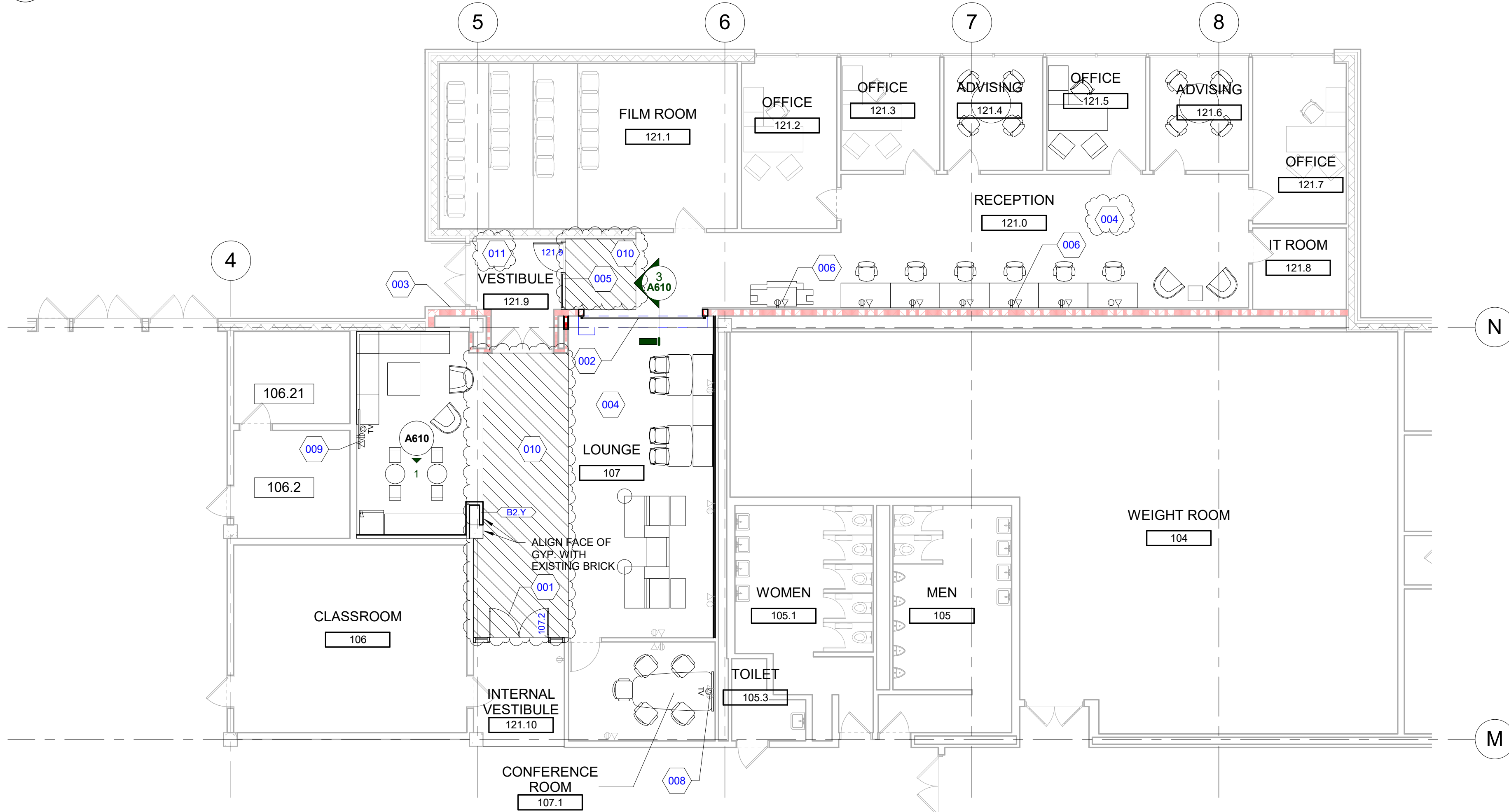


2 REFLECTED CEILING PLAN
A110 1/8" = 1'-0"



1 CONSTRUCTION PLAN
A110 1/8" = 1'-0"

REFLECTED CEILING LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ACOUSTIC CEILING TILE SYSTEM PER SCHEDULE AND/OR SPECIFICATIONS		RECESSED DOWNLIGHT FIXTURE		RETURN AIR GRILL
	GYPSUM BOARD CEILING AND/OR SOFFIT		WALL WASHING LIGHT FIXTURE		EXHAUST AIR GRILL
	1'X4' LIGHT FIXTURE		WALL SCENCE FIXTURE		SMOKE DETECTOR
	2'X2' LIGHT FIXTURE		UNDER CABINET LIGHT FIXTURE		FIRE SUPPRESSION HEAD
	2'X4' LIGHT FIXTURE		EMERGENCY LIGHT FIXTURE W/ BATTERY SUPPLY		SPEAKER
	2'X4' NIGHT LIGHT FIXTURE		EXIT LIGHT (SHADING INDICATES LIGHTED FACE)		ELEVATION ABOVE FINISHED FLOOR
	2'X4' DIRECT/INDIRECT LIGHT FIXTURE		ACCESS PANEL - COORDINATE FINAL LOCATION WITH MEP		EXISTING FIXTURE TO REMAIN
	WALL SWITCH		SUPPLY AIR DIFFUSER		EXISTING FIXTURE TO BE RELOCATED

GENERAL RCP NOTES

- CONTRACTOR TO CENTER ALL CEILING MOUNTED ITEMS (i.e., RECESSED LIGHT FIXTURES, SMOKE DETECTORS, FIRE SUPPRESSION HEADS) WITHIN THE ASSOCIATED CEILING TILE AS SHOWN. COORDINATE FINAL LOCATION WITH THE APPROPRIATE MECHANICAL, ELECTRICAL, FIRE ALARM, AND FIRE SUPPRESSION DRAWINGS AS REQUIRED.
- CONTRACTOR SHALL VERIFY IN FIELD IF DESIGNATED CEILING HEIGHTS IN ROOMS AREA. POSSIBLE, IF NOT, MAXIMIZE CEILING HEIGHTS AND NOTIFY ARCHITECT, ENGINEER OR PROJECT MANAGER OF ANY DISCREPANCY.
- SPRINKLER HEADS SHOWN FOR REFERENCE ONLY. DESIGN-BUILD FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL LOCATIONS. QUANTITY, TYPE AND FULL FIRE PROTECTION DESIGN. FIRE PROTECTION SYSTEM SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND BUILDING STANDARDS INCLUDING NFPA 101 LIFE SAFETY CODE (SPECIFICALLY CHAPTER 20).
- CONTRACTOR SHALL PROVIDE ACOUSTIC SOUND BATT INSULATION ABOVE THE ENTIRE CEILING IN THE FOLLOWING ROOMS (TYPICAL UNO): TOILET ROOMS, OFFICES, RECEPTION AREAS, EXAM ROOMS AND CONFERENCE ROOMS.
- CONTRACTOR TO PROVIDE DENS ARMOR PLUS WALL BOARD (MOISTURE RESISTANT) IN ALL CEILING AREAS AND WALLS OF TOILET ROOMS AND VESTIBULES (TYPICAL UNO).
- ACCESS PANELS TO BE INDEPENDENTLY MOUNTED. DO NOT SUPPORT ON CEILING TILE GRID ASSEMBLY. SUPPORT FROM STRUCTURE ABOVE ONLY. COORDINATE SIZE, QUANTITY AND LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. IF NOT SHOWN, CONTRACTOR TO PROVIDE WHERE REQUIRED AND COORDINATE FINAL LOCATIONS IN FIELD WHERE REQUIRED PER MEP EQUIPMENT AND DRAWINGS.
- PROVIDE EXTERIOR MOUNTED EMERGENCY EGRESS LIGHT AT ALL EXTERIOR EXITS AS REQUIRED BY CODE, BATTERY BACK-UP AND MOUNTED 36" ABOVE DOOR UNO.
- SOFFITS ABOVE UPPER CABINETS SHALL BE 16" DEEP AND SHALL BE CONSTRUCTED OF 5/8" GYPSUM BOARD ON 3 5/8" METAL FRAMING AT 16" OC (TYPICAL UNO).
- REFER TO WALL TYPES FOR WALLS THAT PENETRATE CEILINGS.
- REFER TO MECHANICAL HVAC PLANS FOR DIFFUSER / GRILLE SIZES.
- FOR LIGHT FIXTURE TYPES SEE ELECTRICAL LIGHTING PLANS.
- REFER TO DIMENSIONS ON REFLECTED CEILING PLAN TO LOCATE / LAYOUT CEILING GRID AND LIGHT FIXTURES.

GENERAL PLAN NOTES

- THIS DRAWING IS DIAGRAMMATIC AND SHOULD BE USED TO DETERMINE THE DESIGN INTENT. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SET OF WORK AS INDICATED AND SHALL FIELD VERIFY ALL WORK. COORDINATE ALL DRAWINGS / NEW WORK AND SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES IN THE DOCUMENTS BEFORE PROCEEDING. FAILURE TO DO SO WILL RESULT IN THE CONTRACTOR TAKING FULL RESPONSIBILITY AND LIABILITY FOR SAID DISCREPANCIES.
- ALL DIMENSIONS ARE SHOWN FROM FINISH FACE TO FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED.
- WALL THICKNESS ARE NOMINAL NOT ACTUAL DIMENSIONS. SEE WALL SCHEDULE FOR ACTUAL DIMENSIONS.
- ALL WOOD, INCLUDING BLOCKING, USED ON THE PROJECT SHALL BE FIRE RETARDANT TREATED.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL LOCAL, STATE, COUNTY CODE REGULATIONS, O.S.H.A., AND THE AMERICAN WITH DISABILITIES ACT (ADA). REFER TO THE CODE PLAN FOR MORE INFORMATION.
- PROVIDE POSITIVE SLOPE TO ALL FLOOR DRAINS WHILE KEEPING FLOOR LEVEL AT WALL BASE CONDITION.
- PROVIDE TRANSITION STRIPS AT EACH CHANGE IN FLOOR FINISH MATERIALS.
- PAIN, PATCH AND REPAIR THE FOLLOWING TO MATCH EXISTING MATERIALS: FLOOR, WALL, AND CEILING SURFACES AS REQUIRED ADJACENT TO AREAS BEING DEMOLISHED. REFER TO DEMOLITION DRAWINGS FOR MORE INFORMATION.
- REINFORCE WALL AND PROVIDE BLOCKING AS REQUIRED TO SUPPORT WALL CABINETS AND COUNTERTOPS.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL WALL REINFORCING FOR INSTALLATION OF ACCESSORIES, COAT RACKS, CHART RACKS, CASEWORK, AND OTHER WALL MOUNTED ITEMS.
- CLEAN AND REPAIR ALL EXISTING FLOOR FINISHES AS NECESSARY.
- ALL EXPOSED PIPES, DUCTS, AND CONDUIT TO BE PAINTED TO MATCH EXISTING.
- PROVIDE CONTROL JOINTS IN GYPSUM BOARD PARTITIONS AT 30'-0" O.C. MAXIMUM AND AS INDICATED IN THE CONTRACT DOCUMENTS.
- COORDINATE WITH OWNER'S EQUIPMENT SUPPLIER FOR INSTALLATION REQUIREMENTS / LOCATIONS OF FLOOR / WALL / CEILING MOUNTED ITEMS; IE. CAMERAS, TV'S, SPEAKERS, SENSORS, SECURITY WIRING, VAULTS, ATMS.
- CONTRACTOR SHALL CONDUCT A ROUGH ELECTRICAL INSPECTION WITH OWNER, PRIOR TO ENCLOSING WALLS, FOR THE PURPOSE OF CONFIRMING ALL J-BOX LOCATIONS FOR POWER, DATA, VOICE, SWITCH, THERMOSTAT, ETC.
- CONTRACTOR TO FILL ANY AND ALL EQUIPMENT PENETRATIONS OR DEPRESSIONS INTO OR THROUGH THE EXISTING SLAB THAT WILL NOT BE UTILIZED TO FEED NEW EQUIPMENT (I.E. ABANDONED FLOOR CORES, IMPRESSION FROM PREVIOUS EQUIPMENT FLOOR PLATE REMOVAL). PENETRATIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE SIDES OF ANY EXISTING OPENINGS SHALL BE MODIFIED/TAPERED SO THAT THEY ARE WIDER AT THE TOP THAN AT THE BOTTOM. FOR LARGE OPENINGS, PROVIDE ONE (1) #5 BAR 2" UP FROM BOTTOM OF HOLE.
- A TACTILE SIGN STATING 'EXIT' AND COMPLYING WITH ICC-A117.1 SHALL BE PROVIDED ADJACENT TO EACH DOOR TO AN AREA OF REFUGE, AN EXTERIOR AREA FOR ASSISTED RESCUE, AN EXIT STAIRWAY, AN EXIT RAMP, AN EXIT PASSAGEWAY, AND THE EXIT DISCHARGE.
- PROVIDE PERMANENT MIN 3-INCH HIGH CONTRASTING COLOR MARKING AND IDENTIFICATION AT ALL FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS, SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS WITHIN 15 FEET AT THE END OF EACH WALL, AND NOT EXCEEDING 30 FEET MAXIMUM HORIZONTAL INTERVALS. MINIMUM 2 LOCATIONS EACH WALL. TYPICAL FOR ACCESSIBLE CONCEALED FLOOR, FLOOR-CEILING, OR ATTIC SPACES PER CODE (MBC 703.7)
- CONTRACTOR TO COORDINATE WITH FURNITURE VENDOR ON FURNITURE SPECIFICATIONS, LAYOUT, AND INSTALL.

RCP KEYNOTE LEGEND	
KEYNOTE	KEYNOTE DESCRIPTION
A	EXISTING CEILING SYSTEM, SUPPORT STRUCTURE AND LIGHTS TO REMAIN. COORDINATE NEW MECHANICAL DIFFUSER AND RETURN GRILLS AS INDICATED ON MECHANICAL DOCUMENTS.
B	NEW ACOUSTIC CEILING GRID TO BE INSTALLED, TYP.
C	MODIFY EXISTING CEILING SYSTEM AS REQUIRED FOR NEW PARTITION.
D	NEW 2'X4' LIGHTS TO BE INSTALLED, TYP.
E	NEW 6" DOWNLIGHTS TO BE INSTALLED, TYP.
F	NEW CEILING MOUNTED EXIT SIGNS TO BE INSTALLED.
G	NEW 8'-0" SOFFIT TO BE INSTALLED.

NEW CONSTRUCTION KEYNOTE LEGEND	
KEYNOTE	KEYNOTE DESCRIPTION
001	NEW GLASS AND ALUMINUM STOREFRONT DOOR SYSTEM TO BE INSTALLED. CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION ACCESS DOORS BETWEEN EXISTING AND NEW SUITE.
002	NEW 2HR FIRE CURTAIN - BOD: COOPERS FIRE MASTER 4/1000 FIRE CURTAIN STRUCTURAL SUPPORT MAY BE REQUIRED.
003	OWNER TO INSTALL SECIRITY HARDWARE (CARD ACCESS). CONTRACTOR RESPONSIBLE FOR CONDUIT AND JUNCTION BOX INSTALLATION. FIELD VERIFY IF DOOR NEEDS TO BE MODIFIED FOR SECURITY HARDWARE INSTALLATION.
004	OWNER TO PROVIDE 175 SF OF CARPETING IN LOUNGE. COORDINATE WITH OWNER ON LOCATION OF EXISTING CARPET. CONTRACTOR RESPONSIBLE FOR ORDERING DIFFERENCE IN QUANTITY AND INSTALLATION OF NEW CARPET.
005	PARTITION WALL AND EGRESS DOOR TO BE INSTALLED BETWEEN VESTIBULE AND OFFICE AREA.
006	NEW (1) DUPLEX POWER AND (1) DATA IN WALL PER DESK AND COPIER TO BE INSTALLED BY CONTRACTOR. SEE ELECTRICAL FOR FURTHER INFORMATION.
008	NEW LOCATION OF TV SALAGED FROM RECEPTION.
009	NEW TV MOUNTED TO WALL. POWER AND DATA TO BE INSTALLED BEHIND.
010	CARPET TO BE INSTALLED OVER EXISTIGN QUARRY TILE. SKIM UNDERLAYMENT TO PROVIDE MINIMAL SLOPE TO ADDRESS TRANSITION HEIGHT DIFFERENCE.
011	QUARRY TILE TO REMAIN IN VESTIBULE 121.9. PROVIDE TRANSITION STRIP AT INTERIOR DOORS TO ADJACENT CARPET.



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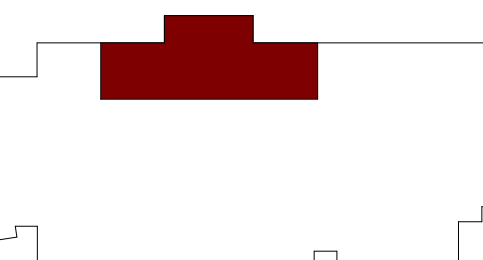
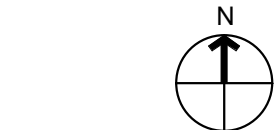
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Project :

MATTHAEI ACADEMIC
RESOURCE CENTER
RENOVATION

5101 John C Lodge Fwy,
Detroit, MI 48202

Key Plan:



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FIRST LEVEL NEW
CONSTRUCITON AND RCP

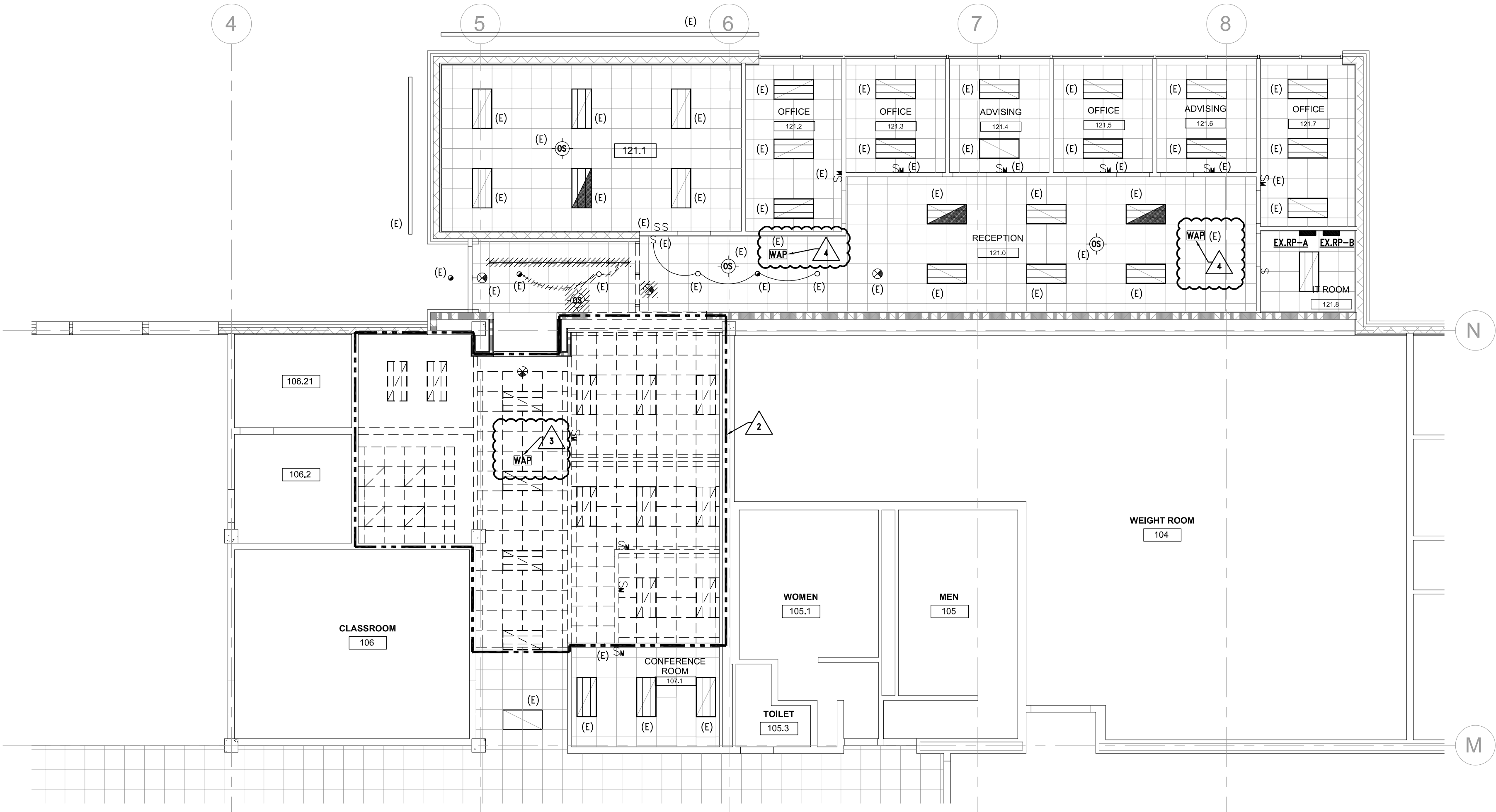
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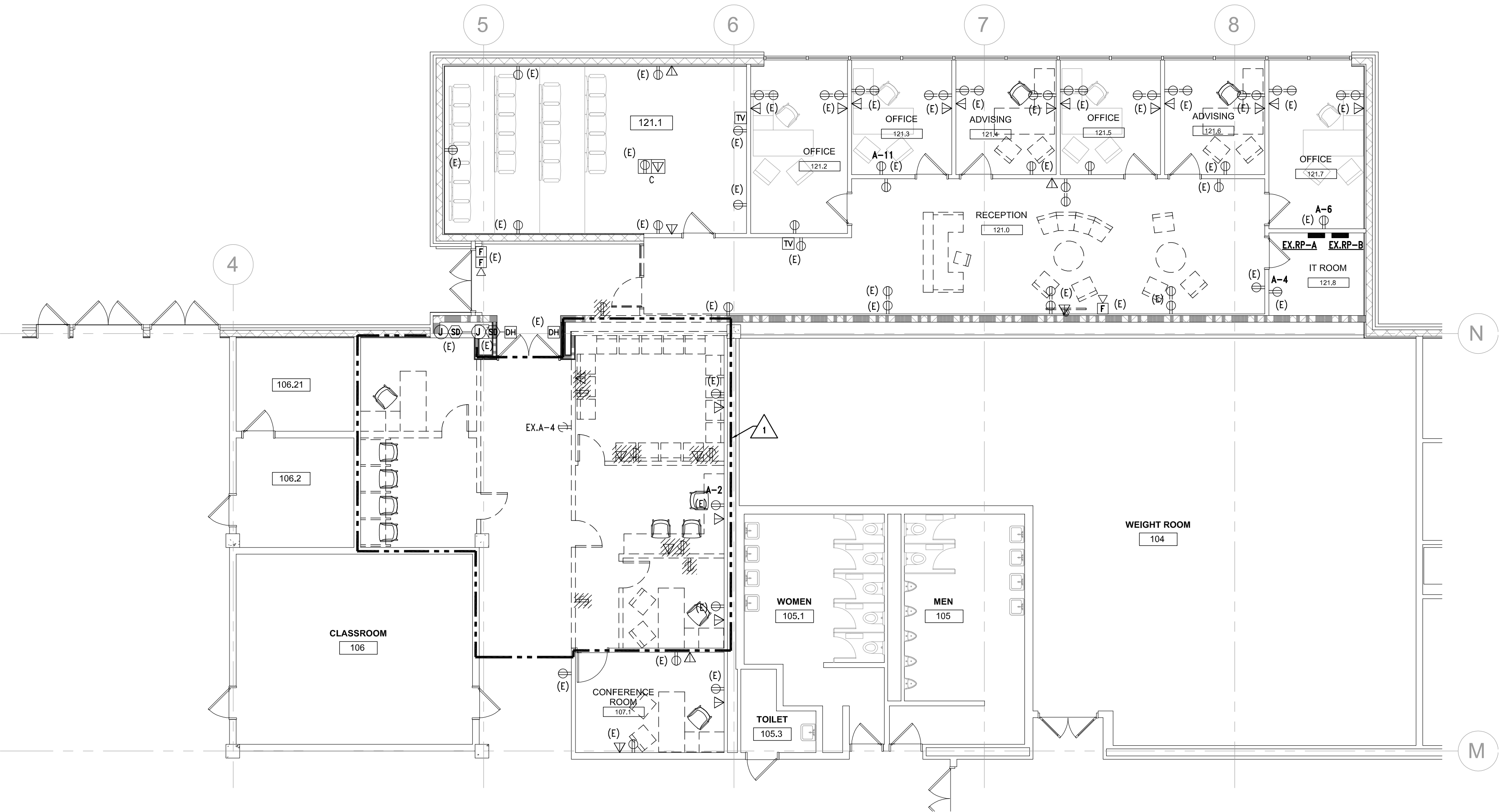
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2 DEMOLITION LIGHTING PLAN
ED100 1/8" = 1'-0"



1 DEMOLITION POWER PLAN
ED100 1/8" = 1'-0"



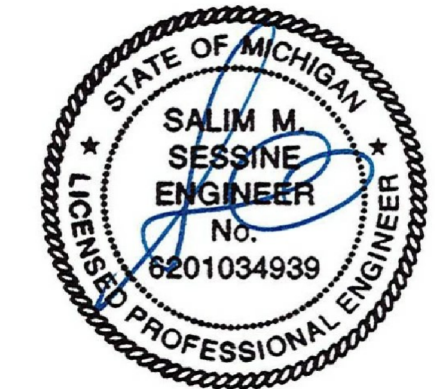
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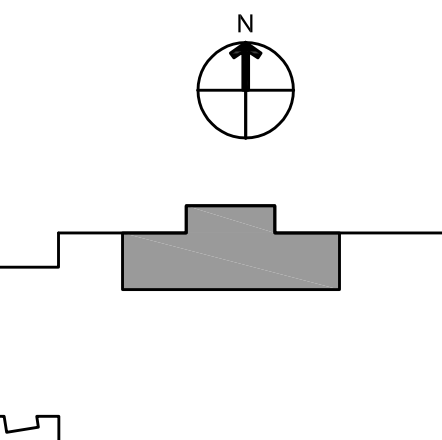


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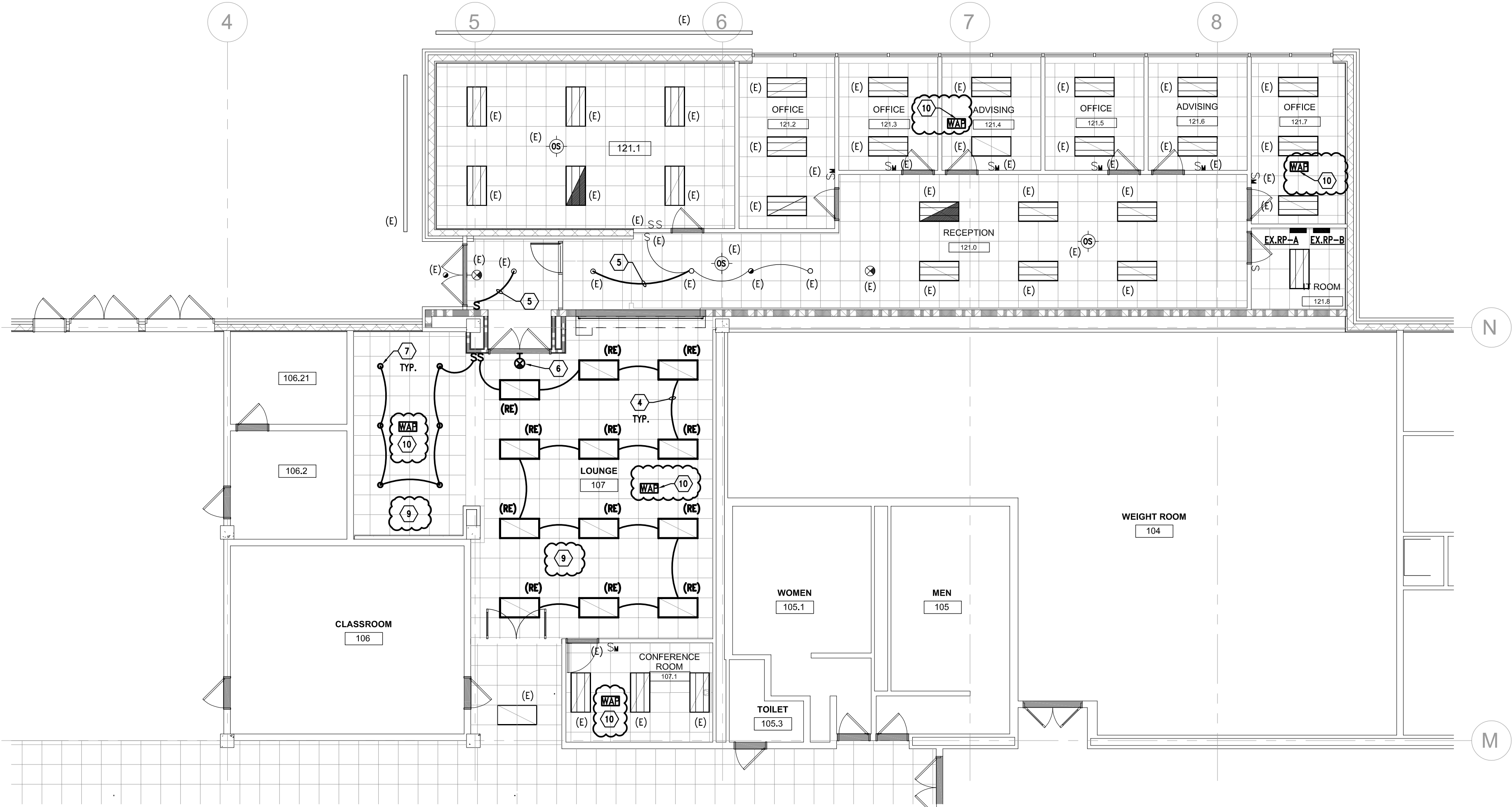
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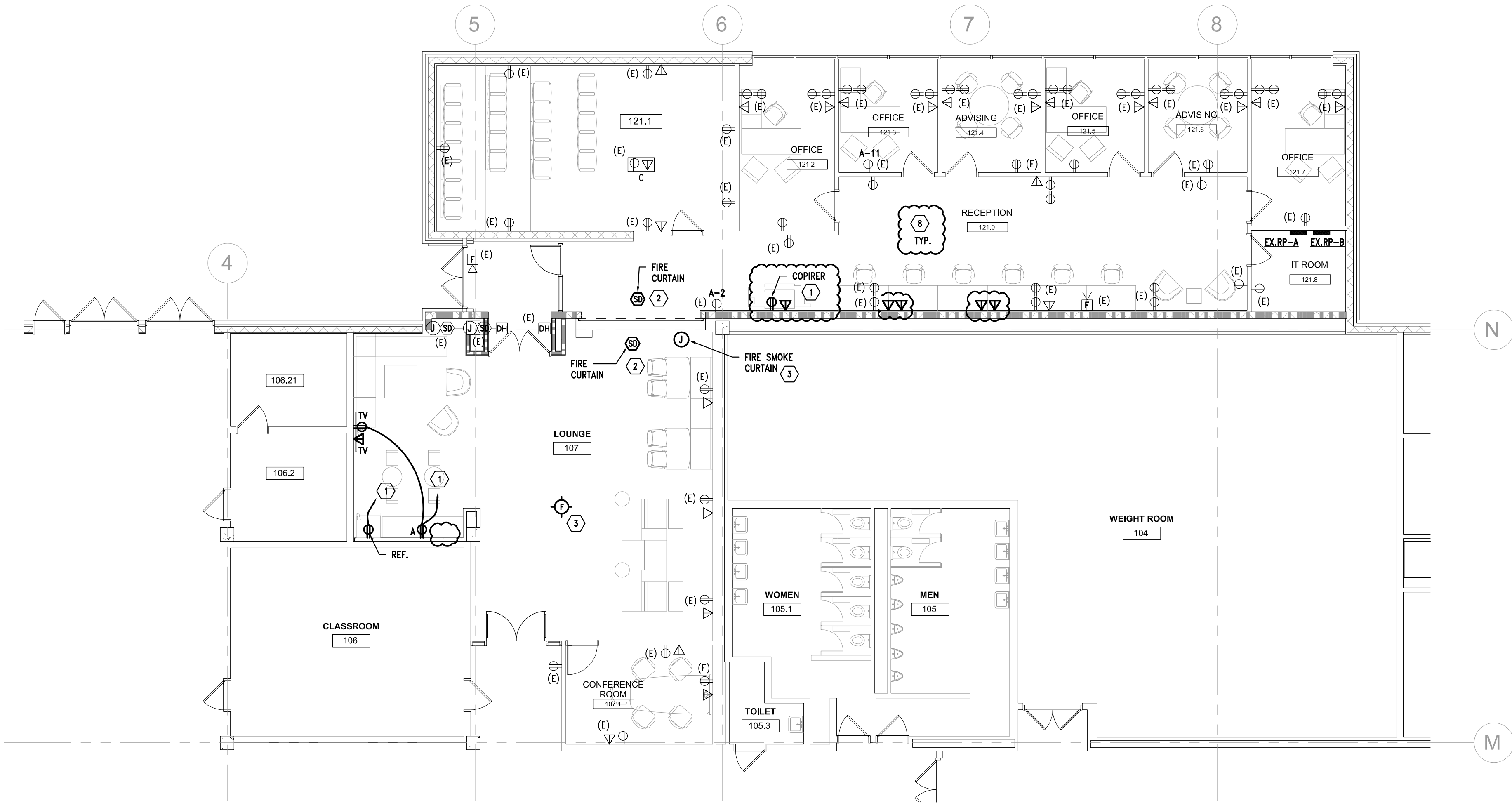
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DEMOLITION PLANS

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ED100



2 LIGHTING PLAN
1/8" = 1'-0"



1 POWER PLAN
1/8" = 1'-0"

KEY NOTES :

- 1 PROVIDE SEPARATE 20A-120V-1P CIRCUIT FROM NEAREST AVAILABLE PANEL. VERIFY PANEL LOCATION.
- 2 CONNECT TO BUILDING FIRE ALARM SYSTEM PER BUILDING FIRE ALARM SYSTEM VENDOR'S DIRECTION.
- 3 FIRE CURTAIN, PROVIDE SEPARATE (1)20A-120V-1P LIFE SAFETY CIRCUIT FROM NEAREST AVAILABLE SOURCE. VERIFY SOURCE LOCATION IN FIELD.
- 4 CONNECT TO EXISTING LIGHTING CIRCUIT. PROVIDE BUILDING STANDARD AUTOMATIC LIGHTING CONTROL.
- 5 REWORK SWITCHING AS INDICATED.
- 6 PROVIDE EXIT LIGHT FIXTURE TO MATCH EXISTING-VERIFY INFIELD. CONNECT TO NEAREST AVAILABLE LIFE SAFETY LIGHTING CIRCUIT.
- 7 RECESSED 6" DIAMETER LED DOWNLIGHT WITH LENS, 2000 LUMENS, 3500°K, 80CRI, 0-10V DIMMING, MULTI-VOLT DRIVER, GOTHAM EVO-6 OR APPROVED EQUAL.
- 8 MODIFY FIRE ALARM DEVICES LOCATION TO ACCOMMODATE NEW PLAN.
- 9 RE-WORK EMERGENCY LIGHTING TO ACCOMMODATE NEW WORK.
- 10 WAP LOCATION, BY OTHERS.



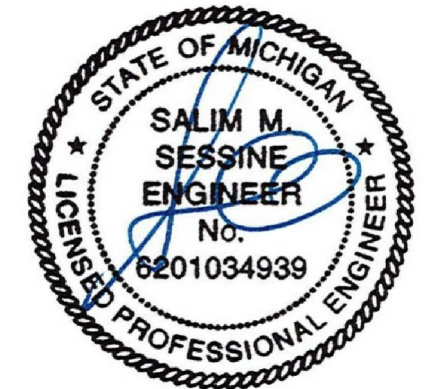
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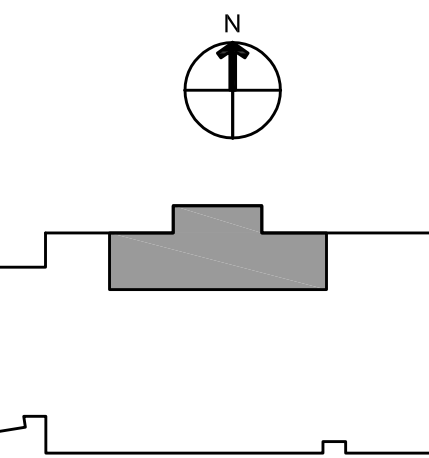


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ELECTRICAL PLANS

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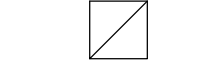


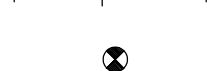
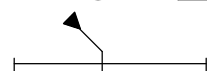

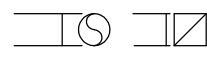


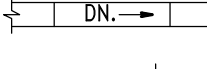

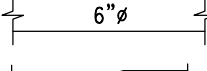
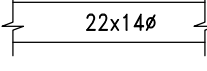
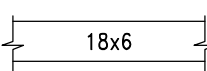
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ABBREVIATIONS

ACCU	AIR CONDITIONING CONDENSING UNIT	NC	NORMALLY CLOSED
AD	ACCESS DOOR	NIC	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR	NO	NORMALLY OPEN
AHU	AIR HANDLING UNIT	NOM.	NOMINAL
AP	ACCESS PANEL		
ASR	AUTOMATIC SPRINKLER RISER	OA	OUTSIDE AIR
BTU	BRITISH THERMAL UNIT		
CC	COOLING COIL	RA	RETURN AIR
CF	CENTRIFUGAL FAN	RET	RETURN
CFM	CUBIC FEET PER MINUTE	RF	RETURN FAN
CONT	CONTINUATION	REL	RELOCATED
		REB	REBALANCE
DDC	DIRECT DIGITAL CONTROL	SA	SUPPLY AIR
DET	DETAIL	SD	SMOKE DETECTOR
DIA	DIAMETER	SF	SUPPLY FAN
DN.	DOWN	SPR	SPRINKLER
DWG.	DRAWING	SPR/STP	SPRINKLER STANDPIPE
EA	EXHAUST AIR	TP	TOTAL PRESSURE
EF	EXHAUST FAN	TYP	TYPICAL
ELEV.	ELEVATION		
EX.	EXISTING	UH	UNIT HEATER
EXH	EXHAUST	UON	UNLESS OTHERWISE NOTED
EXIST	EXISTING		
FLR	FLOOR		
FT.	FEET		
IN	INCHES		
INV	INVERT		
LAT	LEAVING AIR TEMPERATURE		
MAX.	MAXIMUM		
MBH	1000 BTU/HR		
MECH	MECHANICAL		
MIN.	MINIMUM		
MISC	MISCELLANEOUS		

HVAC LEGEND & SYMBOLS



INDICATES RECTANGULAR DUCT WITH DUCT SIZE 18 INCHES WIDE (IN PLANE OF DRAWING) AND 6 INCHES DEEP. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.

INDICATES FLAT OVAL DUCT WITH DUCT SIZE 22 INCHES WIDE (IN PLANE OF DRAWING) AND 14 INCHES DEEP. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.

INDICATES ROUND DUCT WITH DUCT SIZE OF 6 INCHES IN DIAMETER. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT (FROM DUCT ORIGIN AT TAP TO END OF DUCT) UNLESS OTHERWISE NOTED.

VANE TURN ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF

INCLINED RISE IN RESPECT TO AIR FLOW

INCLINED DROP IN RESPECT TO AIR FLOW

VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES)

VANED ELBOW (SHORT RADIIUS)

INDICATES FLEXIBLE DUCT (RUNOUT) OF SIZE AS SCHEDULED OR SHOWN. LENGTH SHALL NOT EXCEED 5 FT.

DUCT TURNING UP

DUCT TURNING DOWN

VERTICAL FIRE DAMPER

HORIZONTAL FIRE DAMPER




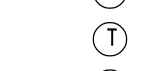

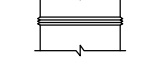
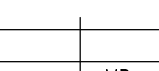
POINT OF NEW CONNECTION

DUCT SMOKE DETECTOR

ITEM TO BE REMOVED

SUPPLY AIR DIFFUSER

RETURN AIR GRILLE



VOLUME CONTROL DAMPER (MANUAL)

FLEXIBLE CONNECTION OR FLEXIBLE DUCT CONNECTOR

MOTORIZED DAMPER

COMBINATION FIRE AND SMOKE DAMPER

RF SHIELDING DAMPER

THERMOSTAT

TEMPERATURE SENSOR

GENERAL HVAC NOTES:

- THE FOLLOWING NOTES APPLY TO ALL HVAC DRAWINGS, EXCEPT WHERE OTHERWISE INDICATED.
- WHEREVER VOLUME DAMPERS OCCUR ABOVE CEILINGS WITHOUT REMOVABLE TILE AND AN ACCESS PANEL IS NOT FURNISHED, PROVIDE AN EXPOSED DAMPER REGULATOR TO ALLOW DAMPER ADJUSTMENT FROM BELOW CEILING. UNIT TO BE EQUAL TO VENTLOCK No. 666 IN 1/2"x3/8" SIZE.
 - ALL DIMENSION SHOWN FOR DUCTWORK ARE NET INSIDE DIMENSIONS.
 - DIFFUSER AND REGISTER LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLAN.
 - THOUGH SOME OFFSETS & TRANSITIONS ARE SHOWN IN PIPING AND SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING AND SHEET METAL OFFSET & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT INTERFERENCES.
 - DUCT PRESSURE CONSTRUCTION CLASSIFICATION SHALL BE AS SPECIFIED.
 - ALL ROUND RUNOUTS AND DROPS TO DIFFUSERS SHALL BE SAME NOMINAL SIZE AS INDICATED ON THE DRAWINGS.
 - ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASE OR SUSPENDED CEILING.
 - ACCESS PANELS AND DOORS ARE REQUIRED THROUGH BUILDING CONSTRUCTION ASSEMBLIES SUCH AS WALLS, CEILING, PARTITIONS AND FLOORS TO SERVICE AND MAINTAIN DAMPERS, CONTROL MOTORS, REGULATORS, VALVES, FLEXIBLE DUCT CONNECTIONS AND OTHER ITEMS OR DEVICES INCORPORATED IN MECHANICAL WORK. SUCH PANELS AND DOORS SHALL BE PROVIDED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS DOORS AND PANELS AND VERIFY THE EXACT QUANTITY, SIZE, FIRE-RATING AND LOCATION AFTER THE SYSTEMS AND EQUIPMENT REQUIRING ACCESS HAVE BEEN INSTALLED AND PRIOR TO THE CLOSURE OF THE AFFECTED CEILING AND BUILDING ASSEMBLIES. MINIMUM ACCESS PANEL AND DOOR SIZE SHALL BE 24 INCHES BY 18 INCHES UNLESS OTHERWISE NOTED.
 - ALL DUCTWORK PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS SHALL BE PROVIDED WITH FIRE DAMPERS AND ACCESS DOOR.

MECHANICAL SHEET INDEX	
M000	MECHANICAL SYMBOLS LIST, INDEX, NOTES & SPECIFICATIONS
M100	DEMOLITION & NEW WORK HVAC PLANS & DETAILS

MECHANICAL SPECIFICATION

MECHANICAL MATERIALS, METHODS AND EXECUTION WORK INCLUDED:

WORK INCLUDED:

- A. FURNISH ALL LABOR AND MATERIAL, APPLIANCES, EQUIPMENT AND SUPERVISION TO PUT IN PLACE A COMPLETE AND FUNCTIONING MECHANICAL INSTALLATION READY FOR OPERATION, AS SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS. SYSTEMS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO THE FOLLOWING MAJOR EQUIPMENT OR OPERATIONS:
- HEATING, VENTILATING AND AIR CONDITIONING.
 - FIRE PROTECTION.

DEFINITIONS:

- A. "PROVIDE": TO FURNISH AND COMPLETELY INSTALL SPECIFIED PRODUCTS AND INCIDENTALS, WHETHER SPECIFICALLY INDICATED OR NOT, NECESSARY FOR A COMPLETE, FUNCTIONAL INSTALLATION. INCLUDES ALL GENERAL AND SPECIALIZED LABOR, EQUIPMENT AND TOOLS NECESSARY TO COMPLETE THE INSTALLATION.
- B. "PIPING": A COMPLETE SYSTEM, INCLUDING PIPE, TUBING, FITTINGS, HANGERS, SUPPORTS, VALVES, AND ALL SPECIALTIES THAT COMPRISE A FULLY FUNCTIONAL PIPING SYSTEM, WHETHER SPECIFICALLY INDICATED OR NOT.

CODES, ORDINANCES, AND STANDARDS:

- A. ALL WORK SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF THE LATEST ADOPTED FEDERAL, STATE AND LOCAL CODES, ORDINANCES, AND STANDARDS HAVING JURISDICTION OVER THE WORK.
- B. WHERE CONTRACT DOCUMENT REQUIREMENTS EXCEED THE REQUIREMENTS OF THE REFERENCED CODES, ORDINANCES, AND STANDARDS, THE CONTRACT DOCUMENT REQUIREMENTS SHALL BE TAKEN AS MINIMUM.
- C. ALL EQUIPMENT CONTAINING ELECTRICAL WIRING AND/OR ELECTRICAL COMPONENTS SHALL HAVE A UNDERWRITERS LABORATORIES (UL) "PACKAGE" LABEL.
- D. ALL GAS FIRED EQUIPMENT SHALL HAVE THE AMERICAN GAS ASSOCIATION (AGA) LABEL.

PERMITS, FEES AND INSPECTIONS:

- A. SECURE ALL NECESSARY PERMITS, CONNECTION FEES, TAD FEES, LICENSES AND APPROVALS AND ARRANGE FOR ALL INSPECTIONS, INCLUDE ALL RELATED COSTS.
- B. FURNISH CERTIFICATES OF FINAL INSPECTION AND APPROVAL UPON COMPLETION OF PROJECT.

EXAMINATION OF SITE:

- A. VISIT PROJECT SITE AND BECOME FULLY COGNIZANT OF ALL EXISTING ARCHITECTURAL, MECHANICAL, ELECTRICAL, STRUCTURAL AND SITE CONDITIONS, OR EXISTING CODE VIOLATIONS WHICH MAY AFFECT THE WORK.
- B. NOTIFY ARCHITECT PRIOR TO SUBMITTING BID IF REVISIONS TO CONTRACT DOCUMENTS ARE NECESSARY TO RECTIFY ANY OF THE AFOREMENTIONED EXISTING CONDITIONS.
- C. NO "EXTRAS" TO CONTRACT PRICE WILL BE ALLOWED AFTER RECEIVING BID IN ORDER TO RECTIFY EXISTING CONDITIONS IN ORDER TO MEET THE DESIGN INTENT OF THE CONTRACT DOCUMENTS OR SATISFY CODE REQUIREMENTS.

COORDINATION WITH OTHER TRADES:

- A. COORDINATE ALL WORK BEFORE AND DURING CONSTRUCTION WITH ALL OTHER AFFECTED TRADES.
- B. WHERE INTERFERENCES DEVELOP, NOTIFY ARCHITECT FOR RESOLUTION OF CONFLICT.
- C. RELOCATION OF CONFLICTING INSTALLED WORK, DUE TO LACK OF COORDINATION, OR POOR COORDINATION WILL NOT BE CONSIDERED EXTRA WORK.

APPROVED MANUFACTURERS:

- A. USE ONLY MATERIALS SPECIFICALLY INDICATED IN CONTRACT DOCUMENTS, OR COMPARABLE MATERIALS BY OTHER LISTED ACCEPTABLE MANUFACTURERS. NOTE THAT "ACCEPTABLE MANUFACTURER" DOES NOT CONSTRUE AUTOMATIC APPROVAL OF SPECIFIC MATERIALS BY ONE OR ALL OF THE LISTED ACCEPTABLE MANUFACTURERS. ARCHITECT AND/OR ENGINEER OF RECORD RESERVES THE RIGHT OF FINAL DETERMINATION OF ACCEPTABILITY OF EACH ITEM.

SHOP DRAWINGS:

- A. SUBMIT COMPLETE SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT INTENDED FOR USE ON THIS PROJECT.
- B. SHOP DRAWINGS SHALL CLEARLY INDICATE ALL PHYSICAL, PERFORMANCE AND ELECTRICAL CHARACTERISTICS FOR ALL MATERIALS AND EQUIPMENT.
- C. SUBMIT ELECTRONIC COPY OF ALL SHOP DRAWINGS FOR REVIEW.
- D. NO WORK IS TO BE INSTALLED PRIOR TO RETURN OF ARCHITECT REVIEWED SHOP DRAWINGS.

OPERATION AND MAINTENANCE MANUALS:

- A. UPON COMPLETION OF PROJECT, SUBMIT TWO (2) COMPLETE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND SYSTEMS INSTALLED IN THIS PROJECT.
- B. MANUALS SHALL INCLUDE GUARANTEE(S), COMPLETE OPERATING INSTRUCTIONS, REPAIR PARTS LIST, PREVENTATIVE MAINTENANCE SCHEDULE, BELT AND FILTER SCHEDULE, AND LIST OF ALL SUBCONTRACTORS ASSOCIATED WITH THE WORK, INCLUDING TELEPHONE NUMBER AND CONTACT PERSON.

OPERATING AND MAINTENANCE INSTRUCTIONS:

- A. PRIOR TO FINAL ACCEPTANCE BY OWNER, PROVIDE ALL PERSONNEL, EQUIPMENT, AND LABOR AS NECESSARY TO INSTRUCT OWNER'S PERSONNEL IN PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND EQUIPMENT INSTALLED IN THIS PROJECT. PROVIDE INSTRUCTIONAL SESSION DURING TIME PERIOD AGREED TO WITH OWNER.

CUTTING AND PATCHING:

- A. ALL CUTTING AND PATCHING SHALL BE PROVIDED BY THE GENERAL TRADES UNDER THE DIRECTION OF THE MECHANICAL TRADES. COST WILL BE PAID BY THE MECHANICAL TRADE REQUESTING THE WORK.
- B. RESTORED SURFACES SHALL BE OF SAME MATERIALS AND QUALITY AS ADJACENT SURFACES, AND SHALL MATCH SURROUNDING SURFACES, AND/OR BE RESTORED TO PRE-CONSTRUCTION CONDITION.

PROTECTION OF EXISTING SERVICES:

- A. PROTECT FROM ALL DAMAGE, EXISTING SERVICES (I.E., GAS, WATER, ELECTRICAL, ETC.), ENCOUNTERED IN THE WORK, NOT SPECIFICALLY INDICATED TO BE DEMOLISHED, INCLUDE ALL RELATED COSTS.
- B. REPAIR AND/OR REPLACE EXISTING ACTIVE SERVICES INTENDED TO REMAIN IN SERVICE, BUT DAMAGED DURING THE COURSE OF CONSTRUCTION. ABSORB ALL RELATED COSTS. NO "EXTRAS" WILL BE PAID TO RESTORE EXISTING ACTIVE SERVICES DAMAGED DURING CONSTRUCTION.
- C. ARCHITECT WILL DETERMINE COURSE OF ACTION WHEN EXISTING INACTIVE SERVICES ARE DAMAGED DURING COURSE OF CONSTRUCTION. ABSORB ALL COSTS RELATIVE TO ADDITIONAL DEMOLITION, TERMINATION, RELOCATION AND/OR RESTORATION OF EXISTING, DAMAGED INACTIVE SERVICES AS DIRECTED BY ARCHITECT.

ELECTRICAL WORK:

- A. PROVIDE ALL ELECTRICAL WORK ASSOCIATED WITH, AND NECESSARY TO COMPLETE THIS PROJECT, WHICH IS NOT INCLUDED AS ELECTRICAL TRADES WORK.
- B. PROVIDE ALL ELECTRICAL WORK, AS APPLICABLE, IN ACCORDANCE WITH DIVISION 16 REQUIREMENTS.
- C. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION (WITH ELECTRICAL TRADES) OF CORRECT VOLTAGES FOR ALL MECHANICAL EQUIPMENT. IN CASE OF DISCREPANCY, NOTIFY ENGINEER IMMEDIATELY AND PRIOR TO SHOP DRAWING SUBMITTALS. FAILURE TO COMPLY WITH THIS REQUIREMENT HOLDS THE CONTRACTOR FULLY RESPONSIBLE FOR ANY SUBSEQUENT PROBLEMS

CLEANING AND FINISHING:

- A. PRIOR TO FINAL ACCEPTANCE BY OWNER, THOROUGHLY CLEAN ALL WORK INSIDE AND OUT AS APPLICABLE, AND LEAVE ALL SYSTEMS AND EQUIPMENT IN PERFECT WORKING ORDER. THOROUGHLY CLEAN ALL PLUMBING FIXTURES, EXPOSED PIPING, FLOOR DRAIN GRATES, AND CLEANOUT COVERS AS APPLICABLE.

GUARANTEES:

- A. REFER TO ARCHITECTURAL SPECIFICATIONS FOR GUARANTEES, IF NONE EXIST THE FOLLOWING MINIMUM GUARANTEES SHALL BE PROVIDED.
- PROVIDE A ONE (1) YEAR GUARANTEE COVERING ALL LABOR AND MATERIAL PROVIDED IN THIS PROJECT. GUARANTEE SHALL INCLUDE ALL SHIPPING AND TRANSPORTATION CHARGES NECESSARY TO RETURN DEFECTIVE MATERIALS TO MANUFACTURER, AS WELL AS LABOR CHARGES NECESSARY TO REMOVE AND REPLACE DEFECTIVE MATERIALS.
 - PROVIDE 5 YEAR GUARANTEE FOR ALL COMPRESSORS.
 - DEFECTIVE MATERIALS AND/OR EQUIPMENT MAY BE REPAIRED IN LIEU OF REPLACED WITH PRIOR APPROVAL OF ARCHITECT AND/OR OWNER.

SHEET METAL NOTES:

INSTALL TRANSFER GRILLES IN ALL FULL HEIGHT PARTITIONS TO ALLOW RETURN AIR FLOW. SIZE PER MECHANICAL ENGINEER REQUIREMENTS. THESE SHALL BE FIRE DAMPERS IN RATED WALLS.

BLANK-OFF RETURN DUCTWORK IN AREAS OF WORK THAT CREATES DUST TO PREVENT DEBRIS FROM ENTERING MECHANICAL SYSTEM.

MEDIUM PRESSURE DUCTWORK:

DUCTWORK ON INLET OF V.A.V. BOXES SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SMACNA'S ISSUE OF "HIGH PRESSURE DUCT CONSTRUCTION STANDARDS".

LOW PRESSURE DUCTWORK:

ALL DUCTWORK ON DISCHARGE OF V.A.V. BOXES, ALL RETURN AIR DUCTWORK AND EXHAUST AIR DUCTWORK SHALL BE CONSTRUCTED AND SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SMACNA'S ISSUE OF "LOW PRESSURE DUCT CONSTRUCTION STANDARDS".

IN ADDITION, ALL JOINTS AND SEAMS SHALL BE SEALED WITH DUCT SEALANT EQUAL TO FOSTER #32-14. APPROVED SEALANT MANUFACTURERS: 3M COMPANY, BENJAMIN FOSTER COMPANY, UNITED SHEET METAL, FLINTKOTE.

ALL ROUND TAKE-OFFS DOWNSTREAM OF TERMINAL UNITS SHALL BE MADE WITH CONICAL TAKE-OFF SPIN-IN FITTINGS TYPE SM-2DG, WITH FACTORY INSTALLED ADJUSTABLE DAMPER AS MANUFACTURED BY GENERAL ENVIRONMENT CORPORATION, GLENDALE, CALIFORNIA OR EQUAL.

FLEXIBLE CONNECTIONS:

AT EACH POINT OF CONNECTION OF DUCTWORK TO FANS, PROVIDE A FLEXIBLE CONNECTION, VENTFABRICS, INC., "VENTOLAS L.A." NOT LESS THAN 12" IN LENGTH AND MADE OF HEAVY GRADE GLASS FABRIC DOUBLE COATED WITH NEOPRENE AND PROVIDED WITH A SUITABLE FRAME AT EACH END. ARRANGED FOR BOLTING TO INLET AND OUTLET OF FAN AND DUCTWORK, RESPECTIVELY.

FOR RANGE HOOD EXHAUST FANS, WHERE INDICATED, PROVIDE VENTFABRICS, INC., "VENTBESTOS" FLEXIBLE CONNECTIONS. ALL AS APPROVED BY THE FIRE MARSHAL, AND ANY OTHER LOCAL AUTHORITY HAVING JURISDICTION.

VANES AND DEFLECTORS:

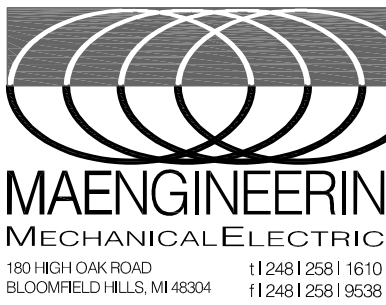
ALL ELBOWS AND TURNS SHALL BE MADE WITH A RADIUS NOT LESS THE 1-1/2" TIMES THE DUCT DIAMETER OR WIDTH. WHERE BUILDING CONSTRUCTION DOES NOT PERMIT A LONG RADIUS ELBOW OR TURN OR IF SHOWN ON THE CONTRACT DOCUMENTS, ACoustICAL TURNING VANES AND DEFLECTORS SHALL BE.



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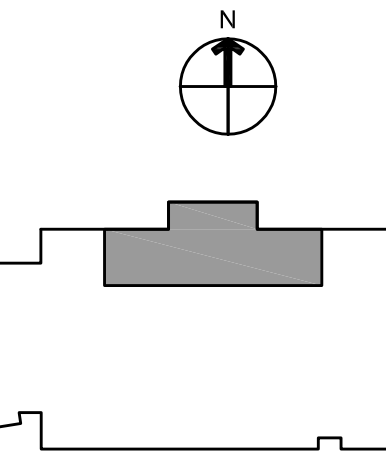


Project :

MATTHAEI ACADEMIC
RESOURCE CENTER
RENOVATION

5101 John C Lodge Fwy,
Detroit, MI 48202

Key Plan:



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