUNDED BY FIFTH AVENUE TO THE EAST, WILLIAM STREET TO THE SOUTH, FOURTH AVENUE TO THE WEST, AND THE EXISTING ANN ARBOR AREA TRANSIT AUTHORITY BLAKE TRANSIT CENTER TO THE NORTH. THE SITE HAS A PLANNED UNIT DEVELOPMENT (PUD) DESIGNATION.

JUST UNDER THE 900% FLOOR AREA RATIO (FAR) LIMIT PER THE

- FLOOR 17: OUTDOOR ROOF TOP AMENITY AND
- 2. FLOORS 3 THRU 16: 95 HOUSING UNITS, PLANNED TO BE FULLY AFFORDABLE; THIRD FLOOR TO INCLUDE COMMUNITY SPACE WITH SUPPORT AREAS.
- 4. FLOOR 1: TENANT LOBBY, RECEPTION, ADMINISTRATIVE OFFICES, MAIL/PACKAGE ROOM, BIKE PARKING AND
- b. 18 STORY EAST TOWER (WITH MECHANICAL PENTHOUSE) 1. FLOOR 18: OUTDOOR ROOF TOP SHARED AMENITY AND 5
- 2. FLOORS 3 THRU 17: 194 HOUSING UNITS, PLANNED TO BE MIXED-INCOME, WITH 80% MARKET RATE, AND 20% AFFORDABLE; WITH AMENITY ON THE THIRD FLOOR. THE AMENITY SPACE AND SOUTH FACING UNITS ON THE THIRD FLOOR WILL CONNECT TO AN OUTDOOR
- 3. FLOOR 2: COMMUNITY SPACES, FITNESS ROOM, AMENITY SPACE, CONFERENCE ROOM AND BUILDING MANAGEMENT RECEPTION, OFFICES, AND TOILET 4. FLOOR 1: TENANT LOBBY, RECEPTION, MAIL/PACKAGE





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350 S. Fifth Avenue

Ann Arbor, MI 48104

Owner:

CITY OF ANN ARBOR - ANN ARBOR HOUSING COMMISSION (AAHC)

2000 S. Industrial 301 E. Huron Street Ann Arbor, MI 48104

SMITHGROUP

500 GRISWOLD SUITE 1700 DETROIT, MI 48226 313.983.3600 smithgroup.com

Convergent Technologies Design Group, Inc. 6501 York Road Baltimore, MD 21212 410.532.2395

Liberty Elevator Experts, LLC. VERTICAL TRASPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538

ISSUED FOR REV DATE ____ ____ ____ IN PROGRESS SCHEMATIC DESIGN

SEALS AND SIGNATURES

PROJECT SHEET INDEX AND GENERAL PROJECT INFORMATION

14177.000 PROJECT NUMBER G0.1

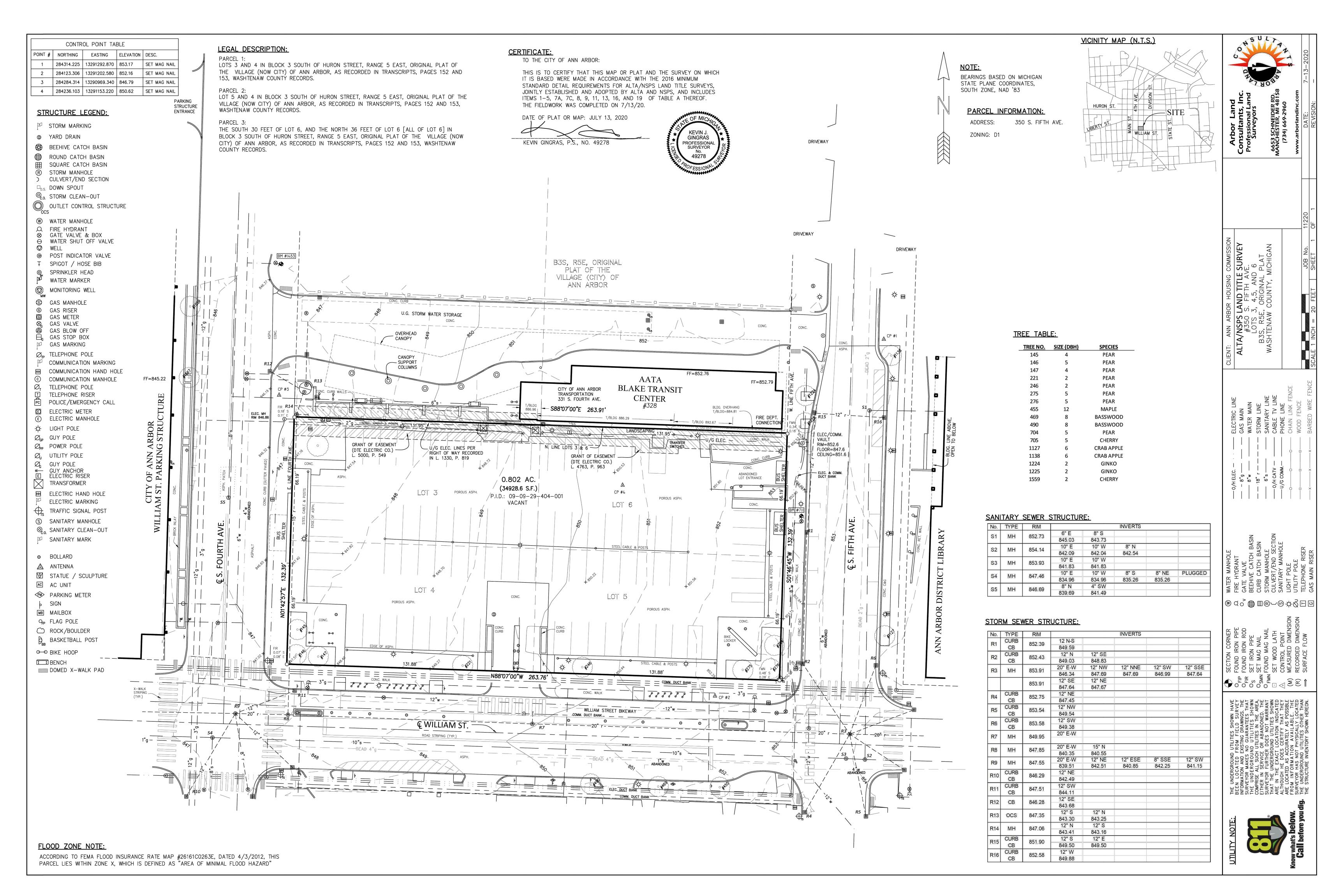
		PROJECT CO	DDE SUMMARY			CODES / STANDARDS	CODE COMPLIANCE APPROACH NARRATIVE	GRAPHIC LEGEND	350 S. FIFTH AVE.
OCCUPANCY CLASSIFICATION AND CONSTRUCTION TYPES PER MBC CHAPTERS 3, 4, 5, AND 6 BASIC OCCUPANCY GROUP(S): [PER MBC CHAPTER 3] GROUP A-1 GROUP A-2 GROUP A-5 GROUP A-5 GROUP B GROUP F-1 GROUP F-1 GROUP H-2 GROUP H-3 GROUP H-4 GROUP H-5 GROUP H-3 GROUP I-2 GROUP I-3 GROUP I-3 GROUP I-3 GROUP R-1 GROUP R-3 GROUP R-1 GROUP R-3 GROUP R-4 GROUP S-2 GROUP U MIXED USE AND OCCUPANCY: [PER MBC SECTION 508 & 509] ACCESSORY OCCUPANCIES [MBC 508.2] [Accessory Occupancies <10% of Story]	BUILDING AREA CALCULATIONS: PER MBC CHAPTER 5 UNLIMITED AREA ALLOWED (PER MBC TABLE 503) UNLIMITED HEIGHT ALLOWED UNLIMITED AREA BUILDING (PER MBC SECTION 507) NONSPRINKLERED, ONE-STORY, 60 FOOT YARDS SPRINKLERED, ONE-STORY ABOVE GRADE PLANE, 60' YARDS SPRINKLERED, TWO STORIES ABOVE GRADE PLANE, 60' YARDS AUTOMATIC SPRINKLER SYSTEM INCREASE USED FOR ALLOWABLE HEIGHT MODIFICATION (PER MBC SECTION 504) 20 FEET AND ONE STORY NO ALLOWABLE HEIGHT OR AREA MODIFICATIONS USED ALLOWABLE AREA MODIFICATIONS USED PER THE ALLOWABLE AREA		ADDITIONAL FIRE-RESISTIVE RATINGS: DESCRIPTION CODE SECTION RATING (HR) SHAFT ENCLOSURES FOUR STORIES OR MORE: LESS THAN FOUR STORIES: EXIT ENCLOSURES FOUR STORIES OR MORE: LESS THAN FOUR STORIES: EXIT PASSAGEWAYS: EXIT PASSAGEWAYS: HOISTWAY ENCLOSURES: ELEVATOR MACHINE ROOMS: CORRIDORS: MBC 1024.3 ELEVATOR MACHINE ROOMS: MBC 3002.1 ELEVATOR MACHINE ROOMS: MBC 3005.4 CORRIDORS: MBC TABLE 1020.1 SPRINKLERED: OCCUPANCY: A, M OCC LOAD SERVED: >30 OCCUPANCY: R OCC LOAD SERVED: >10 RATING (HR): 0 OCCUPANCY: R OCC LOAD SERVED: >10 NOTE: ALL SHAFT ENCLOSURES THAT PENETRATE FLOORS RATED FOR 2 OR MORE HOURS SHALL BE 2-HOUR RATED SHAFTS FIRE DOOR AND FIRE SHUTTER FIRE PROTECTION RATINGS (hours):	*REFER TO THE LIFE SAFETY PLANS FOR ACTUAL MEASURED DISTANCES. DOORS: [PER MBC 1010.1.1] THE MINIMUM CLEAR WIDTH AND HEIGHT OF A DOOR SHALL NOT BE LESS THAN 32 INCHES AND 80 INCHES RESPECTIVELY. [PER MBC 1010.1.2] DOORS SHALL SWING IN THE DIRECTION OF EGRESS TRAVEL, WHERE SERVING AN OCCUPANT LOAD OF 50 OR MORE PERSONS OR A GROUP H OCCUPANCY. COMMON PATH OF EGRESS TRAVEL (MBC 1006.2.1) OCCUPANCY SPRINKLERED MAX. DISTANCE A, M YES 75' - 0"	EXIT CAPACITY FACTORS: [PER MBC 1005.1] MINIMUM REQUIRED EGRESS WIDTH: STAIRWAYS OTHER EGRESS COMPONENTS OTHER EGRESS COMPONENTS *REFER TO THE LIFE SAFETY PLANS FOR COMPLIANCE WITH MEANS OF EGRESS WIDTH REQUIREMENTS. LIFE SAFETY SYSTEMS: (PER MBC AND MFC CHAPTER 9) AUTOMATIC SPRINKLER SYSTEM: ● PROVIDED PER NFPA 13 ALTERNATIVE AUTOMATIC FIRE- EXTINGUISHING SYSTEMS: PROTECTION DRAWINGS	APPLICABLE CODES/CRITERIA/DESIGN POLICY: AUTHORITY HAVING JURISDICTION: CITY OF ANN ARBOR MICHIGAN BUILDING CODES (IFC) INTERNATIONAL FIRE CODE 2015 (MBC) MICHIGAN BUILDING CODE 2015 (MEC) ASHRAE 90.1 2013 (MMC) MICHIGAN MECHANICAL CODE 2015 (MPC) MICHIGAN PLUMBING CODE 2015 (MPC) MICHIGAN PLUMBING CODE 2015	THE PROJECT WILL CONSIST OF A NEW 18-STORY HIGH-RISE BUILDING IN ANN ARBOR, MICHIGAN. THE BUILDING CONSTRUCTION WILL BE TYPE IA AS A RESULT. THE PROPOSED DESIGN WILL COMPLY WITH THE APPLICABLE CODES AND STANDARDS AS ENFORCED BY THE CITY OF ANN ARBOR, MICHIGAN, AND THE MICHIGAN BUILDING CODES. WHERE THERE IS A DISCREPANCY BETWEEN TWO OR MORE STANDARDS OR REQUIREMENTS, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL.	PROJECT CODE SUMMARY SYMBOLS ITEM NOT SELECTED ITEM SELECTED	OWNER: Owner: CITY OF ANN ARBOR - ANN ARBOR HOUSING COMMISSION (AAHC)
NONSEPARATED OCCUPANCIES* [MBC 508.3] NONSEPARATED OCCUPANCIES* [MBC 508.3] SEPARATED OCCUPANCIES [MBC 508.4] *REFER TO FIRE AND LIFE SAFETY PLANS FOR SEPARATION REQUIREMENTS TYPE(S) OF CONSTRUCTION: TYPE I: ●A ○B	CALCULATIONS ON THIS SHEET: BUILDING AREA MODIFICATIONS (PER MBC EQUATION 5-3) FRONTAGE INCREASE (PER MBC EQUATION 5-5)	TYPE / OCCUPANCY <u>IA/R</u> X < 5 FT 1 HOURS 5 FT < X < 10 FT 1 HOURS 10 FT < X < 30 FT 1 HOURS X > 30 FT 0 HOURS	[PER MBC TABLE 716.5] TYPE OF REQ'D MIN. FIRE DOOR ASSEMBLY ASSEMBLY AND FIRE SHUTTER RATING ASSEMBLY RATING Fire walls and fire barriers having 4 3	B, S YES 100' - 0" R-2 YES 125' - 0"	STANDPIPE SYSTEM: PROVIDED PER NFPA 14: CLASS I PORTABLE FIRE EXTINGUISHERS: PROVIDED PER NFPA 10 FIRE ALARM SYSTEM: PROVIDED PER NFPA 72	NFPA 10 STANDARD FOR PORTABLE FIRE 2013 EXTINGUISHERS NFPA 13 INSTALLATION OF SPRINKLER SYSTEMS 2013 NFPA 14 STANDARD FOR THE INSTALLATION OF 2013 STANDPIPE AND HOSE SYSTEMS NFPA 20 STANDARD FOR INSTALLATION OF STATIONARY 2013		GENERAL FIRE AND LIFE SAFETY SHEET NOTES	2000 S. Industrial 301 E. Huron Street Ann Arbor, MI 48104
[PER MBC CHAPTER 6] TYPE III: OA OB TYPE IV: OHT TYPE V: OA OB SPECIAL DETAILED REQUIREMENTS: HIGH-RISE BUILDING [PER MBC SECTION 403] ATRIUM [PER MBC SECTION 404] OPEN PARKING GARAGE [PER MBC SECTION 406.5] GROUP I-2: [PER MBC SECTION 407] - SMOKE COMPARTMENTS - REFUGE AREA		MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE: [PER MBC TABLE 705.8] FIRE SEPARATION DEGREE OF PROTECTION 0 < 3 FT	a required fire-resistance rating greater than 1 hour 3 2 1 1/2 1 1/2 Fire barriers having a required fire-resistance rating of 1 hour Shaft, exit enclosure and exit passageway walls: Other fire barriers: 1 3/4 1 1 2 1 1/2 Fire partitions 1 1 3/4 Corridor walls: 0.5 1/3 Other fire partitions: 1 3/4 1 3/4	A, M, R, S-1 YES 250' - 0" B YES 300' - 0" S-2 YES 400' - 0" DEAD ENDS (MBC 1020.4) OCCUPANCY SPRINKLERED MAX. DISTANCE A, S YES 20' - 0" B, M, R-2 YES 50' - 0"		PUMPS FOR FIRE PROTECTION NFPA 70 NATIONAL ELECTRICAL CODE 2017 NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE 2013 ACCESSIBILITY GUIDELINES ADA ADA STANDARDS FOR ACCESSIBLE DESIGN BY 2010 THE U.S. DEPARTMENT OF JUSTICE ICC/ANSI ACCESSIBLE AND USABLE BUILDINGS AND 2009 117.1 FACILITIES		 A. THE PURPOSE OF THE FIRE AND LIFE SAFETY DRAWINGS IS TO ILLUSTRATE IN SCHEMATIC FASHION, THE APPLICABLE EXITING, FIRE-RESISTANCE, AND LIFE SAFETY CONCEPTS UTILIZED BY THIS PROJECT; INCLUDING, BUT NOT LIMITED TO: OCCUPANCY CLASSIFICATIONS OCCUPANCY LOAD FACTORS EXIT LOCATIONS, EXIT PATHS & CAPACITY - FUNCTION OF SPACE FIRE-RESISTANCE RATED CONSTRUCTION AND OTHER STRATEGIES RELATED TO THE CODE COMPLIANCE APPROACH OF THIS PROJECT. 	
○ HAZARDOUS MATERIALS: [PER MBC SECTION 414] - CONTROL AREAS ○ MEZZANINE [PER MBC SECTION 505] ○ EQUIPMENT PLATFORM [PER MBC SECTION 505]		30 FT > NL NR NR	Exterior Walls 3 1 1/2 2 1 1/2 1 3/4 Smoke Barriers 1 1/3	MIN. NUMBER OF EXITS FOR OCCUPANT LOAD (MBC TABLE 1006.3.2 OCCUPANT LOAD MIN. # OF EXITS PER STORY 1-500 2 501-1,000 3 MORE THAN 1.000 4		ADDITIONAL GUIDELINES ASME SAFETY CODE FOR ELEVATORS AND 2013 A17.1 ESCALATORS		B. ADDITIONAL DETAILED REQUIREMENTS APPLY TO THE CONSTRUCTION OF PARTITIONS, FIRE RATED DOOR ASSEMBLIES, INTERIOR GLAZED OPENINGS, DUCTS, SMOKE AND FIRE DAMPERS AND THROUGH PENETRATION FIRE STOPPING. REFER TO THE DRAWINGS OF EACH DISCIPLINE AND THE SPECIFICATIONS FOR THESE REQUIREMENTS.	
								C. ADDITIONAL DETAILED REQUIREMENTS SHOWN ELSEWHERE MAY REQUIRE CONSTRUCTION HAVING GREATER FIRE RATINGS, MORE EXTENSIVE FIRE-RATED CONSTRUCTION,OR MORE COMPLEX ASSEMBLIES THAN INDICATED BY THE DIAGRAMS ON THIS SHEET. WHEN PROVIDED, THE ADDITIONAL DETAILED REQUIREMENTS SHALL GOVERN.	SMITHGROUP 500 GRISWOLD SUITE 1700
								E. FIRE BARRIERS SHALL EXTEND FROM THE TOP OF THE FOUNDATION OR FLOOR/CEILING ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, SLAB OR DECK ABOVE AND SHALL BE SECURELY ATTACHED THERETO. SUCH FIRE BARRIERS SHALL BE CONTINUOUS THROUGH CONCEALED SPACES.	DETROIT, MI 48226 313.983.3600 smithgroup.com
								 F. SHAFT ENCLOSURES SHALL BE CONSTRUCTED AS FIRE BARRIERS. G. FIRE PARTITIONS SHALL EXTEND FROM THE TOP OF THE FOUNDATION OR FLOOR/CEILING ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, SLAB OR DECK ABOVE OR TO THE FIRE-RESISTANCE-RATED FLOOR/CEILING OR ROOF/CEILING ASSEMBLY ABOVE, AND SHALL BE SECURELY ATTACHED THERETO. 	
								H. SMOKE BARRIERS SHALL FORM AN EFFECTIVE MEMBRANE CONTINUOUS FROM OUTSIDE WALL TO OUTSIDE WALL AND FROM THE TOP OF THE FOUNDATION OR FLOOR/CEILING ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, DECK OR SLAB ABOVE, INCLUDING CONTINUITY THROUGH CONCEALED SPACES. J. SMOKE PARTITIONS SHALL EXTEND FROM THE TOP OF THE	Convergent Technologies Design Group, In LOW VOLTAGE CONSULTANT 6501 York Road Baltimore, MD 21212 410.532.2395
								FOUNDATION OR FLOOR BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, DECK OR SLAB ABOVE OR TO THE UNDERSIDE OF THE CEILING ABOVE WHERE THE CEILING MEMBRANE IS CONSTRUCTED TO LIMIT THE TRANSFER OF SMOKE.	Liberty Elevator Experts, LLC. VERTICAL TRASPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538
								PROJECT FIRE AND LIFE SAFETY SHEET NOTES	ISSUED FOR REV DATE
								A. A SIGN COMPLYING WITH IBC SECTION 1111 SHALL BE PROVIDED AT EACH LANDING OF THE ELEVATOR AND SAY THE FOLLOWING: "IN FIRE EMERGENCY, DO NOT USE THE ELEVATOR. USE EXIT STAIRS". B. INTERIOR WALL & CEILING FINISHES SHALL HAVE A FLAME	
								SPREAD INDEX RATING OF NO MORE THAN CLASS B AT VERTICAL EXITS & EXIT PASSAGEWAYS AND EXIT ACCESS CORRIDORS AND OTHER EXITWAYS. C. INTERIOR WALL & CEILING FINISHES SHALL HAVE A FLAME SPREAD INDEX RATING OF NO MORE THAN CLASS C AT ROOMS AND ENCLOSED SPACES.	IN PROGRESS SCHEMATIC DESIGN 1 22DEC22
								 D. ALL MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL HAVE A FLAME SPREAD RATING INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50. E. FIRE EXTINGUISHERS SHALL BE LOCATED SUCH THAT A MAXIMUM TRAVEL DISTANCE OF 75' SHALL NOT BE EXCEEDED (WHERE REQUIRED BY CODE). 	SEALS AND SIGNATURES
								 F. LEVEL/ AREA MAIN OCCUPANCY EXIT SIGN LOCATIONS MAY NOT BE SHOWN. REFERENCE ELECTRICAL SHEETS FOR ALL EXIT SIGN LOCATIONS. G. FIRE RESISTIVE ASSEMBLY DETAILS, IF APPLICABLE, ARE LOCATED ELSEWHERE IN THIS DRAWING SET PER THE SHEET INDEX. 	CONSTRUCTION
								 H. ELEVATOR HOISTWAY OPENINGS SHALL BE PROTECTED AS REQUIRED BY THE CODE, CORRESPONDING TO THE RATING OF THE HOISTWAY. J. EVERY ASSEMBLY OCCUPANCY ROOM OR SPACE SHALL HAVE THE OCCUPANT LOAD POSTED IN A CONSPICUOUS PLACE. 	ON C.7/ON
									BUILDING CODE SUMMARY

SCALE

PROJECT NUMBER

G2.1.1

14177.000



350 S. FIFTH AVE. DEVELOPMENT

350 S. Fifth Avenue Ann Arbor, MI 48104

CITY OF ANN ARBOR - ANN ARBOR HOUSING — COMMISSION (AAHC)

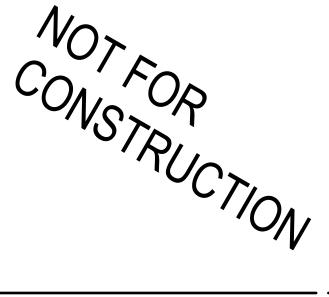
2000 S. Industrial 301 E. Huron St. Ann Arbor, MI 48104

SMITHGROUP

201 DEPOT STREET SECOND FLOOR ANN ARBOR, MI 48104 734.662.4457 www.smithgroup.com

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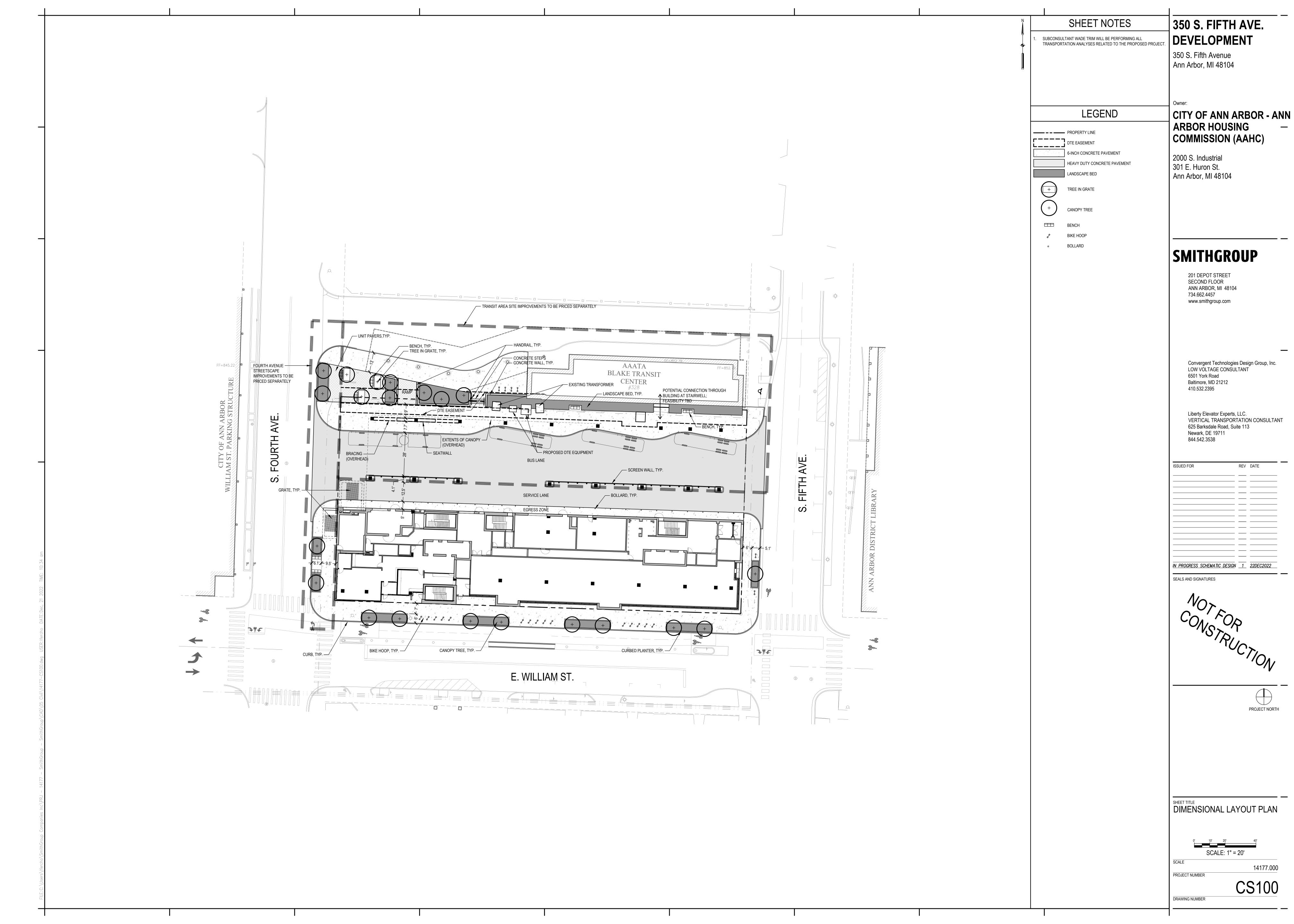


ALTA SURVEY

o' 10' 20' 4 SCALE: 1" = 20'

14177.000
PROJECT NUMBER

DRAWING NUMBER



WATER NOTES:

P1 AND P2 WILL EACH HAVE SEPARATE WATER AND FIRE CONNECTIONS TO THE EXISTING CITY OF ANN ARBOR WATER MAIN ON WILLIAM STREET. AN ESTIMATED 1,600 WATER SUPPLY FIXTURE UNITS INCLUDING PROCESS WATER USE FOR HVAC MAKEUP AND IRRIGATION SUPPLY IS PROPOSED. THE MAXIMUM DOMESTIC WATER LOAD IS ESTIMATED AT 325 GPM.

STORM WATER MANAGEMENT:

- AN INITIAL MEETING WASHTENAW COUNTY STORMWATER ENGINEER THERESA M. MARSIK, P.E. WAS CONDUCTED ON 8/4/202 TO VERIFY STORM WATER MANAGEMENT REQUIREMENTS. THE FINAL SITE PLAN WILL REQUIRE CONDUCTING ADDITIONAL ENVIRONMENTAL ASSESSMENT AND SAMPLING TO FIND WHERE THE "CLEAN" SOIL LAYER IS LOCATED. CONTAMINATED SOIL MUST BE REMOVED. INFILTRATION TEST WILL NEED TO BE PERFORMED. IF IT IS CONFIRMED THAT INFILTRATION CANNOT BE PROVIDED ON SITE, THE SITE MUST PROVIDE DETENTION FOR THE 100 YEAR STORM + 20%.
- THE SITE IS 0.75 ACRES WITH 98% IMPERVIOUSNESS. ROOF DRAINS WILL COLLECT STORMWATER FROM THE BUILDING AREAS AND DIRECT THEM TO AN UNDERGROUND DETENTION SYSTEM IN THE NORTHEAST PORTION OF THE SITE. CURB INLETS WILL COLLECT RUNOFF FROM THE BUS LANE AND PARKING AREAS AND DIRECT THEM TO THE UNDERGROUND DETENTION SYSTEM. THE UNDERGROUND DETENTION SYSTEM OUTLETS TO A PROPOSED MANHOLE THAT CONNECTS TO THE CITY STORM SEWER ON THE WEST SIDE OF THE SITE.
- 3. IT IS ANTICIPATED THAT INFILTRATION WILL NOT BE FEASIBLE BASED ON HISTORICAL GEOTECHNICAL AND ENVIRONMENTAL EVALUATIONS BY SME.
- THE UNDERGROUND DETENTION SYSTEM IS SIZED FOR THE 100 YEAR EVENT + 20% WHICH ACCOUNTS FOR NOT INFILTRATING. THE ALLOWABLE RELEASE RATE IS 0.15 CFS/ACRE. IT IS ESTIMATED THAT 16,100 CF OF DETENTION VOLUME IS REQUIRED.

SANITARY SEWER FLOW MITIGATION CALC:

P1 AND P2 WILL EACH HAVE SEPARATE SANITARY CONNECTIONS TO THE EXISTING CITY OF ANN ARBOR SANITARY SEWER ON WILLIAM STREET. THE GROUND FLOOR USE IS NOT DEFINED BEYOND ACTIVE GROUND FLOOR USE. THE GROUND FLOOR COULD BE RETAILS, COMMUNITY SPACE, GROCERY/ DELI OR RESTAURANT. FOR THE PURPOSES OF THE PUD AREA PLAN, IT IS ASSUMED THE USE IS "STORE WITH FOOD PROCESSING".

BUILDING P1:

UNITS: 24 STUDIO @175 GPD/UNIT, 54 1-BED @175 GPD/UNIT, 12 2-BED @250 GPD/UNIT STORES WITH FOOD PROCESSING: 1,068 SF @ 0.15 GPD/SF

175 GPD/UNIT X (24+54) UNITS = 13,650 GPD 250 GPD/UNIT X 12 UNITS = 3,000 GPD 0.15 GPD/SF X 1,068 SF = 160 GPD SUBTOTAL = 13,650 + 3,000 + 160 = 16,810 GPD

PEAK FLOW = 16,810 GPD X 4 (PEAKING FACTOR) X 1.1 (SYSTEM RECOVERY) = 73,964 GPD X 1 DAY/24 HR/ 1 HR/60 MIN = 51 GPM PEAK FLOW TO BE MITIGATED FOR P1

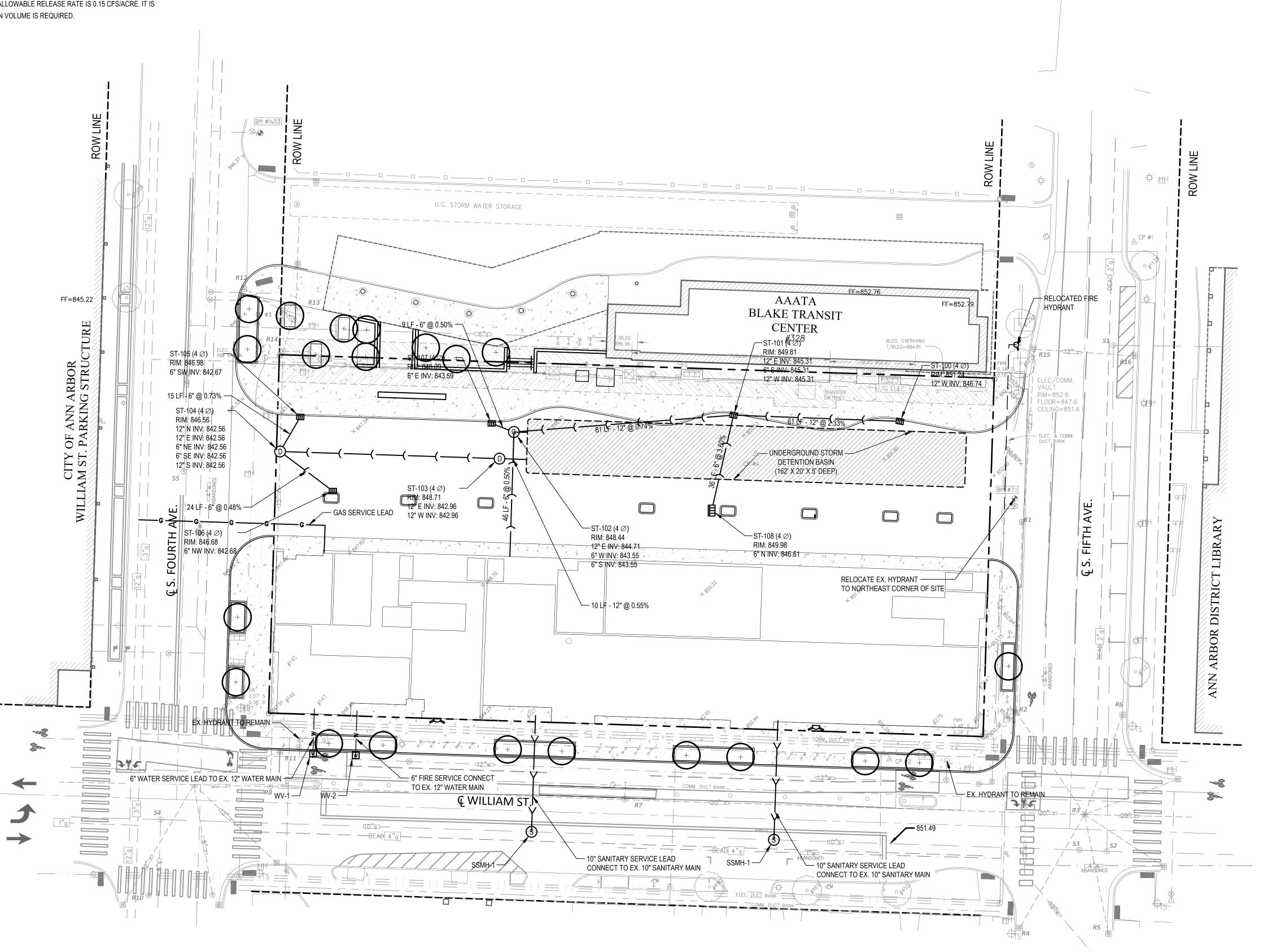
BUILDING P2:

UNITS: 72 STUDIO @175 GPD/UNIT, 172 1-BED @175 GPD/UNIT, 36 2-BED @250 GPD/UNIT) STORES WITH FOOD PROCESSING: 5,766 SF @ 0.15 GPD/SF

175 GPD/UNIT X (72+172) UNITS = 42,700 GPD 250 GPD/UNIT X 36 UNITS = 9,000 GPD 0.15 GPD/SF X 5,766 SF = 865 GPD SUBTOTAL = 42,700 + 9,000 + 865 = 52,565 GPD

PEAK FLOW = 52,565 GPD X 4 (PEAKING FACTOR) X 1.1 (SYSTEM RECOVERY) = 231,286 GPD X 1 DAY/24 HR/ 1 HR/60 MIN = 161 GPM PEAK FLOW TO BE MITIGATED FOR P2

TOTAL PEAK FLOW TO BE MITIGATED FOR P1 AND P2 = 212 GPM



SHEET NOTES 350 S. FIFTH AVE. **DEVELOPMENT** UTILITY PROJECTS ARE NOT ANTICIPATED ADJACENT TO THE ANN ARBOR Y-LOT PROJECT SITE AS INDICATED BY THE CITY OF ANN ARBOR'S CAPITAL IMPROVEMENT PLAN. 350 S. Fifth Avenue A SANITARY CAPACITY ANALYSIS WILL BE DONE BY THE CITY OF ANN ARBOR DURING THE SITE PLAN REVIEW. Ann Arbor, MI 48104 ANY PAVEMENT DAMAGE TO OCCUR TO THE NEWLY RESURFACED E. WILLIAM STREET MUST BE REPLACED TO MATCH EXISTING CONDITIONS. PAVEMENT CUTS MADE DURING REPLACEMENT SHALL EXTEND TO THE NEAREST TRAFFIC LANE LINE. REFER TO CG100 - GRADING AND DRAINGE PLAN FOR STORM LEGEND CITY OF ANN ARBOR - ANN **ARBOR HOUSING** PROPERTY LINE **COMMISSION (AAHC)** DTE EASEMENT 2000 S. Industrial ──**W** ── WATER MAIN 301 E. Huron St. WATER VALVE Ann Arbor, MI 48104 ——>—— SANITARY SEWER ———— STORM SEWER SANITARY MANHOLE STORM STRUCTURE STORM INLET - EXISTING WATER MAIN **SMITHGROUP** EXISTING SANITARY SEWER EXISTING STORM SEWER 201 DEPOT STREET EXISTING FIRE HYDRANT SECOND FLOOR EXISTING WATER VALVE ANN ARBOR, MI 48104 734.662.4457 **EXISTING SANITARY MANHOLE** www.smithgroup.com Convergent Technologies Design Group, Inc. LOW VOLTAGE CONSULTANT 6501 York Road Baltimore, MD 21212 410.532.2395 Liberty Elevator Experts, LLC. VERTICAL TRANSPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538 IN PROGRESS SCHEMATIC DESIGN 1 22DEC2022 SEALS AND SIGNATURES

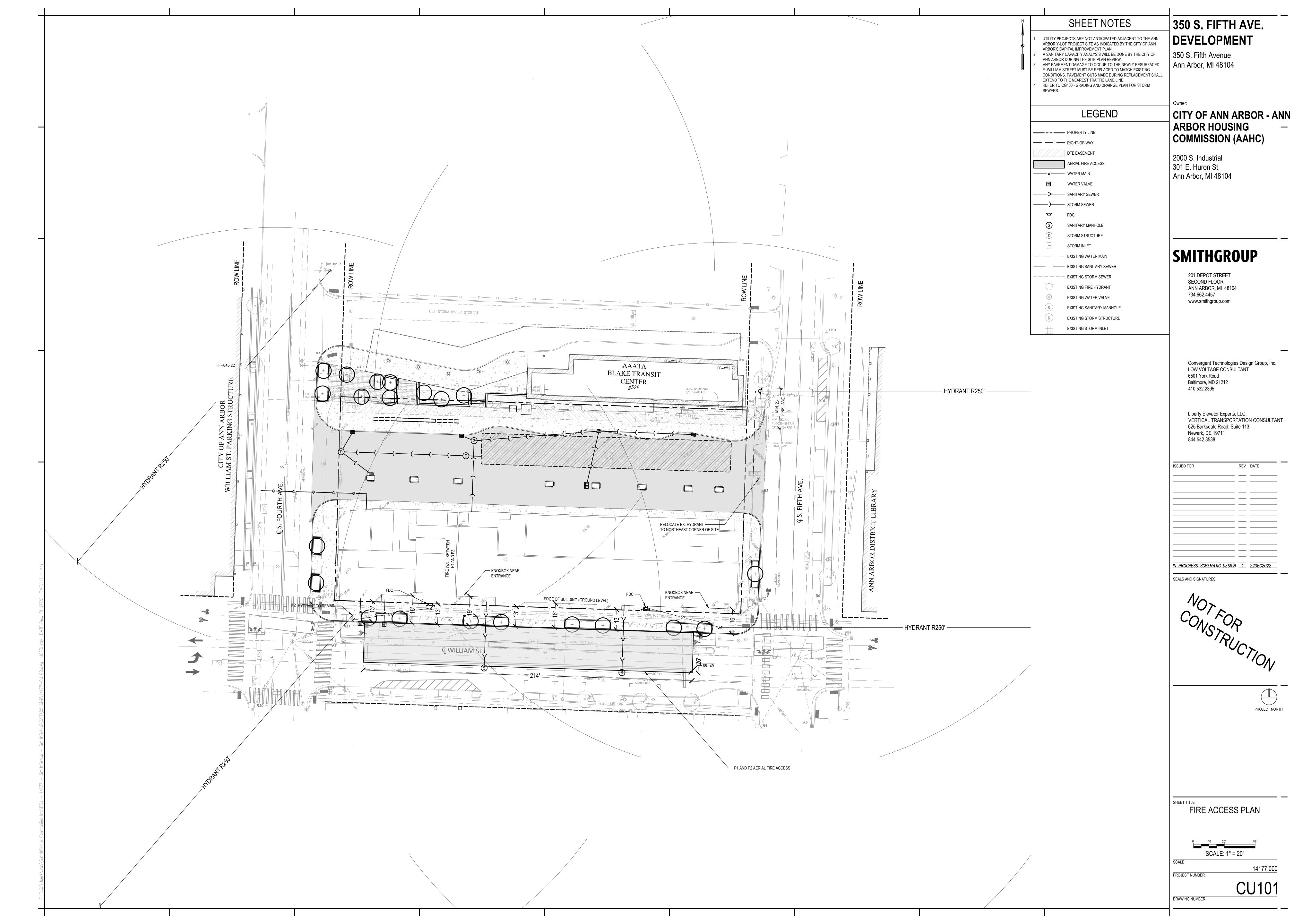
PROJECT NORTH

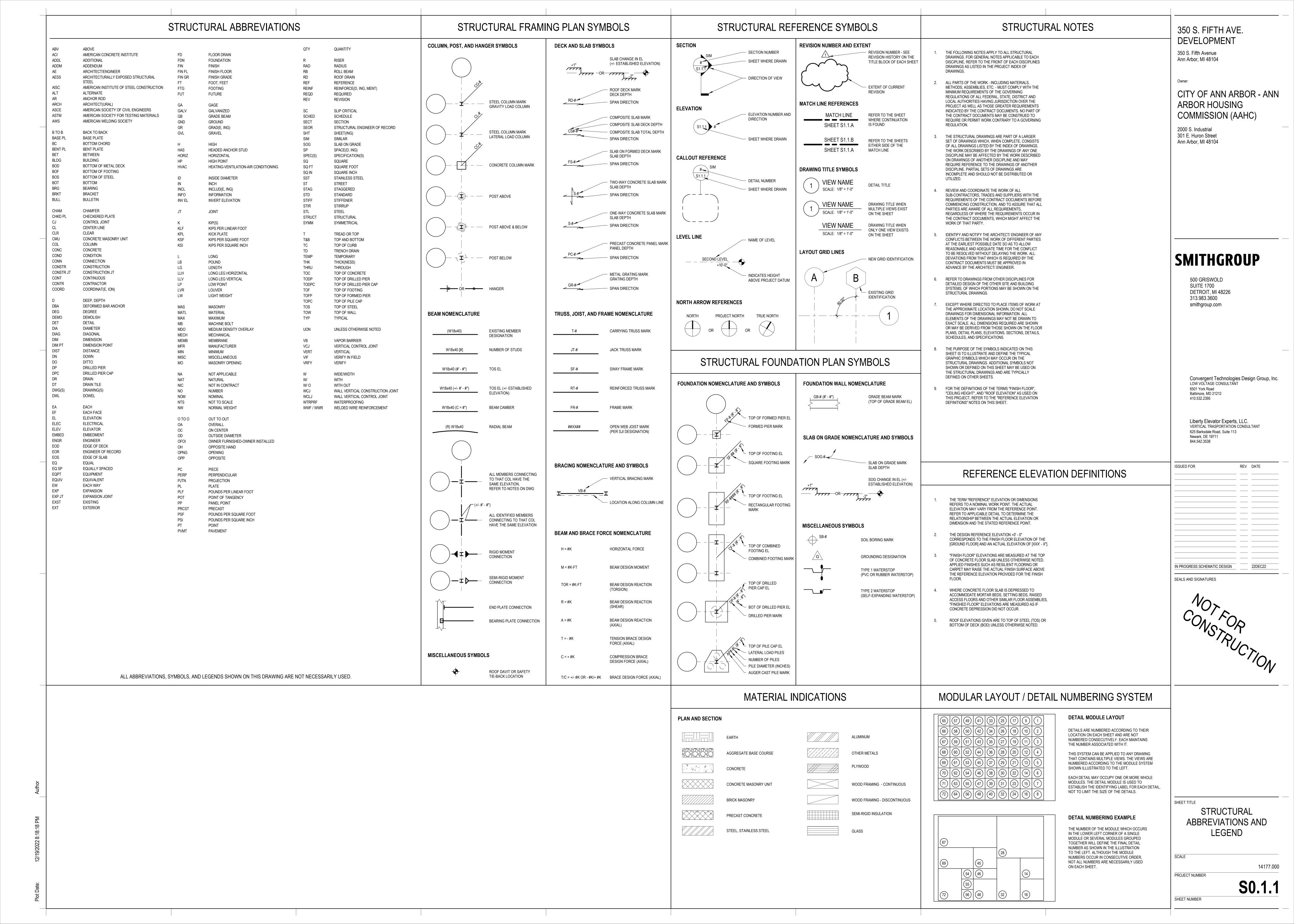
14177.000

UTILITY PLAN

PROJECT NUMBER

DRAWING NUMBER





FOUNDATIONS, SPREAD FOOTINGS, PILE CAPS 4500 PSI 3000 PSI AUGERCAST PILES 4500 PSI GRADE WALLS, GRADE BEAMS, FORMED PIERS, PITS, TRENCHES **BASEMENT AND RETAINING WALLS** 4500 PSI FROST PAD SLABS 5000 PSI SLAB-ON-GRADE 4000 PSI CONCRETE SHEAR WALLS 5000 PSI 4000 PSI SUPPORTED COMPOSITE FLOOR SLABS SUPPORTED CONCRETE FLOOR SLABS, BEAMS 5000 PSI 6000 PSI CONCRETE COLUMNS ALL OTHER CONCRETE, UNLESS OTHERWISE NOTED 4500 PSI

CONCRETE OVER STEEL DECK SHALL BE LIGHT WEIGHT, AIR DRY UNIT WEIGHT = 110 PCF AND SHALL DEVELOP 28 DAY STRENGTH OF 4000 PSI.

CONCRETE WITH CALCIUM CHLORIDE OR ANY ADMIXTURE CONTAINING CHLORIDES SHALL NOT BE USED.

ALL CAST-IN-PLACE CONCRETE TOPPING IS TO BE BONDED TO THE CONCRETE BELOW.

CONCRETE EXPOSED TO WEATHER OR FREEZING SHALL BE AIR-ENTRAINED AND SHALL LIMIT THE WATER/CEMENT RATIO TO 0.45. EXTERIOR BEAMS. COLUMNS. WALLS. GIRDERS. SLABS. OR ANY OTHER CONCRETE CAST DURING COLD WEATHER SHALL BE CONSIDERED AS CONCRETE EXPOSED TO WEATHER AND FREEZING.

REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION OCCURS.

EPOXY-COATING SHALL CONFORM TO ASTM A775 WITH LESS THAN 2% DAMAGED COATING IN EACH 12-INCH BAR

WELDED-WIRE REINFORCEMENT SHALL CONFORM TO ASTM A1064 WITH A MINIMUM YIELD STRENGTH OF 70 KSI.

EPOXY-COATED WELDED-WIRE REINFORCEMENT SHALL CONFORM TO ASTM A884, CLASS A COATED, TYPE 1 PLAIN

REINFORCING STEEL SPECIFICALLY NOTED TO BE SHOP OR FIELD WELDED SHALL CONFORM TO ASTM A706, GRADE 60. WELDING OF OTHER REINFORCING STEEL IS NOT PERMITTED.

STEEL TIE WIRE SHALL BE TYPE ASTM A1064, ANNEALED STEEL, NOT LESS THAN 0.0508 INCH IN DIAMETER.

PROVIDE THE FOLLOWING MINIMUM COVER FOR REINFORCING STEEL IN CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE, UNLESS OTHERWISE NOTED:

13a. UNFORMED SURFACES IN CONTACT WITH EARTH UNFORMED SURFACES OVER MOISTURE BARRIERS FORMED SURFACES EXPOSED TO EARTH OR WEATHER OR WATER PROOFING/DAMP PROOFING: #6 AND LARGER #5 AND SMALLER 1 1/2" FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER: SLABS, WALLS AND JOISTS COLUMNS 1 1/2" BEAMS AND GIRDERS (PRIMARY REINFORCING, TIES, STIRRUPS AND SPIRALS) 1 1/2" SHELLS AND FOLDED PLATE MEMBERS #6 AND LARGER #5 AND SMALLER

PROVIDE INTERIOR AND EXTERIOR HORIZONTAL LAPPED CORNER BARS AT ALL CORNERS TO MATCH SIZE AND

WHEN REINFORCING STEEL IS NOTED CONTINUOUS IN GRADE BEAMS, WALLS, SLABS, BEAMS, ETC., SPLICE REINFORCING STEEL ONLY WHEN UNAVOIDABLE DUE TO STOCK LENGTHS UNLESS OTHERWISE NOTED. STAGGER ALL SPLICES A MINIMUM OF 4'-0". LOCATE THE TOP BAR SPLICES WITHIN THE MIDDLE HALF OF SPAN AND BOTTOM BAR SPLICES AT SUPPORTS OR BETWEEN SUPPORT AND 1/3 OF SPAN, UNLESS OTHERWISE NOTED.

PROVIDE REINFORCING BAR DEVELOPMENT LENGTH, UNLESS OTHERWISE NOTED.

Ld FOR TOP BARS (IN)

BAR SIZE GRADE 60	28 DAY CONCRETE STRENGTH (PSI)				
	3000	3500	4000	4500	5000
#3	22"	20"	19"	18"	17"
#4	29"	27"	25"	24"	23"
#5	36"	33"	31"	30"	28"
#6	43"	40"	37"	35"	34"
#7	63"	66"	54"	51"	49"
#8	72"	66"	62"	59"	56"
#9	81"	75"	70"	66"	63"
#10	90"	83"	78"	73"	69"
#11 Ld FOR BOTTOM BARS (IN)	98"	91"	85"	80"	76"
BAR SIZE	28 DAY CONCRETE STRENGTH (PSI)				

(III)					
R SIZE	28 DAY CONCRETE STRENGTH (PSI)				
	3000	3500	4000	4500	5000
#3	17"	16"	15"	14"	13"
#4	22"	21"	19"	18"	17"
#5	28"	26"	24"	23"	22"
#6	33"	31"	29"	27"	26"
#7	48"	45"	42"	40"	38"
#8	55"	51"	48"	45"	43"
#9	62"	58"	54"	51"	48"
#10	69"	64"	60"	56"	54"
#11	76"	70"	66"	62"	59"

A. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW BARS. HORIZONTAL AND VERTICAL BARS IN WALLS > 12" THICK ARE CONSIDERED TO BE TOP BARS. B. DEVELOPMENT LENGTHS AS SCHEDULED ABOVE ARE FOR NORMAL WEIGHT CONCRETE.

TENSION LAP SPLICE LENGTH FOR REINFORCING BARS SHALL BE 1.0 Ld FOR CLASS A SPLICE AND 1.3 Ld FOR CLASS B SPLICE. ALL SPLICES SHALL BE CLASS B, UNLESS OTHERWISE NOTED.

C. FOR LIGHT-WEIGHT AGGREGATE CONCRETE, MULTIPLY SCHEDULED LENGTHS BY 1.3.

COMPRESSION EMBEDMENT SHALL BE 22 BAR DIAMETERS AND COMPRESSION SPLICE LENGTH SHALL BE 30 BAR DIAMETERS. MINIMUM EMBEDMENT OR SPLICE LENGTH TO BE 12" (305mm).

USE COMPRESSION EMBEDMENT LENGTHS FOR DOWELS IN FOOTING AND COMPRESSION SPLICE LENGTH FOR FOOTING DOWELS TO GRAVITY FORMED PIER AND GRAVITY COLUMN REINFORCING SPLICES, UNLESS OTHERWISE

LAP SPLICES IN WELDED-WIRE REINFORCEMENT SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN THE DUTERMOST CROSS WIRES OF EACH REINFORCEMENT SHEET IS NOT LESS THAN THE CROSS WIRE SPACING PLUS 3" OR 6" WHICHEVER IS GREATER.

WELDED OR MECHANICAL SPLICES CAPABLE OF DEVELOPING 125% OF BAR WIELD STRENGTH MAY BE USED IN LIEU OF LAP SPLICES. MECHANICAL SPLICES SHALL BE ICC-ES CERTIFIED TO COMPLY WITH ACI 318 REQUIREMENTS, SUBMIT PRODUCT DATA FOR APPROVAL PRIOR TO USING.

SHOP WELDING SHALL BE PERFORMED UNDER A CONTINUOUS, CONTROLLED PROCESS. QUALITY CONTROL TESTS SHALL BE PERFORMED ON SPECIMENS AND AVAILABLE UPON REQUEST BY THE STRUCTURAL ENGINEER.

FIELD WELDING OF REINFORCING IS NOT PERMITTED EXCEPT AS INDICATED ON THE DRAWINGS OR AS APPROVED BY THE STRUCTURAL ENGINEER. USE LOW HYDROGEN ELECTRODES, GRADE E70 OR E90 AS REQUIRED.

PROVIDE DOWELS TO FOUNDATIONS AT MASONRY WALLS TO MATCH SIZE AND SPACING OF MASONRY VERTICAL

PROVIDE DOWELS OF SAME SIZE AND SPACING FROM ADJACENT POURS, BOTH VERTICAL AND HORIZONTAL TO MATCH TYPICAL REINFORCING SHOWN. LAP SPLICES SHALL BE IN ACCORDANCE WITH THE DOWEL LENGTH. DOWELS

26. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

SHALL BE CLEANED AFTER POUR.

WALL REINFORCEMENT, UNLESS OTHERWISE NOTED.

PROVIDE CORROSION INHIBITOR AND EPOXY COATED REINFORCEMENT AND ACCESSORIES IN AREAS OF DIRECT EXPOSURE TO THE ENVIRONMENT, CHEMICALS, OR DICING, INCLUDING THE FOLLOWING:

A. ALL EXTERIOR SLAB-ON-GRADE AND FROST PADS B. TRASH ENCLOSURE SLABS, RAMPS, AND VERTICAL CONCRETE SURFACES

NO WOOD OR STEEL STAKES SHALL BE PERMITTED IN ANY CONCRETE POUR. SUSPEND FORMS FROM ABOVE GRADE

CURING COMPOUNDS USED ON CONCRETE SLABS TO RECEIVE RESILIENT TILE OR OTHER FINISHES REQUIRING ADHESIVES SHALL BE COORDINATED AND APPROVED FOR THE APPLIED FINISHED.

LOCATION OF CONSTRUCTION JOINTS AND POUR STRIPS SHALL BE AS INDICATED ON CONTRACT DOCUMENTS. ADDITIONAL CONSTRUCTION JOINTS TO FACILITATE CONSTRUCTION SHALL BE LOCATED AND DETAILED ON APPROVED SHOP DRAWINGS.

CAST-IN-PLACE CONCRETE

- CHAMFER ALL EXPOSED EDGES TO 3/4" UNLESS NOTED OTHERWISE.
- ANCHOR RODS, DOWELS, REINFORCING STEEL, INSERTS, ETC. SHALL BE SECURELY TIED IN PLACE PRIOR TO
- 33. FORMS FOR CONCRETE SHALL BE LAID OUT AND CONSTRUCTED TO PROVIDE SPECIFIED CAMBERS INDICATED ON

PIPES, DUCTS, CONDUIT, ETC. WHICH PASS THROUGH SLAB ON GRADE, CONCRETE ON STEEL DECK, SUPPORTED

CONCRETE SLABS, ETC. DO NOT REQUIRE SLEEVES, UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.

- THE DRAWINGS.
- PIPES, DUCTS, CONDUIT, ETC. WHICH PASS THROUGH WALLS, BEAMS, AND GRADE BEAMS REQUIRE SLEEVES.
- UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.
- WHERE SLEEVES ARE REQUIRED, INSTALL SLEEVES BEFORE PLACING CONCRETE. DO NOT CUT ANY REINFORCING WHICH MAY INTERFERE WITH SLEEVE PLACEMENT.
- CONDUITS SHALL BE PLACED BELOW THE SLAB ON GRADE. NO PIPES, DUCTS, CONDUIT, ETC. SHALL PASS THROUGH CONCRETE BEAMS, COLUMNS OR FOUNDATIONS UNLESS

NO PIPES OR CONDUITS ARE PERMITTED WITHIN THE SLAB ON GRADE, UNLESS SPECIFICALLY DETAILED. PIPES OR

- DIAMETER OF EMBEDDED ELECTRICAL CONDUIT OR MECHANICAL PIPES IN SUPPORTED CAST-IN-PLACE CONCRETE
- MECHANICAL PIPING SHALL BE 3 TIMES THE DIAMETER OF THE LARGEST EMBEDDED ITEM. CONCENTRATIONS OF PENETRATIONS FOR ELECTRICAL CONDUITS OR MECHANICAL PIPES SHALL BE AVOIDED

SLABS SHALL NOT EXCEED 30% OF THE SLAB THICKNESS (INCLUDING CROSS-OVERS) AND SHALL BE PLACED

BETWEEN TOP AND BOTTOM REINFORCING, UNLESS OTHERWISE NOTED. SPACING OF EMBEDDED CONDUIT OR

EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED. SPACING OF PENETRATIONS SHALL BE 3 TIMES THE DIAMETER OF THE LARGEST PENETRATION, UNLESS OTHERWISE NOTED.

CONSTRUCTION JOINTS FOR CONCRETE WALLS SHALL BE SPACED NO MORE THAN [40'-0"] APART AND SHALL OCCUR

- NO CLOSER THAN 10'-0" FROM CORNER, UNLESS OTHERWISE NOTED.
- HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED IN WALLS AND BEAMS UNLESS NOTED.
- CORE DRILLED OPENINGS IN CONCRETE IS NOT PERMITTED. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- CORE DRILLED OR CUT OPENINGS IN SLABS SHALL NOT BE PLACE CLOSER THAN (1) OPENING DIAMETER OR WIDTH TO ANY BEAM, NOR SPACED CLOSER THAN (2) OPENING DIAMETERS OR WIDTHS. WHEN ADJACENT OPENINGS ARE OF A DIFFERENT SIZE, SPACING SHALL BE BASED ON THE LARGER OPENING SIZE.
- CORE DRILLED OR CUT OPENINGS IN SLABS SHALL NOT EXCEED 1'-0" IN ANY DIMENSION. LARGER OPENINGS, WHERE REQUIRED, SHALL BE BLOCKED OUT AND REINFORCED PER THE TYPICAL DETAILS ON THE DRAWINGS.
- WHEN TOTAL WIDTH OF OPENINGS REQUIRED IS LARGER THAN 2'-6" OR WHERE REQUIREMENTS FOR OPENING SPACING CANNOT BE MET, CORE DRILLED OR CUT OPENINGS SHALL BE SUPPORTED ALONG ALL EDGES PER TYPICAL DETAILS.
- OPENINGS GREATER THAN 1'-0" SHALL NOT BE PLACED IN SLAB UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE STRUCTURAL ENGINEER WHERE ADDITIONAL OPENINGS WHICH EXCEED 1'-0" ARE REQUIRED.

FOUNDATIONS AND EARTHWORK

- FOUNDATION INFORMATION PENDING GEOTECHNICAL INVESTIGATION WHICH IS CURRENTLY UNDERWAY
- THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT [TITLE IF APPLICABLE] PREPARED BY [COMPANY], DATED [MONTH DAY, YEAR], JOB NUMBER [#].
- VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM PRIOR TO STARTING WORK. LOCATE AND PROTECT ALL UTILITIES, STRUCTURES AND FOUNDATIONS WHICH MAY BE AFFECTED BY THE CONSTRUCTION PROCESS.
- DEEP [AUGERCAST GROUT PILE] [STEEL H-PILE] FOUNDATIONS ARE DESIGNED FOR MINIMUM PILE CAPACITIES AS

GRAVITY AND LATERAL LOAD PILES: COMPRESSION [_] TONS [] TONS TENSION LATERAL [] KIPS GROUT FOR AUGERCAST PILES SHALL BE: NOTE: DO NOT DRIVE PILES WITHIN 100'-0" OF ANY CONCRETE THAT HAS NOT ACHIEVED 60% OF CONCRETE DESIGN

DEEP DRILLED PIER FOUNDATIONS ARE DESIGNED FOR MINIMUM CAPACITIES AS FOLLOWS:

END BEARING SKIN FRICTION

SHALLOW [SPREAD] [AND] [CONTINUOUS] [MAT] FOUNDATIONS ARE DESIGNED FOR A MINIMUM ALLOWABLE BEARING **CAPACITY AS FOLLOWS:** [SHALLOW [SPREAD] [AND] [CONTINUOUS] [MAT] FOUNDATIONS ARE DESIGNED TO BEAR ON AGGREGATE PIER REINFORCED SUBGRADE DESIGNED TO BE CAPABLE OF SUPPORTING MINIMUM BEARING CAPACITY AS INDICATED BELOW. AGGREGATE PIERS SHALL BE INSTALLED UNDER ALL COLUMN FOOTINGS.]

[_] PSF SPREAD FOOTINGS CONTINUOUS FOOTINGS [_] PSF [_] PSF MAT FOUNDATION COEFFICIENT FOR FRICTION

WALLS ARE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE AS FOLLOWS:

FLEXIBLE RETAINING WALLS [_] PCF [_] PCF RIGID BASEMENT WALLS COEFFICIENT FOR FRICTION

REMOVE ALL EXISTING FILL OR UNSUITABLE SOILS AS DETERMINED BY THE GEOTECHNICAL ENGINEER AND/OR TESTING AGENCY AND REPLACE WITH PROPERLY COMPACT FILL. SEE BORING LOGS FOR DEPTH OF FILL AND TOP SOIL. FOOTINGS AND SLAB-ON-GRADE SHALL BEAR ON SUITABLE NATURAL SOIL OR ENGINEERED FILL ABOVE SUITABLE NATURAL SOILS.

FOUNDATION SUBGRADE, CAPACITY AND FINAL ELEVATIONS SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL INSPECTION AGENCY PRIOR TO PLACING CONCRETE AND REINFORCING.

DURING COLD WEATHER/WINTER CONSTRUCTION, PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOUNDATION OR SLAB SUBGRADE BEFORE AND AFTER PLACING CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE. PROVIDE FROST PROTECTION FOR FOOTING AND AREA WITHIN 3 FEET OF THE FOOTING PERIMETER TO PREVENT FREEZING AND HEAVING OF THE FOUNDATIONS AND BEARING STRATUM.

NO MUD SLABS, GRADE BEAMS, WALLS OR SLABS SHALL BE PLACED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST ENTER A FOOTING EXCAVATION AFTER SUBGRADE APPROVAL, THE SUBGRADE SHALL BE RE-INSPECTED BY THE GEOTECHNICAL INSPECTION AGENCY AFTER REMOVAL OF FROST

THE EXPOSED SUBGRADE SOILS ARE SENSITIVE TO DISTURBANCE. CONSTRUCTION TRAFFIC OVER EXPOSED FOUNDATION SUBGRADES SHALL BE AVOIDED.

FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN THE BUILDING PERIMETER SHALL BE MECHANICALLY COMPACTED IN UNIFORM LIFTS TO THE APPROVAL OF THE GEOTECHNICAL TESTING AGENCY. FLOODING WILL NOT

FOR WALLS AND GRADE BEAMS HAVING FILL ON EACH SIDE, BACKFILL OPERATION SHALL PROCEED SIMULTANEOUSLY IN UNIFORM LIFTS. DIFFERENTIAL ELEVATION OF THE TOP OF LIFTS BETWEEN EACH SIDE SHALL

BACKFILLING OPERATION AGAINST BASEMENT WALLS SHALL START ONLY AFTER ADJOINING AND SUPPORTING FLOORS HAVE BEEN PLACED AND HAVE REACHED THE 28 DAY DESIGN STRENGTH. IF BACKFILLING BEHIND BASEMENT WALLS IS PERFORMED PRIOR TO INSTALLATION OF FLOOR SLABS CONTRACTOR TO DESIGN AND PROVIDE TEMPORARY BRACING OF WALLS AT NO COST TO THE OWNER. CONTRACTOR TO COORDINATE REMOVAL OF TEMPORARY WALL BRACING WITH THE INSTALLATION OF FLOOR SLABS.

BACKFILLING OPERATION AGAINST RETAINING WALLS MAY OCCUR AFTER THE CONCRETE HAS OBTAINED 75% OF ITS

PROVIDE BRACING FOR GRADE BEAMS OR WALL BUTTRESSES SUSTAINING MORE THAN 2'-0" OF UNBALANCED EARTH PRESSURE. THIS BRACING SHALL REMAIN IN PLACE UNTIL THE PERMANENT RESTRAINTS ARE INSTALLED AND HAVE REACHED FULL DESIGN STRENGTH.

EXTREME CARE SHALL BE EXERCISED WHEN EXCAVATING OR GRADING ADJACENT TO EXISTING STRUCTURES OR PERFORMING SOIL IMPROVEMENTS SO AS NOT TO DAMAGE OR UNDERMINE FOUNDATIONS, WALLS, SLABS, ETC.

WHERE NEW FOUNDATIONS ABUT EXISTING FOUNDATIONS, CAREFULLY HAND EXCAVATE AND DETERMINE BOTTOM OF EXISTING FOUNDATION. IF DIFFERENT THAN ANTICIPATED, ADJUST NEW FOUNDATIONS TO MATCH EXISTING FOUNDATION. IN NO CASE SHALL THE NEW FOOTING BE LOWER THAN THE EXISTING WITHOUT PROTECTION AGAINST UNDERMINING SUCH AS UNDERPINNING AND/OR SHORING.

19. ALL ABANDONED UTILITIES, FOOTINGS, ETC. THAT INTERFERE WITH THE NEW CONSTRUCTION SHALL BE REMOVED.

PROVIDE DOWELS FOR ALL WALLS EMBEDDED INTO COLUMN AND MAT FOUNDATIONS, PIER AND/OR PILE CAPS, GRADE BEAMS, ETC. DOWELS SHALL BE THE SAME SIZE AND SPACING AS VERTICAL WALL REINFORCING.

FOR [DRILLED PIER] [AUGERCAST GROUT PILE] FOUNDATIONS, CAST CONCRETE WITHIN 8 HOURS OF DRILLING [PIER] [PILE] SHAFTS INTO BEARING STRATUM, AND IN NO CASE SHALL THE PIER EXCAVATION REMAIN OPEN OVER NIGHT.

TIP ELEVATION OF PILE SHAFTS SHALL BE AS PRESCRIBED BY GEOTECHNICAL TESTING AGENCY IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, SUCH THAT ALLOWABLE END BEARING CAPACITY IS ACHIEVED AND REPORT CRITERIA ARE ACHIEVED.

IT MAY BE NECESSARY TO USE TEMPORARY CASING WHILE DRILLING THE [DRILLED PIER] [AUGERCAST GROUT PILE] FOUNDATIONS IF UNDERGROUND WATER IS ENCOUNTERED.

DEEP FOUNDATIONS SHALL NOT BE MIS-ALIGNED OR OUT OF PLUMB WITHOUT APPROVAL FROM STRUCTURAL ENGINEER, REFER TO SPECIFICATIONS FOR REQUIREMENTS.

IF TEMPORARY CASINGS ARE NECESSARY, EXTRACTION OF THE CASINGS SHALL BE DONE IN A MANNER THAT MAINTAINS A POSITIVE HEAD OF PLASTIC CONCRETE SO AS TO MINIMIZE THE POTENTIAL FOR INFILTRATION OF WATER SEEPAGE OR SLOUGHING SOILS.

CONTRACTOR SHALL PROVIDE FOR DEWATERING AT EXCAVATIONS FROM SURFACE WATER, GROUND WATER, SEEPAGE, ETC.

CONTRACTOR SHALL PROVIDE FOR THE DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING AND SHORING

MICROPILE FOUNDATIONS SHALL BE DESIGNED TO SUPPORT ALL IMPOSED DEAD. LIVE AND LATERAL LOADS. REFER TO GEOTECHNICAL REPORT AND SPECIFICATIONS FOR REQUIREMENTS. MICROPILE ENGINEER SHALL SUBMIT CALCULATIONS INDICATING DESIGN CRITERIA, LOADS APPLIED AND CONNECTION DETAILS. CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL [STRUCTURAL] ENGINEER REGISTERED IN THE STATE OF [STATE].

AGGREGATE PIERS SHALL BE DESIGNED TO SUPPORT ALL IMPOSED DEAD, LIVE AND LATERAL LOADS. REFER TO GEOTECHNICAL REPORT AND SPECIFICATIONS FOR REQUIREMENTS. AGGREGATE PIER ENGINEER SHALL SUBMIT CALCULATIONS INDICATING DESIGN CRITERIA, LOADS APPLIED AND CONNECTION DETAILS. CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL [STRUCTURAL] ENGINEER REGISTERED IN THE STATE OF [STATE].

REQUIRED TO SAFELY AND ADEQUATELY RETAIN EARTH AND EXISTING STRUCTURES AT ALL EXCAVATIONS.

AGGREGATE PIER TESTING SHALL BE PERFORMED TO DEMONSTRATE PERFORMANCE OF AGGREGATE PIERS RELATIVE TO THE DESIGN. TESTING SHALL BE PERFORMED BY AGGREGATE PIER DESIGNER.

TRENCHING AND OTHER EXCAVATION COORDINATION FOR FOUNDATIONS AND AGGREGATE PIER INSTALLATIONS SHALL NOT ENCROACH ON THE AREA WITHIN A LINE EXTENDING 45 DEGREES FROM THE BOTTOM OF ADJACENT FOOTING. IF A FOOTING IS INSTALLED CLOSER, AFFECTED AGGREGATE PIERS SHALL BE RECONSTRUCTED UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL INSPECTION AGENCY OR THE AGGREGATE PIER DESIGNER.

DESIGN CRITERIA

530-13/ASCE 5-13 AND TMS 602-13/ACI 530.1-13/ASCE6-13

BUILDING CODES AND DESIGN STANDARDS

MICHIGAN BUILDING CODE, MBC 2015. MINIMUM LOAD REQUIREMENTS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10.

BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-14. PCI DESIGN HANDBOOK, 7TH EDITION, MNL 120-10. DESIGN FOR FIRE RESISTANCE OF PRECAST, PRESTRESSED CONCRETE, 3RD EDITION, MNL 124-11. STEEL CONSTRUCTION MANUAL, AISC 14TH EDITION. STRUCTURAL WELDING CODE ANSI/AWS D1.1/D1.1M:2010 (STEEL), D1.3/D1.3M:2008 (SHEET STEEL), D1.4/D1.4M:2011 (REINFORCING STEEL), [D1.8/1.8M:2009 (SEISMIC SUPPLEMENT)]. SDI DIAPHRAGM DESIGN MANUAL, THIRD EDITION, SDI DDM03 BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES CONTAINING TMS 402-13/ACI

AISI NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS AND COMMENTARY ON THE SPECIFICATION, 2012 EDITION, AISI S100-12 AMD AISI S100-12-C. AISI NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS, 2012 EDITION, AISI AISI NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - PRODUCT DATA, 2012 EDITION, AISI S201-12. AISI NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - FLOOR AND ROOF SYSTEM DESIGN, 2007 EDITION REAFFIRMED IN 2012, AISI S210-07 (2012).

AISI NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - WALL STUD DESIGN, 2007 EDITION WITH SUPPLEMENT 1 REAFFIRMED IN 2012, AISI S211-07 W/S1-12 (2012). AISI NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - HEADER DESIGN, 2007 EDITION REAFFIRMED IN 2012, AISI S212-07 (2012).

THE BUILDING IS ASSIGNED TO AN RISK CATEGORY OF:

[_] PSF

[_] PSF

IN ADDITION TO ACTUAL WEIGHTS OF STRUCTURAL MATERIALS (CONSTRUCTION DEAD LOAD), GRAVITY DESIGN LOADS SHALL BE AS FOLLOWS, REFER TO LOAD MAPS:

BUILDING AREA			
	SUPERIMPOSED VERTICAL DEAD LOADS (PSF)	VERTICAL LIVE LOADS (PSF)	CONCENTRATED LOADS (LBS)
ROOF	15	20	300
ACCESSIBLE ROOFS, PLAZAS, AND TERRACES	15	100	2000
PUBLIC AREAS, LOBBIES, AND RETAIL SPACES	15	100	2000
OFFICES WITH PARTITIONS	15	70	2000
PRIVATE RESIDENTIAL ROOMS	15	40	
PUBLIC CORRIDORS	15	100	
STAIRS AND EXITWAYS	5	100	300 ON TREADS
MECHANICAL ROOMS	10	150	2000
LIGHT STORAGE	15	125	
HEAVY STORAGE	15	250	
OTHER AREAS	15	100	

SUPERIMPOSED DEAD LOADS FOR FLOORS INCLUDE [CEILING, FLOORING, UTILITIES, FIREPROOFING, ACCESS

SUPERIMPOSED ROOF LOADS FOR ROOFS INCLUDE [ROOFING, INSULATION, CEILINGS, UTILITIES, GREEN ROOFING

LIVE LOAD REDUCTION PER APPLICABLE CODE. CONCENTRATED LOADS ARE UNIFORMLY DISTRIBUTED OVER AN AREA OF 2.5 FT SQUARE, LOCATED TO PRODUCE

FLOOR LIVE LOAD INCLUDES AN ALLOWANCE FOR PARTITION LOAD OF 20 PSF.

IN ADDITION TO ITEMS LISTED ABOVE, ROOFS ARE DESIGNED TO SUPPORT ROOF MOUNTED EQUIPMENT AS

ROOF SNOW LOAD IS BASED ON THE FOLLOWING:

GROUND SNOW LOAD Pg = 20 PSF FLAT-ROOF SNOW LOAD Pf = 22 PSF Ce = 1.0SNOW EXPOSURE FACTOR SNOW LOAD IMPORTANCE FACTOR ls = 1.1THERMAL FACTOR SNOW LOADS SHALL BE INCREASED FOR DRIFT WHERE APPLICABLE BY CODE AS INDICATED ON LOAD MAPS.

DESIGN SEISMIC LOADS ARE BASED ON THE FOLLOWING: SEISMIC IMPORTANCE FACTOR SITE CLASS MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS S1=0.048 DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS Sds=0.100, Sd1=0.076

SEISMIC DESIGN CATEGORY BASIC SEISMIC FORCE RESISTING SYSTEM ORDINARY CONCRETE SHEAR WALLS RESPONSE MODIFICATION FACTOR(S)

DESIGN BASE SHEAR ANALYSIS PROCEDURE

SEISMIC RESPONSE COEFFICIENT(S)

DESIGN WIND LOADS ARE BASED ON THE FOLLOWING: ULTIMATE DESIGN WIND SPEED Vult = 120 MPH NOMINAL DESIGN WIND SPEED Vasd = 93 MPH WIND EXPOSURE CATEGORY: MAIN WIND FORCE RESISTING SYSTEM EXPOSURE B COMPONENTS AND CLADDING **EXPOSURE C** INTERNAL PRESSURE COEFFICIENT Gcpi = +/- 0.18

CONSTRUCTION GENERAL NOTES

THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE BUILDING CODES AND DESIGN STANDARDS TO SUPPORT IN-PLACE DESIGN LOADS IN A COMPLETED STRUCTURE. PROVIDE ADDITIONAL SUPPORTS OR TEMPORARY SHORING/BRACINGS FOR

THE STRUCTURE, AS NEEDED DUE TO FORCES IMPOSED DURING HANDLING AND ERECTION.

STRUCTURAL DRAWINGS SHOULD NOT BE SCALED. PRINTED DIMENSIONS HAVE PRECEDENCE OVER SCALED DRAWINGS. ALL COLUMNS AND FOUNDATIONS SHALL BE CENTERED ON GRIDLINES, UNLESS OTHERWISE NOTED.

REFER TO COMPONENTS AND CLADDING LOAD CHARTS FOR LOADS

FIELD VERIFY MEASUREMENTS, LINES AND LEVELS OF EXISTING CONDITIONS FOR COORDINATING OF NEW WORK WITH EXISTING

CONSTRUCTION METHODS, PROCEDURES AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. TAKE ALL THE NECESSARY MEANS TO MAINTAIN AND PROTECT STRUCTURAL INTEGRITY OF CONSTRUCTION AT ALL STAGES.

CONSTRUCTION MATERIALS SHALL BE SPREAD OUT WHEN PLACED ON SUPPORTED FLOOR LEVELS AND ROOFS. THE CONSTRUCTION MATERIAL LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.

ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY. PRIOR TO THE PREPARATION OF SHOP DRAWINGS, VISIT THE SITE TO FAMILIARIZE WITH EXISTING CONDITIONS, CHECK AND VERIFY EXISTING DIMENSIONS, AND TAKE ADDITIONAL MEASUREMENTS AS NEEDED. NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER

INVESTIGATE THE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES

OF RECORD OF ANY DISCREPANCY BETWEEN ACTUAL CONDITIONS. MODIFICATION OF DETAILS OF CONSTRUCTION SHALL NOT BE

SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, UTILITIES, ETC. IF ANY SUCH STRUCTURES ARE FOUND, THE STRUCTURAL

PROVIDE AND BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ADJACENT EXISTING SURFACES AND AREAS WHICH MAY BE

PRINCIPAL OPENINGS THROUGH ROOF AND FLOOR ARE NOTED ON THE STRUCTURAL DRAWINGS. COORDINATE WITH THE DRAWINGS FROM OTHER DISCIPLINES AND VERIFY THE LOCATION AND SIZES OF OTHER OPENINGS, INSERTS, SLEEVES, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS.

MADE WITHOUT WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.

WHERE DIMENSIONS ARE PROVIDED FOR OPENINGS, BLOCKOUTS, FLOOR DEPRESSIONS, CURBS, ETC., BUT MAY BE AFFECTED BY THE EQUIPMENT PURCHASED, VERIFY THE INFORMATION PROVIDED PRIOR TO CONSTRUCTION.

NOTIFY THE STRUCTURAL ENGINEER OF RECORD WHEN DRAWINGS BY OTHERS SHOW OPENINGS, POCKETS, ETC. NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT WHICH ARE LOCATED IN STRUCTURAL MEMBERS.

CONSTRUCTION JOINTS AND POUR STRIPS SHALL BE INCORPORATED AS INDICATED ON CONSTRUCTION DOCUMENTS. ADDITIONAL CONSTRUCTION JOINTS TO FACILITATE CONSTRUCTION, SHALL BE LOCATED AND DETAILED ON SHOP DRAWINGS.

FUTURE BUILDING EXPANSION

1. THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING EXPANSION:

1a. THERE ARE NO PROVISIONS FOR VERTICAL OR HORIZONTAL EXPANSION.

350 S. FIFTH AVE

350 S. Fifth Avenue

Ann Arbor, MI 48104

CITY OF ANN ARBOR - ANN

ARBOR HOUSING

COMMISSION (AAHC)

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500 GRISWOLD **SUITE 1700** DETROIT, MI 48226 313.983.3600 smithgroup.com

Convergent Technologies Design Group, Inc. LOW VOLTAGE CONSULTANT 6501 York Road Baltimore, MD 21212 410.532.2395

Liberty Elevator Experts, LLC. VERTICAL TRASPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711

844.542.3538

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EXEMPT

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REV DATE

N PROGRESS SCHEMATIC DESIGN



SHEET TITLE STRUCTURAL GENERAL

SCALE 14177.000 PROJECT NUMBER

HOLLOW CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 MEDIUM WEIGHT, TYPE I, MOISTURE CONTROLLED UNITS, UNLESS OTHERWISE NOTED.

FOR GROUTED AND/OR REINFORCED MASONRY WALLS, USE MASONRY UNITS WITH CORES THAT ALIGN VERTICALLY TO PROVIDE CONTINUOUS UNOBSTRUCTED CELLS FOR GROUTING AND PLACING REINFORCING STEEL. DOWELS IN FOUNDATIONS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL.

THE MINIMUM DESIGN COMPRESSIVE STRENGTH OF MASONRY (f'm) SHALL BE [2000] PSI DETERMINED FROM THE UNIT STRENGTH

MORTAR SHALL BE PORTLAND CEMENT MORTAR IN ACCORDANCE WITH ASTM C270 TYPE S. MORTAR FOR ABOVE GRADE APPLICATIONS SHALL HAVE COMPRESSIVE STRENGTH AT 28-DAYS OF 1900 PSI MIN. MORTAR FOR BELOW GRADE APPLICATIONS SHALL HAVE COMPRESSIVE STRENGTH AT 28-DAYS OF 2500 PSI MIN.

GROUT FOR CONCRETE MASONRY SHALL BE FINE GROUT IN ACCORDANCE WITH ASTM C476. GROUT STRENGTH SHALL BE f'c=3000 PSI MIN AT 28 DAYS. GROUT SHALL BE PLACED IN LIFTS OF 4'-0" OR LESS. TEST GROUT COMPRESSIVE STRENGTH BY ASTM C1019.

GROUT AND MASONRY MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY. SUBMIT MIX DESIGNS SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MICHIGAN.

REINFORCEMENT SHALL BE ASTM A615, GRADE 60.

REFER TO SPECIFICATIONS AND ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN AND JOINT

VERTICAL REINFORCING BARS SHALL BE CENTERED IN CELLS UNLESS OTHERWISE NOTED. ALL REINFORCING BARS IN MASONRY SHALL BE FULLY GROUTED FOR THEIR ENTIRE LENGTH.

FACE BARS SHALL BE PLACED 1" CLEAR OF FACE SHELL, WHERE (2) BARS ARE REQUIRED IN NOMINAL 8" MASONRY OR SMALLER, PLACE ONE BAR IN EACH OF TWO ADJACENT CELLS.

ALL REINFORCING SHALL HAVE A MINIMUM COVERAGE OF 3/4" OF GROUT.

CELLS CONTAINING BOLTS SHALL HAVE A MINIMUM OF 1/2" GROUT COVERAGE BETWEEN THE BOLT AND MASONRY AT BLOCK FACE.

LAP SPLICE LENGTH FOR REINFORCING BARS IN CONCRETE MASONRY WALLS AS INDICATED. STAGGER ALL HORIZONTAL REINFORCING BAR SPLICES.

ALL MASONRY BELOW GRADE SHALL BE FULLY GROUTED.

HORIZONTAL BOND BEAM AND VERTICAL REINFORCING SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED.

BOND BEAMS SHALL BE PROVIDED AT THE BOTTOM AND TOP COURSE OF MASONRY WALLS AND AT EACH FLOOR LEVEL.

BOND BEAMS SHALL BE FULLY GROUTED.

PROVIDE LINTELS OF REINFORCED MASONRY BEAMS, LOOSE STEEL ANGLES OR PRECAST CONCRETE OVER ALL OPENINGS UNLESS OTHERWISE NOTED.

PROVIDE TEMPORARY LATERAL BRACING OF MASONRY WALLS TO RESIST WIND AND SEISMIC LOADS UNTIL PERMANENT ANCHORAGE FLOOR AND ROOF ELEMENTS IS INSTALLED AND THE WALL HAS REACHED 75% OF THE REQUIRED STRENGTH.

PROVIDE TEMPORARY SHORING TO SUPPORT WALLS ABOVE LINTELS UNTIL THE FLOOR/ROOF ABOVE IS INSTALLED AND THE WALL ABOVE THE LINTEL, THE WALL SUPPORTING THE LINTEL AND THE BOND BEAM HAS REACHED THE REQUIRED STRENGTH.

ALL MASONRY SHALL HAVE 9 GAGE HORIZONTAL WIRE LADDER-TYPE REINFORCING EVERY OTHER COURSE UNLESS NOTED

OTHERWISE. REINFORCING SHALL HAVE PREFABRICATED CORNERS AND PREFABRICATED TEES AT WALL INTERSECTIONS.

REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR LOCATIONS OF CONDUIT, PIPING. DUCTWORK AND OPENINGS IN MASONRY WALLS. PROVIDE ADDITIONAL REINFORCING AT OPENINGS OR SLEEVES AS INDICATED. DO

SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS. MAXIMUM SPACING OF CONTROL JOINTS SHALL BE 30'-0".

NO PIPES OR DUCTS SHALL BE EMBEDDED IN MASONRY UNLESS NOTED OR DETAILED ON DRAWINGS. CORING OPENINGS IN GROUTED MASONRY IS NOT PERMITTED.

WHERE SLEEVES ARE REQUIRED, INSTALL SLEEVES BEFORE GROUTING. DO NOT CUT ANY REINFORCING WHICH MAY INTERFERE

NO PIPES, SLEEVES OR ELECTRICAL CONDUIT SHALL PASS THROUGH MASONRY OR PRECAST LINTELS UNLESS SPECIFICALLY DETAILED IN THE DRAWINGS.

29. NOTIFY THE STRUCTURAL ENGINEER OF RECORD IN ADVANCE OF CONDITIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

POST-INSTALLED MECHANICAL ANCHORS

MECHANICAL ANCHORS SHALL BE ICC-ES APPROVED.

EXPANSION ANCHORS TO CRACKED CONCRETE OR GROUTED MASONRY SHALL BE HILTI KWIK BOLT-TZ OR EQUIVALENT, SCREW ANCHORS TO CRACKED CONCRETE OR GROUTED MASONRY SHALL BE HILTI KWIK HUS-EZ OR EQUIVALENT. MECHANICAL ANCHORS SHALL NOT BE USED WITH UNGROUTED OR UNREINFORCED MASONRY.

MECHANICAL ANCHORS OF THE DIAMETER AND EMBEDMENT SHOWN ON THE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE CURRENT ICBO REPORT FOR THE BOLT AND THE RECOMMENDATIONS FO THE MANUFACTURER. WHERE THESE PROVISIONS CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

MECHANICAL ANCHOR DESIGN IS BASED ON ICBO CAPACITY BASED ON INSTALLATION WITHOUT SPECIAL INSPECTION.

ANY SUBSTITUTIONS OF THE ANCHORS MUST BE APPROVED BY THE STRUCTURAL ENGINEER.

ANCHORS SHALL BE ZINC PLATED UNLESS OTHERWISE NOTED AS STAINLESS STEEL

WHEN DETAILS INDICATE EXPANSION ANCHORS WITH NO SIZE, PROVIDE ANCHORS OF 5/8" NOMINAL DIAMETER.

MECHANICAL ANCHORS SHALL NOT BE USED AS HOLD-DOWN ANCHORS.

MECHANICAL ANCHORS SHALL NOT BE USED FOR NON-VIBRATION ISOLATED EQUIPMENT RATED OVER 10 HORSEPOWER WITH RECIPROCATING OR ROTATING MECHANISMS; ANCHORS SHALL BE UNDERCUT ANCHORS.

WHEN INSTALLING DRILLED IN ANCHORS USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO CONCRETE WITH STRESSING TENDONS (POST-TENSIONED OR PRE-TENSIONED). LOCATE THE TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CAUTION AN CARE TO MAINTAIN AT LEAST 1" CLEAR BETWEEN THE TENDON AND THE ANCHOR. CUTTING A TENDON CAN CAUSE COLLAPSE.

IT IS RECOMMENDED THAT 1/4" PILOT HOLES BE DRILLED TO CONFIRM THAT EXISTING REINFORCING BARS ARE NOT PRESENT AND THAT ALL HOLES BE DRILLED WITH A HAMMER DRILL AND CARBIDE DRILL BITS.

HOLES SHALL BE DRILLED, CLEANED AND PREPARED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. HOLES

SHALL BE FREE OF DEBRIS BY IN-HOLE BRUSHING COMBINED WITH A VACUUM OR OIL-FREE COMPRESSED AIR: JETTING HOLES

WITH WATER IS NOT PERMITTED. FOLLOWING ATTAINMENT OF 10% OF THE SPECIFIED INSTALLATION TORQUE, 100% OF THE SPECIFIED TORQUE SHALL BE

REQUIRED NUMBER OF TURNS, THE ANCHOR SHALL BE REMOVED OR ABANDONED. ALL UN-NECESSARY AND UNUSED HOLES SHALL BE COMPLETELY FILLED WITH NON-SHRINK EPOXY GROUT. CLOSELY MATCH THE COLOR OF THE GROUT WITH THE COLOR OF THE EXISTING SURFACES OR PAINT TO A MATCHING COLOR. REFER TO GROUT

REACHED WITHIN (7) OR FEWER COMPLETE TURNS OF THE NUT. IF THE SPECIFIED TORQUE IS NOT ACHIEVED WITHIN THE

HOLES IN CONNECTION PLATES SHALL BE NO MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER.

COLD-FORMED METAL FRAMING

COLD-FORMED FRAMING MEMBER AND CONNECTION DESIGN SHALL CONFORM TO AMERICAN IRON AND STEEL INSTITUTE (AISI) 'STANDARD FOR COLD-FORMED STEEL STRUCTURAL MEMBERS", THE GENERAL PROVISIONS AND THE FOLLOWING STANDARDS:

WALL STUD DESIGN SHALL CONFORM WITH AISI STANDARD FOR COLD-FORMED STEEL FRAMING - WALL DESIGN. HEADER DESIGN SHALL CONFORM WITH AISI STANDARD FOR COLD-FORMED STEEL FRAMING - HEADER DESIGN

TRUSS DESIGN SHALL CONFORM WITH AISI STANDARD FOR COLD-FORMED STEEL FRAMING - TRUSS DESIGN

PERFORMANCE REQUIREMENTS FOR EXTERIOR STUD WALLS.

MANUFACTURER'S RECOMMENDATIONS FOR PAINT

DESIGN EXTERIOR STEEL STUD FRAMING SYSTEMS, INCLUDING STUDS AND TRACKS, AND THEIR METHOD OF ATTACHMENT TO THE BUILDING STRUCTURE TO WITHSTAND POSITIVE AND NEGATIVE WIND PRESSURES IN ACCORDANCE WITH IBC.

EXTERIOR METAL STUD DESIGN SHALL COMPLY WITH SEISMIC LOADING PER ASCE 7 MAXIMUM ALLOWABLE WIND LOAD DEFLECTION IS L/1000 OF SPAN OR LESS THAN 0.3", WHICHEVER IS LESS.

PERFORMANCE REQUIREMENTS FOR [FLOOR,] [CEILING,] AND [ROOF] FRAMING, INCLUDING BUILT-UP FRAMING.

DESIGN [FLOOR,] [CEILING,] AND [ROOF] FRAMING, INCLUDING SUPPORTS AND THEIR METHOD OF ATTACHMENT TO WITHSTAND

ACTUAL DEAD, SUPERIMPOSED DEAD AND DESIGN LIVE LOADS. MAXIMUM ALLOWABLE DEFLECTION FOR [FLOOR,] [CEILING,] AND [ROOF] FLOOR FRAMING IS L/360 OR 0.3", WHICHEVER IS LESS. DESIGN ROOF FRAMING, INCLUDING SUPPORTS AND THEIR METHOD OF ATTACHMENT TO WITHSTAND WIND AND SNOW LOADS.

SUBMIT COLD-FORMED FRAMING MANUFACTURER'S DESIGN AND ENGINEERING DATA FOR REQUIRED FRAMING, INCLUDING COMPREHENSIVE STRUCTURAL CALCULATIONS PREPARED FOR ALL MEMBERS AND CONNECTIONS, CALCULATIONS SHALL INDICATE DESIGN CRITERIA, LOADS APPLIED AND CONNECTIONS DETAILS. CONNECTIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OFMICHIGAN.

MEMBERS SHOWN ON DRAWINGS ARE FOR CONCEPT AND PRICING ONLY.

ALL MEMBERS SHALL BE 33 KSI EXCEPT 54 MILS AND THICKER SHALL BE 50 KSI.

PROVIDE HORIZONTAL BRIDGING AND ACCESSORIES AS REQUIRED BY MANUFACTURER OR BY CALCULATIONS.

8. ACCESSORIES

TRACKS SHALL BE OF SAME DEPTH AS STUDS AND FORMED OF THE SAME TYPE AND FINISH OF COLD-FORMED METAL SPECIFIED FOR WALL STUDS.

BRIDGING SHALL BE OF SAME TYPE AND FINISH OF COLD-FORMED METAL SPECIFIED FOR WALL STUDS AND BUILT-UP FRAMING. TRACKS SHALL BE ATTACHED WITH A MINIMUM OF (1) #8x5/8" SCREW EACH SIDE OF EACH STUD.

VERTICAL DEFLECTION CLIPS

PROVIDE BYPASS CLIPS WITH PRE-INSTALLED STEP BUSHING TO PROVIDE FRICTION-FREE MOVEMENT.

SCREWS SHALL BE SELF DRILLING, SELF TAPPING WITH A GALVANIZED COATING.

FILLET, PLUG, BUTT OR SEAM SHALL BE RECOMMENDED BY METAL FRAMING MANUFACTURER AND COMPLYING WITH AWS D1.3 WELDS SHOULD BE RE-TOUCHED WITH THE APPROPRIATE PAINT OR COLD-GALVANIZING TO RETAIN CORROSION RESISTANCE.

WEB PUNCH OUTS SHOULD BE COORDINATED WITH BRACING AND UTILITY REQUIREMENTS. WEB PUNCH-OUTS OR WEB OPENINGS SHALL BE LOCATED A MINIMUM OF 6" OR MEMBER DEPTH, WHICHEVER IS GREATER, FROM STUB OR JOIST BEARING

WALL BRIDGING SHALL BE SPACED EVENLY AT MAXIMUM SPACING OF 5'-0" ON CENTER VERTICALLY, UNLESS SHEATHING MATERIAL AND ATTACHMENT OCCURS BOTH SIDES AS INDICATED IN THE CONTRACT DOCUMENTS

14. SHEATHING MATERIALS FOR SHEAR WALLS MUST EXTEND AND BE CONNECTED TO THE TOP AND BOTTOM TRACKS.

REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSION REQUIREMENTS, EXTERIOR ELEVATIONS, DOOR AND WINDOW

ROOF TRUSSES AND CONNECTIONS TO BE DESIGNED TO SUPPORT LOADS INDICATED. UPLIFT FORCES SHALL BE RESTRAINED DOWN TO FOUNDATIONS. SUBMIT COMPREHENSIVE CALCULATIONS INDICATING DESIGN CRITERIA, APPLIED LOADS, ENGINEERING ANALYSIS, AND CONNECTION DETAILS.

17. DO NOT SECURE COMPONENTS BY WIRE TYING.

CURTAINWALL CONNECTIONS

PROVIDE CONNECTIONS TO THE BUILDING STRUCTURE PER LOADING REQUIREMENTS AS NOTED ON STRUCTURAL DETAILS. CONNECTIONS SHOWN ON THE DRAWINGS ARE FOR REFERENCE ONLY AND INDICATE WHERE THE STRUCTURAL ENGINEER INTENDS TO PICK UP VERTICAL AND LATERAL LOADS FROM THE CURTAINWALL SYSTEM. ANY MODIFICATIONS OR ADDITIONAL STEEL REQUIRED FOR CONNECTIONS SHALL BE COORDINATED AND PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

ENGAGE THE SERVICES OF A SPECIALTY ENGINEER THAT IS A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN SHALL PROVIDE THE DESIGN OF THE CURTAIN WALL AND THE CONNECTIONS TO THE BUILDING STRUCTURE. SUBMIT COMPREHENSIVE CALCULATIONS INDICATING DESIGN CRITERIA, APPLIED LOADS, REACTIONS ACTING ON THE STRUCTURE, AND DETAILED CONNECTIONS.

UNLESS OTHERWISE NOTED ON DRAWINGS. CURTAINWALL LATERAL CONNECTIONS TO BE MADE TO PERIMETER BENT PLATES AT EACH LEVEL OF COMPOSITE SLAB AND ROOF DECK EDGES OR TO PERIMETER WIDEFLANGES WITHIN THE TOP 1/3 OF BEAM DEPTHS. DO NOT CONNECT TO THE BOTTOM 2/3 DEPTH OF WIDEFLANGES.

UNLESS OTHERWISE NOTED ON DRAWINGS, CURTAINWALL GRAVITY LOADS TO BEAR ON PERIMETER CONCRETE [CONTINUOUS GRADE WALL] [GRADE BEAM] AND [CONCRETE SLAB EDGES AT EACH SUPPORTED FLOOR].

PERIMETER STEEL FRAMING HAS BEEN DESIGNED FOR A MAXIMUM OF 3/8" DEFLECTION DUE TO LIVE LOAD.

CANTILEVERED FRAMING HAS BEEN DESIGNED FOR A MAXIMUM OF +/- 3/16" DEFLECTION DUE TO LIVE LOAD AT THE FACE OF THE SLAB. NOTE THAT DEFLECTION FOR CANTILEVERED FRAMING MAY BE UPWARD OR DOWNWARD AND TOTAL DIFFERENTIAL DEFLECTION BETWEEN FLOORS IS 3/8".

WIND INDUCED LATERAL STORY DRIFT DUE TO WIND LOAD IS [+/- 1/2"]. ELASTIC SEISMIC DIFFERENTIAL LATERAL STORY DRIFT IS [+/- _"] AND INELASTIC SEISMIC DIFFERENTIAL LATERAL STORY DRIFT IS [+/- _"].

CONSIDER ADDITIONAL MOVEMENTS. INCLUDING BUT NOT LIMITED TO THE DEAD LOAD WEIGHT OF THE GLASS. BUILDING TWIST. COLUMN SHORTENING, LONG TERM CREEP, CONCRETE SHRINKAGE, ROTATION OF SLAB EDGES, AND THERMAL MOVEMENT.

STEEL DECK WORK SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS" AND STEEL DECK INSTITUTE (SDI) "SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK" AND "SPECIFICATIONS AND COMMENTARY FOR COMPOSITE STEEL

STEEL ROOF DECK SHALL BE 1-1/2" INCH DEEP, DESIGN THICKNESS OF 0.0358 INCH (20 GAUGE) WIDE RIBBED DECK FABRICATED WITH ZINC COATED STEEL SHEETS COMPLYING WITH ASTM A653 SS, G90 COATING DESIGNATION.

STEEL FLOOR DECK TYPE SHALL 3 INCH DEEP COMPOSITE FLOOR DECK, DESIGN THICKNESS OF 0.0358 INCH (20 GAUGE)

STEEL DECK SHALL INCLUDE ANY MISCELLANEOUS CLOSURE PIECES, METAL SCREEDS, DRAIN SUMP PANS, REINFORCING

FABRICATED WITH ZINC COATED STEEL SHEETS COMPLYING WITH ASTM A653 SS, G60 COATING DESIGNATION.

AROUND OPENINGS, ETC. REQUIRED FOR A COMPLETE PROJECT.

STEEL DECK SHALL BE INSTALLED IN 3 SPAN LENGTHS ONLY.

COMPOSITE FLOOR CONSTRUCTION IN DESIGNED BASED ON UNSHORED CONSTRUCTION.

STEEL DECK SHALL BEAR ON SUPPORTS A MINIMUM OF 2".

CUTTING AND FRAMING OF OPENINGS FROM OTHER TRADES SHALL BE THE RESPONSIBILITY OF THE TRADES INVOLVED. HOLES THAT ARE LOCATED AND DIMENSIONED ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE DECK ERECTOR.

CORE DRILLED OR CUT OPENINGS IN COMPOSITE SLABS SHALL NOT BE PLACED CLOSER THAN (1) OPENING DIAMETER OR WIDTH TO ANY BEAM NOR SPACED CLOSER THAN (2) OPENING DIAMETERS OR WIDTHS. WHEN (2) ADJACENT OPENINGS ARE OF A DIFFERENT SIZE, SPACING SHALL BE BASED ON THE LARGER OPENING SIZE.

CORE DRILLED OR CUT OPENINGS IN COMPOSITE SLABS SHALL NOT EXCEED 1'-0" IN ANY DIMENSION. LARGER OPENINGS WHERE REQUIRED SHALL BE BLOCKED OUT AND REINFORCED PER THE TYPICAL DETAILS ON THE DRAWINGS.

WHEN TOTAL WIDTH OF OPENINGS REQUIRED IS LARGER THAN 2'-6" OR WHEN SPACING OF OPENINGS CANNOT BE MET, CORE

DRILLED OR CUT OPENINGS SHALL BE SUPPORTED ALONG ALL EDGES PER TYPICAL DETAILS. OPENINGS GREATER THAN 1'-0" SHALL NOT BE PLACED IN DECK UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL

SPECIFICATIONS. ADDITIONAL CONCRETE SHALL BE PLACED AT NO ADDITIONAL COST TO THE OWNER.

TO COMPENSATE FOR DEFLECTION OF THE STRUCTURE UNDER THE LOAD OF FRESHLY PLACED CONCRETE, THE SLAB THICKNESS SHALL BE INCREASED ACCORDINGLY TO PROVIDE A LEVEL SURFACE WITHIN TOLERANCE INDICATED IN THE

DRAWINGS. NOTIFY THE ENGINEER OF RECORD WHERE ADDITIONAL OPENINGS EXCEEDING 1'-0" ARE REQUIRED.

HEADED SHEAR CONNECTORS AND DEFORMED BAR

SHEAR STUD CONNECTOR WORK SHALL CONFORM TO THE AISC "SPECIFICATION FOR DESIGN OF STRUCTURAL STEEL BUILDINGS" AND THE AWS "STRUCTURAL WELDING CODE".

IN GENERAL, FRAMED FLOOR CONSTRUCTION CONSISTS OF CONCRETE CAST ON COMPOSITE STEEL DECK, IN COMPOSITE ACTION WITH THE STRUCTURAL STEEL BEAMS AND GIRDERS BY MEANS OF WELDED HEADED SHEAR STUD CONNECTERS.

SHEAR STUD CONNECTORS SHALL CONFORM TO ASTM A108, GRADE 1015, TYPE B WITH A MINIMUM YIELD STRENGTH OF 50 KSI.

DEFORMED BAR ANCHORS SHALL CONFORM TO ASTM A496, WITH A MINIMUM TENSILE STRENGTH OF 80,000 PSI AND MINIMUM YIELD STRENGTH OF 70,000 PSI.

HEADED STUD CONNECTORS AND DEFORMED BAR ANCHORS SHALL BE ELECTRIC-ARC STUD WELDED PER MANUFACTURE'S RECOMMENDATIONS AND THE AWS CODE. FILLET WELDING SHALL NOT BE ALLOWED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. WELDMENT SHALL BE IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE END OF THE STUD AND THE PLATE. THERE SHOULD BE NO POROSITY OR EVIDENCE OF LACK OF FUSION BETWEEN THE WELDED END OF THE STUD AND THE PLATE. THE STUD WILL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 5/8" DIAMETER AND SMALLER AND 3/16" FOR 5/8" DIAMETER AND LARGER STUDS.

SHEAR STUD CONNECTORS WELDED TO BEAM FLANGES FOR COMPOSITE CONSTRUCTION SHALL BE 3/4" DIAMETER AND 5" LONG,

SHEAR STUD CONNECTORS WELDED TO BEAM FLANGES FOR COMPOSITE CONSTRUCTION SHALL BE EQUALLY SPACED OVER THE LENGTH OF A BEAM OR A SEGMENT OF A BEAM. WHERE THE NUMBER OF STEEL DECK CORRUGATIONS AVAILABLE IS LESS THAN THE NUMBER OF SHEAR STUD CONNECTORS, USE PAIRS OF SHEAR STUD CONNECTORS STARTING FROM EACH END OF THE BEAM AND CONTINUING TOWARD THE CENTER UNTIL IT IS POSSIBLE TO RETURN TO A SINGLE SHEAR STUD CONNECTOR IN EACH CORRUGATION. SHEAR STUD CONNECTORS SHALL BE SPACED NOT CLOSER THAN 4 AND 6 STUD DIAMETERS IN THE TRANSVERSE AND LONGITUDINAL DIRECTIONS OF THE BEAM RESPECTIVELY.

THE NUMBER OF SHEAR STUD CONNECTORS IS INDICATED ON DRAWINGS. WHERE NO STUDS ARE INDICATED PROVIDE SHEAR STUD CONNECTORS AT MAXIMUM SPACING OF 1'-0" ON CENTER.

HORIZONTAL CLEARANCE SHALL BE A MINIMUM OF 1" FROM THE EDGE OF ANY SHEAR STUD CONNECTOR TO THE FACE OF CONCRETE, STEEL DECK RIB OR SIMILAR ADJACENCY.

EDGE DISTANCE FROM THE CENTER OF A SHEAR STUD CONNECTOR TO THE FLANGE OF A STRUCTURAL STEEL BEAM SHALL PREFERABLY BE 2", BUT IN NO CASE LESS THAN 1 1/2"

STEEL STAIRS, HANDRAILS AND GUARDRAILS

STEEL STAIRS, HANDRAILS, AND GUARDRAILS, AS WELL AS, THEIR CONNECTIONS ARE TO BE A DELEGATED DESIGN UNLESS

SPECIFICALLY DESIGNED AND DETAILED ON DRAWINGS. STAIRS, HANDRAILS AND GUARDRAILS SHALL BE DESIGNED TO MEET THE LOADS AND CONFIGURATION INDICATED ON THE CONTRACT DOCUMENTS. SUBMIT COMPLETE DRAWINGS AND COMPREHENSIVE CALCULATIONS FOR ALL STAIRS, STAIR STRINGERS, TREADS, LANDINGS, STAIR MEMBERS, HANDRAILS, GUARDRAILS, ETC.

DESIGN STAIRS, FRAMING MEMBERS, CONNECTIONS (INCLUDING THOSE TO BUILDING STRUCTURE), CHECKERED PLATES, HANDRAILS, GUARDRAILS, LANDINGS, ETC. AND PROVIDE LATERAL RESTRAINT COMPLYING WITH CONTRACT DOCUMENTS AND GOVERNING CODES. BUILDING LATERAL RESISTING SYSTEM MAY BE UTILIZED FOR STAIR LATERAL RESTRAINT PROVIDED LOAD PATHS TO BUILDING LATERAL FORCE RESISTING SYSTEM ARE INDICATED IN CALCULATIONS AND CONNECTIONS ARE SHOWN ON SHOP DRAWINGS.

AT CONNECTIONS OF STRUCTURE, PROVIDE STABILIZING ELEMENTS SUCH AS BRACES, STIFFENER PLATES, ETC. SO AS TO NOT IMPOSE ECCENTRIC LOADING, TWISTING OR WARPING TO STRUCTURAL MEMBERS. PROVIDE MATERIAL AND INSTALL STABILIZING ELEMENTS AT NO ADDITIONAL COST TO OWNER.

SUBMIT CALCULATIONS PRIOR TO SUBMITTING STAIR SHOP DRAWINGS AND FABRICATION. CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OFMICHIGAN.

STAIRS SHALL BE DESIGNED FOR DEAD LOAD OF STAIR STRUCTURE AND FINISHES, 100 PSF LIVE LOAD AND RELEVANT LATERAL

HANDRAILS AND GUARDRAILS SHALL BE DESIGNED FOR 200 LB CONCENTRATED AND 50 PLF LINE LOAD ACTING IN ANY DIRECTION ALONG THE TOP OF THE RAIL.

STAIR STRINGERS SHALL BE MITERED AND WELDED WITH FULL PENETRATION WELDS.

REFER TO ARCHITECTURAL DRAWINGS FOR STAIR, HANDRAIL AND GUARDRAIL DIMENSIONS, DETAILS AND OTHER REQUIREMENTS.

POST-INSTALLED CHEMICAL ANCHORS

REINFORCING BARS, BAR DOWELS, THREADED RODS, BOLTS, ETC. WHICH ARE INDICATED TO BE DOWELED INTO CONCRETE OR SOLIDLY GROUTED MASONRY SHALL BE ICC-ES APPROVED. FOR ANCHORS TO CONCRETE, HILTI HIT RE 500 V3 ADHESIVE ANCHORS OR ICC-ES APPROVED EQUIVALENT. FOR ANCHORS TO MASONRY, HILTI HY 270 OR ICC-ES APPROVED EQUIVALENT.

ADHESIVE ANCHORS OF THE DIAMETER AND EMBEDMENT SHOWN ON THE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE CURRENT ICBO REPORT FOR THE ADHESIVE ANCHOR BOLT AND THE RECOMMENDATIONS OF THE MANUFACTURER. WHERE THESE PROVISIONS CONFLICT THE MOST STRINGENT REQUIREMENT SHALL APPLY. ADHESIVE ANCHOR DESIGN IS BASED ON ICBO CAPACITY. THE OWNER'S INDEPENDENT TESTING AGENCY REPRESENTATIVE

SHALL BE PRESENT TO INSPECT AND VERIFY THAT THE REQUIRED PROCEDURES WERE FOLLOWED AT EVERY OPERATION INCLUDING, BUT NOT LIMITED TO, DRILLING OF THE HOLES, SIZE AND DEPTH OF THE HOLES, CLEANING OF THE HOLES AND INJECTION OF THE ADHESIVE.

WHEN INSTALLING DRILLED IN ANCHORS USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO CONCRETE WITH STRESSING TENDONS (POST-TENSIONED OR PRE-TENSIONED). LOCATE THE TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE

ALL DRILLED HOLES SHALL BE PREPARED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THOROUGHLY CLEANED AND ALL DEBRIS REMOVED BY VACUUM OR OIL-FREE COMPRESSED AIR. JETTING HOLES WITH WATER IS NOT

CAN CAUSE COLLAPSE. IT IS RECOMMENDED THAT 1/4" PILOT HOLES BE DRILLED TO CONFIRM THAT EXISTING REINFORCING BARS ARE NOT PRESENT AND THAT ALL HOLES BE DRILLED WITH A HAMMER DRILL AND CARBIDE DRILL BITS.

EXTREME CAUTION AN CARE TO MAINTAIN AT LEAST 1" CLEAR BETWEEN THE TENDON AND THE ANCHOR. CUTTING A TENDON

HOLES SHALL BE DRILLED IN CONTINUOUS OPERATION. AVOIDING FREQUENT REMOVAL OF THE DRILL FROM THE HOLE.

ALL UN-NECESSARY AND UNUSED HOLES SHALL BE COMPLETELY FILLED WITH NON-SHRINK EPOXY GROUT, CLOSELY MATCH THE COLOR OF THE GROUT WITH THE COLOR OF THE EXISTING SURFACES OR PAINT TO A MATCHING COLOR. REFER TO GROUT MANUFACTURER'S RECOMMENDATIONS FOR PAINT.

HOLES IN CONNECTION PLATES SHALL BE NO MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER.

STRUCTURAL STEEL

STRUCTURAL STEEL CONSTRUCTION, FABRICATION AND ERECTION SHALL CONFORM TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "STEEL CONSTRUCTION MANUAL", "SPECIFICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS". "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AND "DETAILING FOR STEEL CONSTRUCTION". STRUCTURAL STEEL DESIGN IS BASED ON LOAD RESISTANCE AND FACTOR DESIGN, LRFD.

STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOW, UNLESS OTHERWISE NOTED

ROLLED SHAPES (COLUMNS, BEAMS, GIRDERS) ANGLES, PLATES, STAIR STRINGERS, CHANNELS STEEL TUBING

STEEL ROD BRACING

STEEL PIPE

ALL BOLTED FASTENERS SHALL BE A325N HIGH STRENGTH BEARING TYPE BOLTS WITH THREADS INCLUDED AND SHALL CONFORM TO THE "REQUIREMENTS OF SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", UNLESS OTHERWISE NOTED.

IN GENERAL USE (1) BOLT SIZE THROUGHOUT, TYPICAL 3/4" DIAMETER. UNIQUE CONDITIONS MAY REQUIRE A LARGER DIAMETER.

WHERE ALTERNATE STRENGTH BOLTS ARE REQUIRED IT IS PREFERABLE THAT ALTERNATE DIAMETER OF

TO PREVENT ACCIDENTAL MIS-USE OF SMALLER BOLTS IN LARGER HOLES, BOLT SIZES SHALL BE INCREASED IN 1/4" INCREMENTS. WHERE THIS IS NOT POSSIBLE CLEARLY MARK BOTH AREAS OF CONNECTION TO FLAG THE DIFFERENCE IN BOLT SIZE.

BOLTS ARE USED TO PREVENT MIS-USE OF BOLTS IN CONNECTIONS. WHERE THIS IS NOT POSSIBLE CLEARLY MARK BOTH AREAS OF CONNECTION AND BOLTS TO FLAG THE DIFFERENCE IN BOLT STRENGTH REQUIRED. TYPICAL BEAM SHEAR CONNECTIONS SHALL BE DETAILED WITH EITHER SINGLE PLATE OR DOUBLE ANGLE CONNECTIONS

ALL BOLTS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION, UNLESS OTHERWISE NOTED.

ALL REACTIONS, FORCES AND LOADS INDICATED ARE STRENGTH LEVEL LOADS UNLESS OTHERWISE NOTED.

SLIP CRITICAL CONNECTIONS, AS NOTED, SHALL BE ASTM A325 SC BOLTS.

WELDED CONNECTIONS SHALL CONFORM TO AWS D1.1, "STRUCTURAL WELDING CODE" USING E 70xx LOW HYDROGEN ELECTRODES CONFORMING TO AWS SPECIFICATION A5.1. FOR WELDING SYMBOLS WITH NO LENGTH GIVEN, WELDING SHALL BE CONTINUOUS BETWEEN ABRUPT CHANGES IN DIRECTION, FOR WELDING SYMBOLS WITH NO SIZE GIVEN, WELD SIZE SHALL BE THE MINIMUM REQUIRED BY AISC OR 3/16", WHICHEVER IS GREATER

ALL WELDERS MUST BE QUALIFIED IN THE PROCESS USED AND AWS CERTIFIED. WELDERS MUST PERFORM A SAMPLE WELD IN THE FIELD UNDER THE SUPERVISION OF THE SPECIAL INSPECTOR USING THE APPROVED WELDING PROCEDURE SPECIFICATION (WPS). ALL SPECIMENS SHALL BE TESTED BY A QUALIFIED TESTING AGENCY. SUPPLY MATERIAL TESTS. WELDING TESTS AND INSPECTIONS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND SPECIAL INSPECTIONS REQUIREMENTS.

ALL GROOVE WELDS INDICATED ON PLANS AND SECTIONS SHALL BE COMPLETE JOINT PENETRATION WELDS (CP), UNLESS OTHERWISE NOTED.

COMPOSITE STEEL BEAMS ARE DESIGNED BASED ON UNSHORED CONSTRUCTION, UNLESS OTHERWISE

TOLERANCES FOR EXTERIOR WALL CONSTRUCTION SHALL BE AS FOLLOWS: HORIZONTAL DEVIATION FROM THE TRUE CENTERLINE OF EXTERIOR COLUMNS

FROM FLOOR TO FLOOR TOP OF STEEL FOR SPANDREL BEAMS OR GIRDERS AGGREGATE FOR THE ENTIRE HEIGHT OF BUILDING

FACE OF TUBE AND BRICK SUPPORT PLATE, AFTER FINAL ADJUSTMENTS

+/- 1/2 INCH +/- 1/4 INCH

+/- 1/4 INCH

+/- 1/4 INCH

+/- 1/8 INCH

+/- 1/4 INCH

+/- 1/8 INCH

BOTTOM ELEVATION OF TUBE AND BRICK SUPPORT PLATE, AFTER FINAL ADJUSTMENTS ALL STRUCTURAL STEEL EXPOSED TO WEATHER AND NOT RECEIVING SPRAY FIREPROOFING SHALL BE

PROVIDE WEEP HOLES IN STEEL TUBING TO BE GALVANIZED.

TUBE LINTELS:

CAMBER

HORIZONTAL SWEEP

ALL EXTERIOR HSS SHALL HAVE 3/8" CLOSURE PLATES AT EACH END, UNLESS OTHERWISE NOTED.

ALL ANCHOR RODS TO BE STRAIGHT AND TO CONFORM TO ASTM F1554, GRADE 55 KSI, UNLESS OTHERWISE NOTED. ALL ANCHOR RODS TO BE SET WITH TEMPLATES.

COORDINATE MASONRY, WOOD AND PRECAST CONCRETE CONNECTIONS, SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR MISCELLANEOUS STEEL NOT SHOWN ON

BEARING END OF COLUMNS TO BE FINISHED.

THE CONTRACT DOCUMENTS.

ENDS OF THREADED RODS SHALL BE PEENED AFTER TIGHTENING.

STEEL TO BE FIREPROOFED OR GALVANIZED NEED NOT BE PRIME PAINTED.

PLACE NON-SHRINK GROUT UNDER ALL COLUMN BASE PLATES BEFORE PLACING ELEVATED SLABS. WHERE WORK OF OTHER TRADES REQUIRES CUTS OR OPENINGS TO BE MADE IN NEW OR EXISTING

SHOP AND CLEARLY INDICATED ON THE SHOP DRAWINGS. ALL ANGLES ASSUMED TO BE ORIENTED WITH LONG LEG VERTICAL (LLV), UNLESS OTHERWISE NOTED.

STRUCTURAL STEEL MEMBERS NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS, APPROVAL

SHALL BE OBTAINED FROM THE STRUCTURAL ENGINEER OF RECORD. SUCH OPENINGS SHALL BE MADE IN THE

ALL RECTANGULAR HSS TO BE ORIENTED WITH LONG SIDE VERTICAL, UNLESS OTHERWISE NOTED.

THE LOCATION OF NEW STEEL MEMBER AND THE CONNECTION DETAIL FOR NEW STRUCTURAL MEMBER TO THE EXISTING STRUCTURE SHALL BE FIELD VERIFIED PRIOR TO FABRICATION. NO FIELD MODIFICATION TO THE FABRICATED MEMBER OR CONNECTION IS ALLOWED WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.

CONFIGURATION, SEQUENCE, THE USE OF BLOCKING, THE USE OF CLAMPS, ETC. SHOP DRAWING REVIEW IS ONLY TO VERIFY LOAD CARRYING CAPACITY AND GENERAL CONFORMANCE WITH

BE RESPONSIBLE FOR THE ERECTION SAFETY OF ALL STEEL CONNECTIONS, INCLUDING BUT NOT LIMITED TO:

DO NOT IMPOSE ANY LOADS ON COMPOSITE CONCRETE FLOOR SLABS OTHER THAN MINOR CONSTRUCTION LOADS EQUIVALENT TO 20 PSF OR LESS UNTIL CONCRETE HAS REACHED 75% OF ITS 28 DAY DESIGN

DETAILS PRIOR TO SUBMITTING SHOP DRAWINGS. CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN.

COLUMN CONTINUITY PLATES (STIFFENER PLATES) AND WEB DOUBLER PLATES REQUIREMENTS, ONLY

SUBMIT COMPREHENSIVE CALCULATIONS SHOWING DESIGN CRITERIA, APPLIED LOADS AND CONNECTION

PROVIDE CONNECTIONS AND CALCULATIONS FOR FRAMING WITH MINIMUM CAPACITY OF 16 KIPS AND AND/OR TO MEET REACTIONS INDICATED IN THE DRAWINGS, WHICHEVER IS GREATER. BEAM TO BEAM MOMENT CONNECTIONS SHALL BE DESIGNED FOR MOMENTS INDICATED ON THE DRAWINGS. DETAILS INDICATED ON DRAWINGS FOR BEAM TO COLUMN MOMENT CONNECTIONS HAVE BEEN VERIFIED FOR

CALCULATIONS FOR BEAM SHEAR CONNECTIONS ARE REQUIRED. LATERAL BRACING CONNECTIONS SHALL BE DESIGNED FOR THE LOADS INDICATED ON THE DRAWINGS. 27e. ALL LOADS INDICATED ON THE DRAWINGS ARE STRENGTH LEVEL LOADS, UNLESS OTHERWISE NOTED.

GRATING MARK W-19-4 INDICATES GALVANIZED WELDED STEEL GRATING CONSISTING OF 2 1/4"x3/16" BEARING BARS SPACED AT 1 3/16" ON CENTER AND CROSSBARS AT 4" ON CENTER. GRATING TO BE ERECTED AND ATTACHED PER MANUFACTURER'S RECOMMENDATIONS.

350 S. FIFTH AVE

350 S. Fifth Avenue

Ann Arbor, MI 48104

ASTM A992

ASTM A36

GRADE B

ASTM A500.

ASTM A325

ASTM A53, TYPE

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ISSUED FOR

SEALS AND SIGNATURES

REV DATE ____ ____ IN PROGRESS SCHEMATIC DESIGN

STRUCTURAL GENERAL

PROJECT NUMBER

#	INSPECTION TASK (CODE REFERENCE)	Y/N	SCOPE OF SERVICE	FREQUENCY	REFERENCE STANDARD
GENERA 1	SUBMIT FINAL REPORT OF SPECIAL INSPECTIONS INDICATING THAT THE SPECIAL INSPECTIONS HAVE BEEN PERFORMED AND ALL DISCOVERED DISCREPANCIES HAVE BEEN REPORTED AND RESOLVED		IN ACCORDANCE WITH CONTRACT DOCUMENTS AND BUILDING CODE		
2	INTERIM REPORTS SUBMITTED PRIOR TO THE FINAL REPORT FORM A BASIS FOR AND ARE CONSIDERED TO BE AN INTEGRAL PART OF THE FINAL REPORT				
3	SUBMIT RECORDS, REPORTS, CERTIFICATES ETC. FOR THE SPECIAL INSPECTIONS REQUIRED INCLUDING ITEMS THAT DO NOT REQUIRE CONTINUOUS OR PERIODIC TESTING AND/OR OBSERVATION				
4	LETTERS IN FREQUENCY COLUMN INDICATE THE FOLLOWING: C = CONTINUOUS, P = PERIODIC, S = SUBMITTAL				
STEFL (CONSTRUCTION (1705.2)				
ST-1	REVIEW FABRICATORS WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY	Y	THIS REVIEW IS NOT REQUIRED FOR AISC CERTIFIED FABRICATORS	S	
ST-2	FABRICATOR TO SUBMIT A STATEMENT OF COMPLIANCE TO THE BUILDING CODE OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH APPROVED CONSTRUCTION DOCUMENTS	Y		S	
ST-3	MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:				
	A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	Y		S	AISC 360 A3.3
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	Y		S	AISC 360 A3.3
ST-4	INSPECTION OF HIGH-STRENGTH BOLTING:				
	A. SNUG-TIGHT JOINTS	Y		Р	AISC 360 M2.5, N5.6, T N5.6-1
	B. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION	Y		Р	AISC 360 M2.5, N5.6, T N5.6-2
	C. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION	Y		С	AISC 360 M2.5, N5.6, T N5.6-2
	D. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS AFTER INSTALLATION OF BOLTS	Y		С	AISC TABLE N5.6
ST-5	MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
	A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKING TO CONFORM TO AISC 360	Y		S	APPLICABLE AST STANDARDS AND IBO
	B. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	Υ		S	APPLICABLE AST STANDARDS AND IBO
	C. MANUFACTURER'S CERTIFIED TEST REPORTS	Y		S	APPLICABLE AST STANDARDS AND IBC
ST-6	MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
	A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	Y		S	AISC 360 A3.5, AWS
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	Y		S	
ST-7	VERIFY WELDER CERTIFICATION FOR ALL FIELD WELDERS WHO WILL PERFORM FIELD WELDING	Y		S	AWS D1.1
ST-8	INSPECTION OF WELDING:		IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AND CONTRACT DOCUMENTS		
	A. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
	COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS MULTI PASS FILLET WELDS	Y		C	AWS D1.1; IBC 1705 AWS D1.1; IBC 1705
	3. SINGLE PASS FILLET WELDS > 5/16" 4. PLUG AND SLOT WELDS	Y		C	AWS D1.1; IBC 1705 AWS D1.1; IBC 1705
	5. SINGLE PASS FILLET WELDS = 5/16" 6. FLOOR AND ROOF DECK WELDS</td <td>Y</td> <td></td> <td>P</td> <td>AWS D1.1; IBC 1705 AWS D1.3; IBC 1705</td>	Y		P	AWS D1.1; IBC 1705 AWS D1.3; IBC 1705
	7. HEADED STUD ANCHORS	Y		P	AWS D1.1; IBC 1705
ST-9	INSPECT ELEMENTS OF COMPOSITE CONSTRUCTION				
	A. PLACEMENT AND INSTALLATION OF STEEL DECK	Y		С	AISC N6
	B. PLACEMENT AND INSTALLATION OF HEADED STUD ANCHORS C. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	Y		C C	AISC N6 AISC N6
ST-10	INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:		INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED SHOP DRAWINGS AND CONTRACT DOCUMENTS		
	A. DETAILS SUCH AS BRACING AND STIFFENING	Y		P	
	B. MEMBER LOCATIONS C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION	Y		P P	
ST-11	INSPECTION OF OPEN-WEB STEEL JOISTS AND JOISTS GIRDERS		IN ACCORDANCE WITH SJI SPECIFICATIONS AND APPROVED SHOP DRAWINGS AND CONTRACT DOCUMENTS		
	A. END CONNECTIONS - WELDING OR BOLTED	Y	DOGGINILITY	P	IBC 2207.1
	B. BRIDGING - HORIZONTAL OR DIAGONAL 1. STANDARD BRIDGING	 Y		 P	IBC 2207.1
	STANDARD BRIDGING BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN IBC 2207.1	Y		P	150 2201.1
ST-12	FOR COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER VERIFY THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS	N	IN ACCORDANCE WITH APPROVED TRUSS SUBMITTAL PACKAGE	С	

#	INSPECTION TASK (CODE REFERENCE)	Y/N	SCOPE OF SERVICE	FREQUENCY	REFERENCE STANDARD
CONCRE C-1	ETE CONSTRUCTION (1705.3) INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	Y		Р	ACI 318 CH. 20, 25.2, 25.3,
C-2	REINFORCING BAR WELDING				26.6.1-26.6.3; IBC 1908.4
	A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	Y	REVIEW AS PER AWS AND APPROVED SHOP	Р	AWS D1.4; ACI 318 26.6.4
	B. INSPECT SINGLE-PASS FILLET WELDS = 5/16" C. INSPECT ALL OTHER WELDS</td <td>Y</td> <td>DRAWINGS AND CONTRACT DOCUMENTS</td> <td>P C</td> <td>AWS D1.4; ACI 318 26.6.4 AWS D1.4; ACI 318 26.6.4</td>	Y	DRAWINGS AND CONTRACT DOCUMENTS	P C	AWS D1.4; ACI 318 26.6.4 AWS D1.4; ACI 318 26.6.4
C-3	INSPECT ANCHORS, BOLTS, AND ANCHORED RODS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE	Y	VERIFY SIZE, LOCATIONS, SPACING, ORIENTATION, COVER, & SPLICING CONFORM TO APPROVED SHOP DRAWINGS AND CONTRACT DOCUMENTS	P	ACI 318 17.8.2
C-4	INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE		DIAWINGS AND CONTRACT DOCUMENTS		
	A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED	Y	VERIFY SIZE, LOCATIONS, SPACING, ORIENTATION,	С	ACI 318 17.8.2.4
	ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN C-4.A	Y	COVER, & SPLICING CONFORM TO APPROVED SHOP DRAWINGS AND CONTRACT DOCUMENTS VERIFY SIZE, LOCATIONS, SPACING, ORIENTATION, COVER, & SPLICING CONFORM TO APPROVED SHOP DRAWINGS AND CONTRACT DOCUMENTS	P	ACI 318 17.8.2
C-5	VERIFY USE OF REQUIRED DESIGN MIX	Y		Р	ACI 318 Ch 19, 26.4.3, 26.4.4; IBC 1904.1, 1904.2 1908.2, 1908.3
C-6	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	Y		С	ASTM C172, ASTM C31; A 318 26.4, 26.12, IBC 1908.
C-7	INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	Y	VERIFY PLACEMENT, FINISHING HOT/COLD WEATHER REQUIREMENTS AND CONSOLIDATIONS	С	ACI 318 26.5; IBC 1908.6 1908.7, 1908.8
C-8	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	Y	VERIFY CURING REQUIREMENTS	Р	ACI 318 26.5.3-26.5.5; IBC 1908.9
C-9	INSPECT PRESTRESSED CONCRETE		VERIFY THAT THE PLACEMENT OF TENDONS, CONCRETING, AND APPLICATION OF FORCES CONFORMS TO CONTRACT DOCUMENTS		
	A. TENDON STEEL AND PLACEMENT	N		P C	ACI 240 26 40
	B. APPLICATION OF PRESTRESSING FORCES C. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE- RESISTING SYSTEM	N N		C	ACI 318 26.10 ACI 318 26.10
	D. VERIFICATION OF CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS	N		Р	
C-10	INSPECT ERECTION OF PRECAST CONCRETE	N	VERIFY THAT THE ERECTION OF PRECAST CONCRETE MEMBERS ARE AS PER APPROVED SHOP DRAWINGS AND ARE IN CONFORMANCE WITH SPECIFIED TOLERANCES	Р	ACI 318 CH. 26.8
C-11	VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	N		Р	ACI 318 26.11.2
C-12	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	N		Р	ACI 318 26.11.1.2(b)
MASONF	RY CONSTRUCTION (1705.4) LEVEL 1 INSPECTION (NON-ESSENTIAL FACILITY WITH RISK CATEGORY I, II, OR III)		IN ACCORDANCE WITH APPROVED SUBMITTALS AND CONTRACT DOCUMENTS	Р	TMS 402/ACI530/ASCE5 AND TMS 602/ACI 530.1/ASCE 6 ARTICLE 3. LEVEL B TABLE 3.1.2
M1-1	VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE PROJECT SITE FOR SELF-CONSOLIDATING GROUT	Y		С	TMS 402 1.5 B.1.b.3
M1-2	VERIFICATION OF f'm AND f'AAC PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED	Y		Р	TMS 602 1.4 B
M1-3	VERIFY COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS	Y		Р	TMS 602 1.5
M1-4	AS MASONRY CONSTRUCTION BEGINS, VERIFY:				
	A. PROPORTIONS OF SITE-PREPARED MORTAR	Y		P	TMS 602 2.1, 2.6 A
	B. CONSTRUCTION OF MORTAR JOINTS C. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES D. LOCATION OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND	Y N Y		P P P	TMS 602 3.3 B TMS 602 2.4 B, 2.4 H TMS 602 3.4, 3.6 A
	ANCHORAGES E. PRESTRESSING TECHNIQUE F. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	N N		P C	TMS 602 3.6 B TMS 602 2.1 C
M1-5	PRIOR TO GROUTING, VERIFY TO ENSURE COMPLIANCE:				
	A. GROUT SPACE B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	Y		P P	TMS 602 3.2 D, 3.2 F TMS 402 6.1; TMS 602 2.4 3.4
	C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES	Y		Р	TMS 402 6.1, 6.2.1, 6.2.6 6.2.7; TMS 602 3.2 E, 3.4, 3 A
	D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS E. CONSTRUCTION OF MORTAR JOINTS	Y		P P	TMS 602 2.6 B, 2.4 G.1.b
M1-6	VERIFY DURING CONSTRUCTION:				
	A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	Y		P P	TMS 602 3.3 F TMS 402 1.2.1(e), 6.1.4.3 6.2.1
	C. WELDING OF REINFORCING BARS	Y		С	TMS 402 8.1.6.7.2, 9.3.3.4(11.3.3.4(b)
	D. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F (4.4°C)) OR HOT WEATHER (TEMPERATURE ABOVE 90°F	Y		Р	TMS 602 1.8 C, 1.8 D
	(32.2°C)) E. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE F. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN	N N		C	TMS 602 3.6 B TMS 602 3.5, 3.6 C
	COMPLIANCE G. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	N N		С	TMS 602 3.5, 3.6 C
M1-7	OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	Y		P	TMS 602 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.
				1	1.4 B.4

#	INSPECTION TASK (CODE REFERENCE)	Y/N	SCOPE OF SERVICE	FREQUENCY	STANDARD
	CONSTRUCTION (1705.5)				
W-0	INSPECTION OF FABRICATION OF WOOD STRUCTURAL ELEMENTS AND ASSEMBLIES AND INSPECTION OF SITE-BUILT ASSEMBLIES	N	VERIFY QC PROCEDURES ARE COMPLIANT AND CURRENT AND IN ACCORDANCE WITH 1704.2.5		
W-1	FOR HIGH-LOAD DIAPHRAGMS VERIFY GRADE AND THICKNESS OF WOOD STRUCTURAL PANEL SHEATHING AND SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES, NAIL OR STAPLE DIAMETER AND LENGTH, NUMBER OF FASTENER LINES, AND THE SPACING BETWEEN FASTENERS IN EACH LINE AND EDGE MARGINS	N	IN ACCORDANCE WITH APPROVED CONTRACT DOCUMENTS	Р	IBC 2306.2
W-2	VERIFY THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING	N	IN ACCORDANCE WITH APPROVED TRUSS SUBMITTAL PACKAGE	С	
W-3	REVIEW FABRICATORS WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY	N	THIS REVIEW IS NOT REQUIRED FOR FABRICATORS THAT PARTICIPATE IN THE TPI QUALITY ASSURANCE PROGRAM AND MAINTAIN A COPY OF THE QAP-90 MANUAL; SUBMIT CERTIFICATE AND STAMP TRUSSES AS TPI CERTIFIED	S	
W-4	FABRICATOR TO SUBMIT A STATEMENT OF COMPLIANCE TO THE BUILDING CODE OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH APPROVED CONSTRUCTION DOCUMENTS	N		S	
SOILS (1 ⁻ SO-0	705.6) SITE SOIL CONDITIONS, FILL PLACEMENT, AND LOAD-BEARING REQUIREMENTS	Y	IN ACCORDANCE WITH APPROVED GEOTECHNICAL REPORT AND CONTRACT DOCUMENTS		
SO-1	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE	Y	THE ONLY WAS CONTINUED BOOMENTO	P	
SO-2	DESIGN BEARING CAPACITY VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER	Y		P	
SO-3	MATERIAL PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	Y		P	
SO-4	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING	Y		C	
SO-5	PLACEMENT AND COMPACTION OF COMPACTED FILL PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE	Y		P	
	HAS BEEN PREPARED PROPERLY DEEP FOUNDATIONS (1705.7)				
DDF-0	INSTALLATION AND TESTING OF DRIVEN DEEP FOUNDATION ELEMENTS	N	IN ACCORDANCE WITH APPROVED GEOTECHNICAL REPORT AND CONTRACT DOCUMENTS		
DDF-1 DDF-2	VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS COMPLY WITH THE REQUIREMENTS DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS	N N		C	
DDF-3	REQUIRED INSPECT DRIVING OPERATIONS	N	MAINTAIN COMPLETE AND ACCURATE RECORDS FOR	C	
DDF-4	VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER,	N	EACH ELEMENT	C	
	RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT				
DDF-5	FOR STEEL ELEMENTS, PERFORM ADDITIONAL INSPECTIONS, INCLUDING TESTING OF WELDED SPLICES	N	IN ACCORDANCE WITH STEEL CONSTRUCTION INSPECTIONS (1705.2)		
DDF-6	FOR CONCRETE ELEMENTS AND CONCRETE-FILLED ELEMENTS, PERFORM ADDITIONAL INSPECTIONS	N	IN ACCORDANCE WITH CONCRETE CONSTRUCTION INSPECTIONS (1705.3)		
DDF-7	FOR SPECIALTY ELEMENTS, PERFORM ADDITIONAL INSPECTIONS AS DETERMINED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE	N			
	-PLACE DEEP FOUNDATIONS (1705.8) INSTALLATION AND TESTING OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS	N	IN ACCORDANCE WITH APPROVED GEOTECHNICAL REPORT AND CONTRACT DOCUMENTS		
CDF-1	INSPECT DRILLING OPERATIONS	N	MAINTAIN COMPLETE AND ACCURATE RECORDS FOR	C	
CDF-2	VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS, LENGTHS, EMBEDMENT INTO BEDROCK, AND ADEQUATE END-BEARING STRATA CAPACITY	N	RECORD CONCRETE OR GROUT VOLUMES	С	
CDF-3	FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS	N	IN ACCORDANCE WITH CONCRETE CONSTRUCTION INSPECTIONS (1705.3)		
	PILE FOUNDATIONS (1705.9) INSTALLATION AND TESTING OF DRIVEN DEEP FOUNDATION ELEMENTS	N	IN ACCORDANCE WITH APPROVED GEOTECHNICAL REPORT AND CONTRACT DOCUMENTS		
HPF-1	INSTALLATION OF HELICAL PILE FOUNDATIONS				
	A. OBSERVE THE HELICAL PILE LOAD TEST AND RECORD ALL DOCUMENTATION REQUIRED BY CONTRACT DOCUMENT	N		С	
	B. OBSERVE INSTALLATION OF ALL HELICAL PILES AND SUBMIT RECORDS, INCLUDING EQUIPMENT USED, PILE DIMENSIONS, TIP ELEVATIONS, FINAL DEPTH, FINAL INSTALLATION TORQUE AND OTHER PERTINENT INSTALLATION DATA REQUIRED	N		С	
	AL MASONRY FOUNDATIONS (1705.4.2) INSPECTION OF VERTICAL MASONRY FOUNDATION ELEMENTS	N	IN ACCORDANCE WITH MASONRY CONSTRUCTION (1705.4)	С	
FABRICA FI-1	ATED ITEMS (1705.10) INSPECTION OF FABRICATED ITEMS	N	SPECIAL INSPECTIONS AS PER 1704.2.5		
SPRAYEI SF-0	D FIRE-RESISTANT MATERIALS (1705.14) INSPECTION OF SPRAYED FIRE-RESISTANT MATERIALS APPLIED TO FLOOR, ROOF, AND WALL ASSEMBLIES AND STRUCTURAL MEMBERS		IN ACCORDANCE WITH CONTRACT DOCUMENTS; TESTS SHALL BE BASED ON SAMPLINGS FROM SPECIFIC FLOOR, ROOF, AND WALL ASSEMBLIES AND STRUCTURAL MEMBERS AND SHALL BE PERFORMED AFTER THE ROUGH INSTALLATION OF ELECTRICAL, AUTOMATIC SPRINKLER, MECHANICAL AND PLUMBING SYSTEMS, AND SUSPENSION SYSTEMS FOR CEILINGS		IBC 1705.14.1 - 1705.1
SF-1	TEST AND OBSERVE TO DEMONSTRATE COMPLIANCE WITH THE LISTING AND THE FIRE-RESISTANCE RATING:	Y	2.5.2, 7.1.2 5551 ENGINE OF OTELING	P	
	A. CONDITIONS OF SUBSTRATES AND STRUCTURAL MEMBER SURFACE CONDITIONS	Y	IN ACCORDANCE WITH APPROVED FIRE-RESISTANCE DESIGN AND WRITTEN INSTRUCTIONS OF APPROVED MANUFACTURERS; THE PREPARED SURFACE OF STRUCTURAL MEMBERS TO BE SPRAYED SHALL BE INSPECTED BEFORE THE APPLICATION OF THE SPRAY-FIRE RESISTANT MATERIAL; VERIFICATION OF TEMPERATURE AND VENTILATION BEFORE AND AFTER APPLICATION IN CONFORMANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS		
	B. THICKNESS OF APPLICATION C. DENSITY IN POUNDS PER CUBIC FOOT (KG/M^3)	Y Y	VERIFY THICKNESS OF APPLIED MATERIAL IN ACCORDANCE WITH FIRE-RESISTANCE DESIGN AND IBC 1705.14.4.1 VERIFY DENSITY OF APPLIED MATERIAL IN	P	ASTM E605 ASTM E605
	, ,		ACCORDANCE WITH APPROVED FIRE-RESISTANCE DESIGN	·	
	D. BOND STRENGTH ADHESION/COHESION E. CONDITION OF FINISHED APPLICATION	Y	DETERMINE BOND STRENGTH BY TESTING IN-PLACE	P P	ASTM E736; IBC 1705.14 - 1705.14.6.3
MASTIC A	AND INTUMESCENT FIRE-RESISTANT COATINGS (1705.15) VERIFY MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	N	IN ACCORDANCE WITH FIRE-RESISTANCE DESIGN AS DESIGNATED IN THE APPROVED CONSTRUCTION	Р	AWCI 12-B
EXTERIO	DR INSULATION AND FINISH SYSTEMS (EIFS (1705.16)		DOCUMENTS		
	INSPECT ALL EIFS APPLICATIONS	N		С	

EFIS-2 VERIFY WATER-RESISTIVE BARRIER COATING WHEN INSTALLED OVER SHEATHING SUBSTRATE

350 S. FIFTH AVE. DEVELOPMENT

350 S. Fifth Avenue Ann Arbor, MI 48104

CITY OF ANN ARBOR - ANN ARBOR HOUSING COMMISSION (AAHC)

2000 S. Industrial 301 E. Huron Street Ann Arbor, MI 48104

SMITHGROUP

500 GRISWOLD SUITE 1700 DETROIT, MI 48226 313.983.3600 smithgroup.com

Convergent Technologies Design Group, Inc. LOW VOLTAGE CONSULTANT 6501 York Road Baltimore, MD 21212 410.532.2395

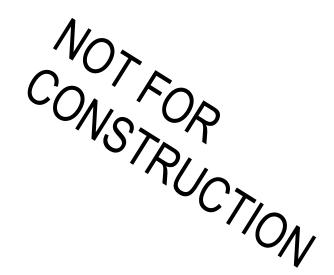
Liberty Elevator Experts, LLC. VERTICAL TRASPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538

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SEALS AND SIGNATURES

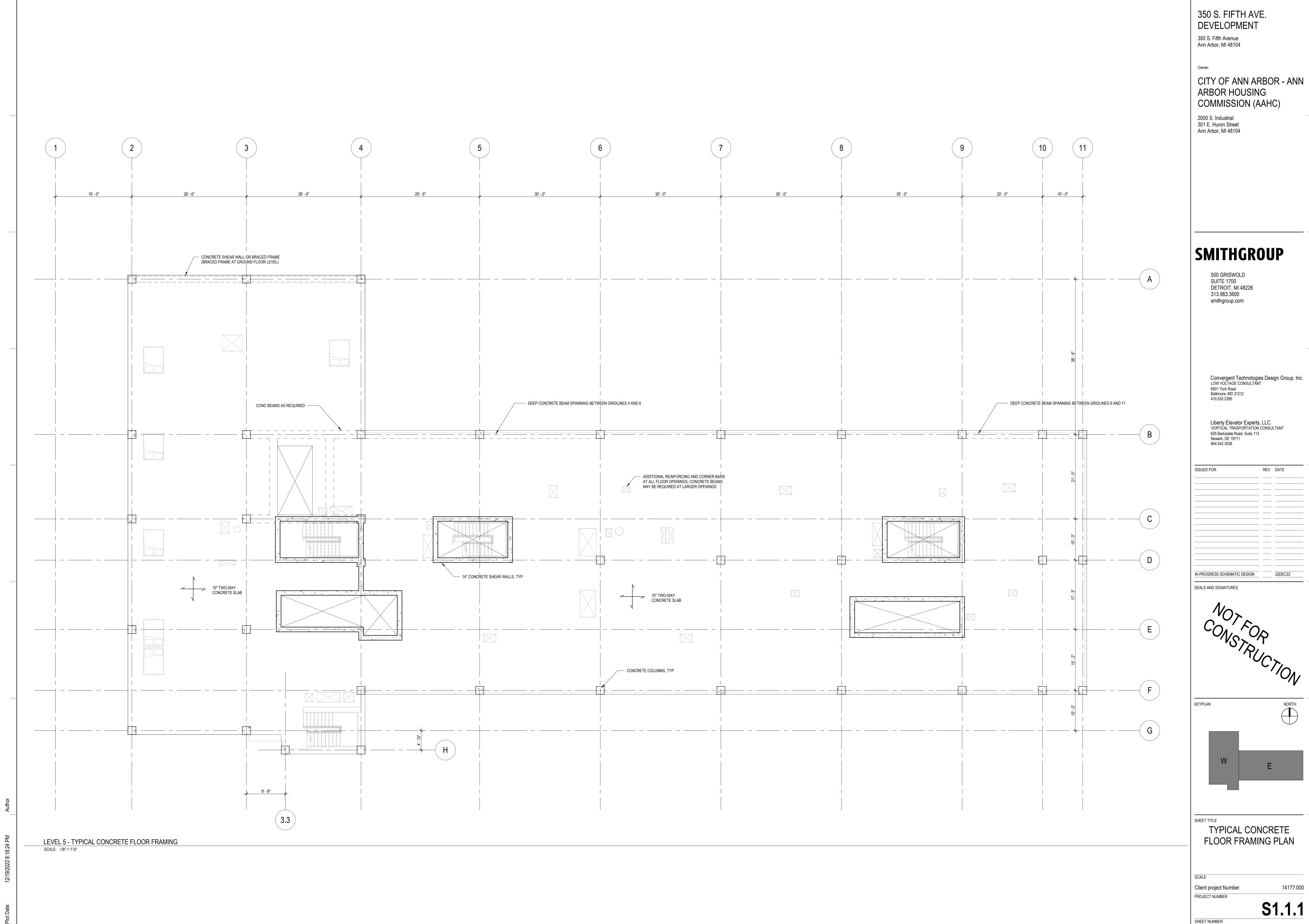
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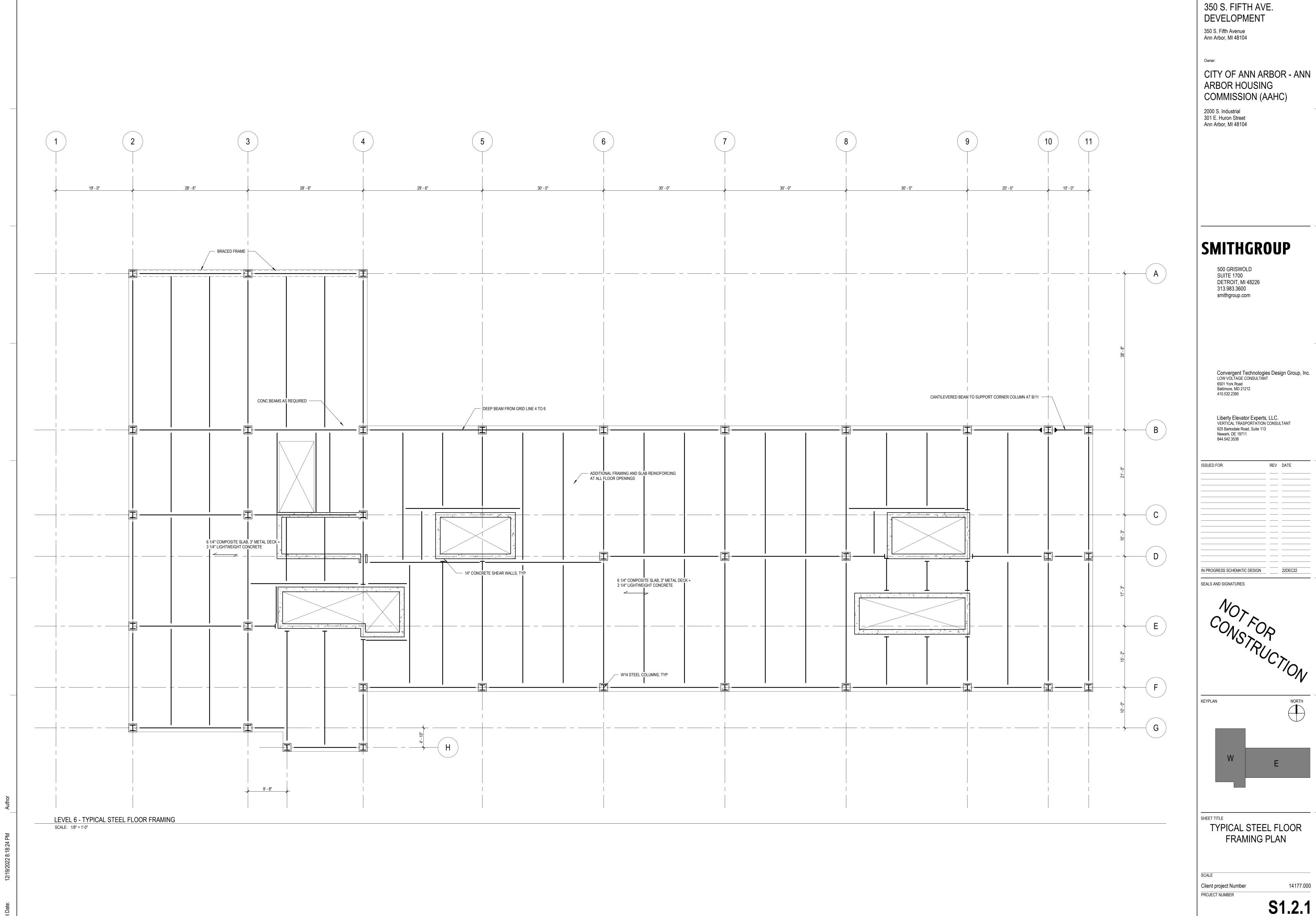
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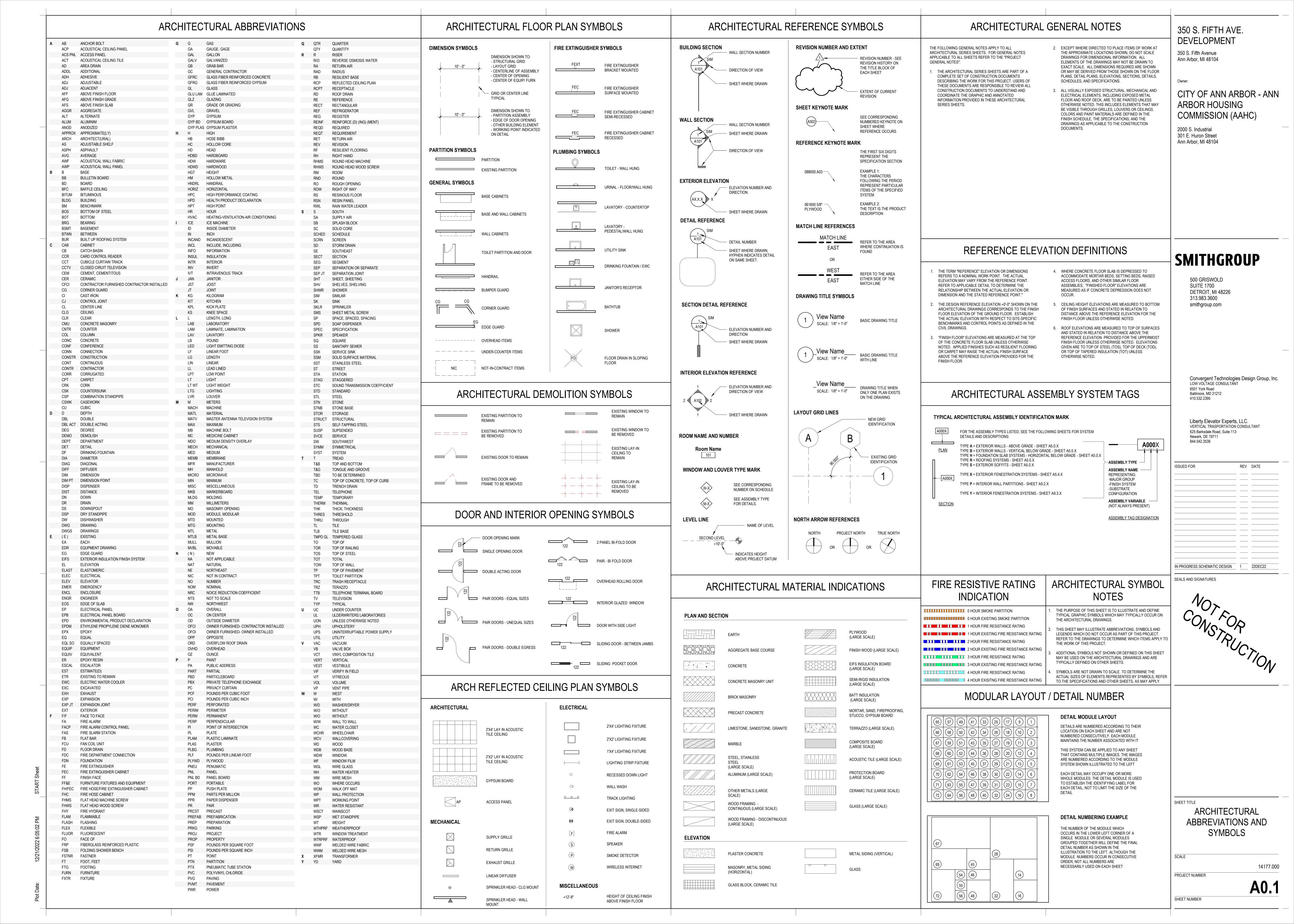
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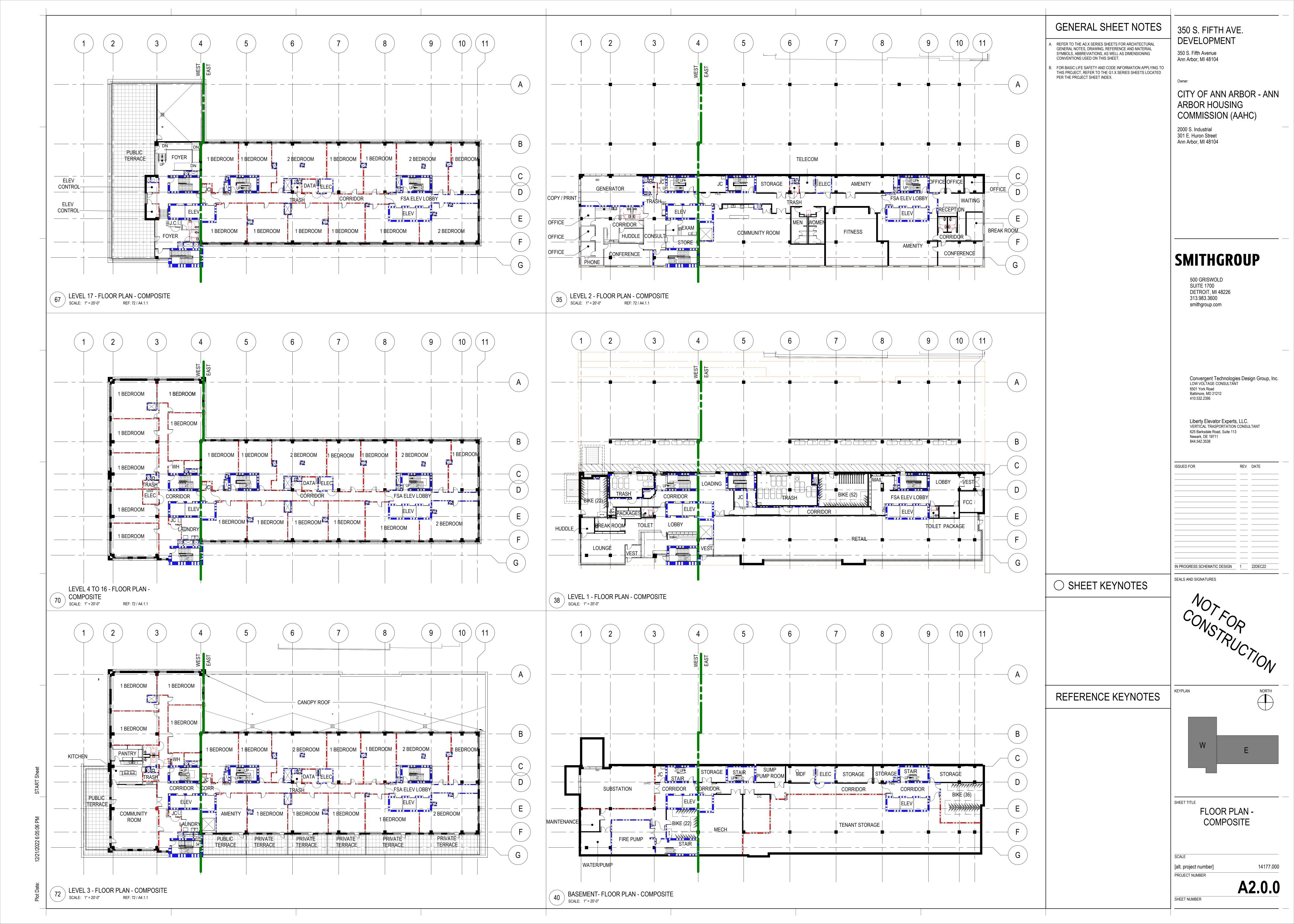
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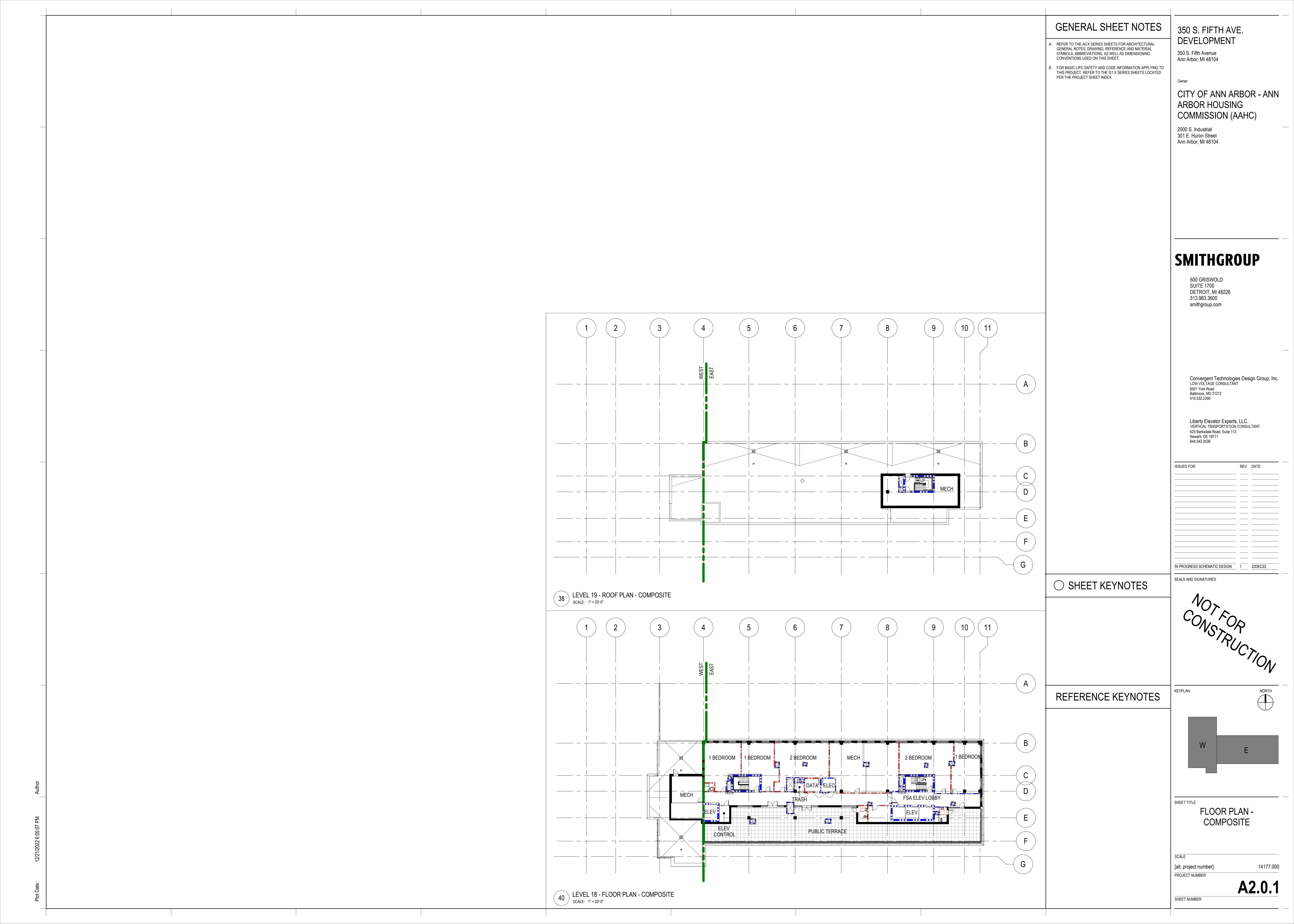


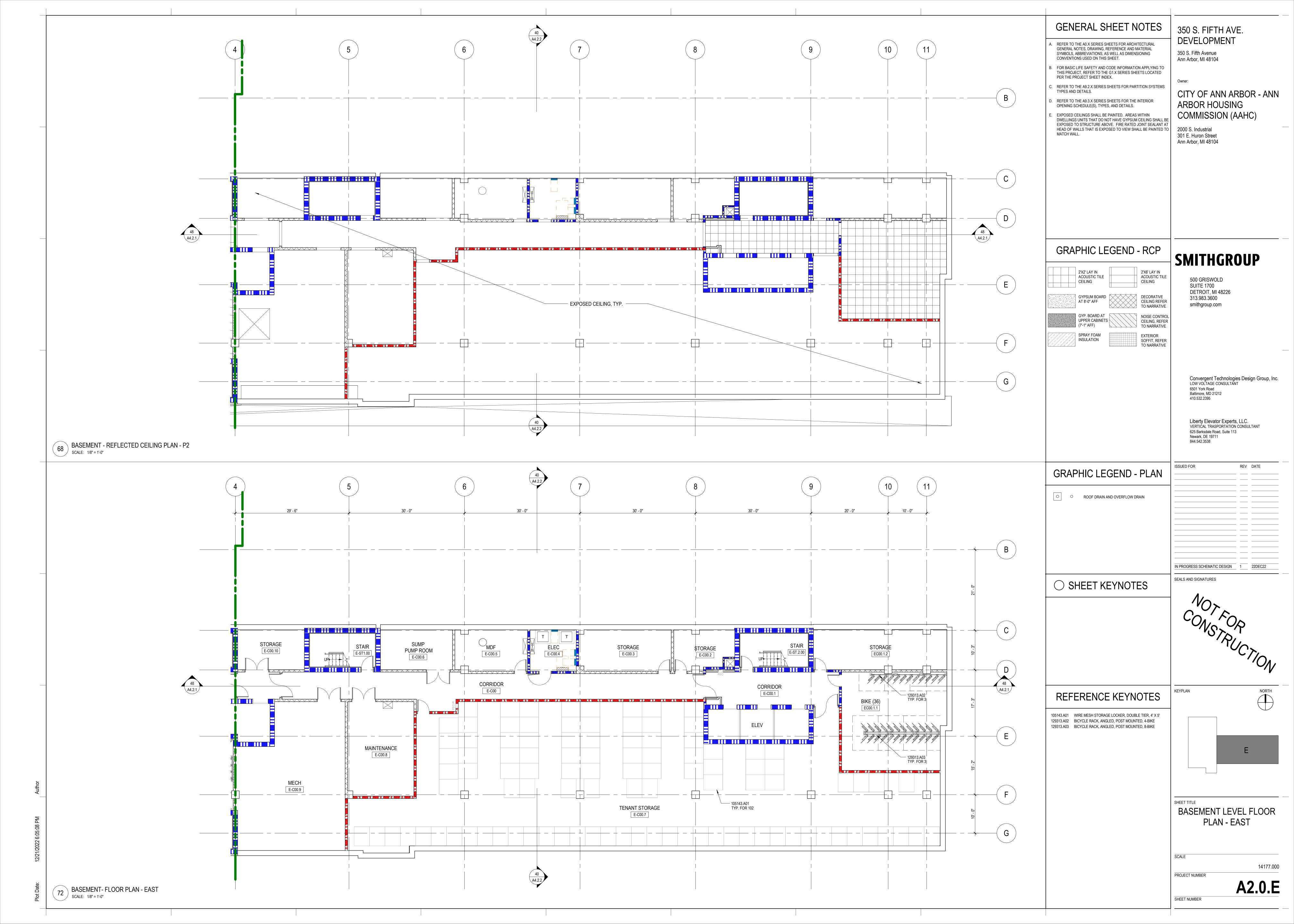


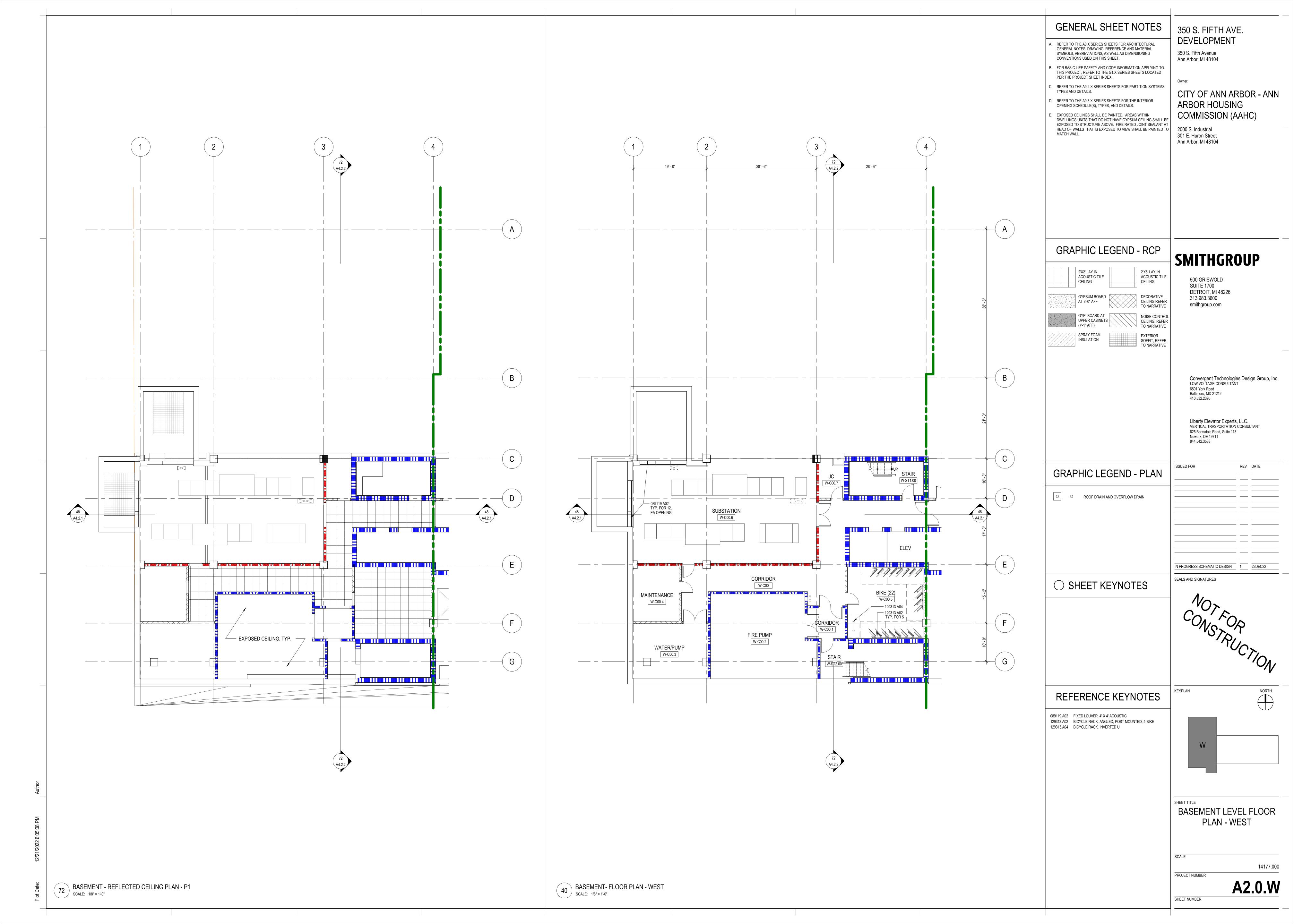


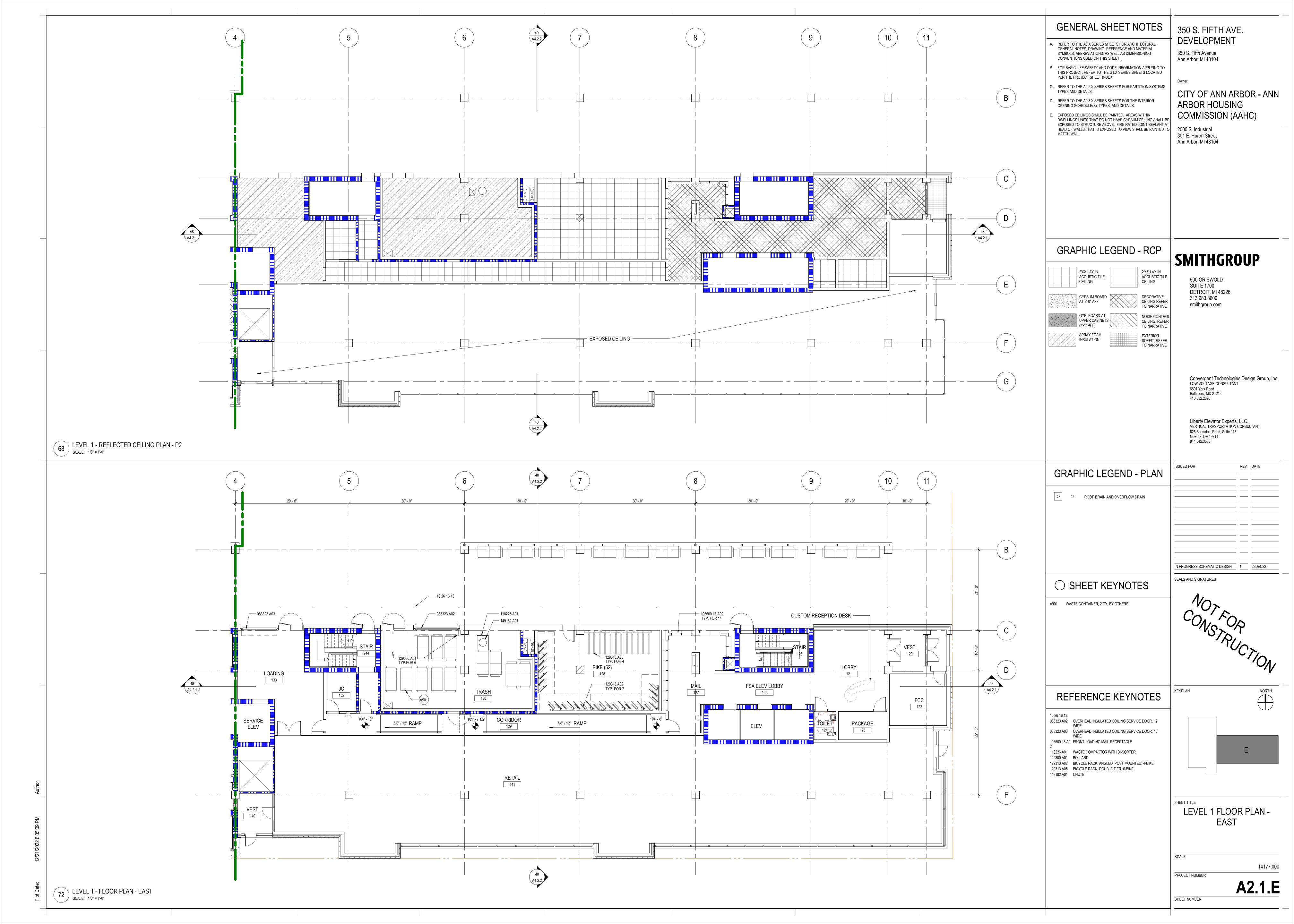


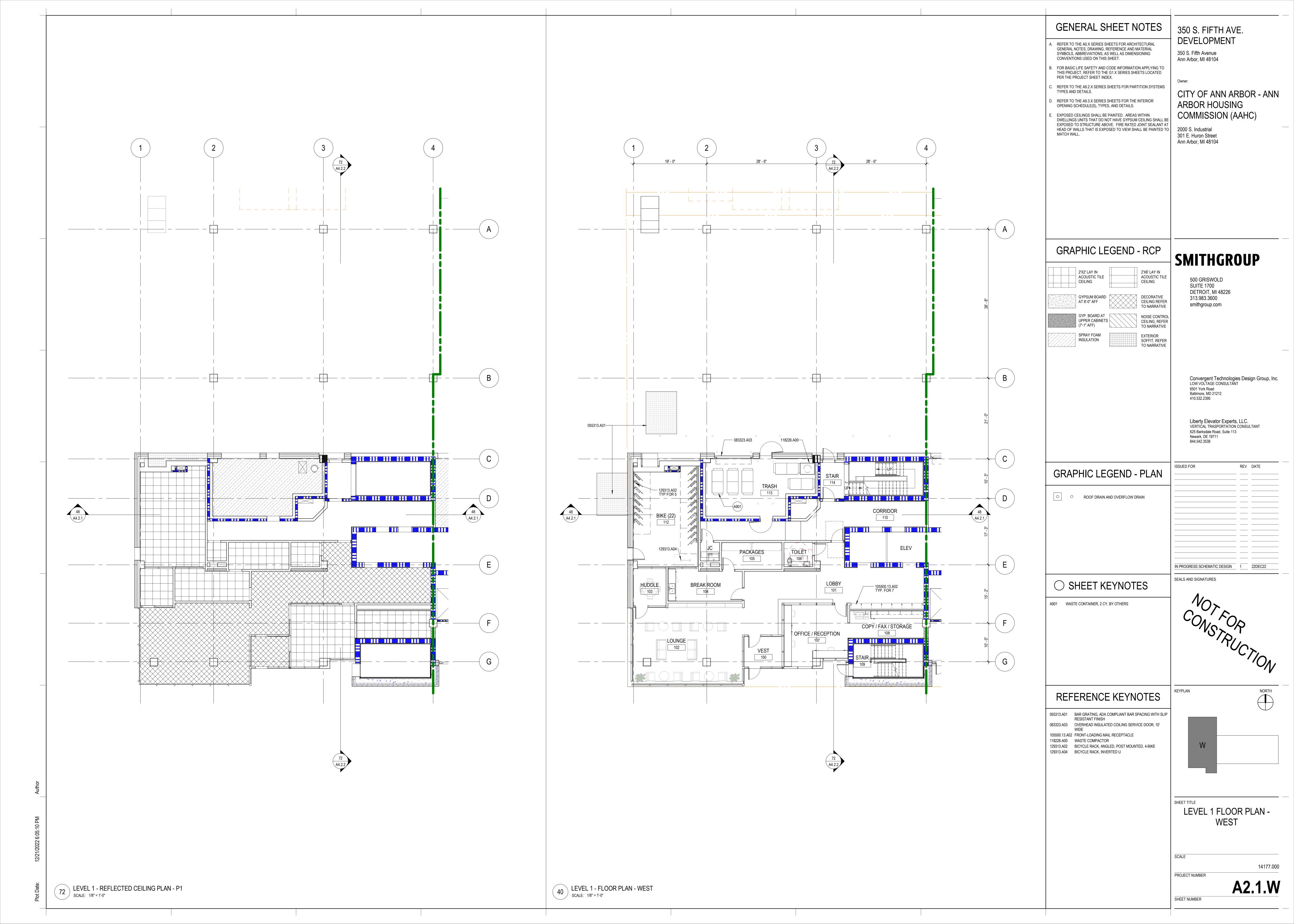


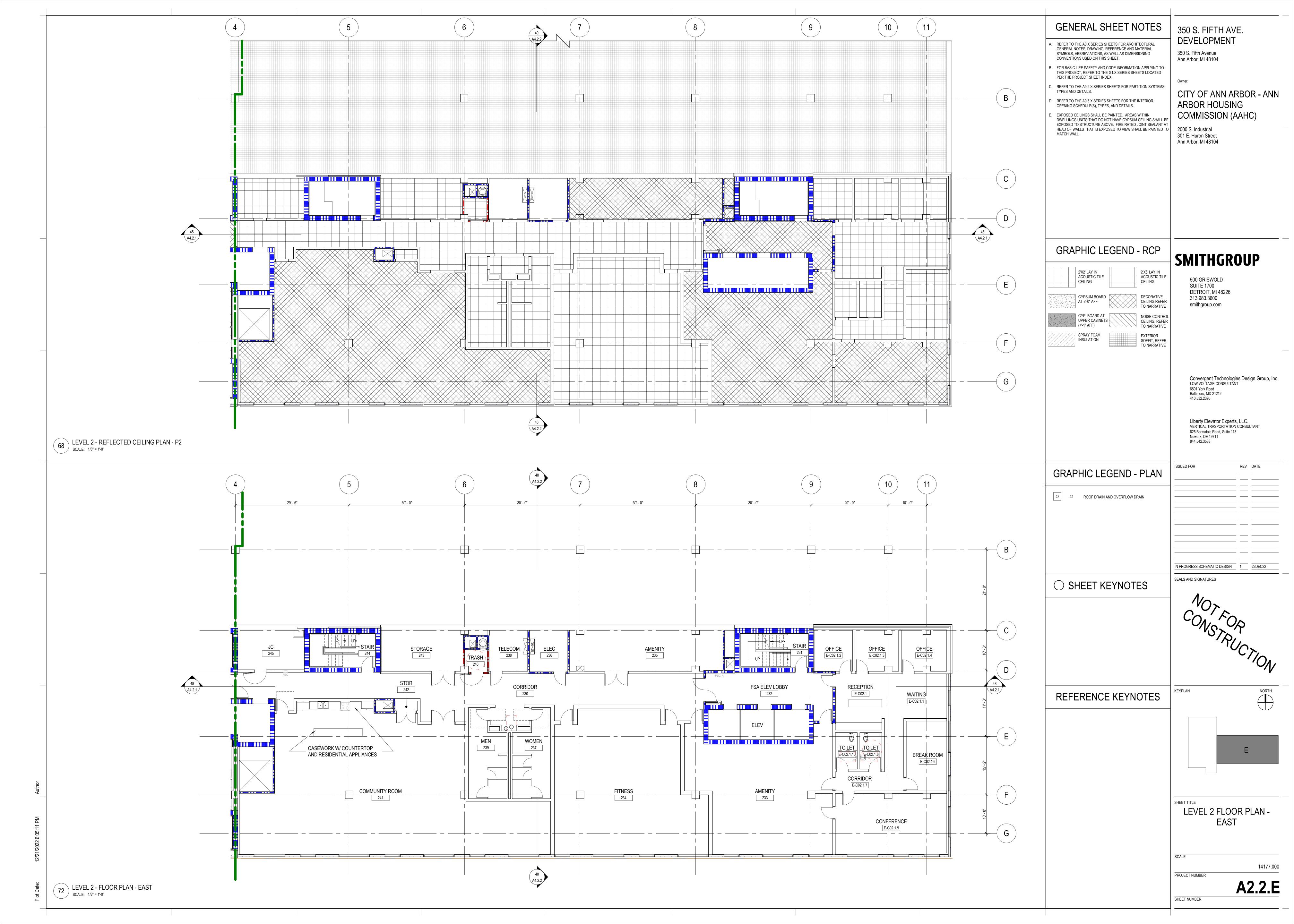


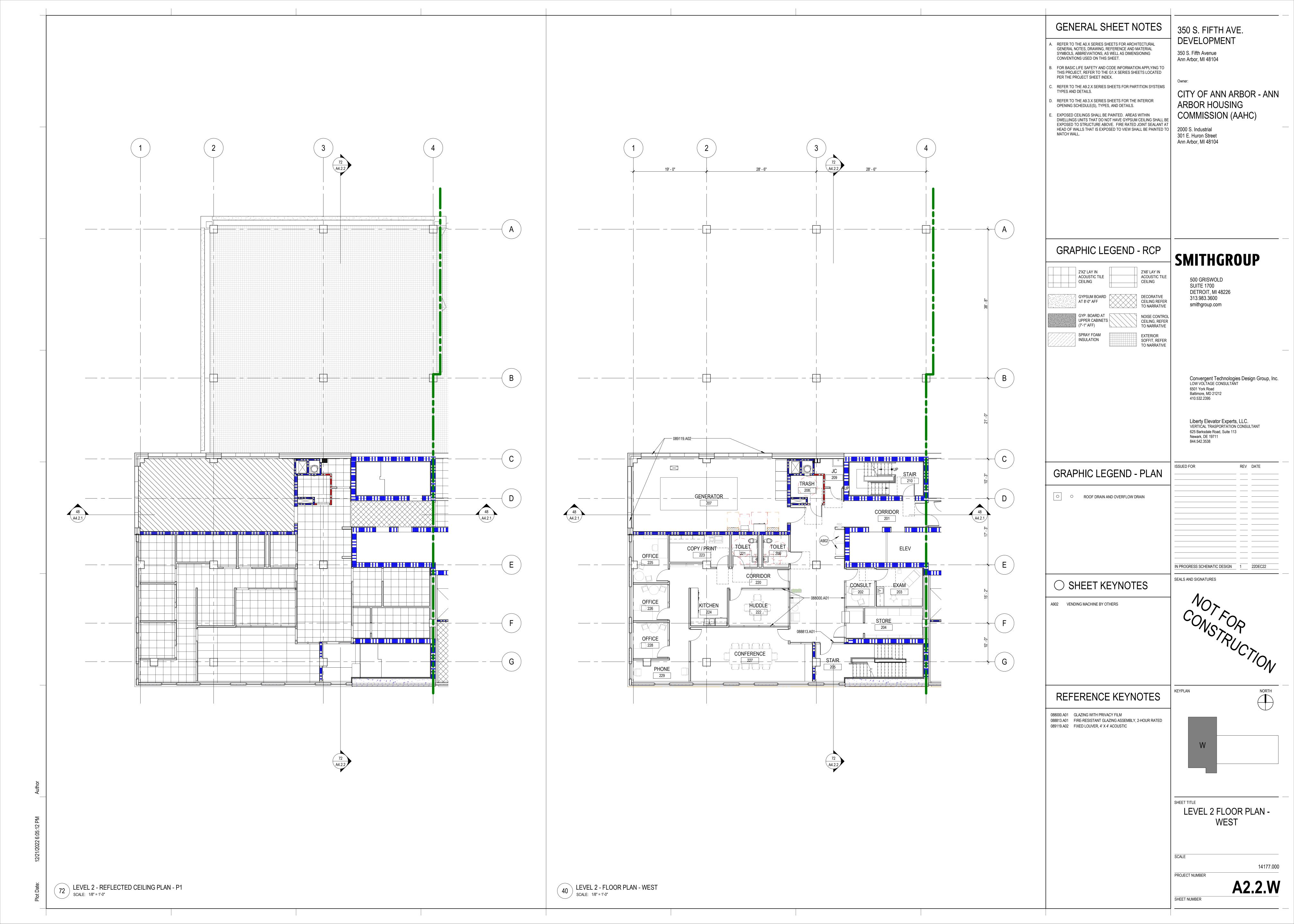


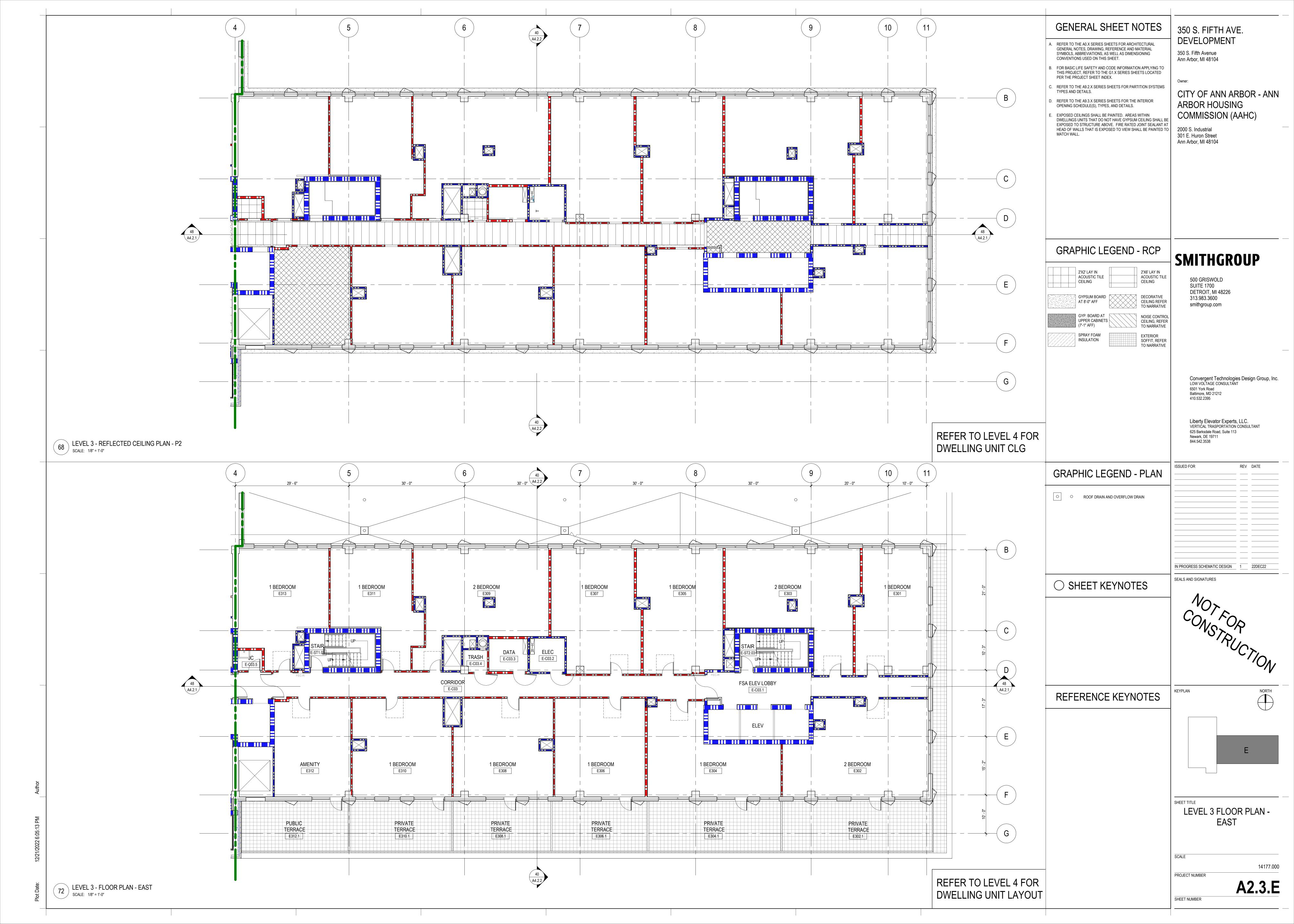


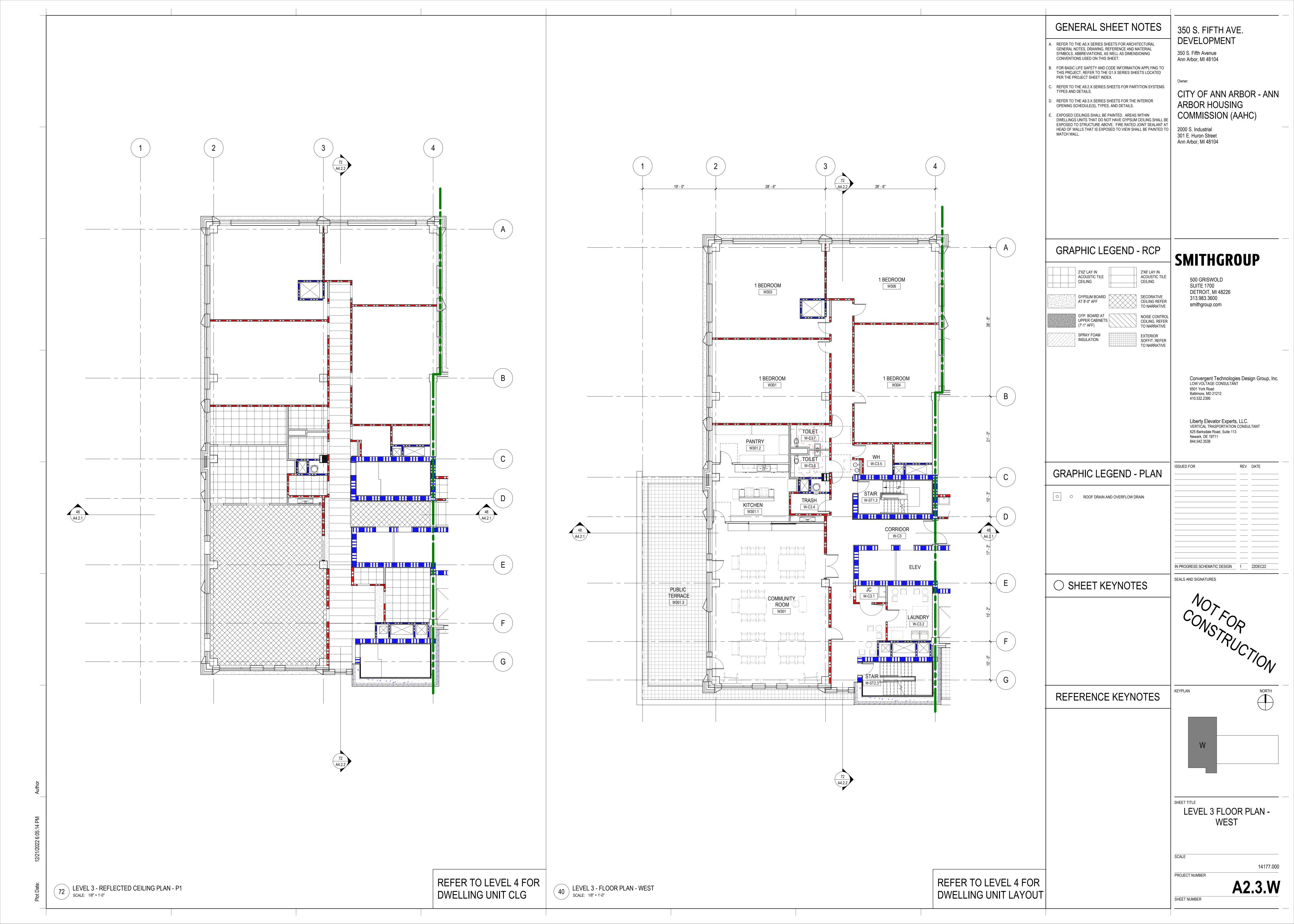


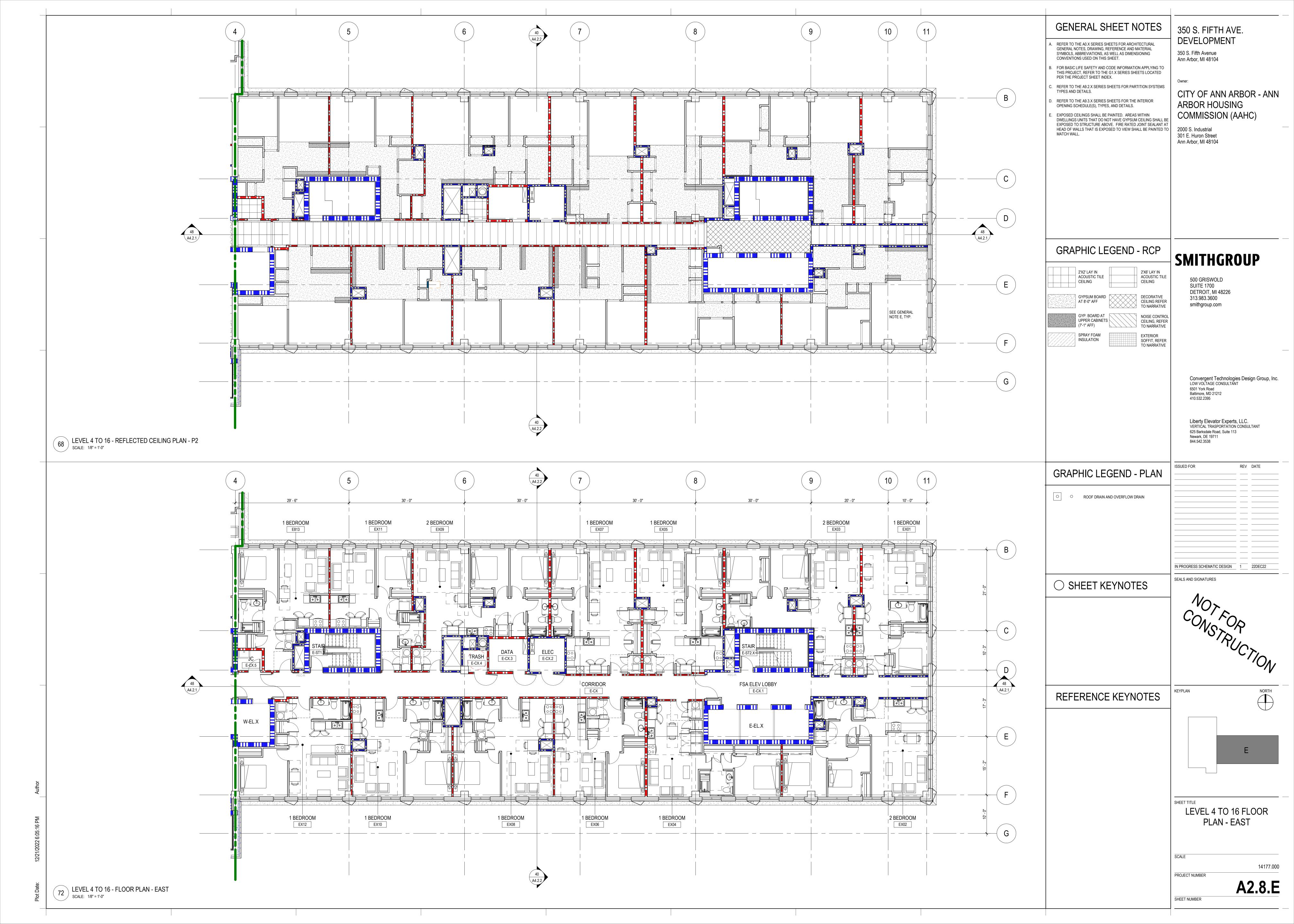


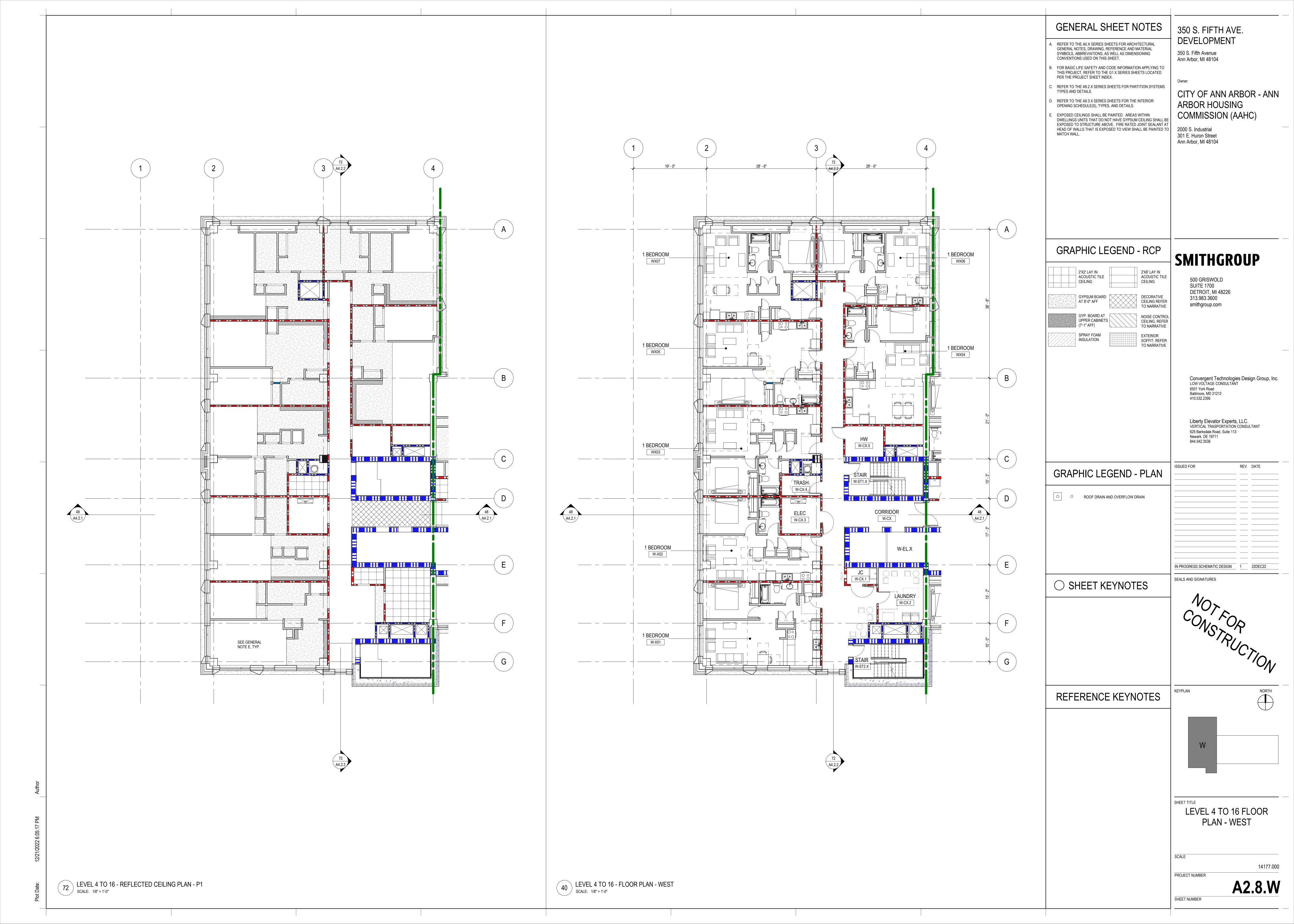


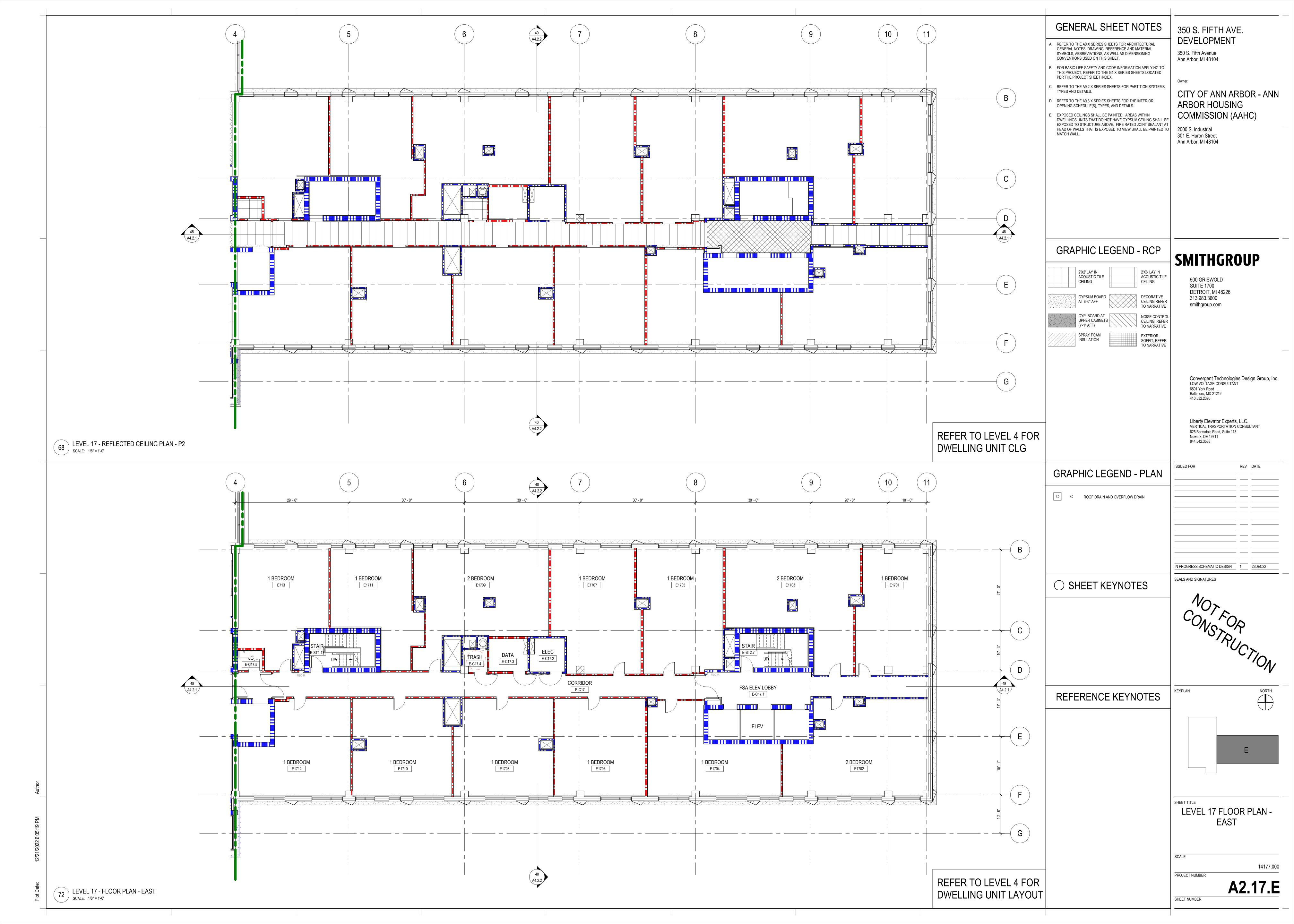


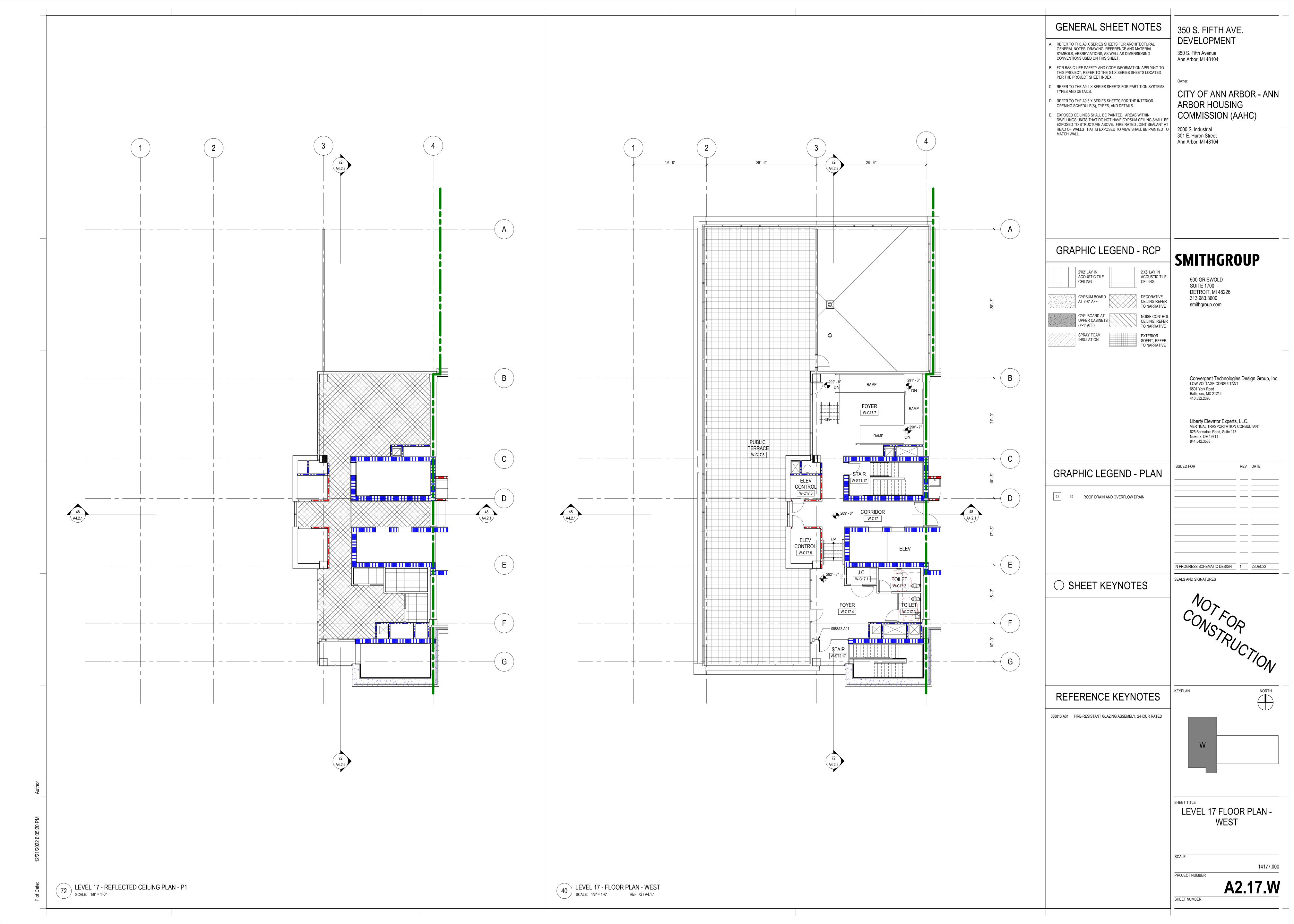


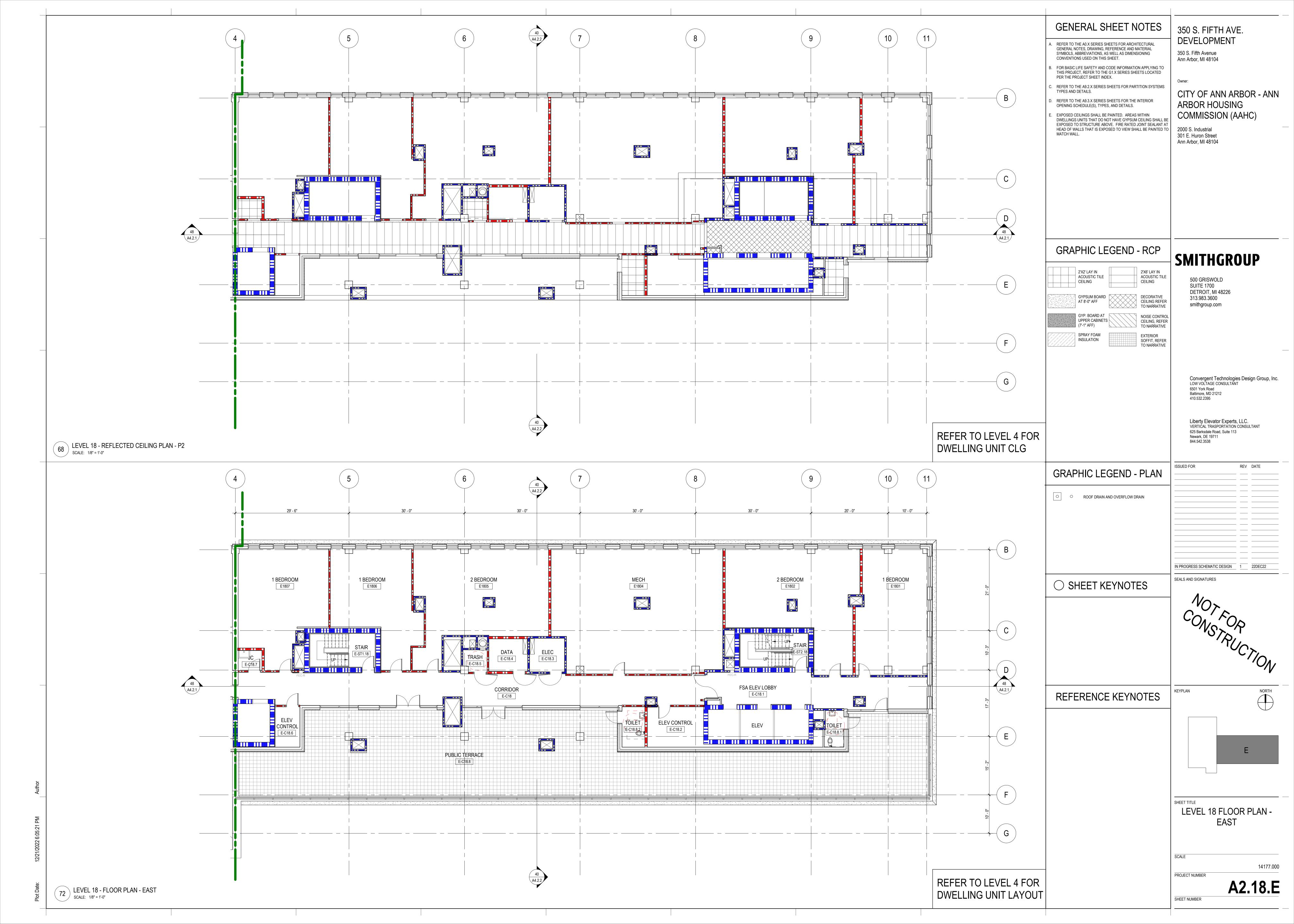


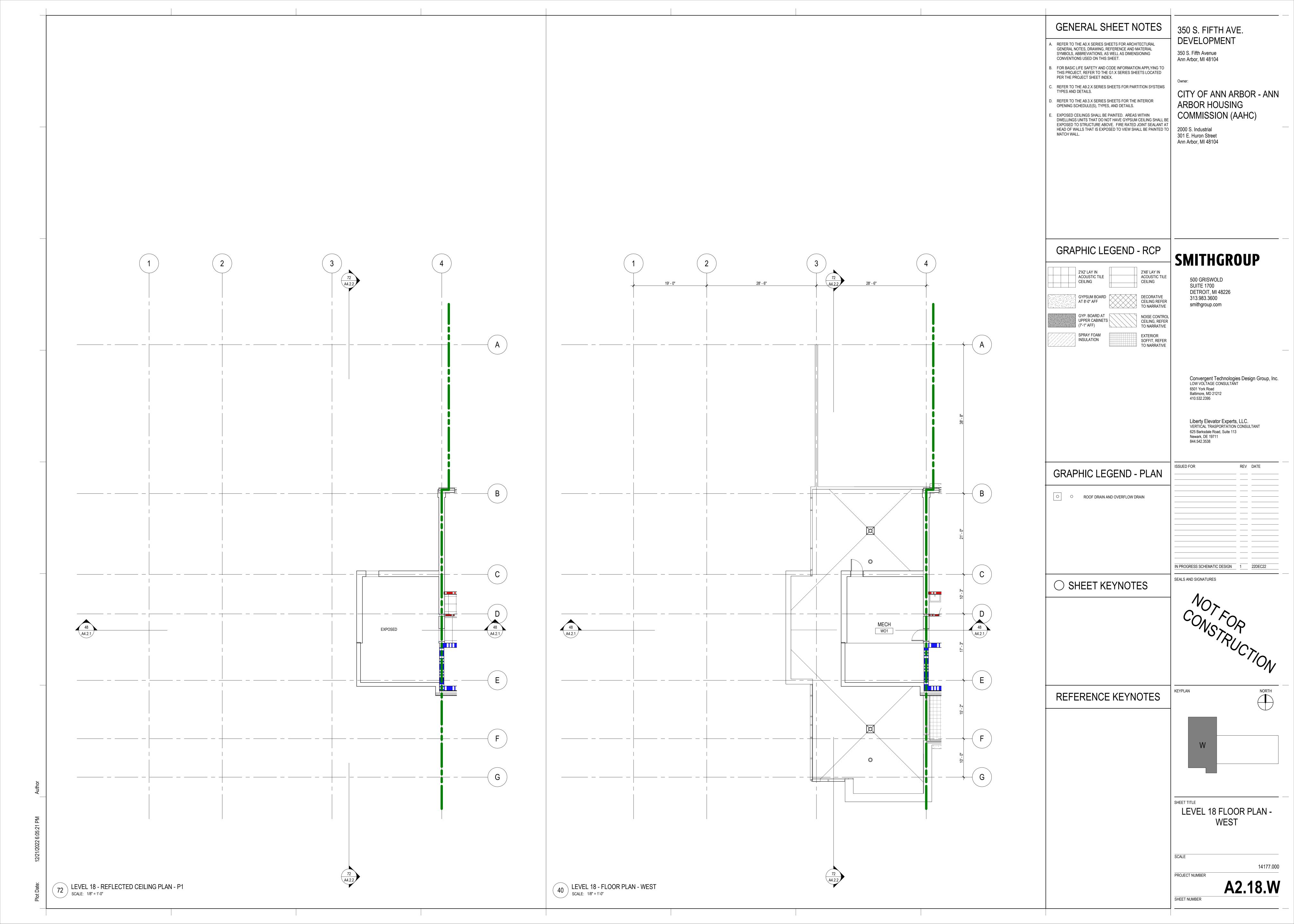


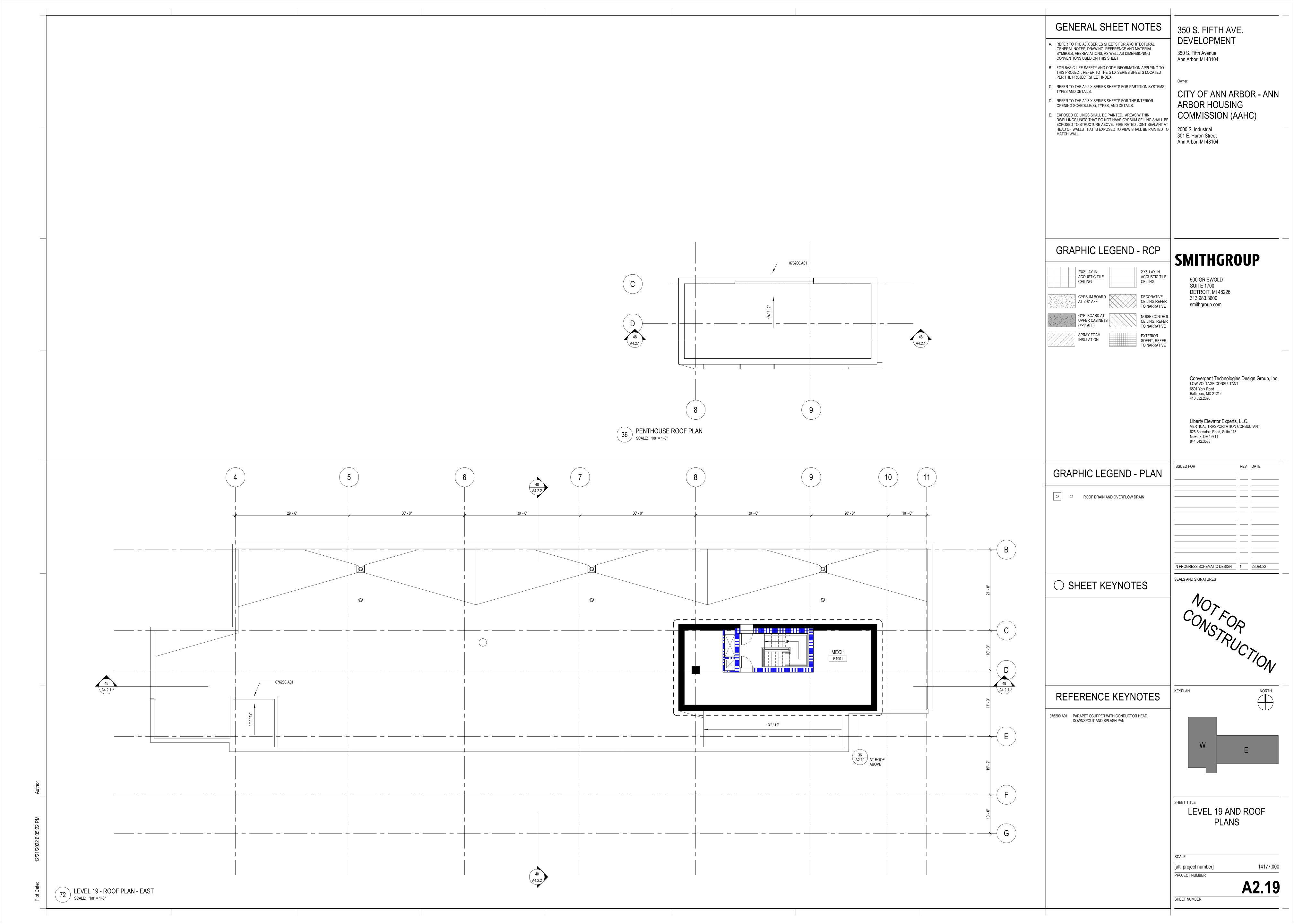


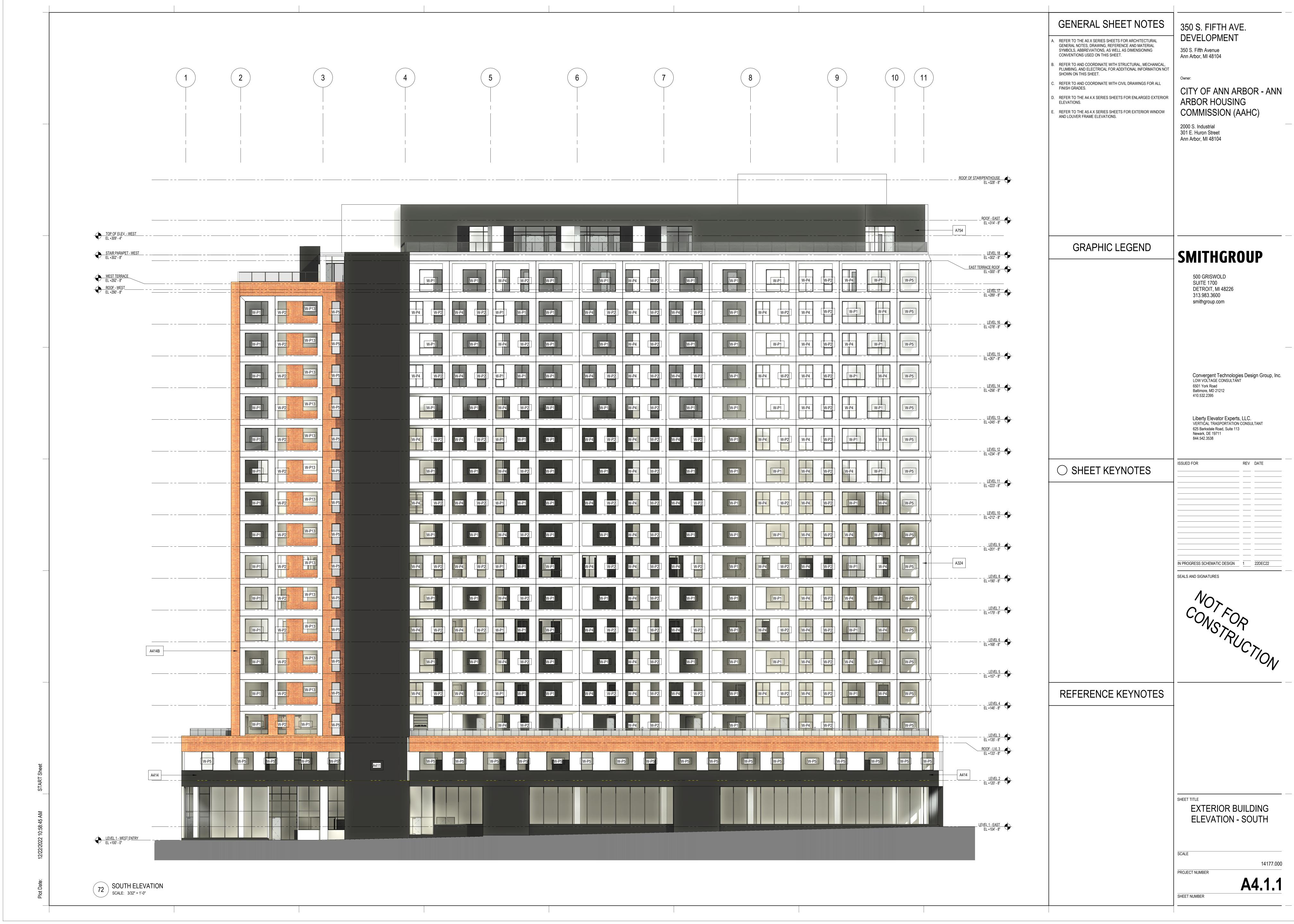


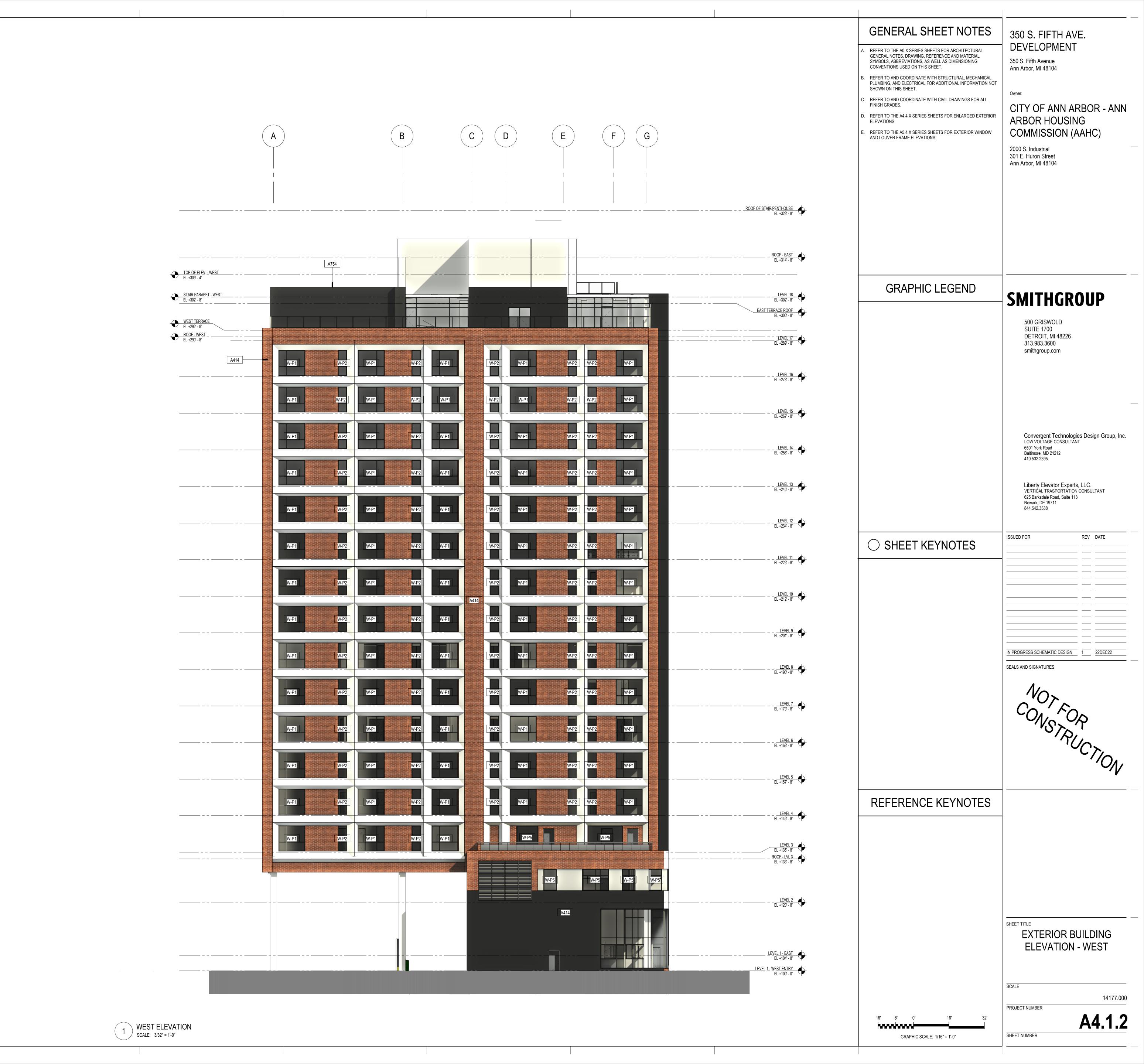






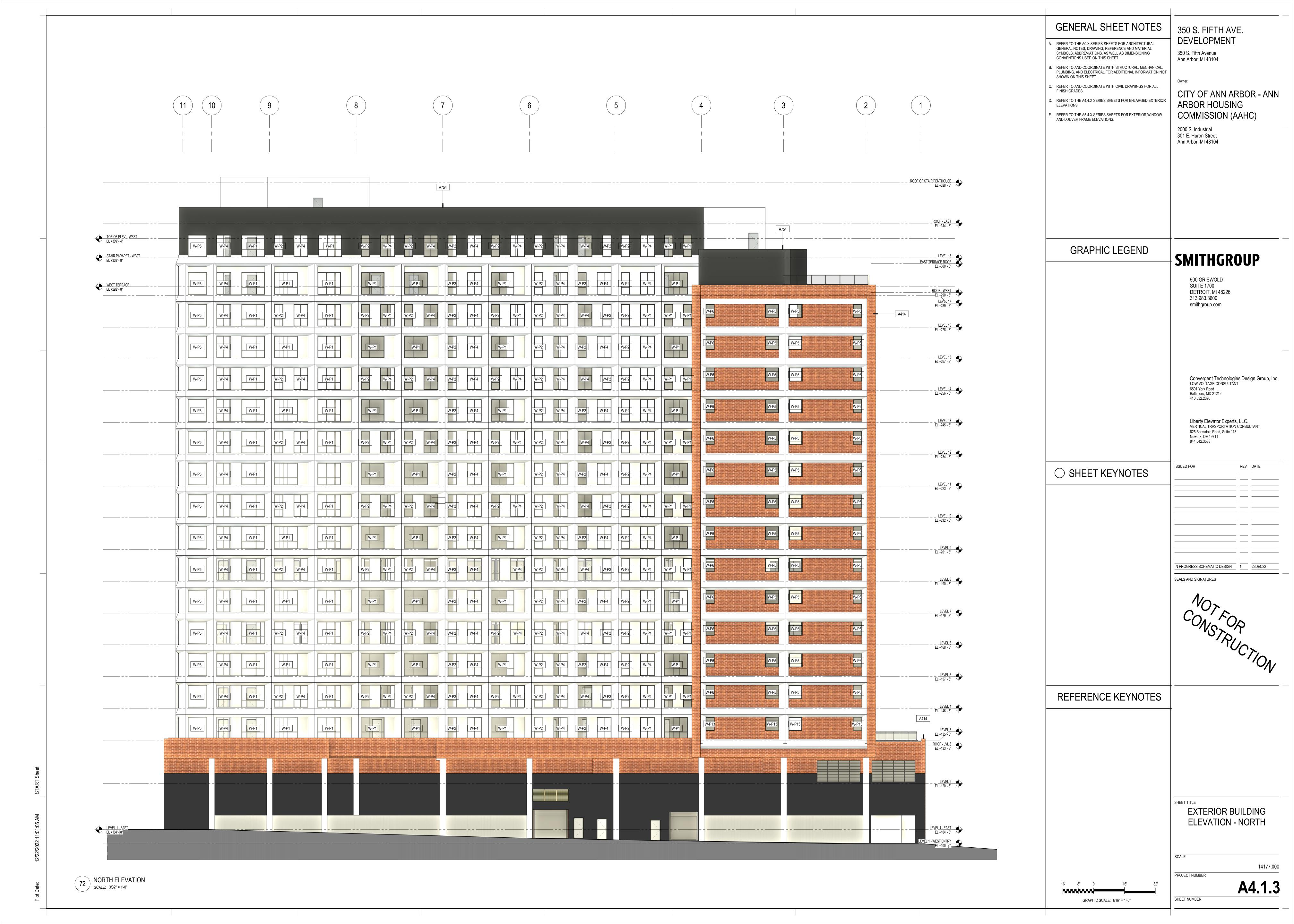


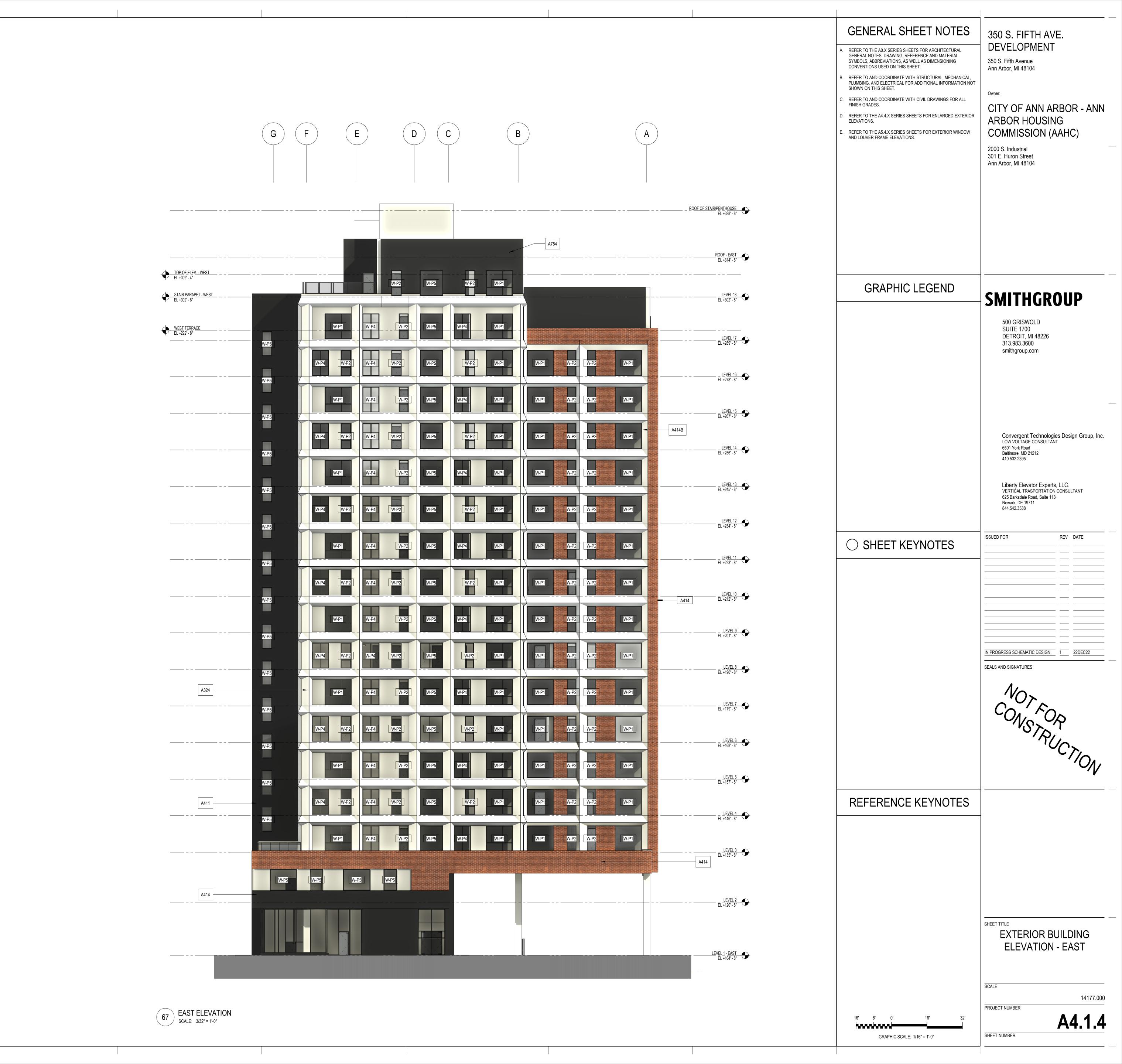




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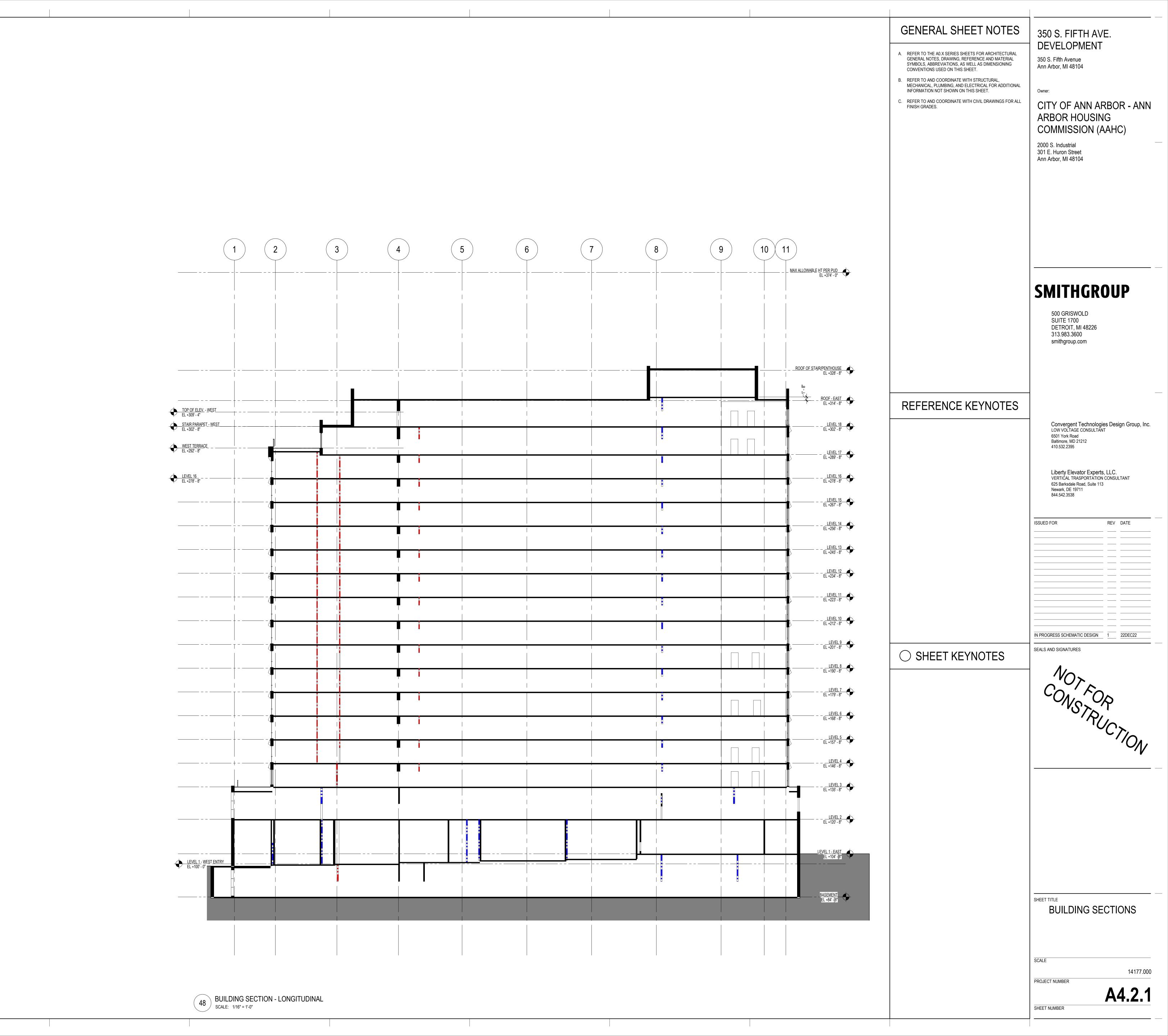
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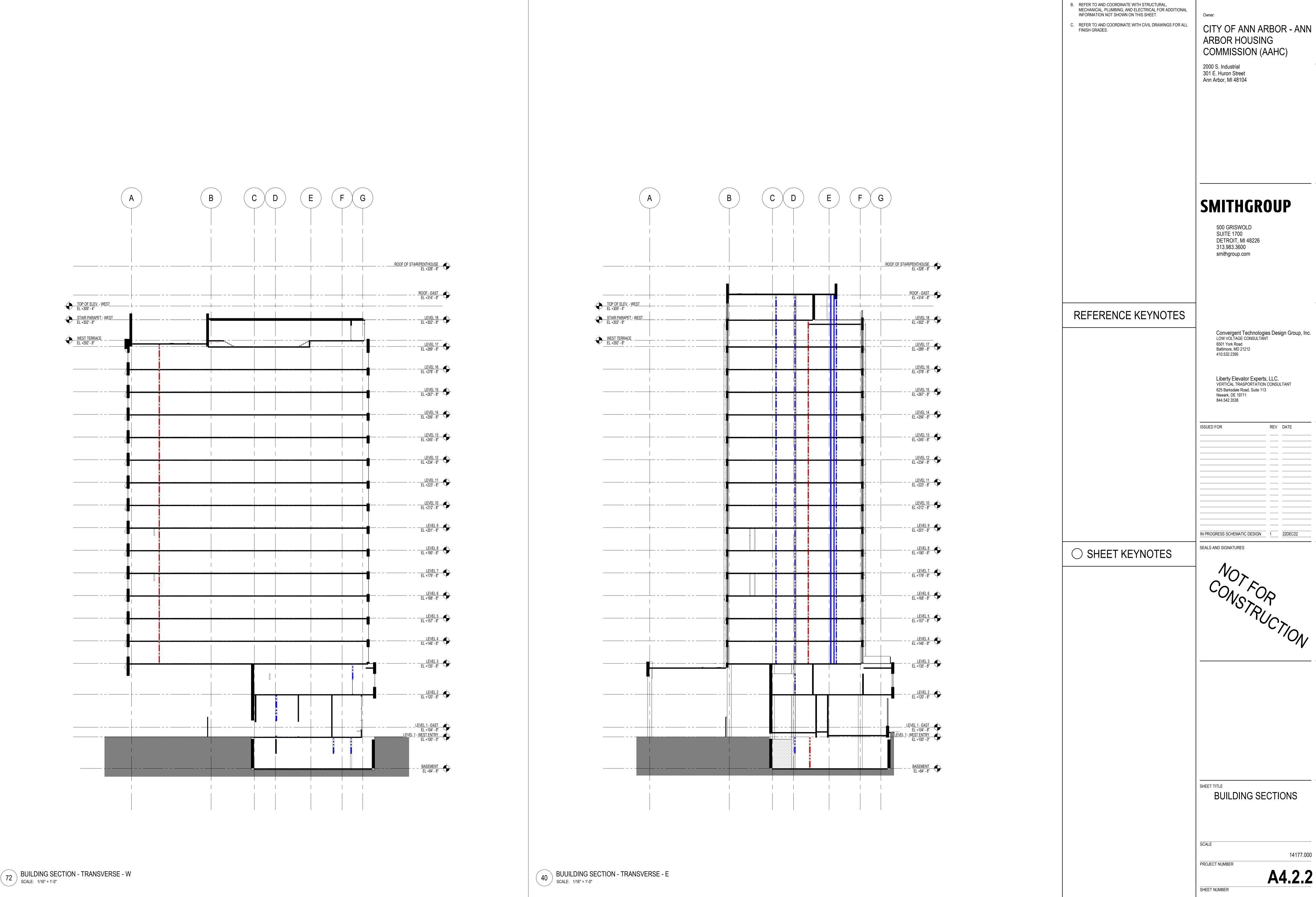


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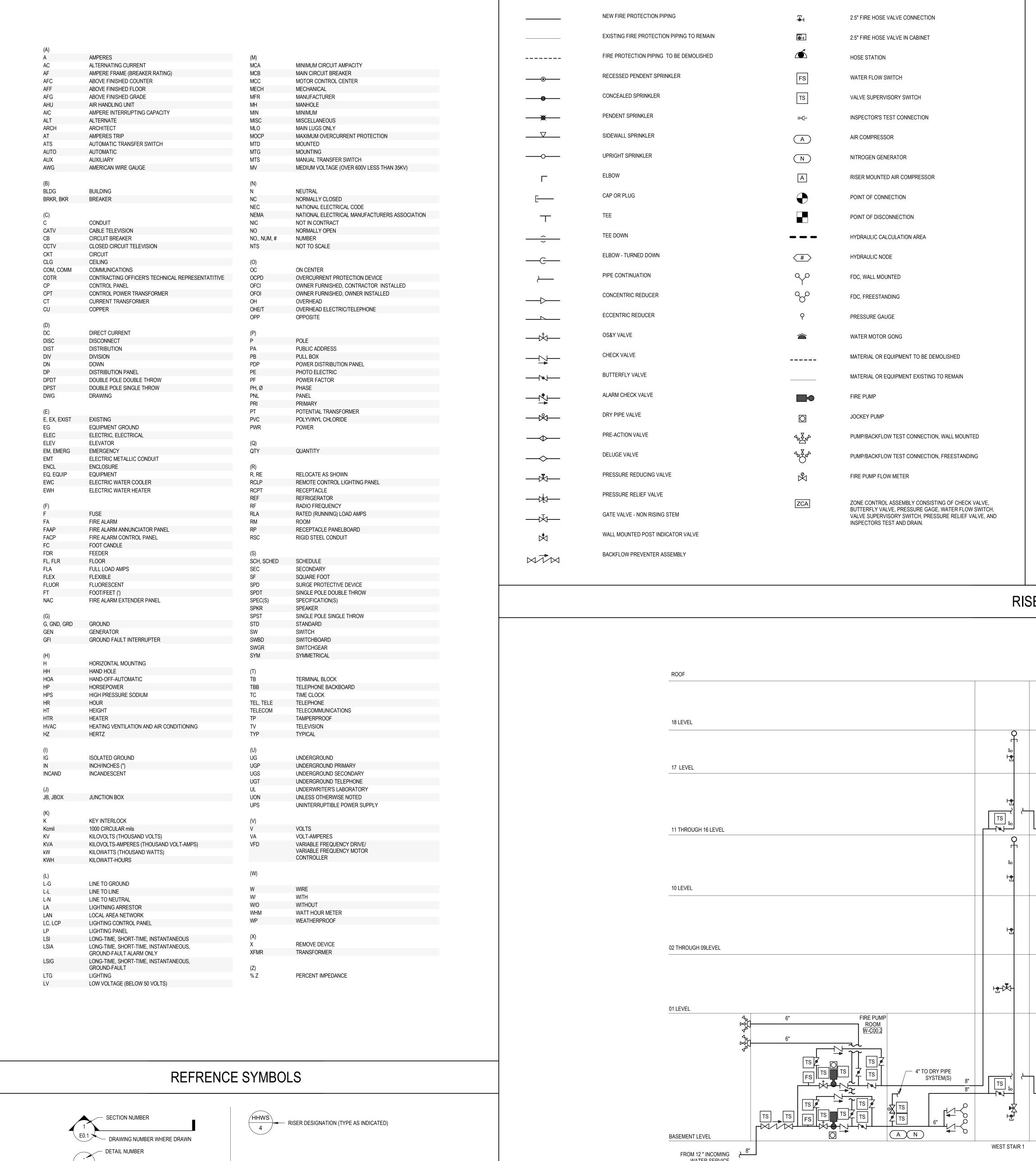
GENERAL SHEET NOTES

A. REFER TO THE A0.X SERIES SHEETS FOR ARCHITECTURAL GENERAL NOTES, DRAWING, REFERENCE AND MATERIAL

SYMBOLS, ABBREVIATIONS, AS WELL AS DIMENSIONING CONVENTIONS USED ON THIS SHEET.

350 S. FIFTH AVE. DEVELOPMENT

350 S. Fifth Avenue Ann Arbor, MI 48104



FIRE SUPPRESSION ABBREVIATIONS

FIRE SUPPRESSION GENERAL NOTES

- SCOPE OF WORK: PROVIDE A COMPLETE HYDRAULICALLY- CALCULATED AUTOMATIC SPRINKLER SYSTEM AND AUTOMATIC WET STANDPIPE SYSTEM THROUGHOUT THE AREA OF WORK, INCLUDING BUT NOT LIMITED TO FIRE PUMP, BACKFLOW PREVENTER ASSEMBLY, ZONE CONTROL ASSEMBLIES, WATER FLOW ALARM SWITCHES, VALVE SUPERVISORY SWITCHES, CHECK VALVES, CONTROL VALVES, PIPING. HANGERS, SPRINKLERS, ALL ASSOCIATED EQUIPMENT, WIRING AND APPURTENANCES, NORMALLY AND CUSTOMARILY REQUIRED, WHETHER INDICATED OR INHERENTLY NECESSARY DUE TO THE NATURE OF THE WORK, FOR A COMPLETE AND OPERATIONAL SYSTEM.
- . ALL WORK SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE APPLICABLE BUILDING AND FIRE CODES AND THE REFERENCED EDITIONS OF NFPA 13, 14, 20, 70 AND 72.
- WHERE ANY CONFLICT AND/OR DISCREPANCY BETWEEN THESE GENERAL NOTES AND ANY OTHER INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS EXISTS, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL AND BE A REQUIREMENT OF THE WORK. THAT NOTWITHSTANDING, ANY SUCH CONFLICT AND/OR DISCREPANCY SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE OWNER, ARCHITECT
- 4. PROVIDE A WET PIPE SPRINKLER SYSTEM IN ALL HEATED SPACES. PROVIDE A DRY PIPE SYSTEM IN ALL SPACES REQUIRING A SPRINKLER(S) WHERE EXPOSED TO FREEZING TEMPERATURES.
- THE TERM "PROVIDE" SHALL MEAN FURNISH, INSTALL AND CONNECT EQUIPMENT/DEVICE FOR A COMPLETE AND OPERATIONAL SYSTEM. THE TERM "REMOVE" SHALL MEAN DISCONNECT AND CLEAR EQUIPMENT/DEVICE FROM SITE, AS WELL AS MAINTAINING UPSTREAM AND DOWNSTREAM EQUIPMENT/DEVICES AS REQUIRED.
- RIGHT ANGLES TO STRUCTURAL STEEL OR CONCRETE ELEMENTS.

6. THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC AND INTENDED TO SHOW DESIGN INTENT ONLY. RUN ALL PIPING STRAIGHT AND TIGHT TO THE FACE OF STRUCTURAL MEMBERS AND WALLS, PARALLEL AND AT

- CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS ON DRAWINGS PRIOR TO EXECUTION OF THIS CONTRACT. IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR TO VERIFY JOB CONDITIONS AND COORDINATE ALL SYSTEM COMPONENTS. CONTRACTOR SHALL REPORT ANY DISCREPANCIES WITH THESE DRAWINGS TO THE ENGINEER IMMEDIATELY.
- 8. COORDINATE ALL WORK AND AVOID ALL CONFLICTS WITH LIGHTING FIXTURES, DIFFUSERS, GRILLS, DUCTS, STRUCTURAL MEMBERS, PIPES AND OTHER OBSTRUCTIONS.
- 9. NO STRUCTURAL MEMBERS SHALL BE CUT, DRILLED OR BURNED UNLESS PREVIOUSLY APPROVED BY THE STRUCTURAL ENGINEER, FURTHER, ANY APPROVED CUTTING OR PATCHING OF ANY STRUCTURAL WORK SHALL NOT RESULT IN A REDUCTION OF LOAD-CARRYING AND/OR LOAD-DEFLECTION RATIO. PRIOR TO SUCH WORK, OBTAIN APPROVAL FROM THE ENGINEER OF RECORD.
- 10. ALL WALL AND FLOOR PENETRATIONS SHALL BE CORE-DRILLED, PROVIDE PIPE SLEEVES FOR WALL AND FLOOR PENETRATIONS AS INDICATED IN THE SPECIFICATIONS, ALL PENETRATIONS IN WALLS, CEILINGS AND FLOORS SHALL BE PROVIDED WITH A UL-LISTED PENETRATION SEAL ASSEMBLY, WITH A FIRE RATING EQUIVALENT TO OR GREATER THAN THE FIRE RATING OF THE BARRIER PENETRATED STAIRWAY, SHAFT
- 11. PRIOR TO CORE DRILLING, CONTRACTOR SHALL VERIFY EXISTING CONDITION NOT TO DAMAGE ANY STRUCTURAL ELEMENT, CONDUIT, REBAR, AND ETC. ANY DAMAGE RESULTING FROM THE WORK, WHETHER
- INTENTIONAL OR NOT, SHALL BE REPAIRED AT NO ADDITIONAL COST TO, AND TO THE SATISFACTION OF THE OWNER.
- 12. ALL DAMAGE TO WALLS, CEILINGS, FLOORS, AND STRUCTURAL MEMBERS FROM THE WORK SHALL BE PATCHED, REPAIRED, AND PAINTED WITH NEW MATERIALS TO MATCH ADJACENT WORK.
- 13. WHERE POSSIBLE, SPRINKLERS SHALL BE ALIGNED WITH OTHER SPRINKLERS INSTALLED IN THE SAME ROOM OR AREA.
- 14. AS A MINIMUM, MAINTAIN 6-FT 8-INCH HEAD ROOM CLEARANCE BETWEEN BOTTOM OF SPRINKLER PIPE AND FINISHED FLOOR, INCLUDING STAIRWELLS
- 15. CONTRACTOR SHALL PAY ALL REQUIRED FEES AND OBTAIN ALL NECESSARY PERMITS AND LICENSES FOR INSTALLATION OF THE WORK.

ENCLOSURES, AND FLOOR SLABS SHALL BE CONSIDERED 2-HOUR FIRE RESISTIVE RATED CONSTRUCTION UNLESS OTHERWISE NOTED.

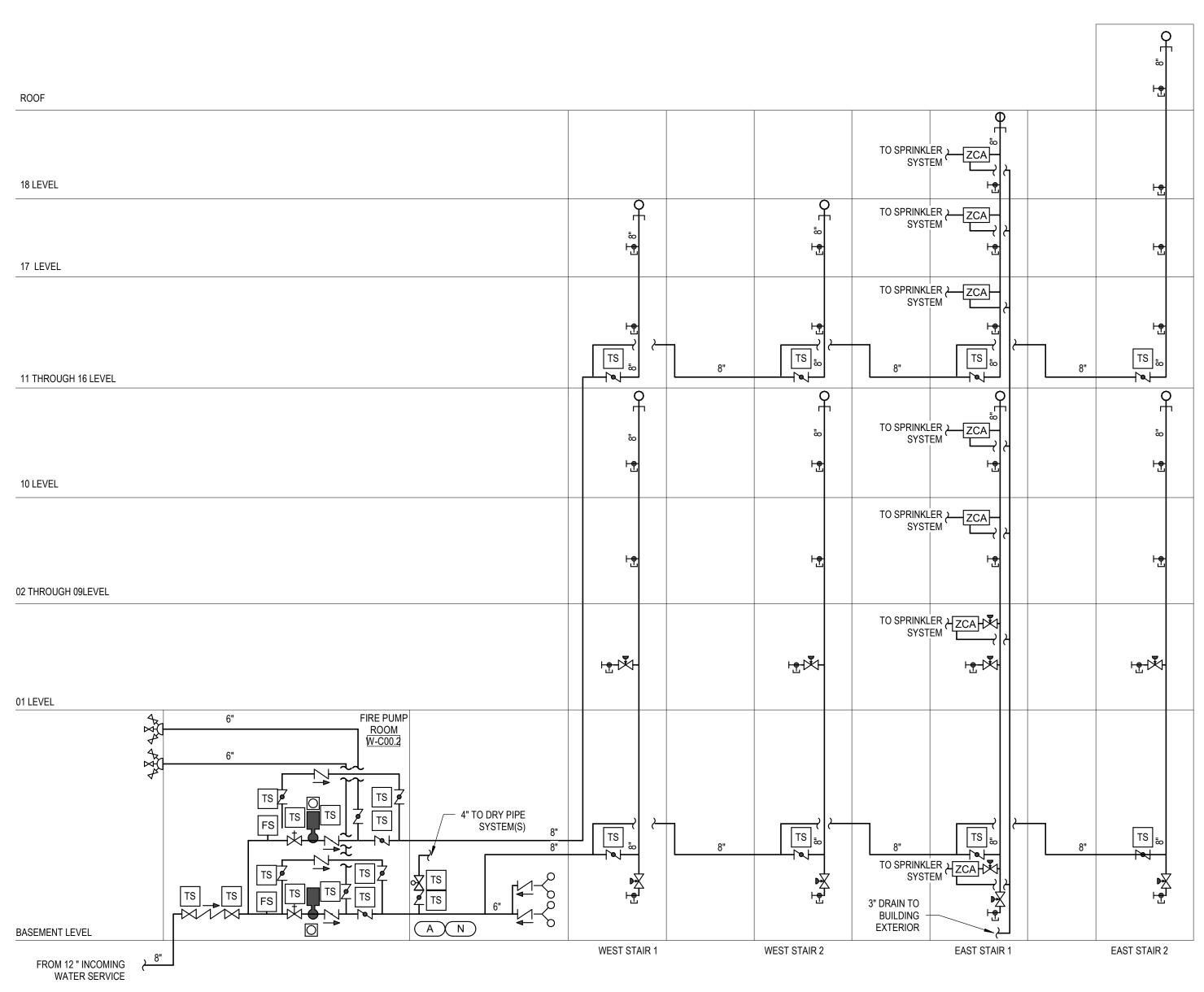
- 16. COORDINATE AND SEQUENCE THE WORK PRIOR TO FABRICATION AND INSTALLATION OF EQUIPMENT. MAKE NECESSARY ACCOMMODATIONS TO MEET THE INTENT OF THE DRAWINGS AND ENSURE A COORDINATED INSTALLATION.
- 17. RUN ALL EXPOSED ELEMENTS NEATLY, TIGHT TO THE STRUCTURE (EXCEPT WHERE NOTED), PARALLEL TO WALLS, AND AS INCONSPICUOUSLY AS POSSIBLE.
- 18. INSTALL ALL CEILING SPRINKLERS IN 2 FT X 2 FT ACOUSTICAL PANEL CEILINGS IN THE CENTER OF THE PANELS; AND IN 2 FT X 4 FT PANELS, INSTALL SPRINKLER IN THE CENTER OF THE 2 FT X 4 FT OR 2 FT X 2 I SQUARE AREAS.
- 19. PROVIDE SPRINKLER(S) UNDER ALL OBSTRUCTIONS GREATER THAN 48 INCHES IN WIDTH AND AS NEEDED TO PROVIDE PROPER COVERAGE AS REQUIRED BY NFPA 13.
- 20. PROVIDE LISTED GUARDS FOR SPRINKLER PROTECTION WHEN INSTALLED BELOW 7 FT AFF
- 21. CONTRACTOR SHALL PROVIDE AN AUTOMATIC AIR VENTING DEVICE NEAR THE HIGHEST POINT WET PIPE SPRINKLER SYSTEM(S) PER NFPA 13.
- 22. CONTRACTOR SHALL PROVIDE AUXILIARY LOW POINT DRAINS WHERE REQUIRED PER NFPA 13. WHERE AUXILIARY DRAINS ARE INSTALLED BEHIND HARD CEILINGS, PROVIDE AN ACCESSIBLE PANEL DIRECTLY
- 23. CONTRACTOR SHALL OBTAIN DATA FROM A WATER FLOW TEST CONDUCTED NO MORE THAN 12 MONTHS PRIOR TO SHOP DRAWING PLAN SUBMITTAL TO AUTHORITY HAVING JURISDICTION (AHJ). WATER FLOW
- TEST SHALL BE PERFORMED IN ACCORANCE WITH NFPA 291. 24. ALL EQUIPMENT SHALL BEAR UL LISTING LABEL AT MINIMUM, OR IF UL LABEL IS NOT AVAILABLE, THE ITEM SHALL BE TESTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING AGENCY THAT MEETS UL AND
- 25. SPRINKLER SYSTEM WATERFLOW AND CONTROL VALVE SUPERVISORY SWITCHES SHALL BE MONITORED BY BUILDING FIRE ALARM SYSTEM. COORDINATE WITH FIRE ALARM CONTRACTOR SO THAT ELECTRICAL CONNECTION CAN BE MADE BETWEEN THESE DEVICES AND BUILDING FIRE ALARM SYSTEM.
- 26. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO KEEP THE PREMISES DRY AT ALL TIMES AND PREVENT WATER DAMAGE TO SURFACES. REPAIR WATER DAMAGE RESULTING FROM THE WORK, WHETHER INTENTIONAL OR NOT, AT NO ADDITIONAL COST TO, AND TO THE SATISFACTION OF THE OWNER.
- 27. CONTRACTOR SHALL COORDINATE WITH OWNER TO AVOID FREEZING CONDITIONS DURING CONSTRUCTION ONCE WATER IS FILLED IN THE SPRINKLER SYSTEM.
- 28. HYDROSTATIC TESTING OF FIRE SUPPRESSION SYSTEMS SHALL BE COORDINATED AND WITNESSED BY ENGINEER AND/OR AHJ, BEFORE CEILING CLOSE IN.
- 29. CONTRACTOR SHALL CONDUCT FORWARD FLOW TESTING AND THE TESTING SHALL BE WITNESSED BY ENGINEER AND/OR AUTHORITY HAVING JURISDICTION.

AHJ REQUIREMENTS FOR TESTING FACILITIES. ALL EQUIPMENT SHALL BE INSTALLED PER THE LISTING AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

- 30. PROVIDE DRAINS REQUIRED BY APPLICABLE CODES, WHETHER INDICATED IN THESE PLANS OR NOT. DISCHARGE ALL DRAINS TO THE EXTERIOR, UNLESS NOTED OTHERWISE A. DISCHARGE DRAINS AT SIX INCHES ABOVE FINISHED GRADE. PROVIDE A CONCRETE SPLASH-BLOCK, WITH MINIMUM DIMENSIONS OF TWO FEET BY TWO FEET, AT EACH DRAIN.
- C. FIRE PUMP DRAINS FOR RELIEF VALVES MAY DISCHARGE TO A FLOOR DRAIN CAPABLE OF RECEIVING THE MAXIMUM DISCHARGE.
- 31. PROVIDE PRINTED METAL OR ENGRAVED PLASTIC NAMEPLATES TO IDENTIFY FUNCTION OF ALL ISOLATION VALVES, DRAIN VALVES, AND OTHER FIRE PROTECTION SYSTEM EQUIPMENT. PERMANENTLY AFFIX TO
- VALVE BODY OR HANG WITH CHAIN. CONCEALED COMPONENTS SHALL ADDITIONALLY HAVE PRINTED METAL OR ENGRAVED PLASTIC NAMEPLATES IDENTIFYING THE COMPONENT LOCATION AND FUNCTION PERMANENTLY AFFIXED TO ACCESS PANEL DOORS OR THE CEILING GRID WHERE THE COMPONENT IS ACCESSED.

B. DRAINS LOCATED IN STORIES BELOW GRADE MAY DISCHARGE AT A FLOOR DRAIN OR SUMP CAPABLE OF RECEIVING THE MAXIMUM DISCHARGE. TEST CONNECTIONS FOR ALL FLOORS SHALL DISCHARGE

RISER DIAGRAM



FIRE PROTECTION RISER DIAGRAM GENERAL NOTES

FIRE SUPPRESSION LEGENDS AND SYMBOLS

- 1. RISER DIAGRAM IS SCHEMATIC IN NATURE AND INTENDED TO INDICATE GENERAL ARRANGEMENT OF SYSTEM CONNECTIONS ONLY. REFER TO FLOOR PLANS, SPECIFICATIONS, AND APPLICABLE CODES AND STANDARDS FOR COMPLETE SYSTEM
- REQUIREMENTS. PROVIDE ALL VALVES AND ACCESSORIES NECESSARY FOR A COMPLETE SYSTEM, WHETHER INDICATED HERE OR NOT. DRAINS OMITTED FROM RISER DIAGRAM FOR CLARITY. PROVIDE DRAINS AS REQUIRED BY APPLICABLE CODES AND THE CONTRACT DOCUMENTS. ROUTE ALL DRAINS TO THE EXTERIOR, UNLESS NOTED OTHERWISE. STANDPIPE HOSE VALVES SHALL BE INSTALLED AT THE INTERMEDIATE LANDING IN ACCORDANCE WITH LOCAL REQUIREMENTS, UNLESS OTHERWISE NOTED

350 S. FIFTH AVE. DEVELOPMEN⁷

> 350 S. Fifth Avenue Ann Arbor, MI 48104

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2000 S. Industrial 301 E. Huron Street Ann Arbor, MI 48104

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410.532.2395

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REV DATE

SEALS AND SIGNATURES

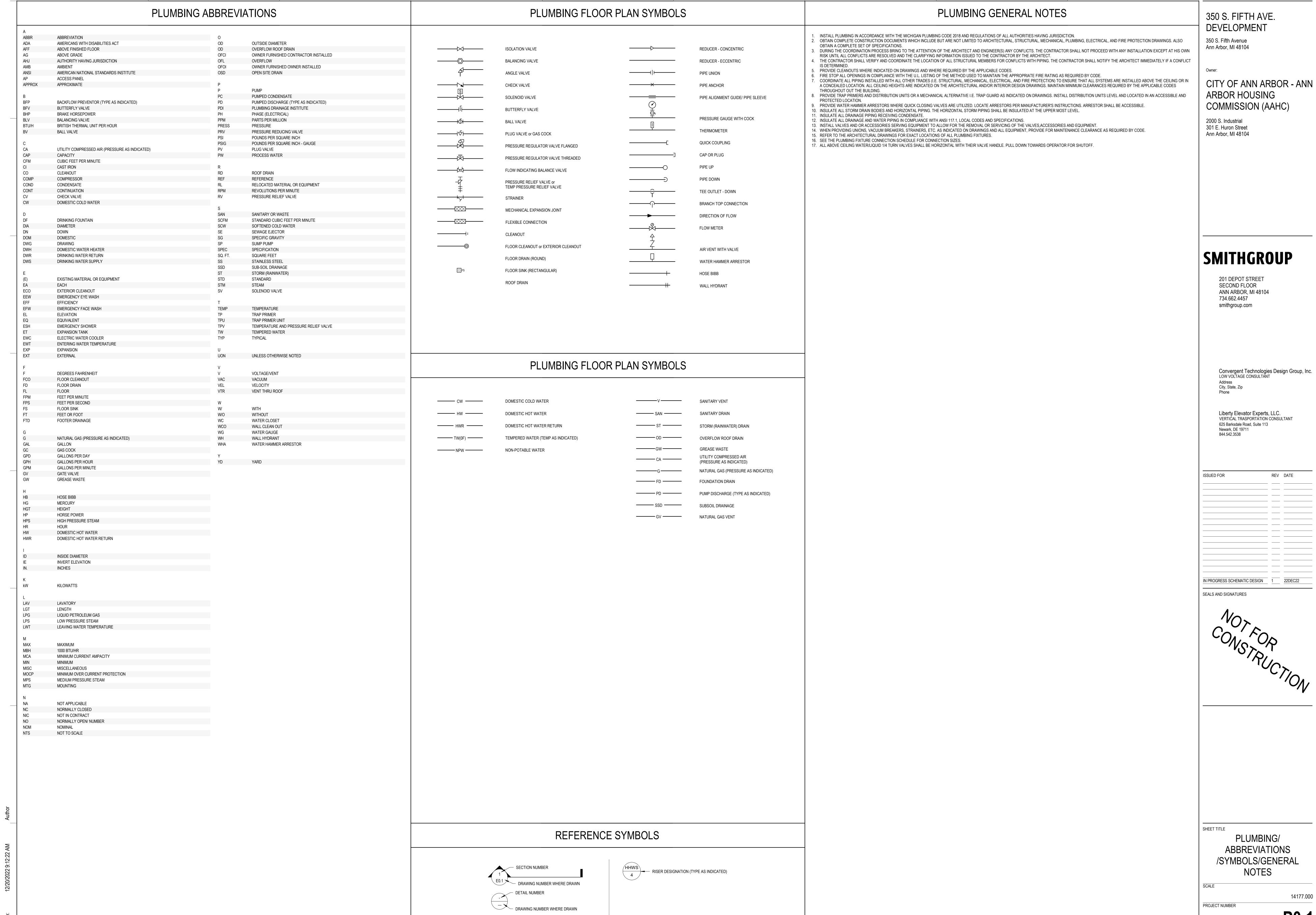
IN PROGRESS SCHEMATIC DESIGN

FIRE SUPPRESSION

ABBREVIATIONS AND

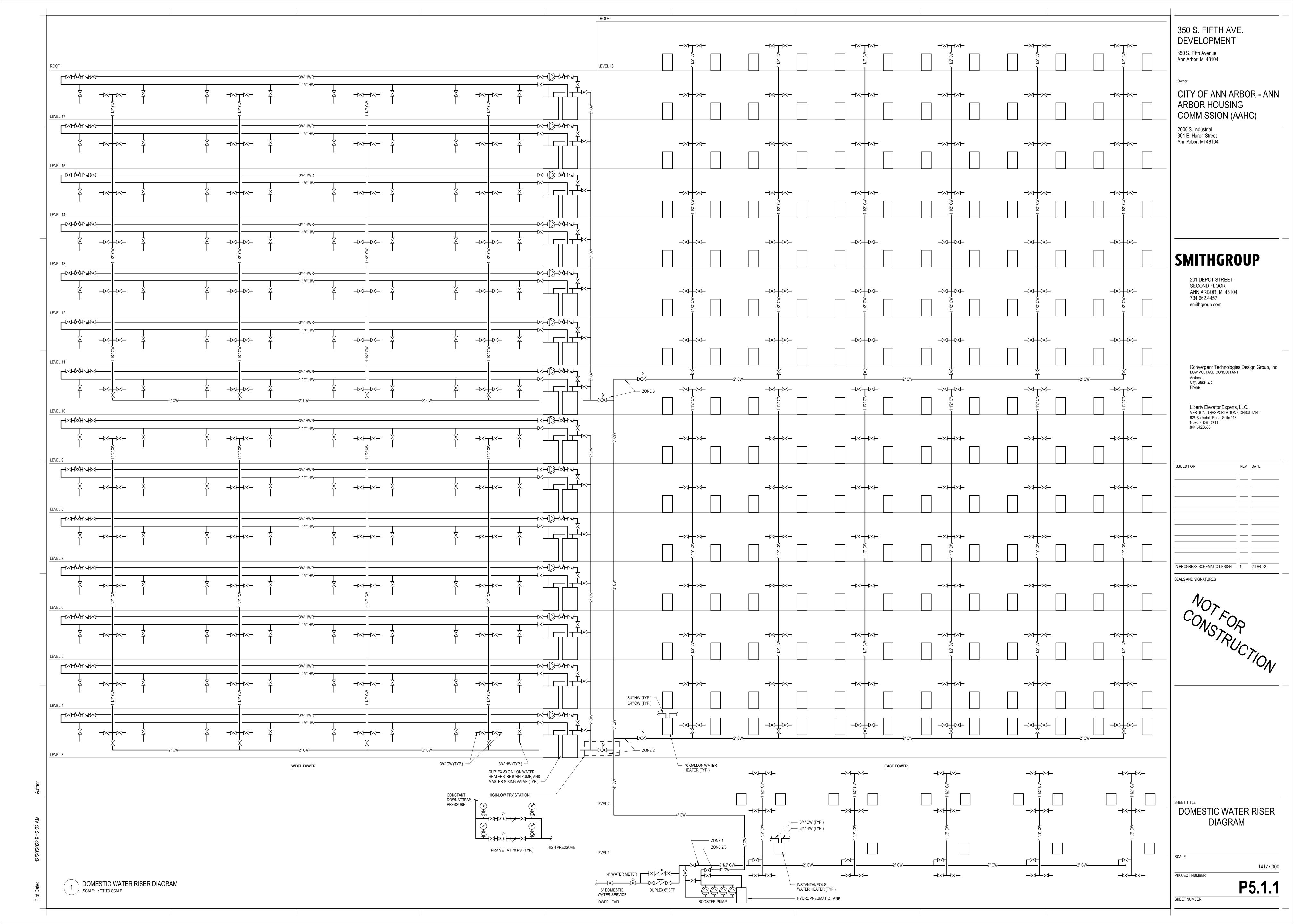
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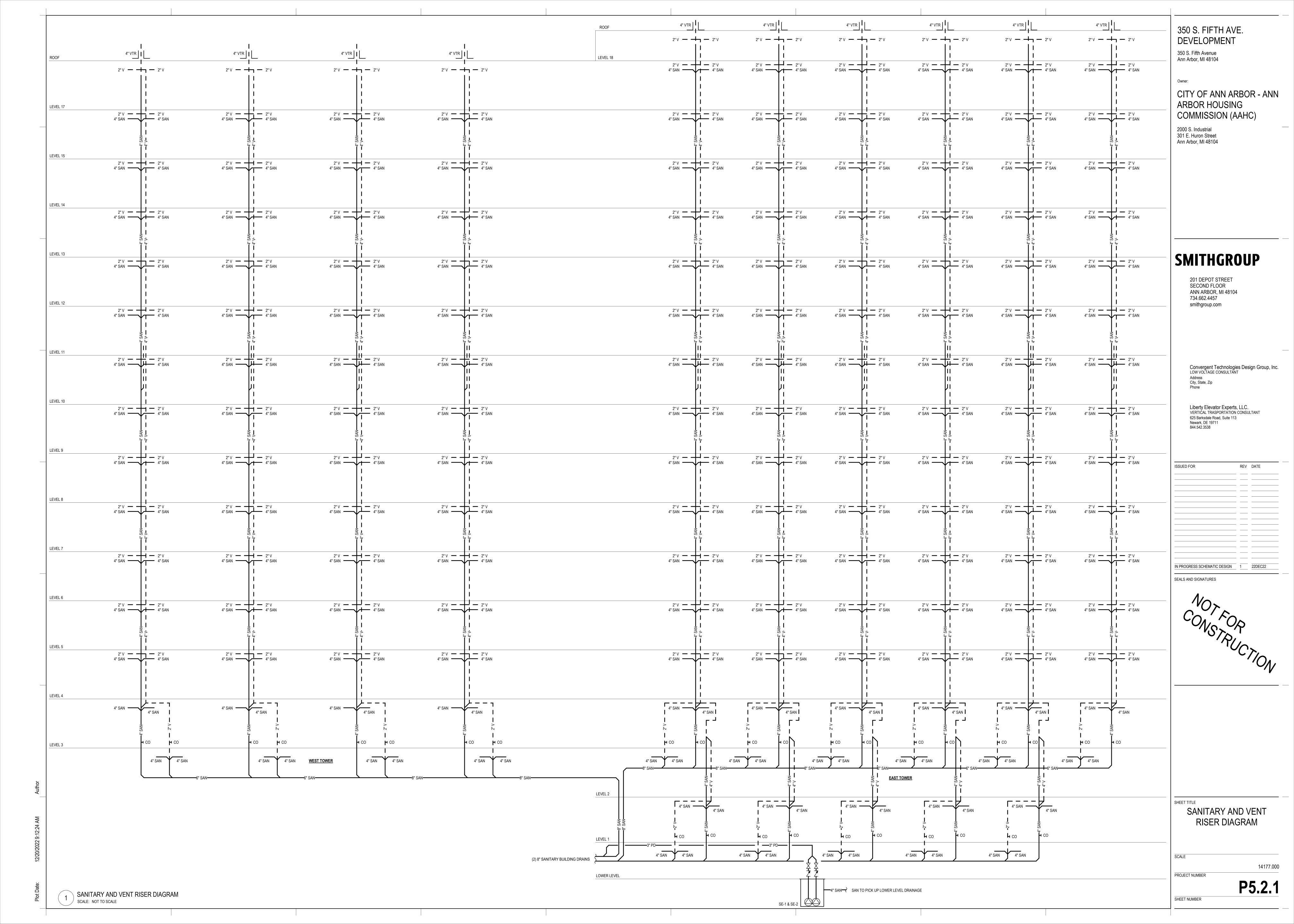
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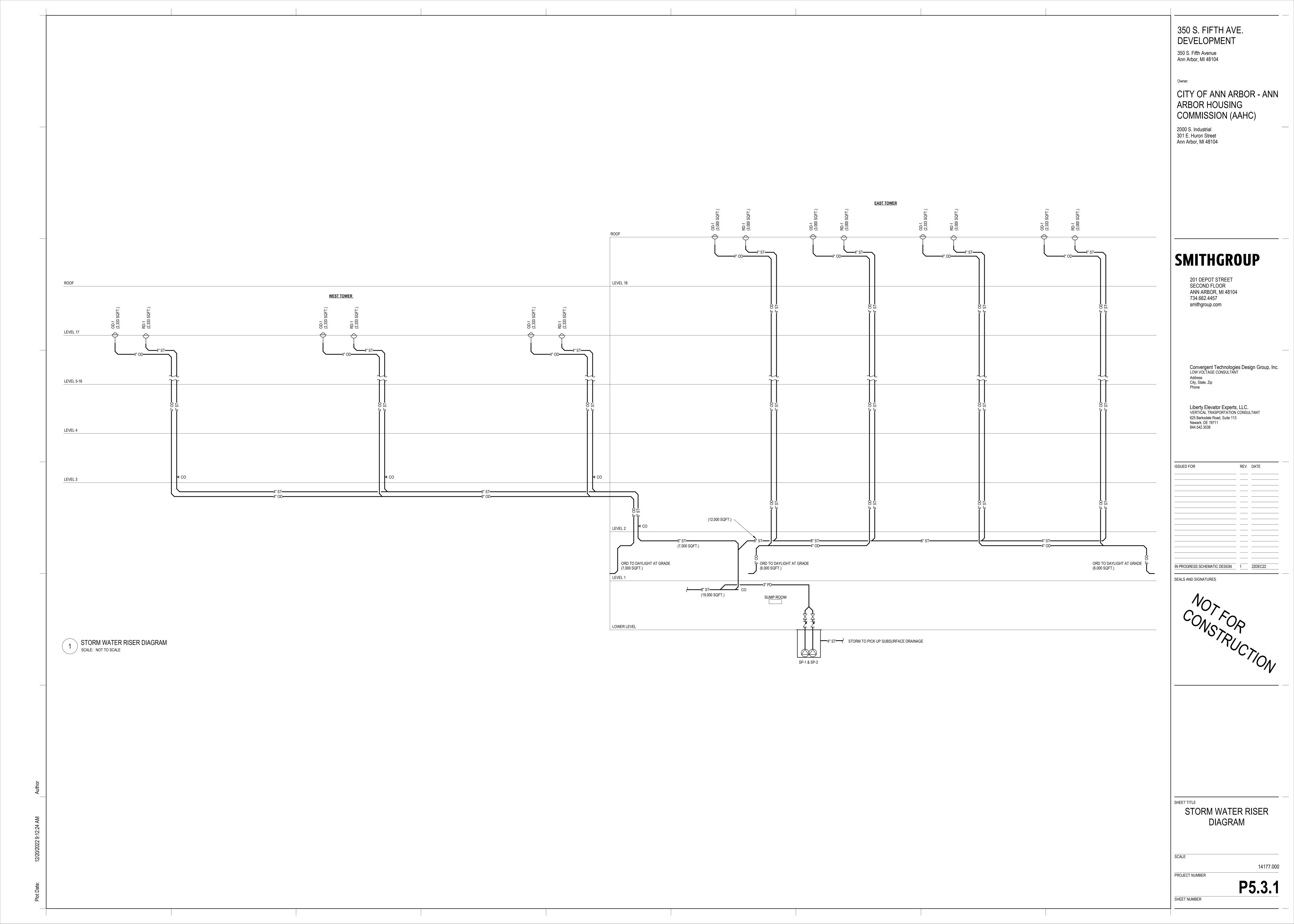


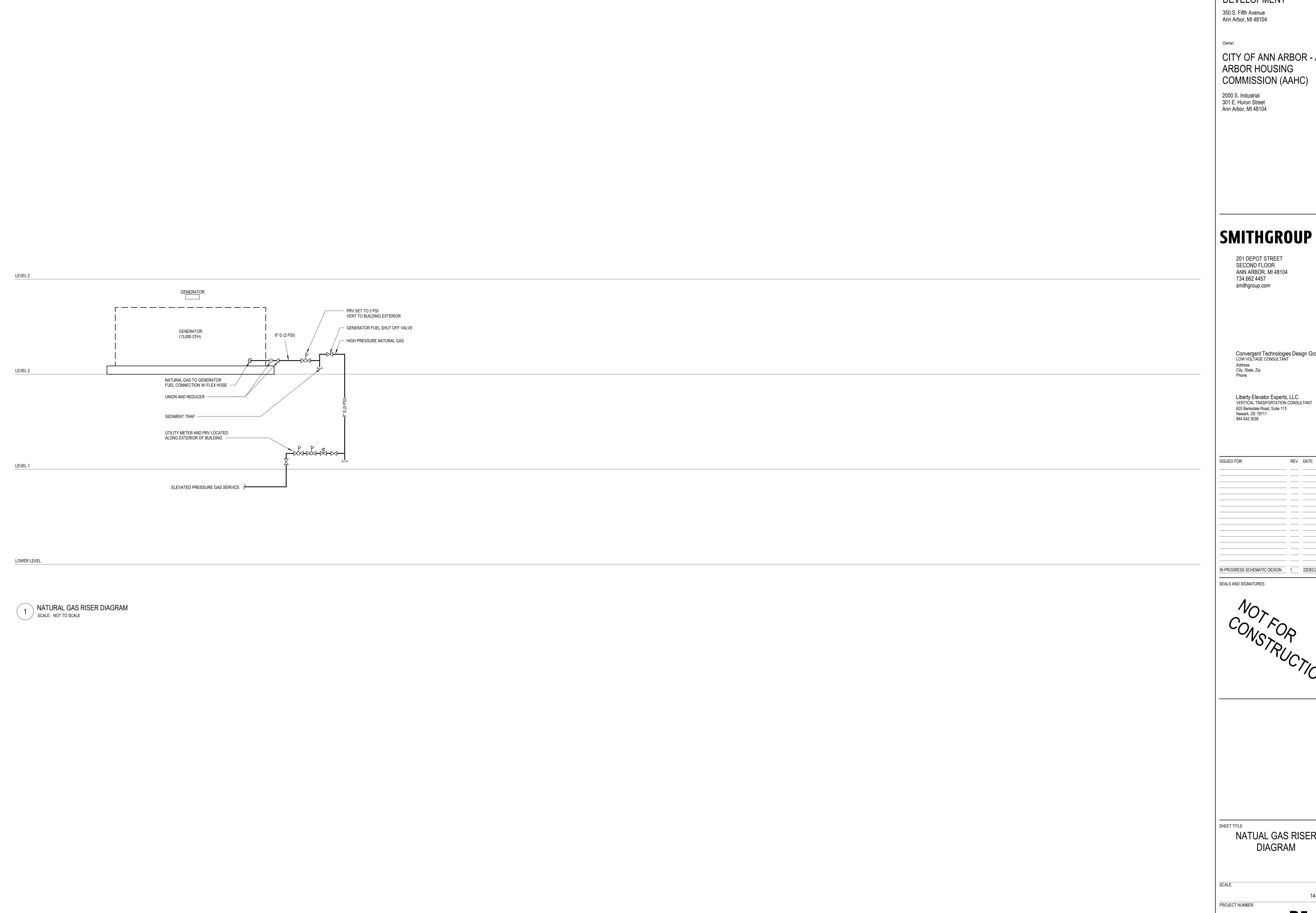
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SEE PLUMBING SYMBOLS, LEGENDS AND EQUIPMENT SCHEDULES FOR ADDITIONAL ABBREVIATIONS. ALL ABBREVIATIONS, SYMBOLS, AND LEGENDS SHOWN ON THIS DRAWINGS ARE NOT NECESSARILY USED.









350 S. FIFTH AVE. DEVELOPMENT

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201 DEPOT STREET SECOND FLOOR ANN ARBOR, MI 48104 734.662.4457

Convergent Technologies Design Group, Inc. LOW VOLTAGE CONSULTANT

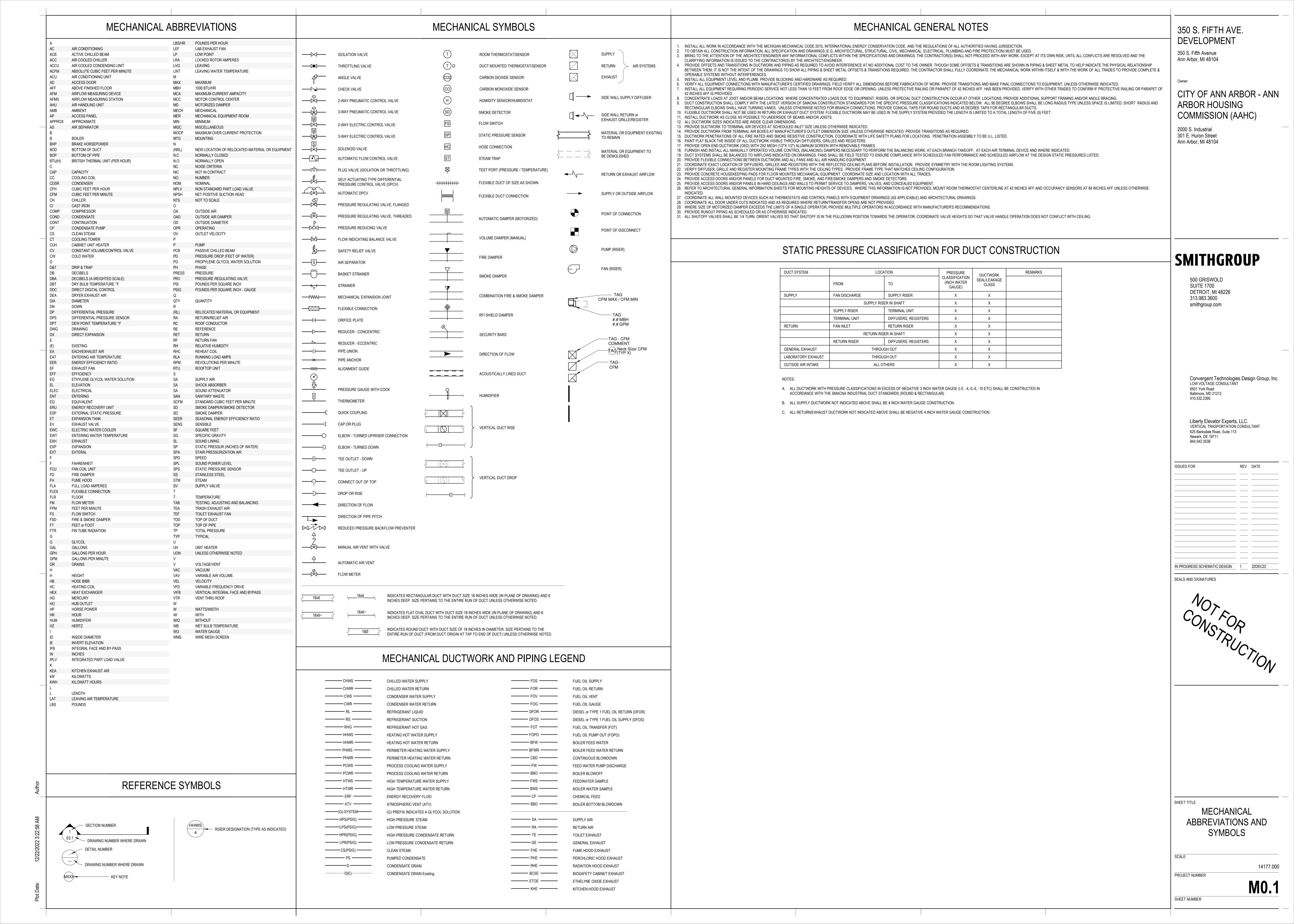
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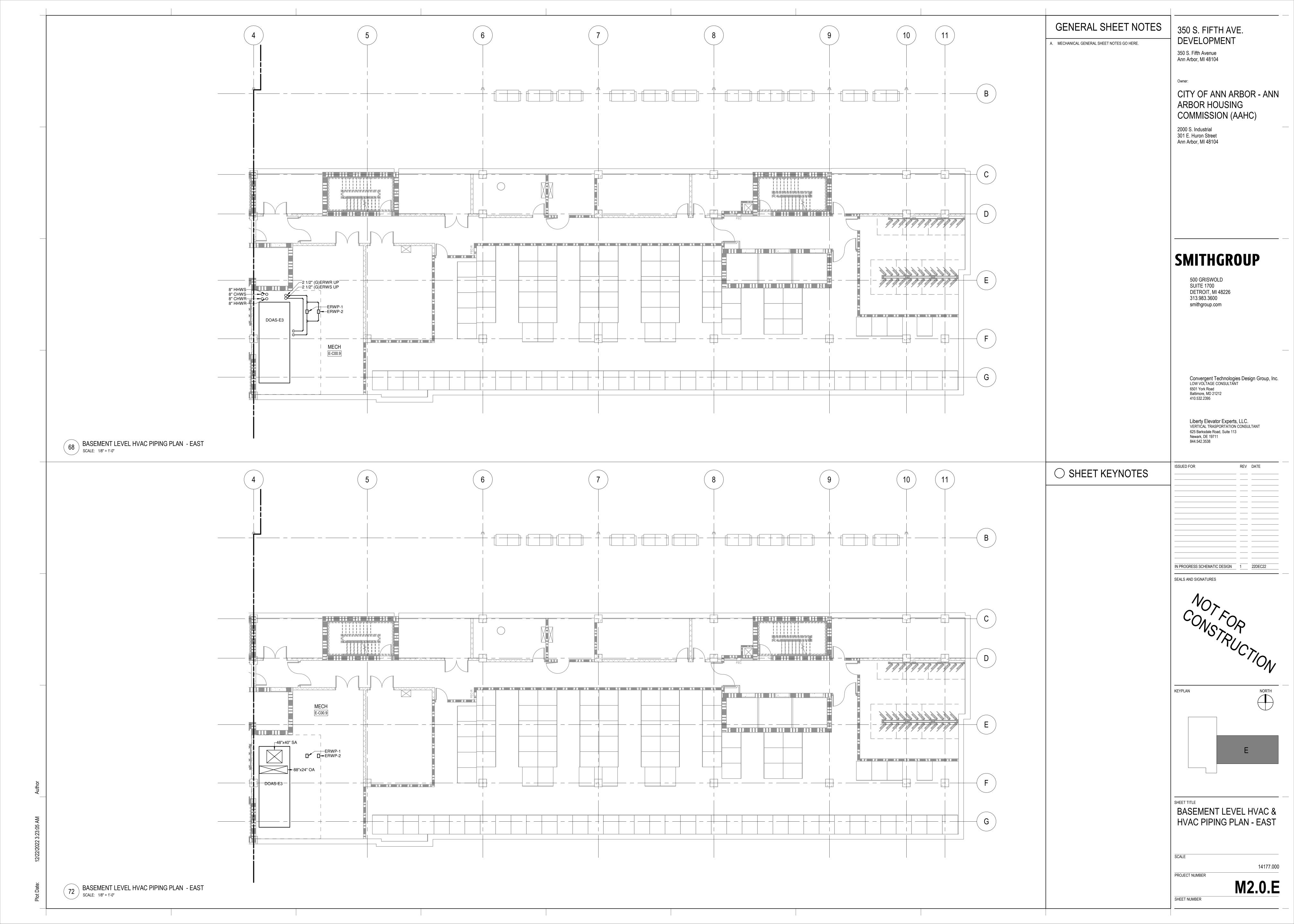
625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538

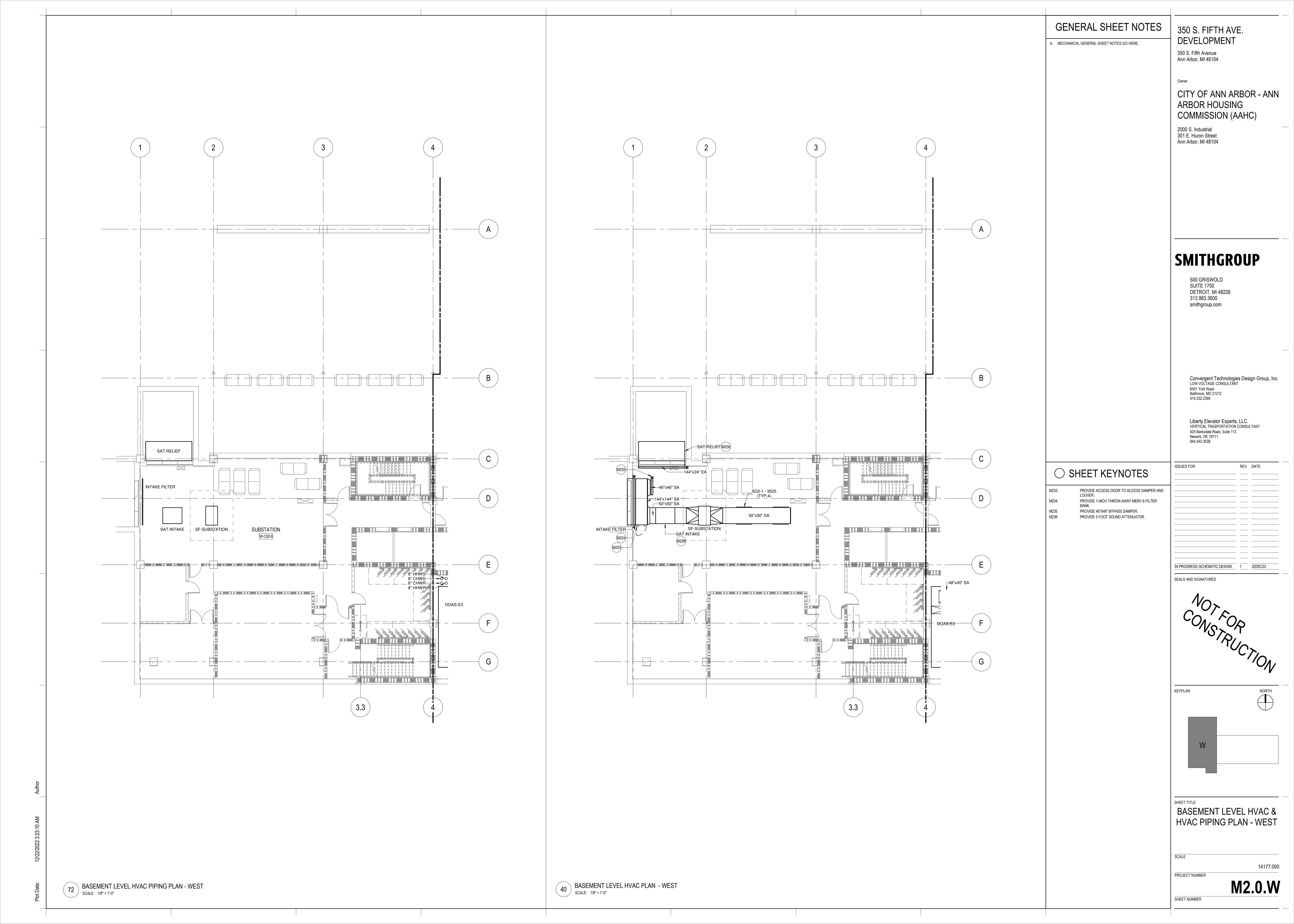
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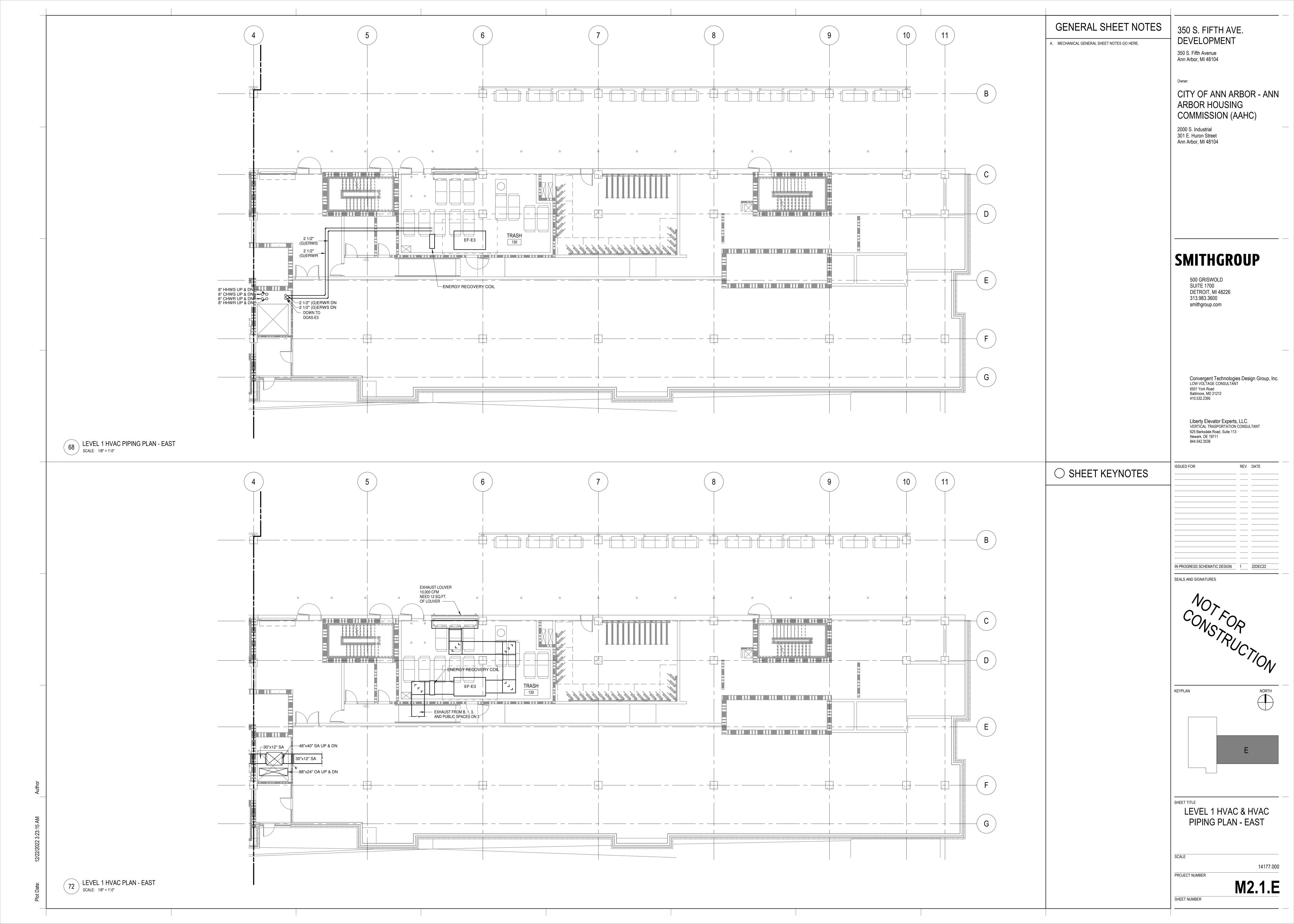
NATUAL GAS RISER

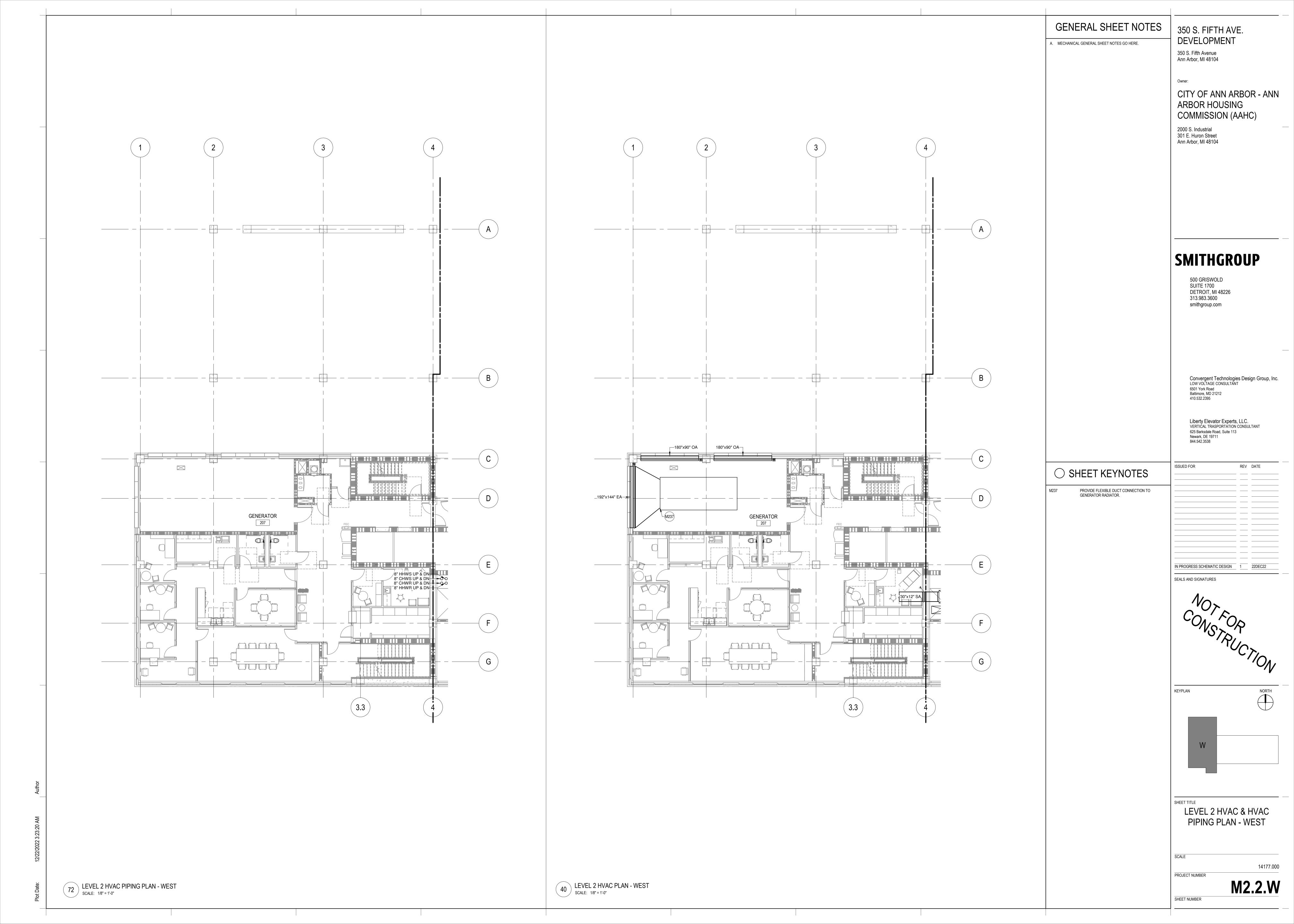
14177.000 P5.4.1

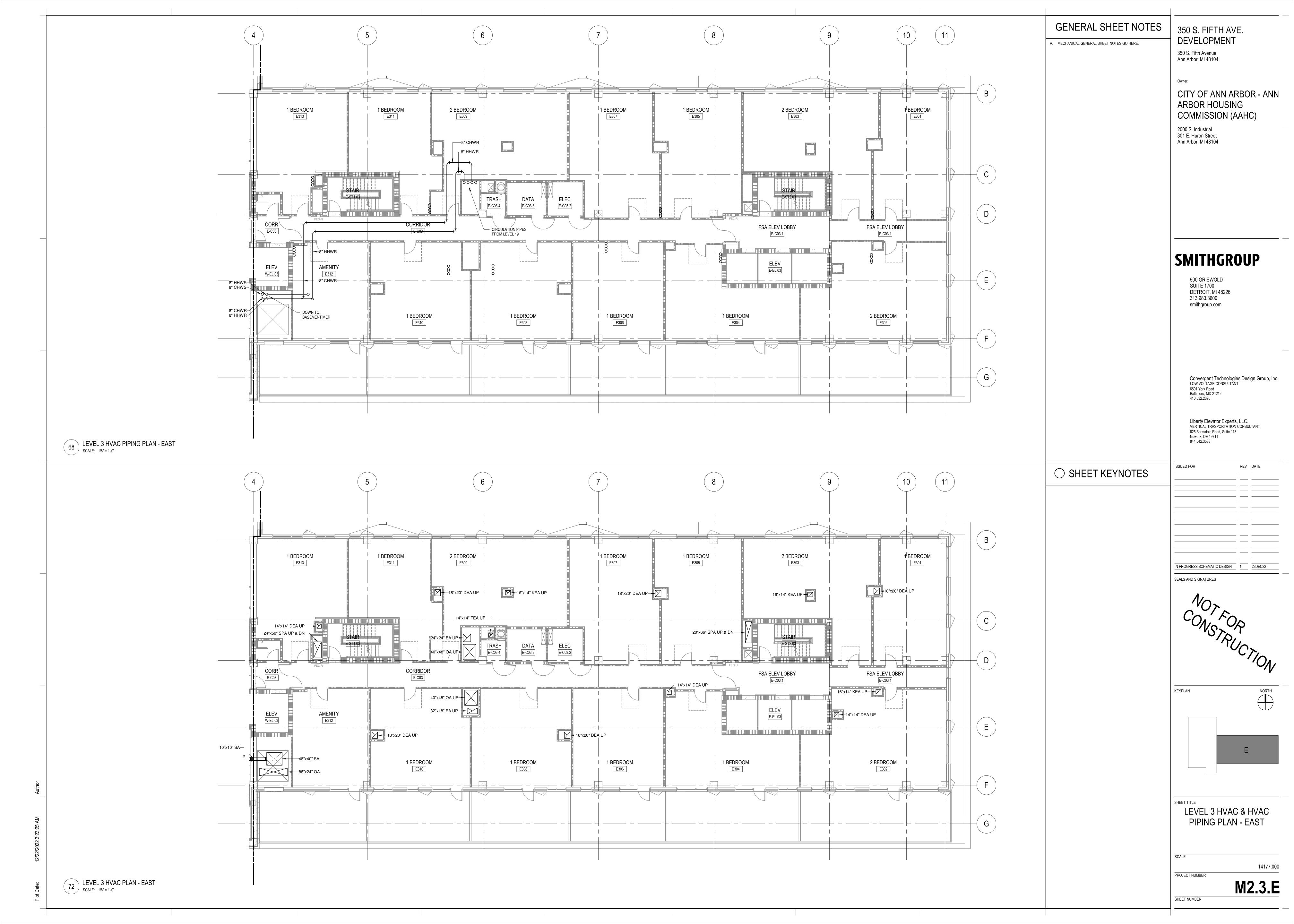


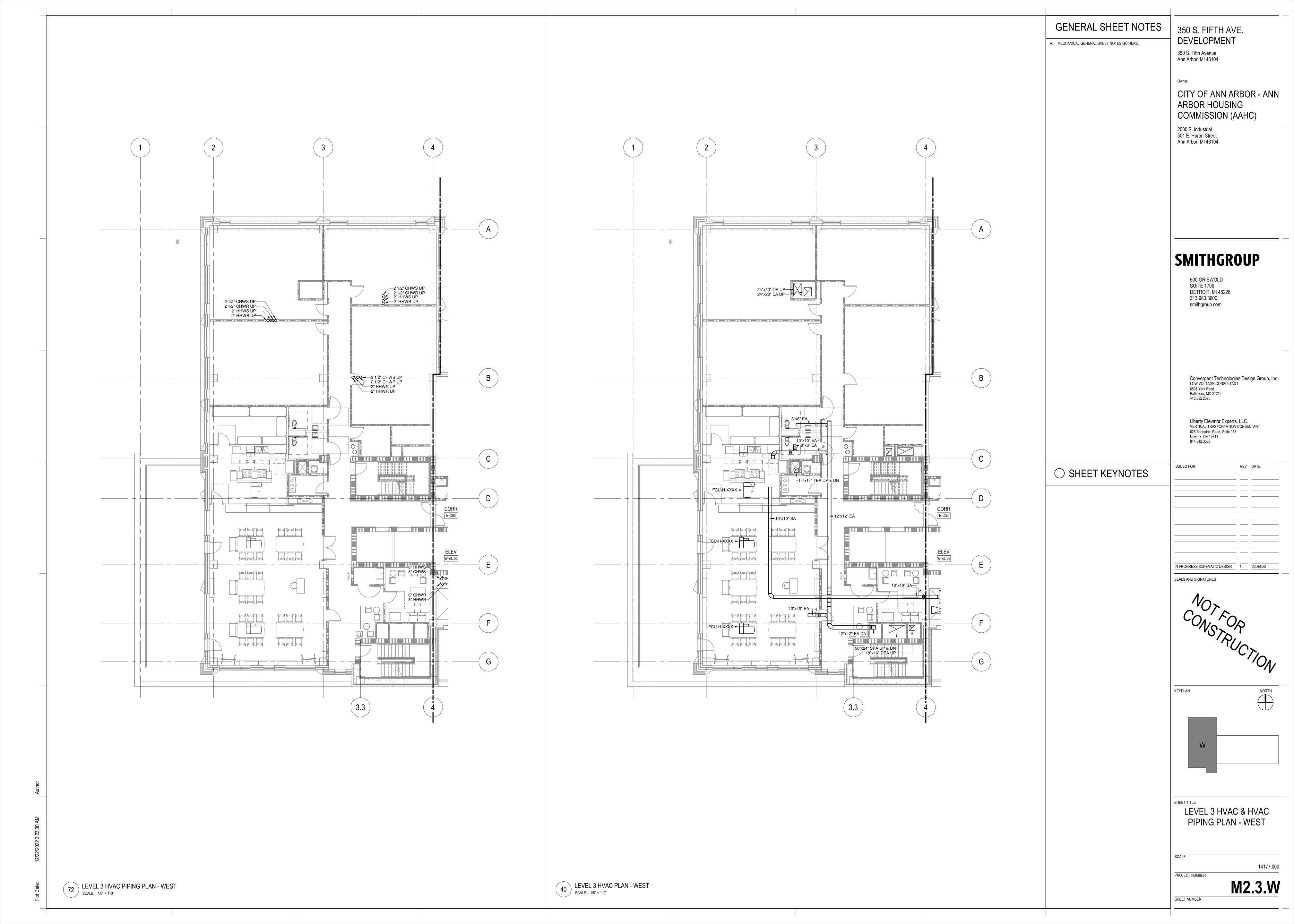


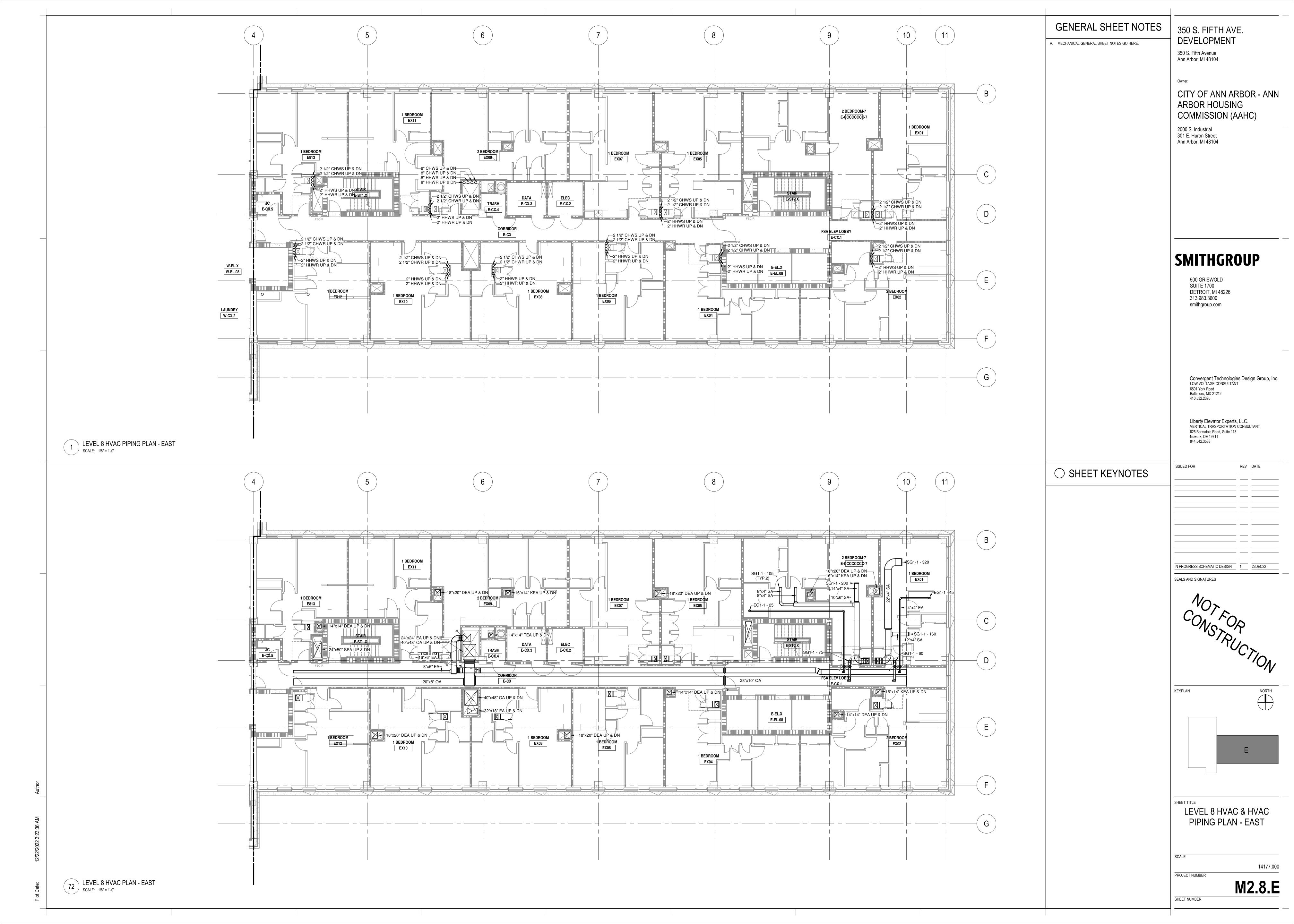


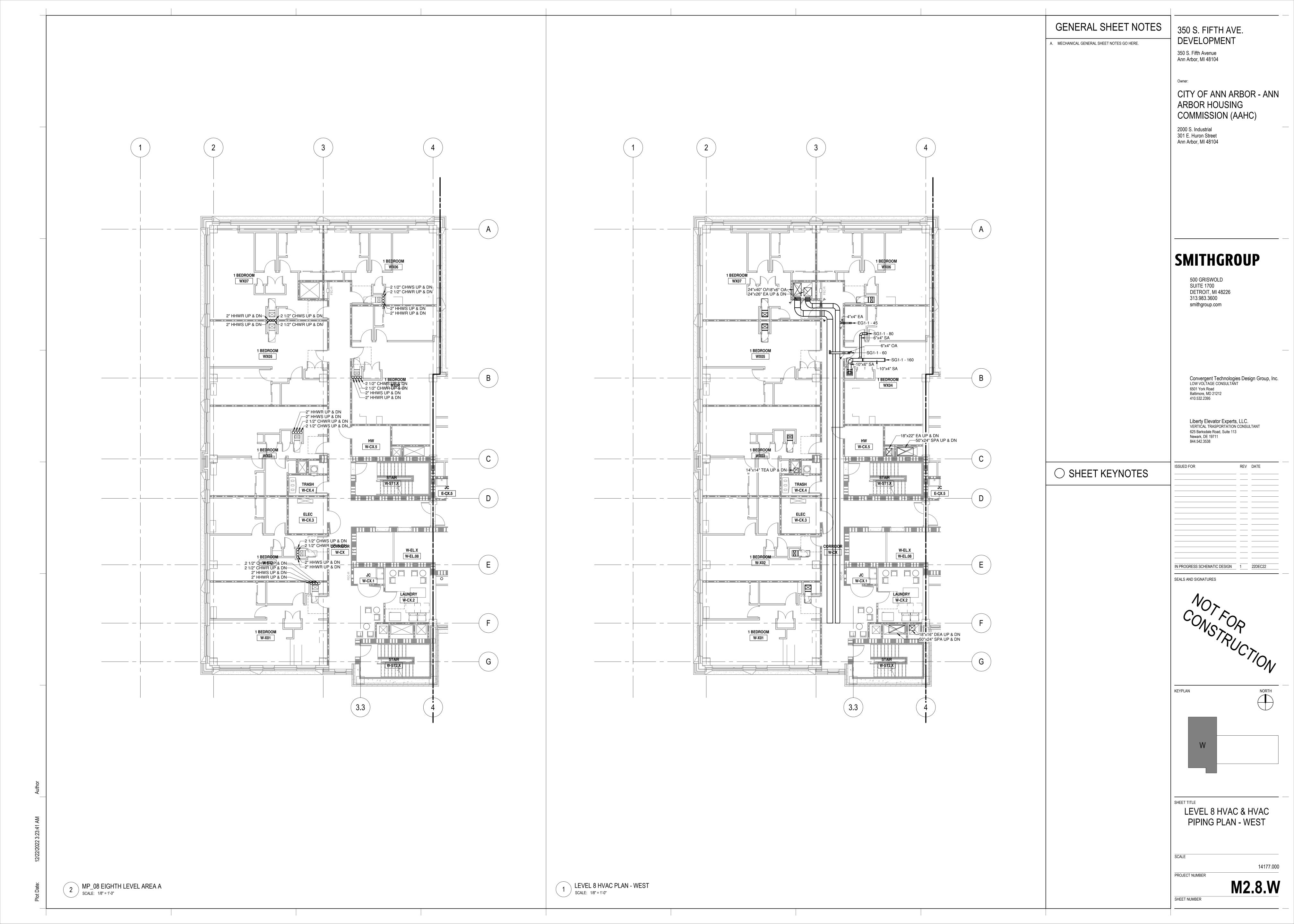


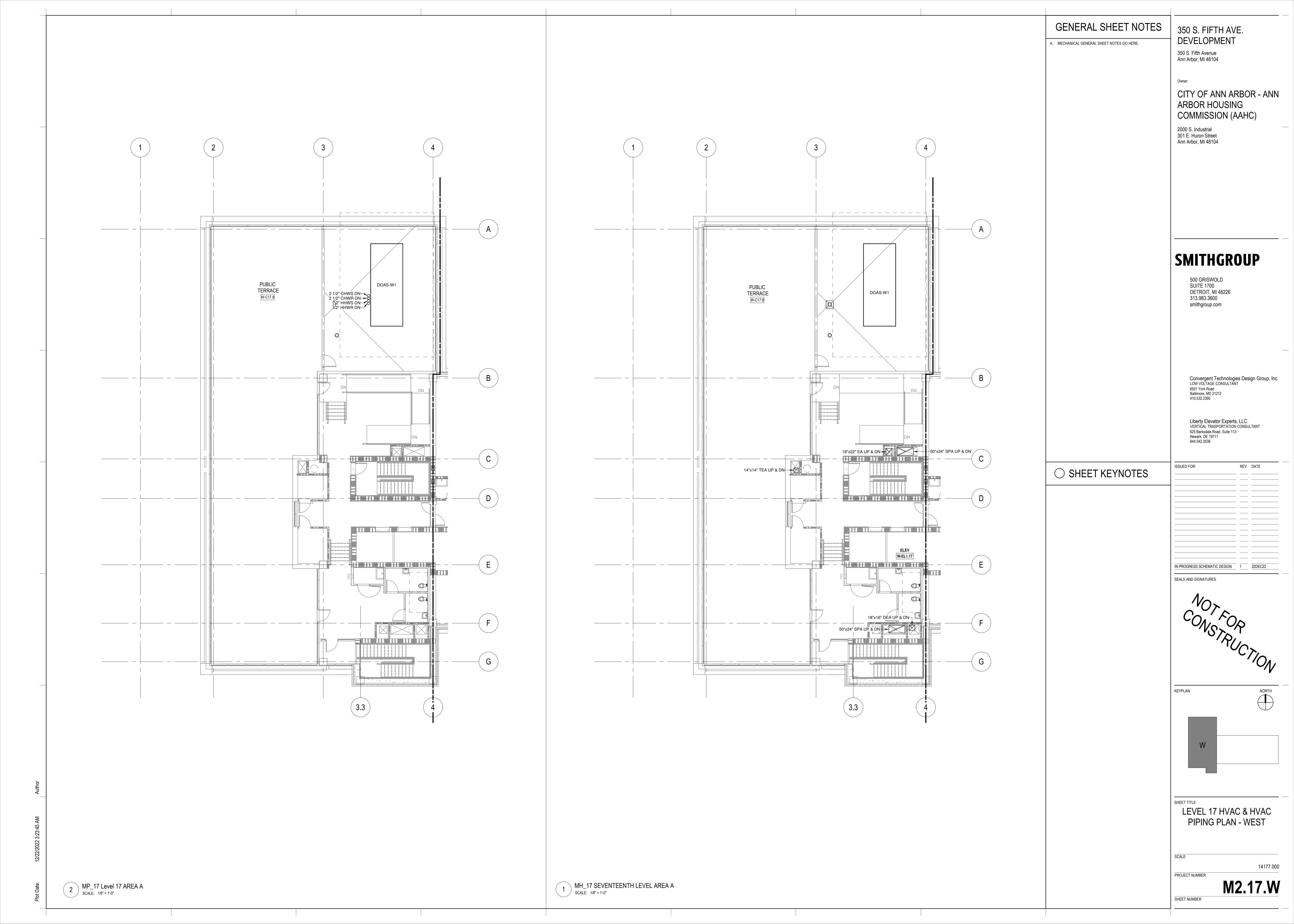


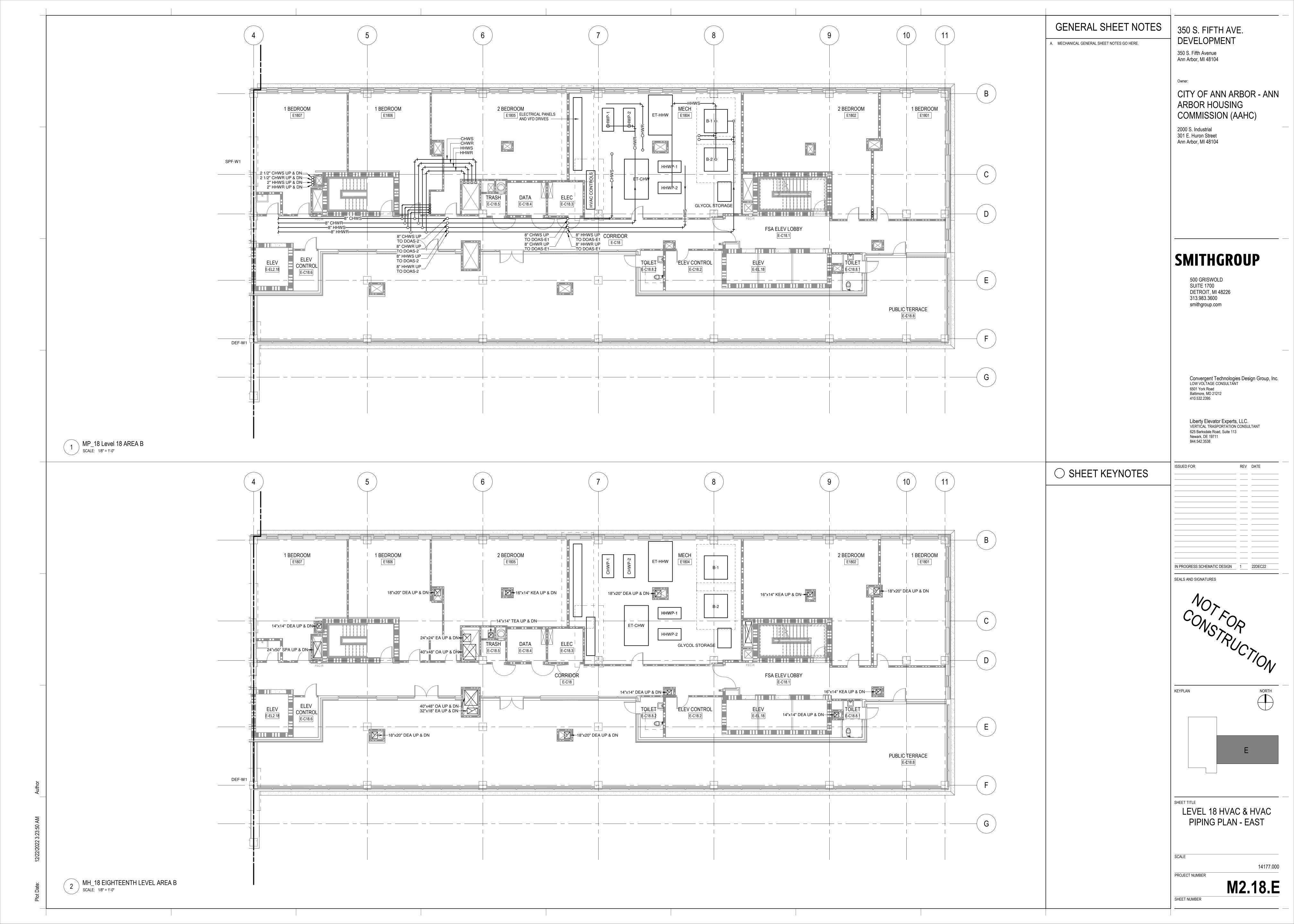


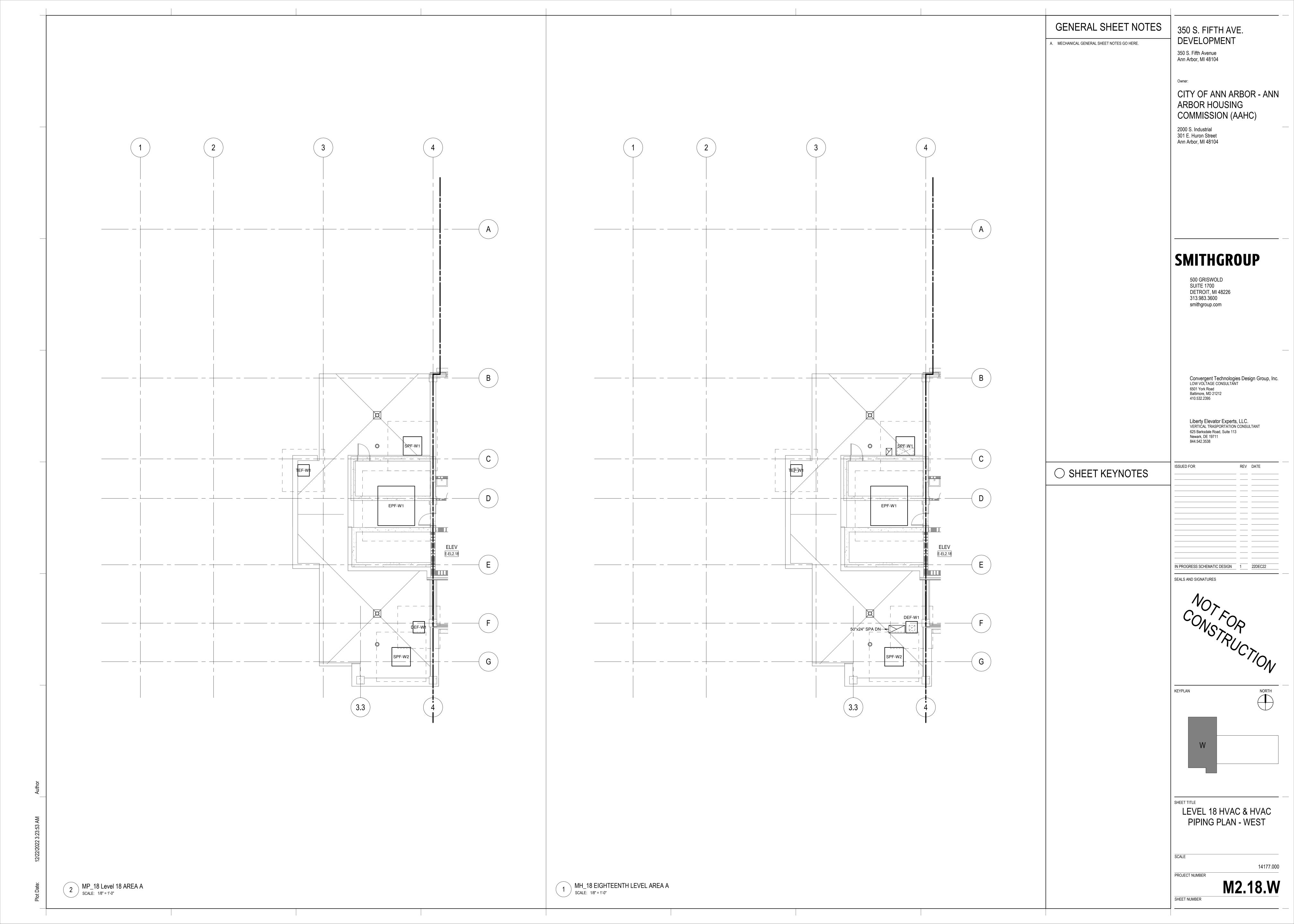


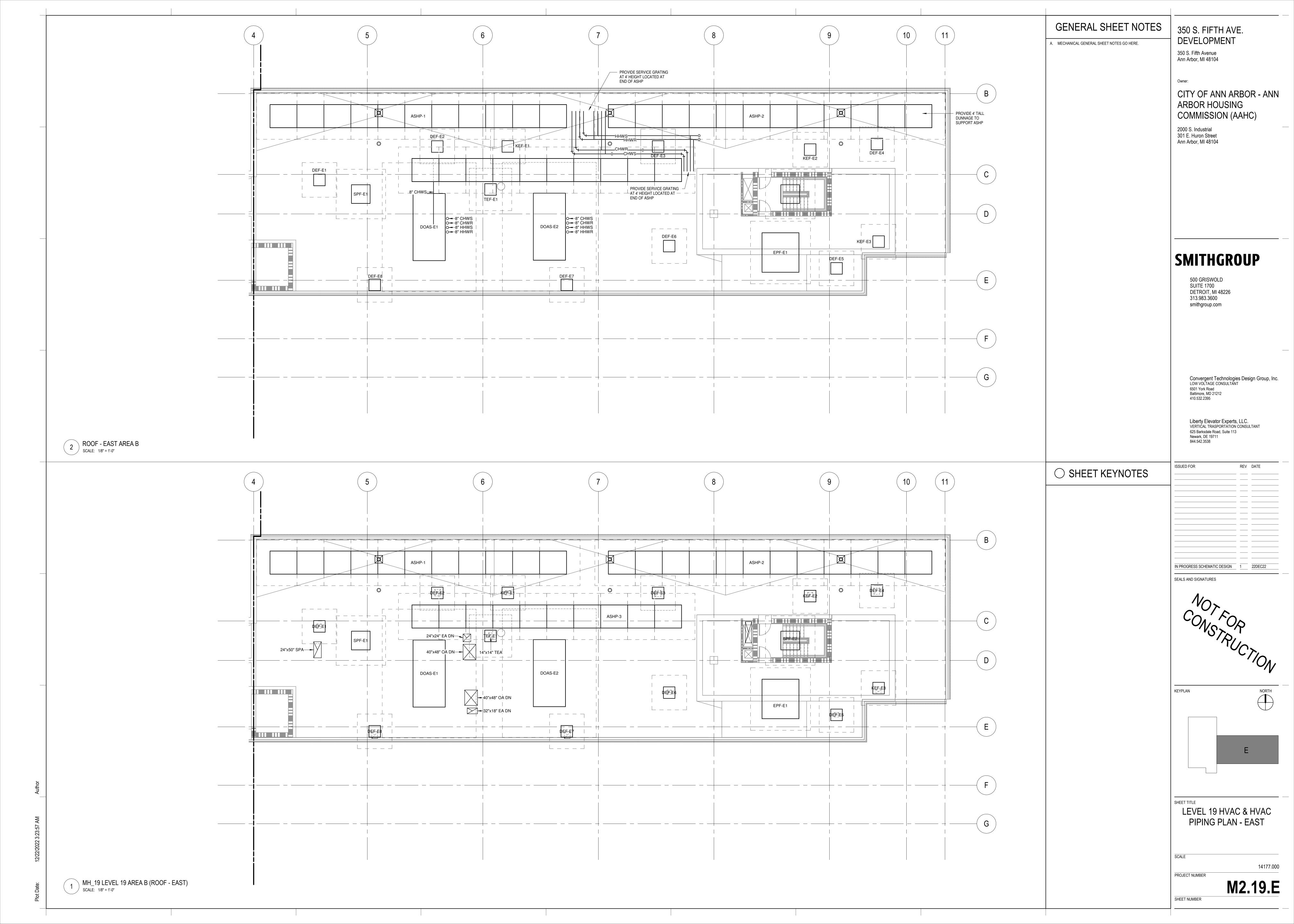


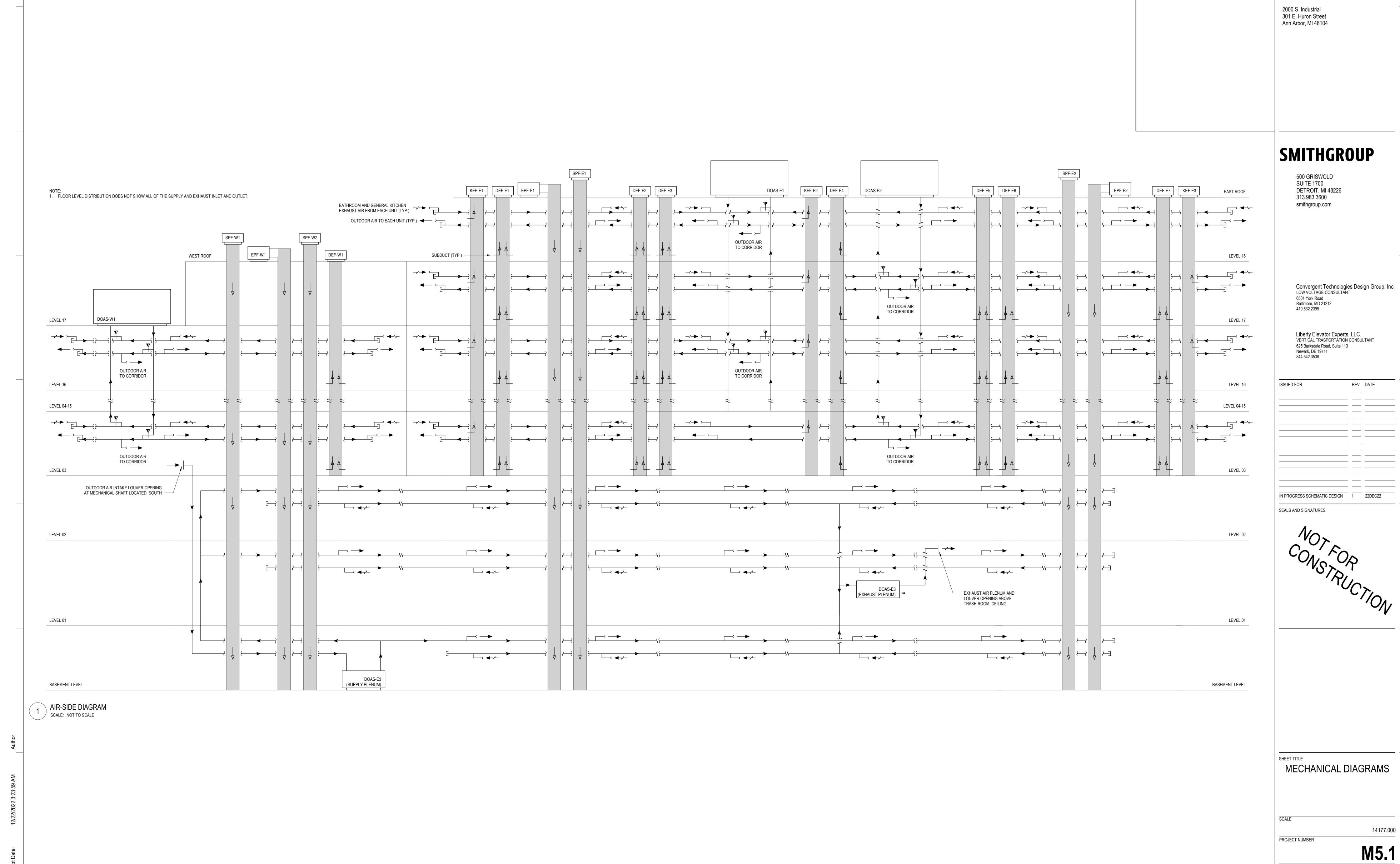










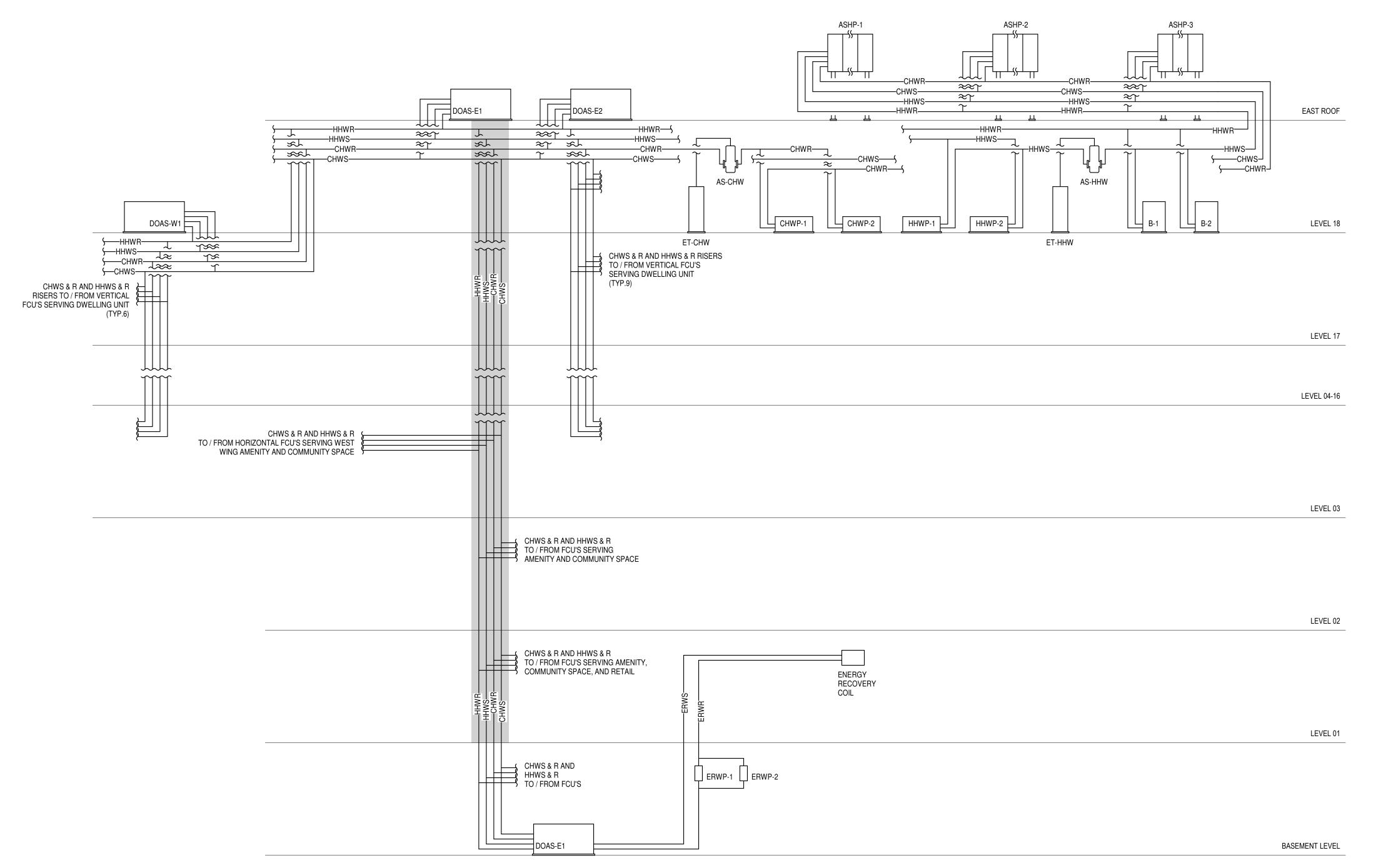


GENERAL SHEET NOTES 350 S. FIFTH AVE. DEVELOPMENT LEVEL 3-15 ARE NOT SHOWN BUT ARE SIMILAR TO LEVEL 16.
 FLOOR LEVEL DISTRIBUTION DOES NOT SHOW ALL OF THE SUPPLY AND EXHAUST DUCTWORK AND INLETS/OUTLETS. REFER TO

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GENERAL SHEET NOTES 350 S. FIFTH AVE. DEVELOPMENT LEVEL 3-16 ARE NOT SHOWN BUT ARE SIMILAR TO LEVEL 17.
 FLOOR LEVEL DISTRIBUTION DOES NOT SHOW ALL OF THE SUPPLY AND RETURN PIPING AND CONNECTIONS TO EQUIPMENT. REFER TO FLOOR PLANS. 350 S. Fifth Avenue Ann Arbor, MI 48104 CITY OF ANN ARBOR - ANN ARBOR HOUSING COMMISSION (AAHC) 2000 S. Industrial 301 E. Huron Street Ann Arbor, MI 48104



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REV DATE

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ROGRESS SCHEMATIC DESIGN	1	22DEC22
S AND SIGNATURES		

SEALS

ISSUED FOR



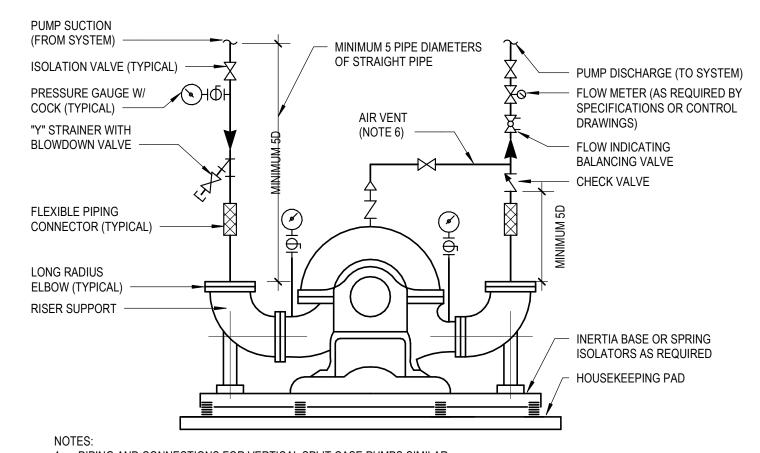
HYDRONIC-SIDE DIAGRAM SCALE: NOT TO SCALE

MECHANICAL DIAGRAMS

14177.000 PROJECT NUMBER

M5.2 SHEET NUMBER

GLYCOL HEAT RECOVERY COIL SCALE: NOT TO SCALF



- 1. PIPING AND CONNECTIONS FOR VERTICAL SPLIT CASE PUMPS SIMILAR. 2. PROVIDE AND INSTALL PIPE REDUCERS ACCORDING TO MANUFACTURERS RECOMMENDATIONS. 3. IF GROOVED PIPING SYSTEM IS UTILIZED, PROVIDE THREE (3) FLEXIBLE TYPE COUPLINGS IN CLOSE PROXIMITY TO THE
- PUMP INLET AND OUTLET IN LIEU OF FLEXIBLE PIPING CONNECTORS. 4. BALANCING VALVE IS NOT REQUIRED WHERE PUMP MOTOR IS OPERATED BY VFD.

HORIZONTAL SPLIT CASE PUMP

ISOLATION VALVE (TYPICAL)

FLOW METER PER

FLOW INDICATING BALANCING VALVE

PRESSURE GAUGE

W/ COCK (TYPICAL)

REDUCER / INCREASER

DRAIN VALVE W/ HOSE

END CONNECTION

1. CIRULATING PUMP: FOR PUMPS 2 HP AND SMALLER.

2. SUPPORT PUMP AND PIPING FROM SUITABLE VIBRATION ISOLATION SUPPORTS.

4. BALANCING VALVE IS NOT REQUIRED WHERE PUMP MOTOR IS OPERATED BY VFD.

PIPE OR FITTINGS, AND WITHOUT FORCING OR SPRINGING THE PIPING.

3. PIPING SHALL BE INSTALLED SUCH THAT PUMP MAY BE COMPLETELY REMOVED WITHOUT DISMANTLING

5. INSTALL PRESSURE GAGES AS SHOWN OR INSTALL SINGLE GAGE WITH MULTIPLE INPUT SELECTOR VALVE.

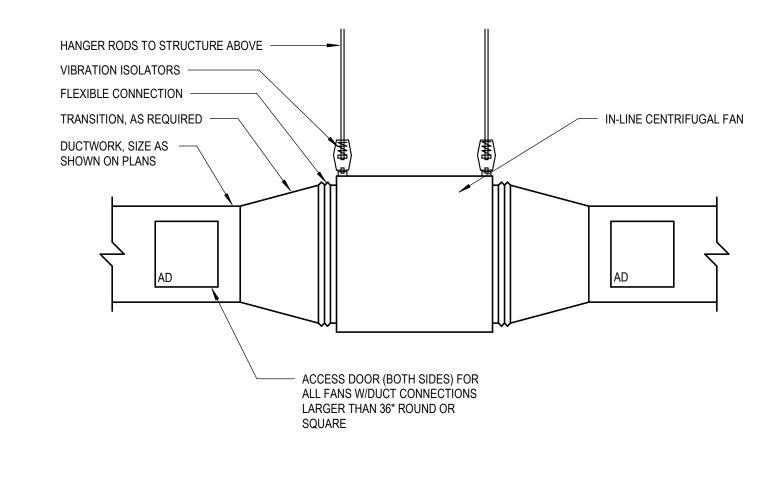
(AS REQUIRED)

SPECIFICATIONS -

CHECK VALVE -

SCALE: NOT TO SCALE

5. INSTALL PRESSURE GAUGES AS SHOWN OR INSTALL SINGLE GAUGE WITH MULTIPLE INPUT SELECTOR VALVE. 6. ON PUMPS WITH OPEN BASIN AND LOW SUCTION HEAD, INSTEAD OF AN AIR VENT, PROVIDE A 3/4 INCH PIPE CONNECTION FROM PUMP CASING VENT CONNECTION TO THE PUMP DISCHARGE PIPE. ISOLATE CONNECTION WITH BALL VALVE.



N-LINE FAN SCALE: NOT TO SCALE

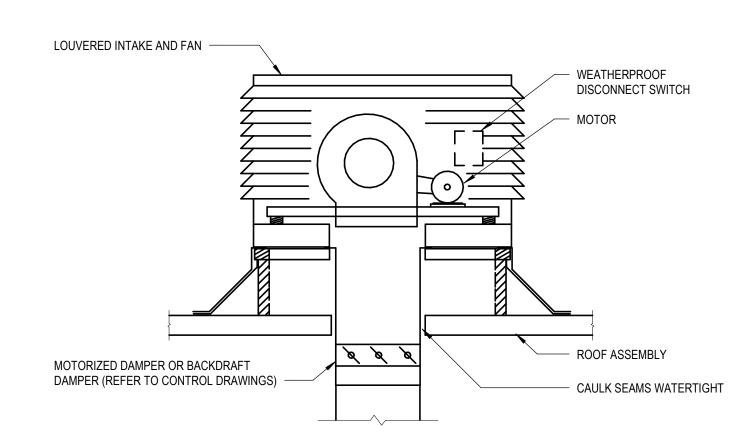
UNION OR FLANGE (TYPICAL)

IN-LINE PUMP AND MOTOR

STRAINER

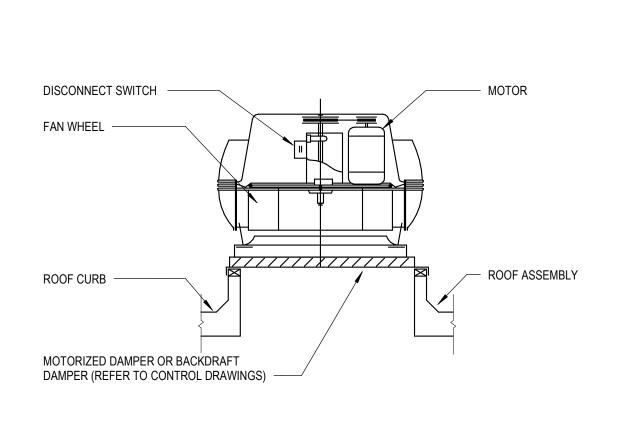
(TYPICAL)

ISOLATION VALVE



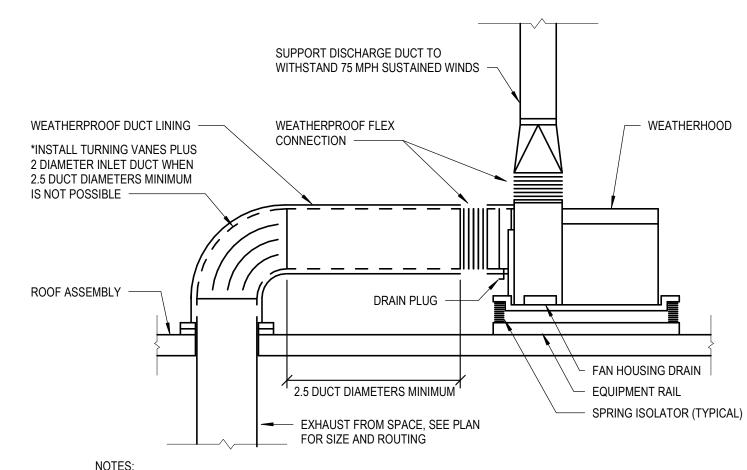
1. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF ASSEMBLY AND ROOF PENETRATION DETAIL. 2. REFER TO STRUCTURAL DRAWINGS FOR OPENING SUPPORT.

SCALE: NOT TO SCALE



1. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF ASSEMBLY AND ROOF PENETRATION DETAIL. 2. REFER TO STRUCTURAL DRAWINGS FOR OPENING SUPPORT.

UPBLAST ROOF FAN SCALE: NOT TO SCALE



1. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF ASSEMBLY, FLASHING, AND ROOF PENETRATION DETAIL. 2. REFER TO STRUCTURAL DRAWINGS FOR OPENING SUPPORT.

UTILITY SET EXHAUST FAN SCALE: NOT TO SCALE



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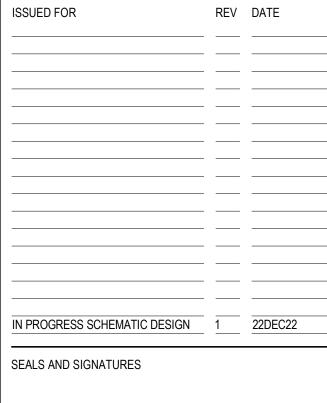
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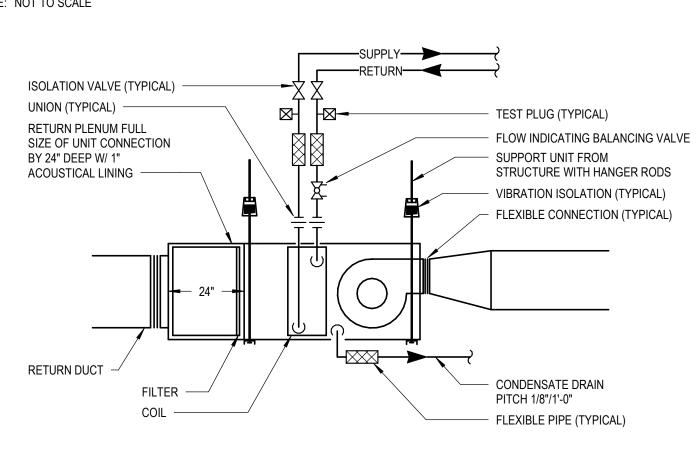
SHEET TITLE MECHANICAL DETAILS

SCALE 14177.000 PROJECT NUMBER SHEET NUMBER

SCALE: NOT TO SCALE

FOR PIPE SIZE AND LOCATION MATCH FCU PIPE — MATCH FCU PIPE CONNECTION SIZE CONNECTION SIZE FLOOR -CONNECT NEW DRAIN PIPE TO EXISTING DRAIN PIPING

SCALE: NOT TO SCALE



1. UNITS HANDEDNESS TO BE AS VERIFIED BY CONTRACTR TO SUIT ACCESS REQUIREMENTS AND IN COORDINATION WITH ALL TRADES IN FIELD. 2. ADD SECOND COIL PER SCHEDULES AND MATCH PIPING DETAIL AND VALVING.

HORIZONTAL FAN COIL UNIT INSTALLATION

													DE	DICATE	D OUTDOOF	RAIR	SUPPL	Y UNIT	SCH	IEDUL	.E				
			SUF	PPLY AN	EXHA FA		COIL	_ DATA	INSUL	_ATION		LINER		CASING	ACCES	SORIES			PACKAG	ED ELEC [DATA		BASIS OF	- DESIGN	
		DESIGN	SF	SF	EF	EF	HEATING	COOLING			EXP	PERF	SOLID	WALL	ENERGY CONSERVATION	FLAT FILTER	BAG FILTER						MANUFACTU		
TAG	LOCATION	AIRFLOW	QTY	TAG	QTY	TAG	HW TAG	CHW TAG	EXT	INT	ISOL	PANEL	PANEL	THICKNESS	WHEEL	SECTION	SECTION	VOLTAGE	PHASE	MFLA	MCA	MOCP	RER	MODEL	REMARKS
DOAS-E1	EAST ROOF	20000 CFM	2	SF-E1	1	EF-E1	HC-E1	CC-E1	Yes	Yes	Yes	Yes	Yes	0' - 0"	ERW-E1			460 V	3	64 A	70.3	90	YORK	PROF804E0	
DOAS-E2	EAST ROOF	20000 CFM	2	SF-E2	1	EF-E2	HC-E2	CC-E2	Yes	Yes	Yes	Yes	Yes	0' - 0"	ERW-E2			460 V	3	64 A	70.3	90	YORK	PROF804E0	
DOAS-E3	BASEMENT	9000 CFM	1	SF-E3	1	EF-E3	HC-E3	CC-E3	Yes	Yes	Yes	Yes	Yes	0' - 0"	ENERGY RECOVERY COIL			460 V	3	28 A	34.6	50	YORK	XTI-63x81	ENERGY RECOVERY AND EXHAUST FAN LOCATED SEPARATELY IN GROUND LEVEL TRASH ROOM.
DOAS-W1	WEST ROOF	10000 CFM	1	SF-W1	1	EF-W1	HC-W1	CC-W1	Yes	Yes	Yes	Yes	Yes	0' - 0"	ERW-W1			460 V	3	27 A	31.2	45	YORK	PROF480E0	

										ENERGY RE	ECOVERY WHEE	EL SCHED	ULE								
								SUMMER DESIGN						1		WINTER DESIGN					
				OUTS	SIDE AIR	RETUI	RN AIR	WHEEL LEA	AVING (OA)	RECOVERED CAPACIT	Y	OUTS	IDE AIR	RETUF	RN AIR	WHEEL LE	EAVING (OA)	RECOVERED CAPACITY	,	EXTERNAL SP	
TAG	LOCATION	OA AIRFLOW	EX AIRFLOW	DB	WB	DB	WB	DB	WB	(MBH)	TOTAL EFFECTIVENESS	DB	WB	DB	WB	DB	WB	(MBH)	TOTAL EFFECTIVENESS	(IN. WG)	REMARKS
ERW-E1	DOAS-E1	20,000 CFM	10,000 CFM	90.0	73.0	75.0	63.0	83.8	69.2	285.76	85.0	-10.0	-11.0	70.0	58.0	17.6	20.0	831.08	88.0	0.8	
ERW-E2	DOAS-E2	20,000 CFM	10,000 CFM	90.0	73.0	75.0	63.0	83.8	69.2	285.76	85.0	-10.0	-11.0	70.0	58.0	17.6	20.0	831.08	88.0	0.8	
ERW-W1	DOAS-W1	10,000 CFM	5,800 CFM	90.0	73.0	75.0	63.0	82.5	68.4	170.05	82	-10.0	-11.0	70.0	58.0	23.8	25.3	503.09	87	1.3	

					DOAS F	AN SCHED	ULE			
		DESIGN AIR			MAX OUTLET		STAND-BY	BASIS OF DE	ESIGN	
TAG	SYSTEM	CAPACITY	TSP	ESP	VELOCITY	VOLUME CONTROL	POWER	MANUFACTURER	MODEL	REMARKS
EF-E1	DOAS-E1	10000 CFM	0.00 in-wg	0.00 in-wg	0 FPM	VFD	Yes			
EF-E2	DOAS-E2	10000 CFM	0.00 in-wg	0.00 in-wg	0 FPM	VFD	Yes			
EF-E3	DOAS-E3	10000 CFM	0.00 in-wg	0.00 in-wg	0 FPM	VFD	Yes			
EF-W1	DOAS-W1	5800 CFM	3.54 in-wg	2.50 in-wg	0 FPM	VFD	Yes			
SF-E1	DOAS-E1	20000 CFM	6.01 in-wg	2.50 in-wg	0 FPM	VFD	Yes			
SF-E2	DOAS-E2	20000 CFM	6.01 in-wg	2.50 in-wg	0 FPM	VFD	Yes			
SF-W1	DOAS-W1	10000 CFM	4.86 in-wg	2.50 in-wg	0 FPM	VFD	Yes			

						ENE	ERGY	RECO	VERY C	OIL (S	UMME	ER) S	CHEC	ULE							
					TOTAL	SENSIBLE	MIN	MAX FINS	MAX FACE	COIL SIZ	E DATA		Д	IRSIDE D	ATA			WA	TERSIDE	DATA	
TAG	SYSTEM	LOCATION	TYPE	AIRFLOW	CAPACITY	CAPACITY	ROWS	PER INCH	VELOCITY	LENGTH	HEIGHT	EAT DB	EAT WB	LAT DB	LAT WB	MAX AIR PD	EWT	LWT	FLOW	WATER MAX PD	REMARKS
ENERGY RECOVERY COIL	DOAS-E3 (SUMMER)	E-C01.9_TRASH	CDW (GLYCOL)	7000 CFM	276100 Btu/h	276100 Btu/h	10	10	445	3' - 8"	4' - 3 1/2"	72 °F	45 °F	36 °F	24 °F	0.94 in-wg	28 °F	35 °F	91 GPM	29.20 FT	40% PROPYLENE GLYCOL

						EN	ERGY	'RECC	VERY C	COIL (V	VINTE	R) SC	HED	ULE							
					TOTAL	SENSIBLE	MIN	MAX FINS	MAX FACE	COIL SIZ	ZE DATA		P	AIRSIDE DA	ATA			WA	TERSIDE	DATA	
TAG	SYSTEM	LOCATION	TYPE	AIRFLOW	CAPACITY	CAPACITY	ROWS	PER INCH	VELOCITY	LENGTH	HEIGHT	EAT DB	EAT WB	LAT DB	LAT WB	MAX AIR PD	EWT	LWT	FLOW	WATER MAX PD	REMARKS
ENERGY RECOVERY COIL	DOAS-E3 (WINTER)	E-C01.9_TRASH	CDW (GLYCOL)	9000 CFM	61500 Btu/h	61500 Btu/h	8	8	370	5' - 8"	4' - 3 1/2"	90 °F	73 °F	84 °F	71 °F	0.39 in-wg	82 °F	83 °F	91 GPM	5.70 FT	40% PROPYLENE GLYCOL

												FAN	SCHE	DULE														
				DESIGN										OCTAVE BAND	S, MAX DUTY	POINT, MAX PW	L (DB RE 10^(-1	12)) W			MO	OR DATA				BASIS OF	DESIGN	
				AIR CAPACIT					MAX OUTLET															STAND-BY	OPERATING			
TAG	SYSTEM	LOCATION	TYPE	Υ	WHEEL TYPE	MIN DIAMETER	CLASS ARRANGEMENT	TSP ESP	VELOCITY	FAN RPM	VOLUME CONTROL	1 (63 HZ)	2 (125 HZ)	3 (250 HZ)	4 (500 HZ)	5 (1,000 HZ)	6 (2,000 HZ)	7 (4,000 HZ)	8 (8,000 HZ)	BHP	HP MAX R	PM VOLTAGE	PHASE	POWER	WEIGHT	RER	MODEL	REMARKS
DEF-E1	DRYER	EAST ROOF		1200 CFM	UPBLAST CENTRIFUGAL	1' - 2"		1.84 in-wg 1.50 in-wg	770 FPM	1725		85	51	70	76	66	51	54	52	0.78	1 1725	460 V	3	No	84 lb	GREENHECK	CUE-180HP-VG	
DEF-E2	DRYER	EAST ROOF		2400 CFM	UPBLAST CENTRIFUGAL	1' - 6"		1.50 in-wg 1.50 in-wg		1324		79	77	85	72	69	67	63	60	0.98	2 1324	460 V	3	No	116 lb	GREENHECK	CUE-180HP-VG	
DEF-E3	DRYER	EAST ROOF	DIRECT DRIVE	2400 CFM	UPBLAST CENTRIFUGAL	1' - 6"		1.50 in-wg 1.50 in-wg	*-*	1324		79	77	85	72	69	67	63	60	0.98	2 1324	460 V	3	No	116 lb	GREENHECK	CUE-180HP-VG	
DEF-E4	DRYER	EAST ROOF		2400 CFM	UPBLAST CENTRIFUGAL	1' - 6"		1.50 in-wg 1.50 in-wg		1324		79	77	85	72	69	67	63	60	0.98	2 1324	460 V	3	No	116 lb	GREENHECK	CUE-180HP-VG	
DEF-E5	DRYER	EAST ROOF	DIRECT DRIVE	1200 CFM	UPBLAST CENTRIFUGAL	1' - 2"		1.84 in-wg 1.50 in-wg		1725		85	51	70	76	66	51	54	52	0.78	1 1725	460 V	3	No	84 lb	GREENHECK	CUE-180HP-VG	
DEF-E6	DRYER	EAST ROOF	DIRECT DRIVE	1200 CFM	UPBLAST CENTRIFUGAL	1' - 2"		1.84 in-wg 1.50 in-wg		1725		85	51	70	76	66	51	54	52	0.78	1 1725	460 V	3	No	84 lb	GREENHECK	CUE-180HP-VG	
DEF-E7	DRYER	EAST ROOF	-	2300 CFM	UPBLAST CENTRIFUGAL	1' - 6"		1.50 in-wg 1.50 in-wg		1306		78	76	84	72	69	66	63	59	1.03	1.5 1306	460 V	3	No	116 lb	GREENHECK	CUBE-180HP	
DEF-E8	DRYER	EAST ROOF	DIRECT DRIVE	2200 CFM	UPBLAST CENTRIFUGAL	1' - 4"		1.56 in-wg 1.50 in-wg		1725		79	80	84	77	73	72	71	66	1.07	1.5 1725	460 V	3	No	96 lb	GREENHECK	CUE-160HP-A	
DEF-W1	DRYER	WEST ROOF	-	2000 CFM	UPBLAST CENTRIFUGAL	1' - 4"		1.73 in-wg 1.50 in-wg	.= * * * * * * * * * * * * * * * * * * *	1725		79	79	84	77	72	71	71	66	1.08	1.5 1725	460 V	3	No	96 lb	GREENHECK	CUE-160HP-A	
EPF-E1	ELEVATOR PRESSURIZATION	EAST ROOF		74100 CFM	BLOWER	5' - 6"	1 10	1.50 in-wg 1.50 in-wg		524		105	98	91	90	87	80	75	71	38	40 524	460 V	3	Yes	4846 lb	GREENHECK	USF-66-A1	
EPF-W1	ELEVATOR PRESSURIZATION	WEST ROOF		71500 CFM	BLOWER	5' - 6"	1 10	1.50 in-wg 1.50 in-wg		510		105	97	90	89	86	79	/4	70	35	40 510	460 V	3	Yes	4846 lb	GREENHECK	USF-66-A1	
KEF-E1	KITCHEN HOOD	EAST ROOF	DIRECT DRIVE	1300 CFM	UPBLAST CENTRIFUGAL	1' - 2"		1.82 in-wg 1.50 in-wg		1725		84	51	72	78	67	52	55	54	0.81	1 1725	460 V	3	No	84 lb	GREENHECK	CUE-140-A	
KEF-E2	KITCHEN HOOD	EAST ROOF		1300 CFM	UPBLAST CENTRIFUGAL	1' - 2"		1.82 in-wg 1.50 in-wg	***************************************	1725		84	51	72	78	67	52	55	54	0.81	1 1725	460 V	3	No No	84 lb	GREENHECK	CUE-140-A	
KEF-E3	KITCHEN HOOD	EAST ROOF SUBSTATION	DIRECT DRIVE	1285 CFM	UPBLAST CENTRIFUGAL PROPELLER	1' - 2" 4' - 6"		1.82 in-wg 1.50 in-wg		1725		84	51	72	78	6/	52	55	54	0.81	1 1725	460 V	3	N0	84 lb	GREENHECK GREENHECK	CUE-140-A	
SDE E1	SUBSTATION PRESSURIZATION STAIR PRESSURIZATION	FAST ROOF	BELT DRIVE	38100 CFM 12350 CFM	FILTERED LOUVER SUPPLY	4 - 0		0.10 in-wg 0.00 in-wg		630 752		92	9/	93	00	04	δU	70	75	0.2	7.5 630	460 V 460 V	3	Yes	789 lb	GREENHECK	TBI-CA-3H54 RSFP-200	
SPF-E1 SPF-E2	STAIR PRESSURIZATION STAIR PRESSURIZATION	EAST ROOF	DEET DIVIVE		HOODED PROPELLER ROOF SUPPLY	2 - 6 Y 4' - 6"		1.50 in-wg 1.50 in-wg		867		03 00	00	107	00 00	03 08	იე 01	19	15	0.2	10 /52	460 V	3	Yes	615 lb 1012 lb	GREENHECK	RSFP-200 RBCS-3H54	
SPF-W1	STAIR PRESSURIZATION STAIR PRESSURIZATION	WEST ROOF	BELT DRIVE	12350 CFM	FILTERED LOUVER SUPPLY	2' - 6"		1.50 in-wg 1.50 in-wg		752		83	80	80	83	83	83	70	75	8.2	10 007	460 V	3	Voc	615 lb	GREENHECK	RSFP-200	
SPF-W2	STAIR PRESSURIZATION STAIR PRESSURIZATION	WEST ROOF	DEET DIVIVE	12350 CFM	FILTERED LOUVER SUPPLY	2' - 6"		1.50 in-wg 1.50 in-wg		752		83	80	80	83	83	83	70	75	8.2	10 752	460 V	3	Vac	615 lb	GREENHECK	RSFP-200	
TEF-E1	TRASH EXHAUST	WEST NOOF	DELI DIVIVE	0 CFM	TILILINED LOUVEN SUFFET	0' - 0"		0.00 in-wg 0.00 in-wg		0		0.0	0	0	00	0	00	0	0	0.2	3 0	460 V	0	Yes	0 lb	GREENHECK	TBI-CA-3H54	
TEF-W1	TRASH EXHAUST			0 CFM		0 - 0"		0.00 in-wg 0.00 in-wg	* * * * * * * * * * * * * * * * * * * *	0		0	0	0	0	0	0	0	0		3 0	460 V	0	Voc	Olb	GREENHECK	TBI-CA-3H54	

_															
						ELEC	TRIC I	BOILER	SCHE	DULE	E (HOT	WATER)		
			NET OUTP	PUT CAPA	CITY			ELEC	CTRICAL DAT	Ā			BASIS OF	DESIGN	
		CAPACITY										OPERATING	MANUFACTUR		
TAG	LOCATION	(MBH)	FLOW	EWT	LWT	MAX PD	MAX kW	VOLTAGE	PHASE	MCA	MOCP	WEIGHT	ER	MODEL	REMARKS
B-1	MECH_E1804	4176	820 GPM	-460 °F	-460 °F	0.00 psi	1224 kW	480 V	3			5260 lb	CLEAVERBROOKS	WB-361	
B-2	MECH_E1804	4176	820 GPM	-460 °F	-460 °F	0.00 psi	1224 kW	480 V	3			5260 lb	CLEAVERBROOKS	WB-361	

							Pl	JMP SO	CHEDULE	-										
								MINIMUM	71 125 021		NNECTIONS			MOTO	R DATA			BASIS OF DE	SIGN	
							DISCHARGE	NPSH	MINIMUM								OPERATING			
TAG	SYSTEM	LOCATION	TYPE	FLUID	TEMPERATURE	FLOW	HEAD	REQ'D	EFFICIENCY	SUCTION	DISCHARGE	BHP	HP	RPM	VOLTAGE	PHASE	WEIGHT	MANUFACTURER	MODEL	REMARKS
CHWP-1	CHILLED WATER	MECH_E1804	DOUBLE SUCTION SPLIT CASE	40% PROPYLENE GLYCOL	44 °F	1200 GPM	90 Feet	9' - 2 17/32"	83	6"	5"	34.1	50	1703	460 V	3	1757 lb	BELL AND GOSSETT	VSX-VSC	NOTE: 1
CHWP-2	CHILLED WATER	MECH_E1804	DOUBLE SUCTION SPLIT CASE	40% PROPYLENE GLYCOL	44 °F	1200 GPM	90 Feet	9' - 2 17/32"	83	6"	5"	34.1	50	1703	460 V	3	1757 lb	BELL AND GOSSETT	VSX-VSC	NOTE: 1, 2
ERWP-1 ENERG	RGY RECOVERY WATER	MECH_E-C00.9	INLINE	40% PROPYLENE GLYCOL	-460 °F	91 GPM	43 Feet	0' - 0"	0	2"	2"	1.82	2	0	208 V	1	63 lb	BELL AND GOSSETT	E-90	NOTE: 1
ERWP-2 ENERG	RGY RECOVERY WATER	MECH_E-C00.9	INLINE	40% PROPYLENE GLYCOL	-460 °F	91 GPM	43 Feet	0' - 0"	0	2"	2"	1.82	2	0	208 V	1	63 lb	BELL AND GOSSETT	E-90	NOTE: 1, 2
HHWP-1 HE	EATING HOT WATER	MECH_E1804	DOUBLE SUCTION SPLIT CASE	40% PROPYLENE GLYCOL	68 °F	820 GPM	90 Feet	6' - 5 3/4"	82	6"	4"	23.5	30	1733	460 V	3	1553 lb	BELL AND GOSSETT	VSX-VSC	NOTE: 1
HHWP-2 HE	EATING HOT WATER	MECH_E1804	DOUBLE SUCTION SPLIT CASE	40% PROPYLENE GLYCOL	68 °F	820 GPM	90 Feet	6' - 5 3/4"	82	6"	4"	23.5	30	1733	460 V	3	1553 lb	BELL AND GOSSETT	VSX-VSC	NOTE: 1, 2

NC	OTES:
1.	PROVIDE VFD DRIVE.
2.	100% REDUNDANT.

												FAN	COIL	SCH	HED	ULE	(HYE	DRO	NIC	REH	IEA7	Γ)								
		AIRSIDE	DATA		MOTOR DAT	A				COOLIN	IG COIL D	ATA						Н	EATING	COIL DA	TA	-		ELEC DATA				BASIS OF	DESIGN	
							TOTAL	SENSIBLE																			OPERATING	MANUFACTU		
TAG	TYPE	AIRFLOW	ESP	HP	VOLTAGE	PHASE	CAPACITY	CAPACITY	EAT DB	EAT WB	LAT DB	LAT WB	EWT	LWT	FLOW	MAX PD	EAT	LAT	EWT	LWT	FLOW	MAX PD	MFLA	MCA	MOCP	MAX NC	WEIGHT	RER	MODEL	REMARKS
FCU-H-XXXX	HORIZONTAL	920 CFM	0.30 in-wg	0.50	208 V	1	24500 Btu/h	18000 Btu/h	75 °F	63 °F	55 °F	54 °F	42 °F	54 °F	5 GPM	3.61 ftH2O	70 °F	94 °F	130 °F	110 °F	4 GPM	2.47 ftH2O	0.5 A	0.6	1.5	0	0 lb	TRANE	FCDB120	
FCU-XXXX-1.5	VERTICAL HI-RISE	860 CFM	0.30 in-wg	0.33	208 V	1	21533 Btu/h	18673 Btu/h	75 °F	63 °F	55 °F	54 °F	42 °F	54 °F	4 GPM	2.75 ftH2O	70 °F	94 °F	130 °F	110 °F	2 GPM	10.31 ftH2O	2.8 A	3.5	15	60	315 lb	JCI	FSC	
FCU-XXXX-2	VERTICAL HI-RISE	1010 CFM	0.30 in-wg	0.33	208 V	1	37470 Btu/h	26030 Btu/h	75 °F	63 °F	55 °F	54 °F	42 °F	54 °F	4 GPM	2.75 ftH2O	70 °F	94 °F	130 °F	110 °F	2 GPM	10.31 ftH2O	2.8 A	3.5	15	60	315 lb	JCI	FSC	

NOTES: 1. ECM 3 SPD MOTOR.

 ^{1.} INCH PLEATED MERV 8 FILTER.
 3. 35% PROPYLENE GLYCOL IN CHILLED WATER AND HEATING HOT WATER.
 4. ALL DWELLING UNIT WILL HAVE EITHER 1.5 TON OR 2 TON UNIT.

								AIR	SO	UR (CE HE	AT I	PUM	IP S	CHEDU	LE							
				REFRIC	GERANT		NOMINAL		CON	DENSE	R FANS	COM	PRESSO	ORS		ELECTR	ICAL DATA				BASIS OF	DESIGN	
				SUCTION	NUMBER OF	HOT GAS	CAPACITY	AMBIENT		CFM(FLA	LRA	MAX kW AT						MANUFACTU		
TAG SYSTEM	LOCATION	TYPE	TYPE	TEMPERATURE	CIRCUITS	BYPASS	TONS	TEMP	QTY	EA)	FLA (EA)	QTY	(EA)	(EA)	DESIGN	VOLTAGE	PHASE	MCA	MOCP	OPERATING WEIGHT	RER	MODEL	REMARKS
SHP-1	EAST ROOF						295	95 °F	22						337.0 kW	460 V	3	61 A	110 A	0 lb	MULTISTACK	ARA030L	11 MODULES
SHP-2	EAST ROOF						321	95 °F	24						367.6 kW	460 V	3	66 A	110 A	0 lb	MULTISTACK	ARA030L	12 MODULES
ASHP-3	EAST ROOF						268	95 °F	20						306.4 kW	460 V	3	55 A	110 A	0 lb	MULTISTACK	ARA030L	10 MODULES

350 S. FIFTH AVE. DEVELOPMENT

350 S. Fifth Avenue Ann Arbor, MI 48104

CITY OF ANN ARBOR - ANN ARBOR HOUSING COMMISSION (AAHC)

2000 S. Industrial 301 E. Huron Street Ann Arbor, MI 48104

SMITHGROUP

500 GRISWOLD SUITE 1700 DETROIT, MI 48226 313.983.3600 smithgroup.com

Convergent Technologies Design Group, Inc. LOW VOLTAGE CONSULTANT 6501 York Road Baltimore, MD 21212 410.532.2395

Liberty Elevator Experts, LLC. VERTICAL TRASPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538

REV DATE

-		
IN PROGRESS SCHEMATIC DESIGN	1	22DEC22
I IN PRUGRESS SUMEMATIC DESIGN	1	ノノロトロンノ
I IN I ROUNEGO GOLIEMATIO DEGIGIN		

SEALS AND SIGNATURES

ISSUED FOR



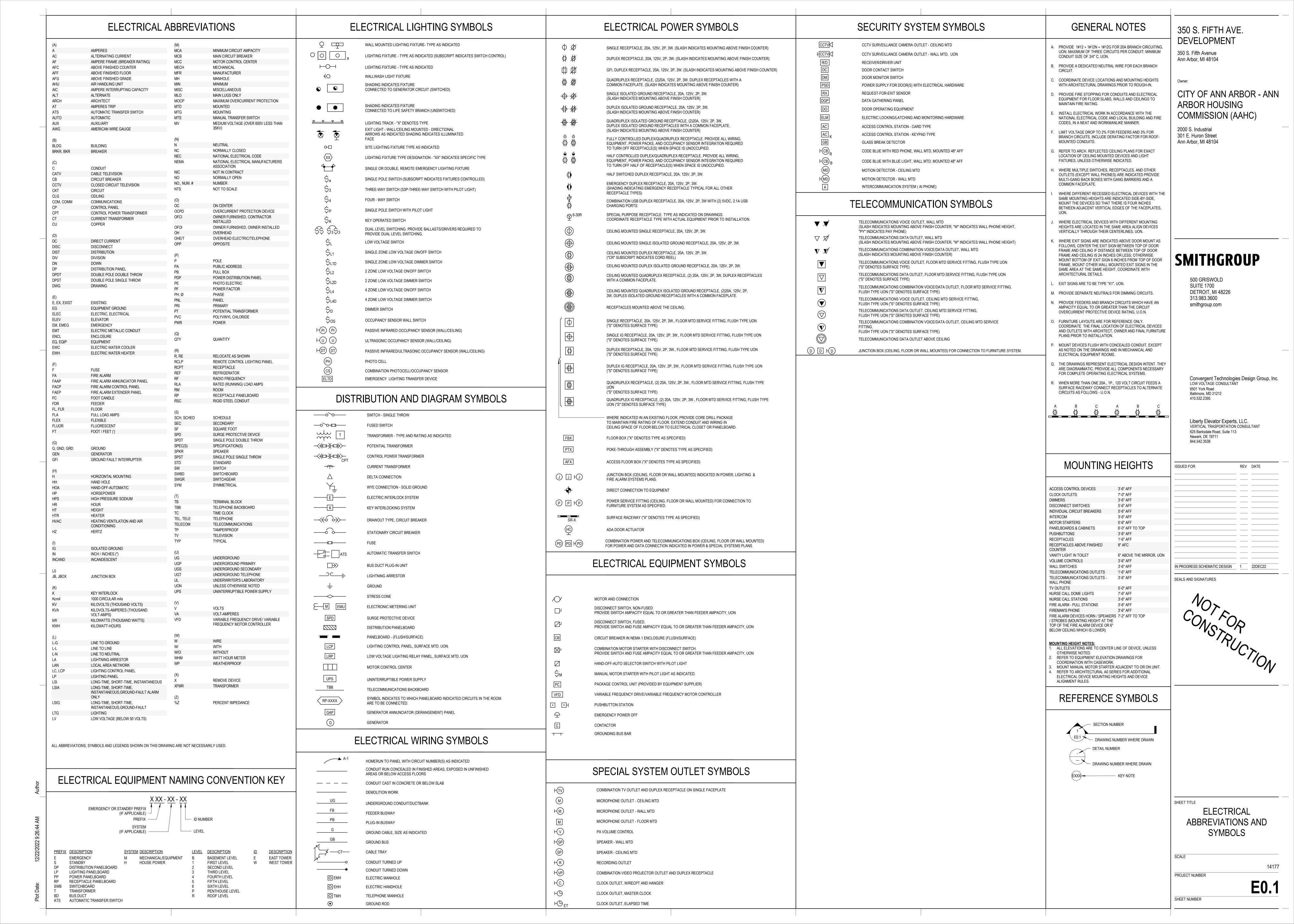
MECHANICAL SCHEDULES

SCALE 14177.000

SHEET NUMBER

PROJECT NUMBER

12/22/2022 3:24:08 AM



NOTE:

THE SETTINGS INDICATED ARE BASED ON (GENERAL ELECTRIC CO.) (SIEMENS ENERGY & AUTOMATION INC.) (SQUARE D CO.) (CUTLER HAMMER ELECTRIC CORP.) BREAKER SERIES (.....)

	ALUMINUM FEEDER SIZING SCHEDULE - GENERAL PURPOSE									
				ES 1 & 2)						
OVERCURRENT	WIRE SIZE - AV	VG OR KCMIL		CONDUIT SIZE	<u> </u>					
DEVICE RATING (AMPERES)	PHASE & NEUTRAL	E.G.	2 WIRE	3 WIRE	4 WIRE (3PH & 1N)	NOTE				
100	1(1/0)	6	1"(1 1/4")	1 1/4"	1 1/4"(1 1/2")					
110	1/0(2/0)	4	1 1/4"	1 1/4"(1 1/2")	1 1/2"(2")					
125	2/0(3/0)	4	1 1/4"(1 1/2")	1 1/2"(2")	2"					
150	3/0	4	1 1/2"	2"	2"					
175	4/0	4	1 1/2"	2"	2 1/2"					
200	250	4	2"	2"	2 1/2"					
225	300	2	2"	2 1/2"	2 1/2"					
250	350	2	2"	2 1/2"	2 1/2"					
300	500	2	2 1/2"	3"	3"					
350	600	1	3"	3"	3 1/2"					
400	2-250	2-1	2-1 1/2"	2-2"	2-2 1/2"					
450	2-300	2-1/0	2-2"	2-2 1/2"	2-2 1/2"					
500	2-350	2-1/0	2-2"	2-2 1/2"	2-2 1/2"					
600	2-500	2-2/0	2-2 1/2"	2-3"	2-3"					
700	2-600	2-3/0	2-3"	2-3"	2-3 1/2"					
800	3-400	3-3/0	3-2"	3-2 1/2"	3-3"					
1000	3-600	3-4/0	3-2 1/2"	3-3"	3-3 1/2"					
1200	4-500	4-250	4-2 1/2"	4-3"	4-3"					
1600	5-600	5-350	5-3"	5-3 1/2"	5-3 1/2"					
1										

6-4"

DRAWING NOTES

- CIRCUIT SIZING SCHEDULES NOTES:
- A. BASED ON XHHW-2, 90°., 600V., INSULATED, COMPACT ALUMINUM WIRE

2000 6-600 6-400 6-3" 6-3 1/2"

APPLIED AT 75°FOR TERMINATIONS RATED AT 60°C/75°C AND 75°C. FOR TERMINATIONS RATED AT 60°C PROVIDE WIRE AND CONDUIT SIZES INDICATED IN PARENTHESIS. B. BASED ON WIRE OUTSIDE DIAMETERS AND ELECTRICAL METALLIC TUBING

INSIDE DIAMETERS AS PROVIDED IN THE NEC. DO NOT REDUCE CONDUIT

								SIZE F	OR NON	-EMT APF	PLICATIO	N.		_			
	480V.,	THRI	EE PH	ASE (CIRCU	IIT LEI	NGTH	I TABL	.E								_
) 1	1/0	2/0	3/0	4/0	250	350	500	2-3/0	2-4/0	2-250	2-350	2-500	3-300	3-400	4-350	5-400	Γ

BREAKER AMPACITY	MAX. CIRCUIT	MAXIM	IUM LENG	GTH IN FE	EΤ																					
(AMPS)	LOAD (AMPS)	NO.12	NO.10	NO.8	NO.6	NO.4	NO.2	NO.1	1/0	2/0	3/0	4/0	250	350	500	2-3/0	2-4/0	2-250	2-350	2-500	3-300	3-400	4-350	5-400	6-400	6-500
20	16	253	403	642	1019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	24	-	269	428	679	1079	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	32	-	-	321	509	809	1293	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	40	-	-	-	408	648	1034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	48	-	-	-	-	540	862	1083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	56	-	-	-	-	-	739	928	1169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	64	-	-	-	-	-	646	812	1023	1286	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	72	-	-	-	-	-	574	722	909	1143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	80	-	-	-	-	-	-	650	818	1029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125	100	-	-	-	-	-	-	-	655	823	1043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150	120	-	-	-	-	-	-	-	546	689	869	1107	-	-	-	-	-	-	-	-	-	-	-	-	-	-
175	140	-	-	-	-	-	-	-	-	588	745	949	1110	-	-	-	-	-	-	-	-	-	-	-	-	-
200	160	-	-	-	-	-	-	-	-	-	652	830	971	1360	-	-	-	-	-	-	-	-	-	-	-	-
225	180	-	-	-	-	-	-	-	-	-	-	738	863	1209	1743	-	-	-	-	-	-	-	-	-	-	-
250	200	-	-	-	-	-	-	-	-	-	-	-	777	1088	1569	1043	-	-	-	-	-	-	-	-	-	-
300	240	-	-	-	-	-	-	-	-	-	-	-	-	907	1307	869	1107	-	-	-	-	-	-	-	-	-
350	280	-	-	-	-	-	-	-	-	-	-	-	-	-	1120	745	949	1110	-	-	-	-	-	-	-	-
400	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	652	830	971	1360	-	-	-	-	-	-	-
450	360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	738	863	1209	-	-	-	-	-	-	-
500	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	777	1088	1569	-	-	-	-	-	-
600	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	907	1307	1165	-	-	-	-	-
700	560	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1120	999	1346	-	-	-	-
800	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	874	1177	1360	-	-	-
1000	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	942	1088	1569	-	-
1200	960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	907	1307	-	-
1600	1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	980	1226	1307
1800	1440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1089	1177
2000	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	980	1137

BREAKER AMPACITY	TY CIRCUIT CIRCUIT MAXIMUM LENGTH IN FEET						
(AMPS)	(AMPS)	(VA)	NO.12	NO.10	NO.8	NO.6	NO.4
20	4	480	220	349	556	882	-
	8	960	110	174	278	441	701
	12	1440	73	116	185	294	467
	16	1920	55	87	139	221	350
30	24	2880	-	58	93	147	234
40	32	3840	-	-	70	110	175
50	40	4800	-	-	-	88	140
60	48	5760	-	-	-	-	117

BREAKER AMPACITY	MAX. CIRCUIT CURRENT	MAX. CIRCUIT LOAD		MAXIMUN	I LENGTI	HIN FEET	Γ
(AMPS)	(AMPS)	(VA)	NO.12	NO.10	NO.8	NO.6	١
20	4	832	380	605	964	-	
	8	1664	190	302	482	765	
	12	2496	127	202	321	510	
	16	3328	95	151	241	382	
30	24	4992	-	101	161	255	
40	32	6656	-	-	121	191	
50	40	8320	-	-	-	153	
60	48	9984	-	-	-	-	

Ī	H TAI	BLE	208V. THREE PHASE CIRCUIT LENGTH TABLE								
H IN FEET		BREAKER AMPACITY	MAX. CIRCUIT	MAX. CIRCUIT LOAD	MAXIMUM LENGTH IN FEET						
	NO.6	NO.4	(AMPS)	CURRENT (AMPS)	(VA)	NO.12	NO.10	NO.8	NO.6	NO.4	
	-	-	20	4	1440	439	698	1113		-	
	765	-		8	2880	220	349	557	883	-	
	510	810		12	4320	127	233	371	589	935	
	382	607		16	5760	95	175	278	442	701	
	255	405	30	24	8640	-	116	186	294	468	
	191	304	40	32	11520	-	•	139	221	351	
	153	243	50	40	14400	-	-	-	177	281	
	1	202	60	48	17280	-	-	-	-	234	

CIRCUIT MAXIMUM DISTANCE TABLE NOTES:
CIRCUIT MAXIMUM DISTANCE IS BASED ON NEC CHAPTER 9, TABLE 8 CONDUCTOF PROPERTIES FOR COATED COPPER CONDUCTORS AT 75 DEGREES CELSIUS.

	FEED		GENERAL	. PURPOSE	SCHEDULE -	
	ı		(NOTE	S 1 & 2)		
OVERCURRENT	WIRE SIZE - A	WG OR KCMIL		CONDUIT SIZ	ZE	
DEVICE RATING (AMPERES)	PHASE & NEUTRAL	E.G.	2 WIRE 3 WIRE		4 WIRE	NOTE
15-20	12	12	3/4"	3/4"	3/4"	
25-30	10	10	3/4"	3/4"	3/4"	
35-40	8	10	3/4"	3/4"	3/4"	
45-50	8(6)	10	3/4"	3/4"	3/4"(1")	
60	6(4)	10	3/4"(1")	3/4"(1")	1"(1 1/4")	
70	6(4)	8	3/4"(1")	3/4"(1")	1"(1 1/4")	
80-90	4(2)	8	1"	1"(1 1/4")	1 1/4"	
100	3(2)	8	1"(1 1/4")	1 1/4"	1 1/4"	
110	2(1)	6	1 1/4"	1 1/4"(1 1/2")	1 1/4"(1 1/2")	
125	1(1/0)	6	1 1/4"	1 1/2"	1 1/2"(2")	
150	1/0	6	1 1/4"	1 1/2"	2"	
175	2/0	6	1 1/2"	2"	2"	
200	3/0	6	1 1/2"	2"	2"	
225	4/0	4	2"	2"	2 1/2"	
250	250	4	2"	2 1/2"	2 1/2"	
300	350	4	2 1/2"	3"	3"	
350	500	3	3"	3"	3 1/2"	
400	2-3/0	2-3	2-2"	2-2"	2-2"	
450	2-4/0	2-2	2-2"	2-2"	2-2 1/2"	
500	2-250	2-2	2-2"	2-2 1/2"	2-2 1/2"	
600	2-350	2-1	2-2 1/2"	2-3"	2-3"	
700	2-500	2-1/0	2-3"	2-3"	2-3 1/2"	
800	3-300	3-1/0	3-2 1/2"	3-3"	3-3"	
1000	3-400	3-2/0	3-2 1/2"	3-3"	3-3"	
1200	4-350	4-3/0	4-2 1/2"	4-3"	4-3"	
1600	5-400	5-4/0	5-2 1/2"	5-3"	5-3"	
2000	6-400	6-250	6-2 1/2"	6-3"	6-3"	

	MOTOR C (FOR 460	IRCUIT S V, 3 PHASE M			Ε		
MOTOR HP	SWITCH/FUSE	CIRCUIT	STARTER		CONDUIT & WIRE		
WOTOKTIF	SWITCH/FUSE	BREAKER	SIZE/TYPE	PHASE	E.G.	CONDUIT	
1/2	30/3A.	15A	1	12	12	3/4"	
3/4	30/3A.	15A	1	12	12	3/4"	
1	30/6A.	15A	1	12	12	3/4"	
1 1/2	30/6A.	15A	1	12	12	3/4"	
2	30/6A.	15A	1	12	12	3/4"	
3	30/10A.	15A	1	12	12	3/4"	
5	30/15A.	20A	1	12	12	3/4"	
7 1/2	30/20A.	25A	1	12	12	3/4"	
10	30/25A.	35A	1	12	12	3/4"	
15	60/40A.	50A	2	10	10	3/4"	
20	60/50A.	60A	2	8	10	3/4"	
25	60/60A.	80A	2	6	8	3/4"	
30	100/70A.	100A	3	6	8	3/4"	
40	100/100A.	125A	3	4	6	1"	
50	200/125A.	150A	3	3	6	1 1/4"	
60	200/150A.	175A	4	1	6	1 1/4"	
75	200/175A.	225A	4	1/0	4	1 1/2"	
100	400/225A.	300A	4	2/0	4	2"	
125	400/300A.	350A	5	3/0	3	2"	
150	400/350A.	450A	5	4/0	2	2"	
200	600/450A.	600A	5	350	1	2 1/2"	

277V. SINGLE PHAS	SE CIR	CUIT	LENGTH TABLE			
BREAKER AMPACITY	MAXIMUM LENGTH IN FEET					
(AMPS)	NO.12	NO.10				
20	200	300				

CIRCUIT SIZING SCHEDULES NOTES:

MOTOR HP

3/4

1 1/2

7 1/2

15

100

125

150

200

30/6.25A.

30/20A.

30/30A.

100/90A.

200/110A.

200/175A. 200/200A.

400/250A.

800/700A.

1200/1000A

20A., 3W.

25A., 3W.

45A., 3W.

70A., 3W.

125A., 3W.

175A., 3W.

350A., 3W.

500A., 3W.

PRIMARY CIRCUIT (480V.)

SWITCH/FUSE OR PRIMARY

| CIRCUIT BREAKER | FEEDER

30/20A.

30/25A.

60/45A.

100/70A.

200/125A.

200/175A.

400/225A.

400/350A.

600/500A.

45

112 1/2

150

225

300

- 1. BASED ON THHN/THWN, 90°., 600V., INSULATED, COPPER WIRE APPLIED AT 75°FOR TERMINATIONS RATED AT 60°C/75°C AND 75°C. FOR TERMINATIONS RATED AT 60°C
- PROVIDE WIRE AND CONDUIT SIZES INDICATED IN PARENTHESIS. 2. BASED ON WIRE OUTSIDE DIAMETERS AND RIGID METALLIC CONDUIT INSIDE DIAMETERS AS PROVIDED IN THE NEC. DO NOT REDUCE CONDUIT SIZE FOR NON-RIGID METALLIC APPLICATION. REFER TO NEC FOR CONDUIT TYPES MORE RESTRICTIVE
- THAN RIGID METALLIC. 3. BASED ON MOTOR FULL LOAD AMPERES AS PROVIDED BY THE NEC. 4. BASED ON MOTOR RUNNING OVERLOAD PROTECTION PROVIDED BY THERMAL
- OVERLOAD RELAYS.
- 5. MOTOR STARTING TYPE BASED ON 460V., 3 PHASE, FULL VOLTAGE NON-REVERSING EXCEPT FOR MOTORS SIZED 75HP OR GREATER WHICH ARE BASED ON 460V., 3 PHASE, PART WINDING REDUCED VOLTAGE STARTING.
- 6. TRANSFORMER CIRCUITS BASED ON 480V TO 208/120V., 3 PHASE, 4 WIRE, DRY TYPE. PROVIDE THREE PHASE WIRES AND ONE DOUBLE AMPACITY NEUTRAL FOR 110
- AMPACITY CIRCUITS AND LESS. PROVIDE THREE PHASE WIRES AND TWO NEUTRAL WIRES, SIZES AS INDICATED FOR 125 AMPACITY CIRCUITS AND GREATER.

MOTOR CIRCUIT SIZING SCHEDULE

(FOR 208V, 3 PHASE MOTORS NOTES 3,4,5) CIRCUIT STARTER

25A

250A

350A

TRANSFORMER CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE TYPE

30/30A.

60/60A.

100/100A.

200/175A.

400/300A.

400/400A.

600/600A.

800/800A.

1200/1000A.

SWITCH/FUSE CIRCUIT BREAKER SIZE/TYPE PHASE E.G. CONDUIT

1 | 12

2 8

3 3

5 4/0 5 300

6 500

1 | 12 | 12 | 3/4"

1 12 12 3/4" 1 12 12 3/4"

1 12 12 3/4"

1 10 10 3/4"

1 8 10 3/4"

3 4 6 1"

4 1/0 4 1 1/2"

5 3/0 3 2"

6 2-4/0 2-1/0 2-2" 6 2-250 2-1/0 2-2"

1200A 7 2-400 2-3/0 2-2 1/2"

SECONDARY CIRCUIT (208/120V.)

(GROUND WIRE)

CIRCUIT BREAKER | BONDING JUMPER

12 3/4"

8 3/4"

2 2 1/2"

FEEDER

30A., 4W.

60A., 4W.

100A., 4W.

175A., 4W.

300A., 4W.

400A., 4W.

600A., 4W.

800A., 4W.

1000A., 4W.

SMITHGROUP

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Liberty Elevator Experts, LLC. VERTICAL TRASPORTATION CONSULTANT 625 Barksdale Road, Suite 113 Newark, DE 19711 844.542.3538

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IN PROGRESS SCHEMATIC DESIGN		22DEC22

REV DATE

SEALS AND SIGNATURES

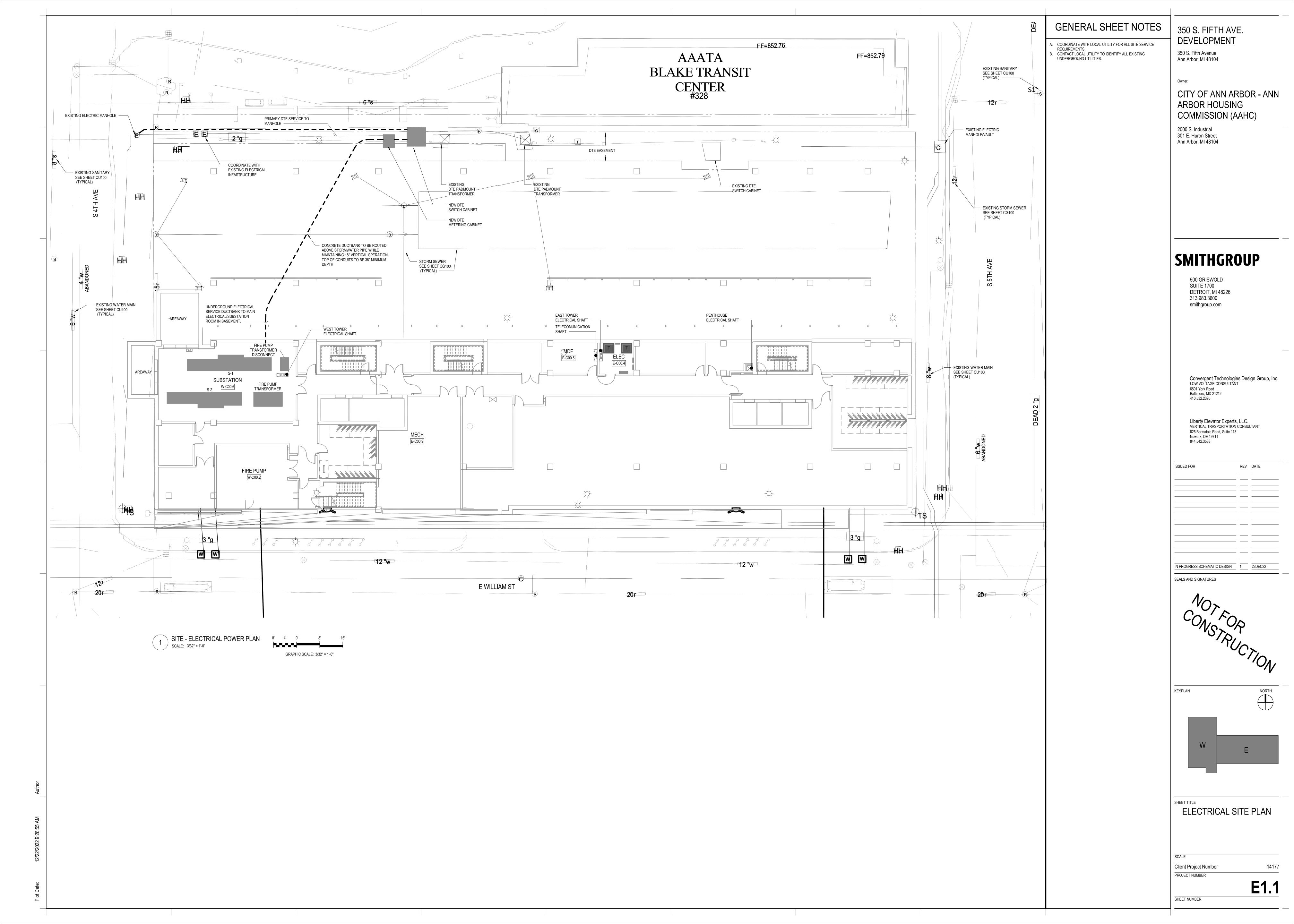
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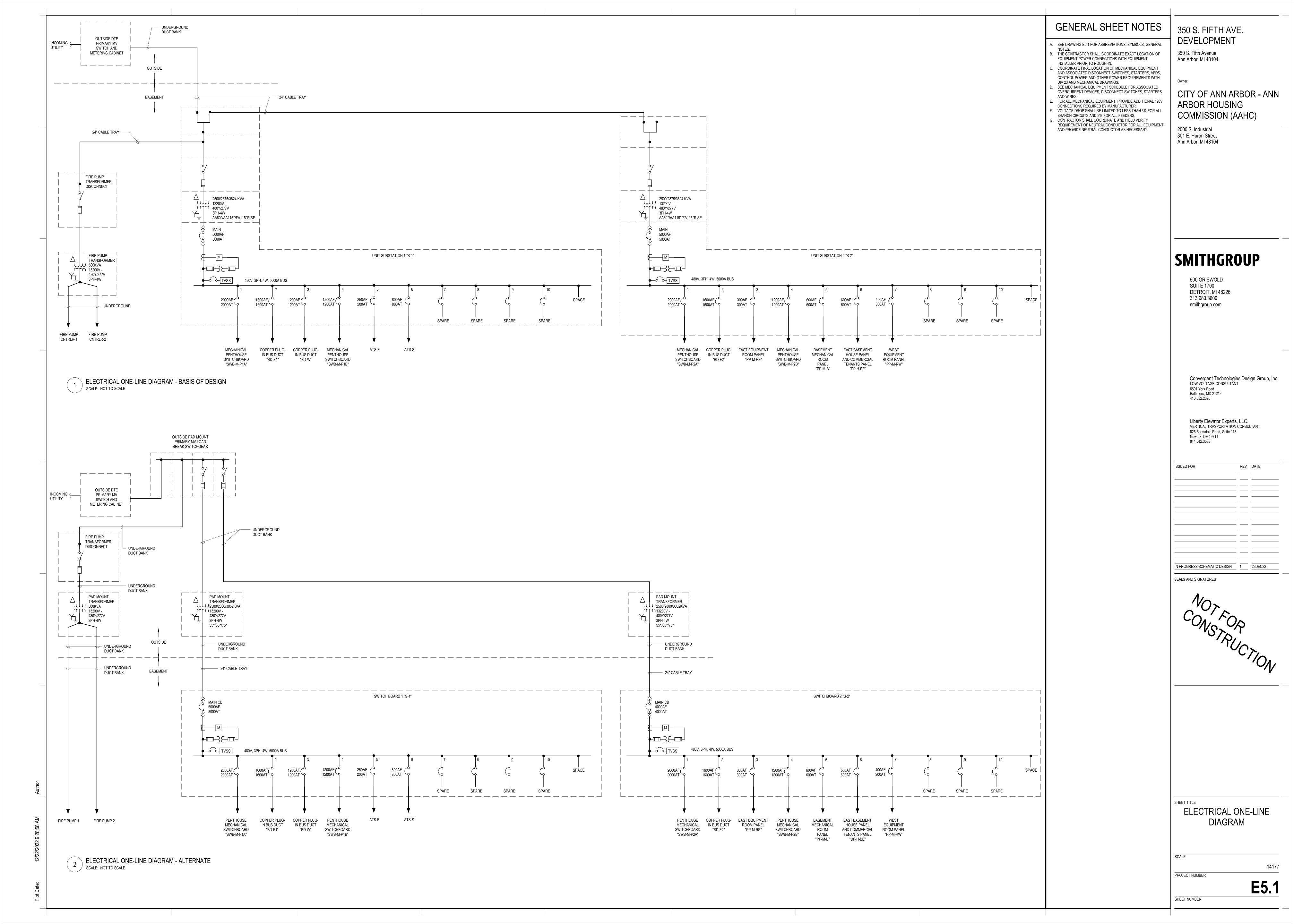


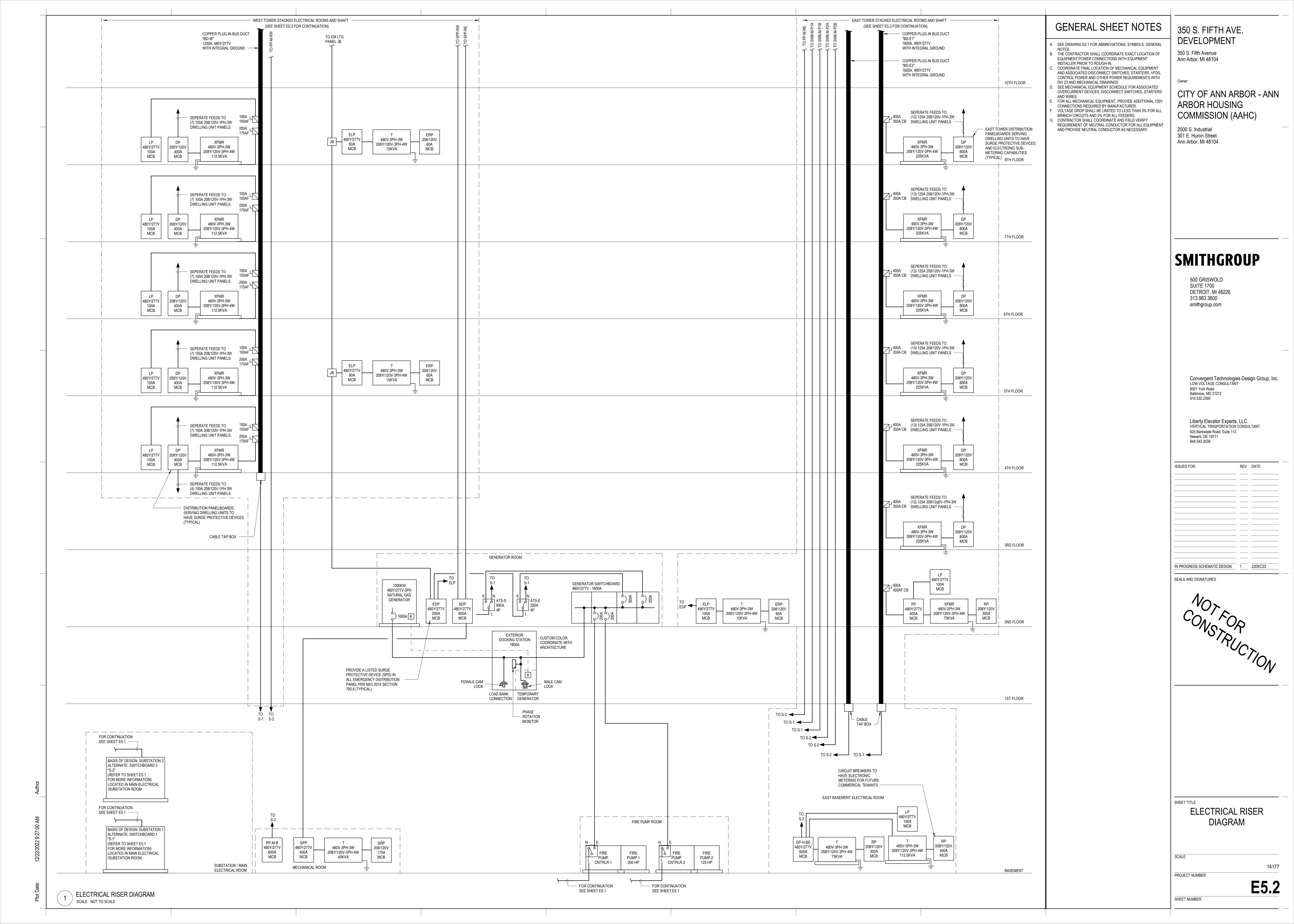
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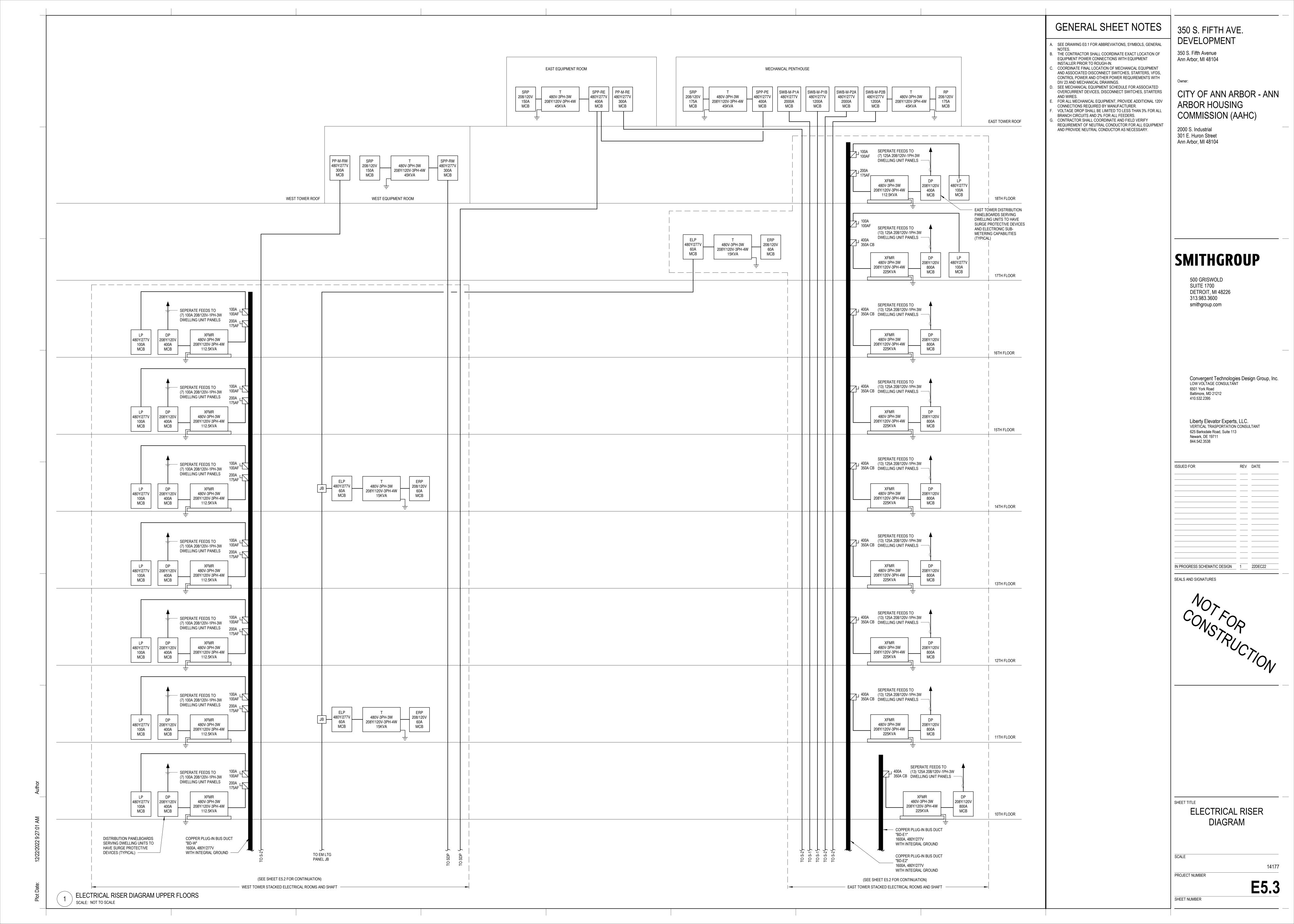
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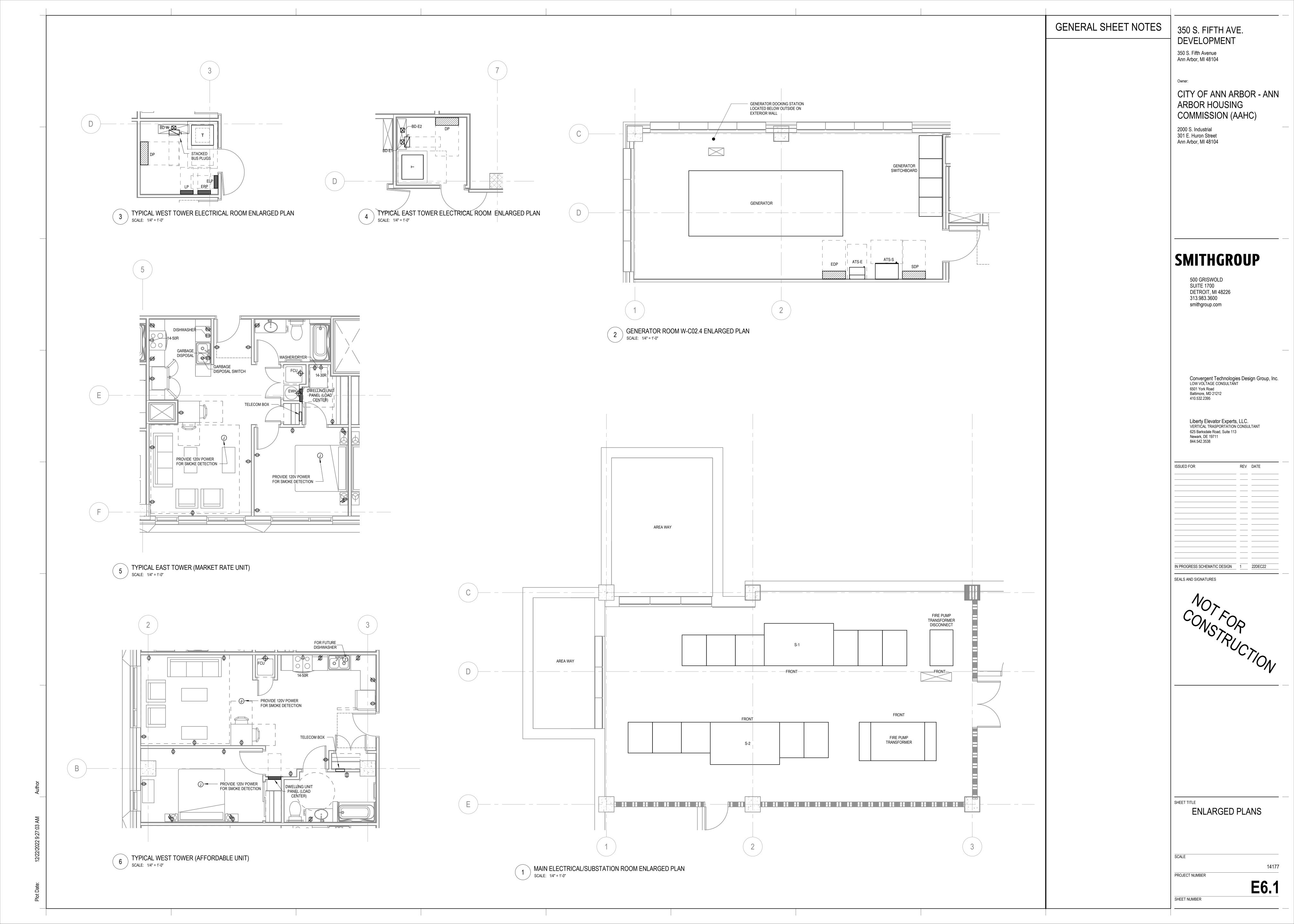
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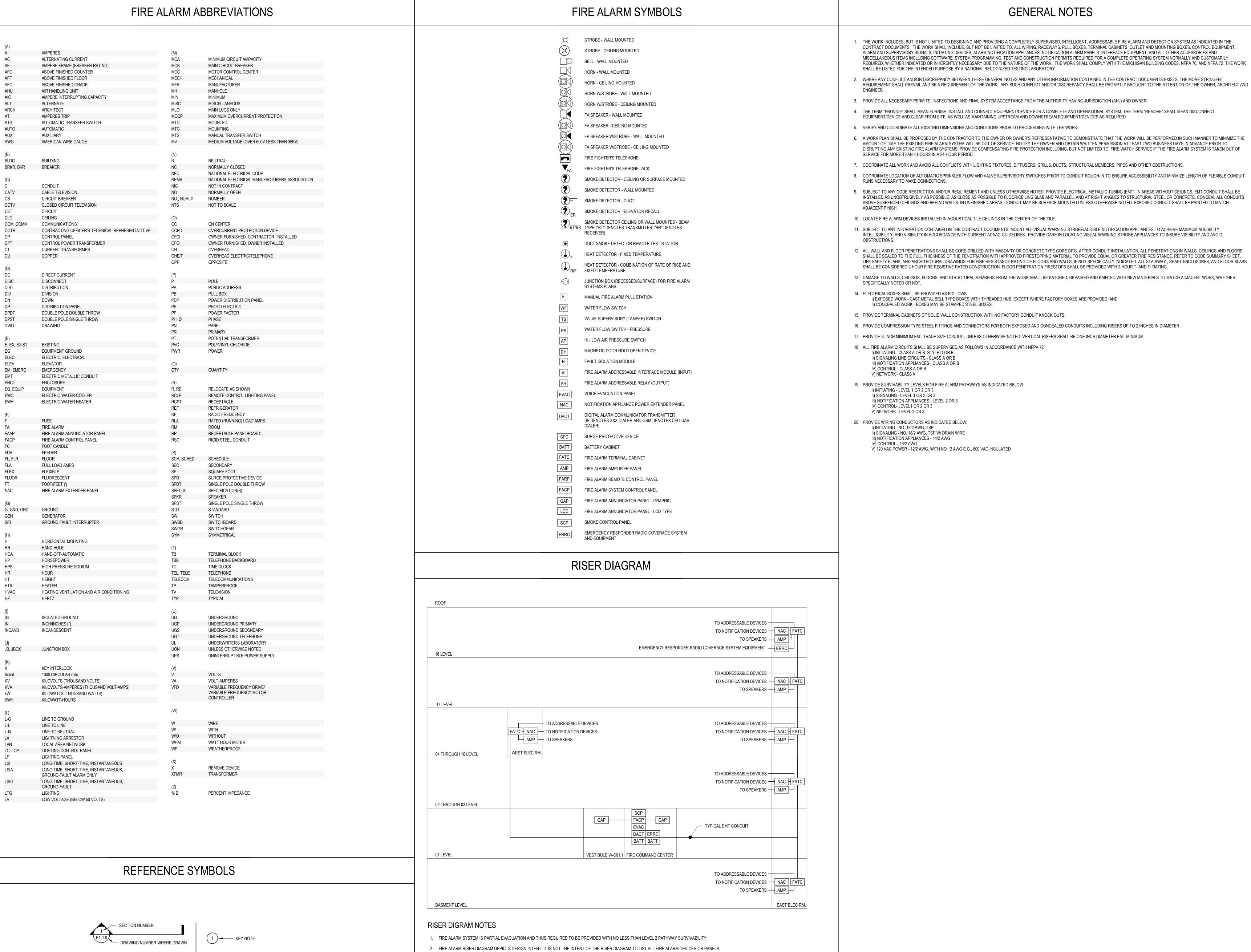












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REV DATE

IN PROGRESS SCHEMATIC DESIGN SEALS AND SIGNATURES

ISSUED FOR

SHEET TITLE

FIRE ALARM ABBREVIATIONS AND

PROJECT NUMBER

SHEET NUMBER

3. PROVIDE FAULT ISOLATION MODULES ON SLC CIRCUITS PER THE MANUFACTURER'S RECOMMENDATION.

DRAWING NUMBER WHERE DRAWN

4. PROVIDE NEW SURGE PROTECTION DEVICE FOR EACH SOURCE OF POWER TO THE FIRE ALARM SYSTEM. COORDINATE WITH ELECTRICAL INSTALLER TO PROVIDE POWER TO NAC PANELS WITH ELECTRICAL JUNCTION BOX CONTAINING TERMINATION OF 120VAC/20AMP POWER CIRCUITS FROM BUILDING ELECTRICAL DISTRIBUTION PANEL.

5. PROVIDE REMOTE POWER PANEL(S) AND AMPLIFIER(S) AS NEEDED BASED ON FIRE ALARM INSTALLER'S PROPOSED LAYOUT AND PRODUCT. PROVIDE BATTERY AND VOLTAGE DROP CALCULATIONS TO DETERMINE THE QUANTITY OF REMOTE POWER SUPPLY PANELS AND AMPLIFIERS.