WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES

5047 Gullen Mall Detroit, MI 48202

BIDS/PERMITS 05-29-2026

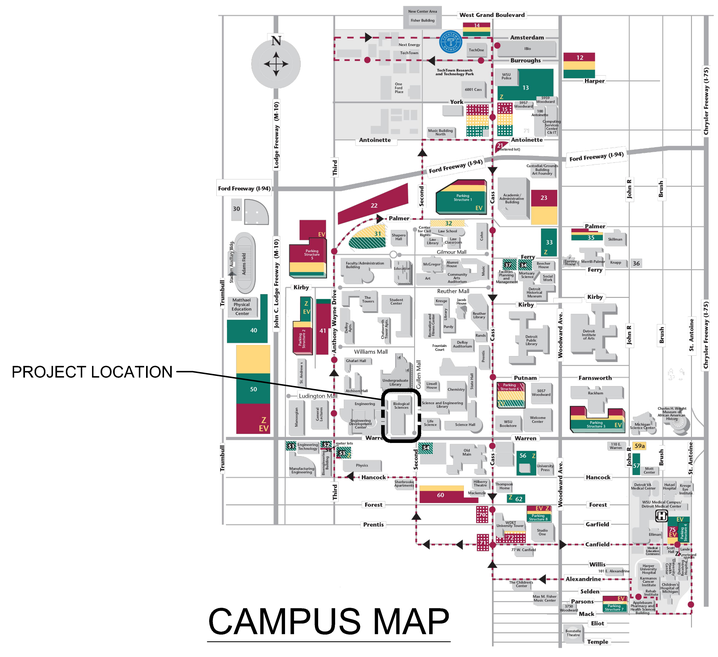
WAYNE STATE UNIVERSITY

Facilities Planning & Management
Design & Construction Services
5454 Cass Ave.
Detroit MI 48202

WSU PROJECT NO: 089-413619

Peter Basso Associates
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PBA Project No.: 2024.0403

Stucky Vitale Architects
27172 Woodward Avenue
Royal Oak, MI 48067
Ph: 248-546-6700



CAMPUS MAP

CODES AND STANDARDS

2016	NFPA 13 – STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS
2016	NFPA 14 – STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS
2016	NFPA 20 – STANDARD FOR THE INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION
2019	MICHIGAN FIRE ALARM CODE – NFPA 72
2021	MICHIGAN PLUMBING CODE
2021	MICHIGAN MECHANICAL CODE
2021	MICHIGAN BUILDING CODE
2023	MICHIGAN ELECTRICAL CODE
	BUILDING OCCUPANCY CLASSIFICATION – II-B CONSTRUCTION

ARCHITECTURAL DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	AD100	GROUND FLOOR DEMOLITION PLAN
●	AD200	GROUND FLOOR DEMOLITION CEILING PLAN
●	AD201	FIRST FLOOR DEMOLITION CEILING PLAN
●	AD202	SECOND FLOOR DEMOLITION CEILING PLAN
●	AD203	THIRD FLOOR DEMOLITION CEILING PLAN
●	AD204	FOURTH FLOOR DEMOLITION CEILING PLAN
●	AD205	FIFTH FLOOR DEMOLITION CEILING PLAN
●	AD206	SIXTH FLOOR DEMOLITION CEILING PLAN
●	A100	GROUND FLOOR PLAN – NEW CONSTRUCTION
●	A110	FIRST FLOOR PLAN
●	A710	FIRE STOP DETAILS
●	A711	FIRE STOP DETAILS
●	A712	FIRE STOP DETAILS

STATE OF MICHIGAN – MYRON SCOTT GIBBS – ENGINEER – No. 6201061469 – LICENSED PROFESSIONAL ENGINEER

ELECTRICAL DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	E0.1	ELECTRICAL STANDARDS AND DRAWING INDEX
●	E0.2	ELECTRICAL STANDARD SCHEDULES
●	ED1.0	GROUND FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.1	FIRST FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.2	SECOND FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.3	THIRD FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.4	FOURTH FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.5	FIFTH FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.6	SIXTH FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.7	PENTHOUSE ELECTRICAL DEMOLITION PLAN
●	E1.0	GROUND FLOOR ELECTRICAL NEW WORK PLAN
●	E1.1	FIRST FLOOR ELECTRICAL NEW WORK PLAN
●	E1.2	SECOND FLOOR ELECTRICAL NEW WORK PLAN
●	E1.3	THIRD FLOOR ELECTRICAL NEW WORK PLAN
●	E1.4	FOURTH FLOOR ELECTRICAL NEW WORK PLAN
●	E1.5	FIFTH FLOOR ELECTRICAL NEW WORK PLAN
●	E1.6	SIXTH FLOOR ELECTRICAL NEW WORK PLAN
●	E1.7	PENTHOUSE ELECTRICAL NEW WORK PLAN
●	E5.1	RISER DIAGRAMS
●	E7.1	ELECTRICAL DETAILS AND DIAGRAMS

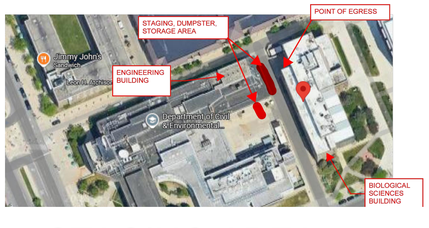
STATE OF MICHIGAN – GEORGE P ISHERWOOD – ENGINEER – No. 6201039660 – LICENSED PROFESSIONAL ENGINEER

PLUMBING DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	P0.1	PLUMBING STANDARDS AND DRAWING INDEX
●	PD2.00	UNDERGROUND PLUMBING DEMOLITION PLAN
●	P2.00	UNDERGROUND PLUMBING NEW WORK PLAN
●	P2.0	GROUND FLOOR PLUMBING NEW WORK PLAN

FIREPROTECTION DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	FP0.1	FIRE PROTECTION STANDARDS AND DRAWING INDEX
●	FPD1.0	GROUND FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
●	FPD1.1	FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
●	FP1.0	GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.1	FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.2	SECOND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.3	THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.4	FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.5	FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.6	SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.7	PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP6.1	FIRE PROTECTION DETAILS AND SCHEDULES
●	FP6.2	FIRE PROTECTION RISER DIAGRAM



STAGING AREA

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

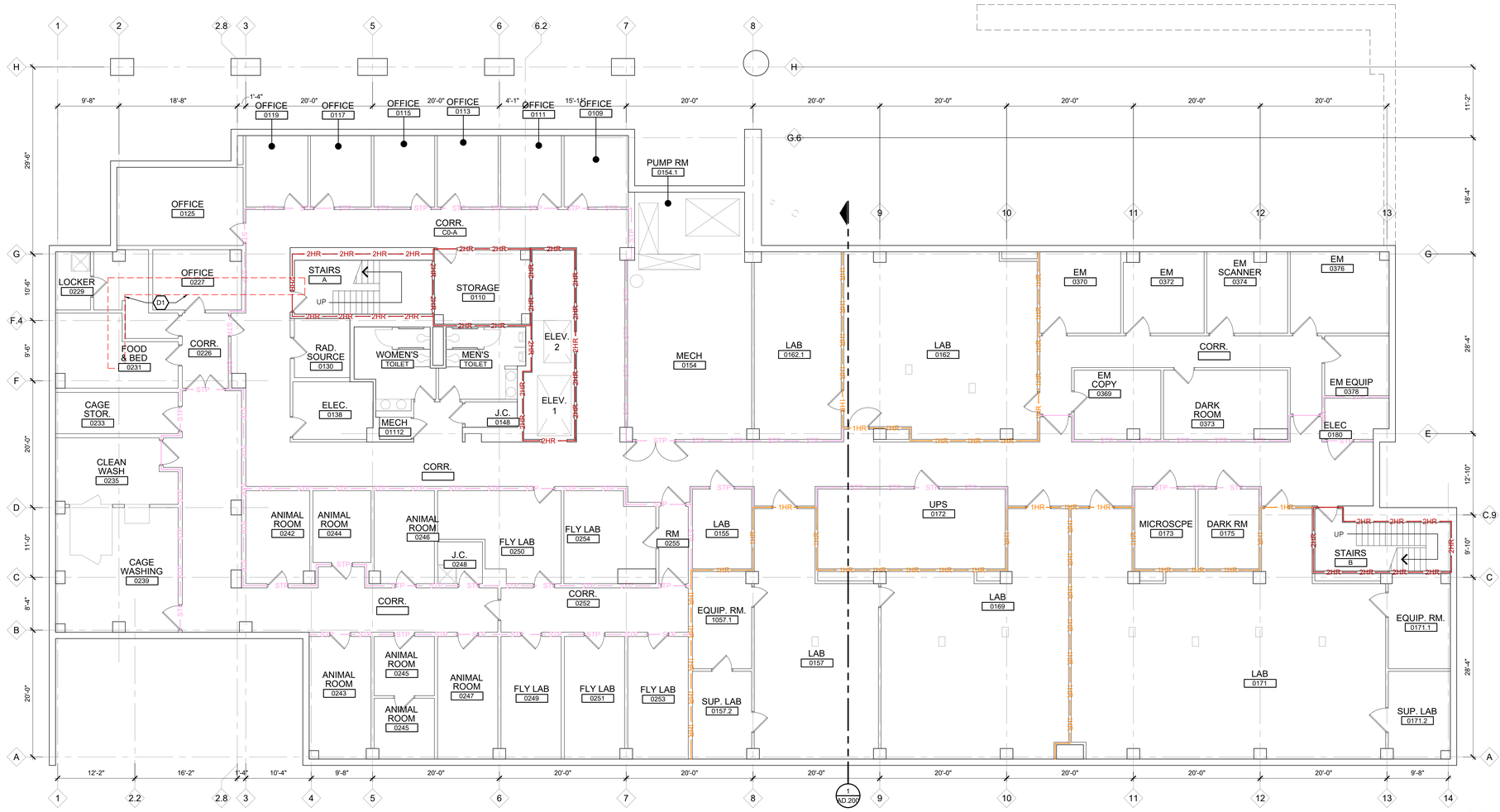
1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
2. DETERMINE EXISTING CONNECTIONS AND CONDITIONS OF SPECIALTY, OR "FIELD VERIFY" EQUIPMENT PRIOR TO DEMOLITION. COORDINATE WITH CLIENT FOR SPECIFICATIONS OF NEW FIXTURES OR EQUIPMENT.
3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
5. ANY REMOVED HVAC SYSTEM, LIGHTING, FIRE ALARM DEVICES, SUPPLY AND RETURN AIR GRILLES, TO BE RE-INSTALLED TO ITS PRE-CONSTRUCTION CONDITION.
6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION PLAN KEY NOTES:

(D1) CONTRACTOR TO REMOVE THE EXISTING CONCRETE SLAB AND COMPACTED SAND FILL (32"WIDE OR AS NEEDED) TO PROVIDE FOR THE 4 INCH UNDER FLOOR SANITARY LINES, CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE EXISTING SANITARY LINE IN THE FILED. PATCH AND REPAIR THE EXISTING FLOORING AS NECESSARY. REFER TO THE PLUMBING SHEETS FOR COORDINATION OF WORK.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
	EXISTING CEILING FIXTURE (LIGHT, DIFFUSER, ETC.) TO REMAIN.
	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



GROUND FLOOR LIMITED DEMOLITION / RESTORATION FLOOR PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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PBA Project No: 2024.063

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT # 2024.111

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD100

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
2. DETERMINE EXISTING CONNECTIONS AND CONDITIONS OF SPECIALTY, OR "FIELD VERIFY" EQUIPMENT PRIOR TO DEMOLITION. COORDINATE WITH CLIENT FOR SPECIFICATIONS OF NEW FIXTURES OR EQUIPMENT.
3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
5. ANY REMOVED HVAC SYSTEM, LIGHTING, FIRE ALARM DEVICES, SUPPLY AND RETURN AIR GRILLES, TO BE RE-INSTALLED TO ITS PRE-CONSTRUCTION CONDITION.
6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

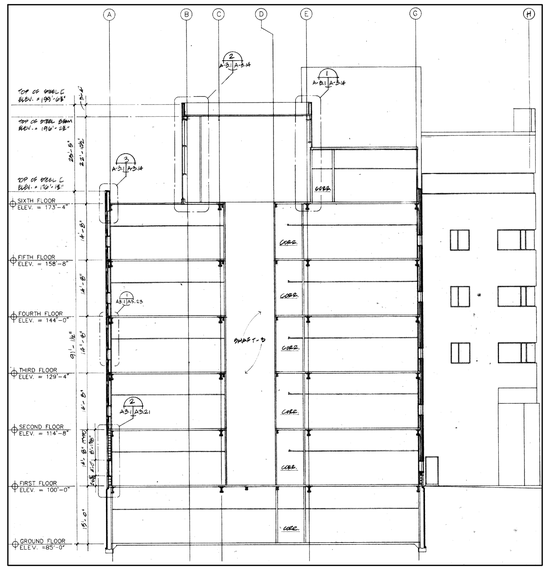
DEMOLITION CEILING PLAN KEY NOTES:

(1) GROUND FLOOR EXISTING CONDITIONS ARE FULLY SUPPRESSED. EXISTING CEILINGS, EQUIPMENT, AND FIRE SUPPRESSION SYSTEM TO REMAIN, UNLESS NOTED OTHERWISE. COORDINATE WITH MECHANICAL, PLUMBING, AND ELECTRICAL TRADES AND DRAWINGS.

(DA) ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.

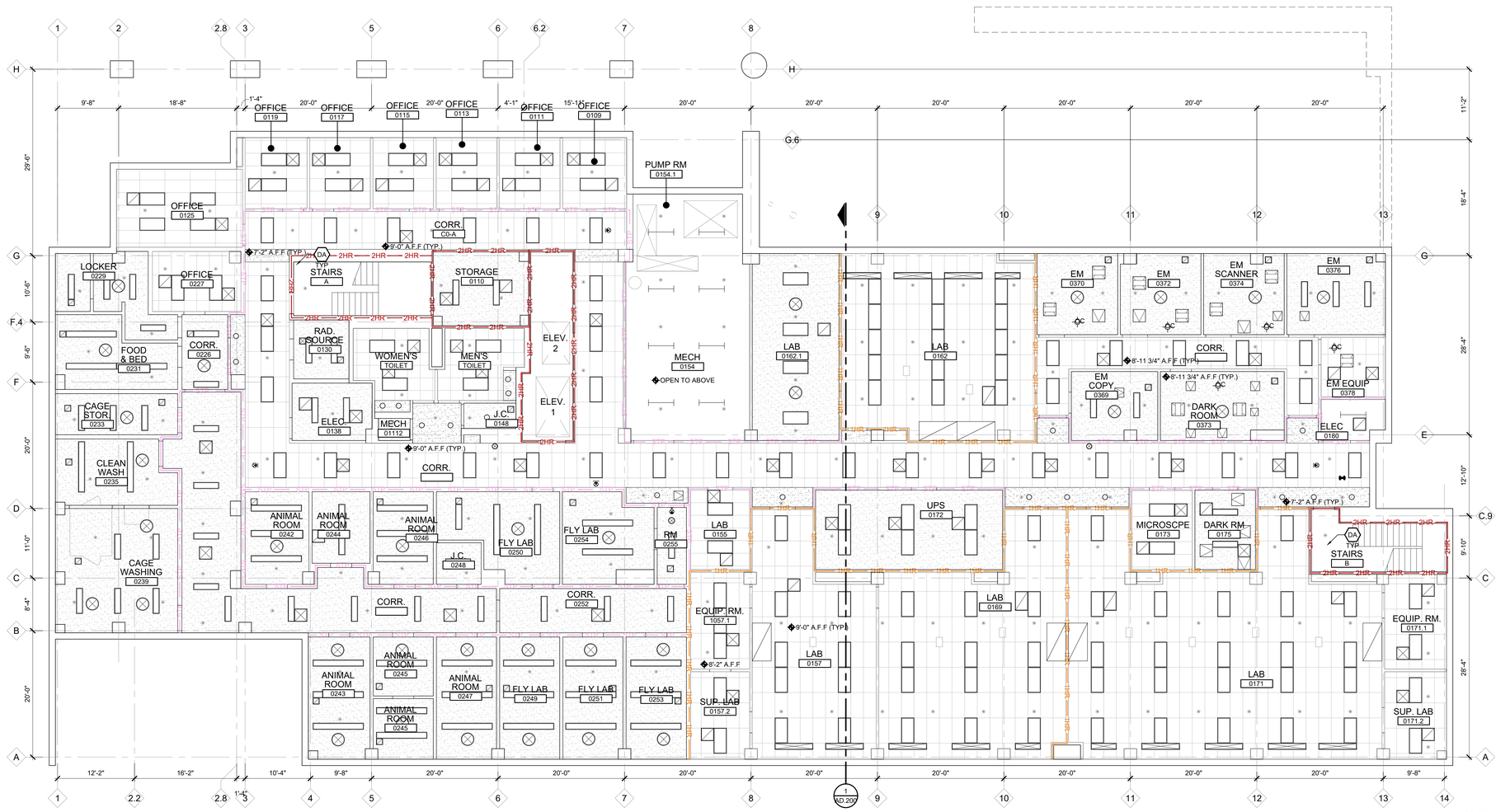
DEMOLITION CEILING LEGEND

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	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
	EXISTING CEILING FIXTURE (LIGHT, DIFFUSER, ETC.) TO REMAIN.
	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



1 AD200 REFERENCE CROSS SECTION
SCALE: N.T.S.

DRAWING FOR BUILDING HEIGHTS ONLY



N GROUND FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

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SVA

REVISION

REVISION

PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD200

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

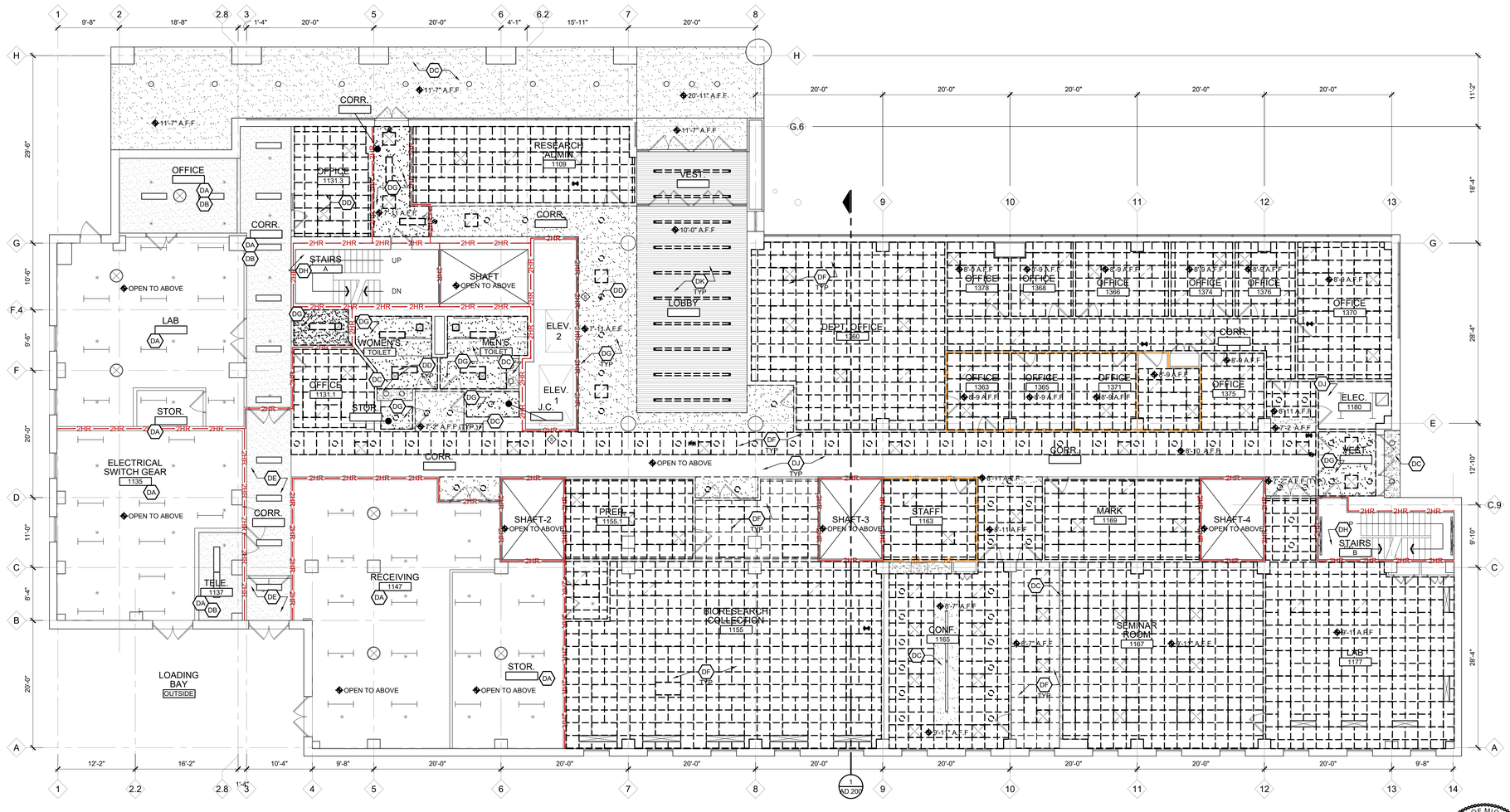
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3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
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6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION CEILING PLAN KEY NOTES:

- DA EXISTING AREA NOT IN CURRENT SCOPE OF WORK.
- DB EXISTING CEILING TO REMAIN.
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
- DE EXISTING GYP. BOARD CEILING TO REMAIN. COORDINATE WITH FIRE SUPPRESSION CONTRACTOR FOR NEEDED ACCESS POINTS TO CONCEALED AREA FOR SYSTEM INSTALLATION.
- DF REMOVE THE EXISTING ACT TILE AND GRID AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE ACT TILE AND GRID TO PRE-CONSTRUCTION CONDITION. ANY DAMAGED CEILING TILE WILL BE REPLACED FROM THE W.S.U. ATTIC STOCK.
- DG REMOVE THE EXISTING DRYWALL CEILING AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE DRYWALL CEILING SYSTEM TO PRE-CONSTRUCTION CONDITION. REPAINT THE ENTIRE DRYWALL (CEILING-ROOM AREA) TO INSURE A COHESIVE PAINT COLOR, COLOR OF PAINT TO MATCH THE EXISTING ADJACENT COLOR SCHEME.
- DH ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.
- DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.
- DK REMOVE EXISTING LINEAR METAL CEILING SYSTEM AS REQUIRED TO PROVIDE NEW SPRINKLER SYSTEM. ANY NEW SPRINKLER HEADS TO INCLUDE A FINISH TRIM RING AT PENETRATION. TO COORDINATE WITH THE METAL CEILING SYSTEM.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
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	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
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	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



N

FIRST FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN

SCALE: 1/8" = 1'-0"

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PBA Project No: 2024.063

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REVISION

REVISION

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
FIRST FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD201

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

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GENERAL DEMOLITION / RESTORATION NOTES:

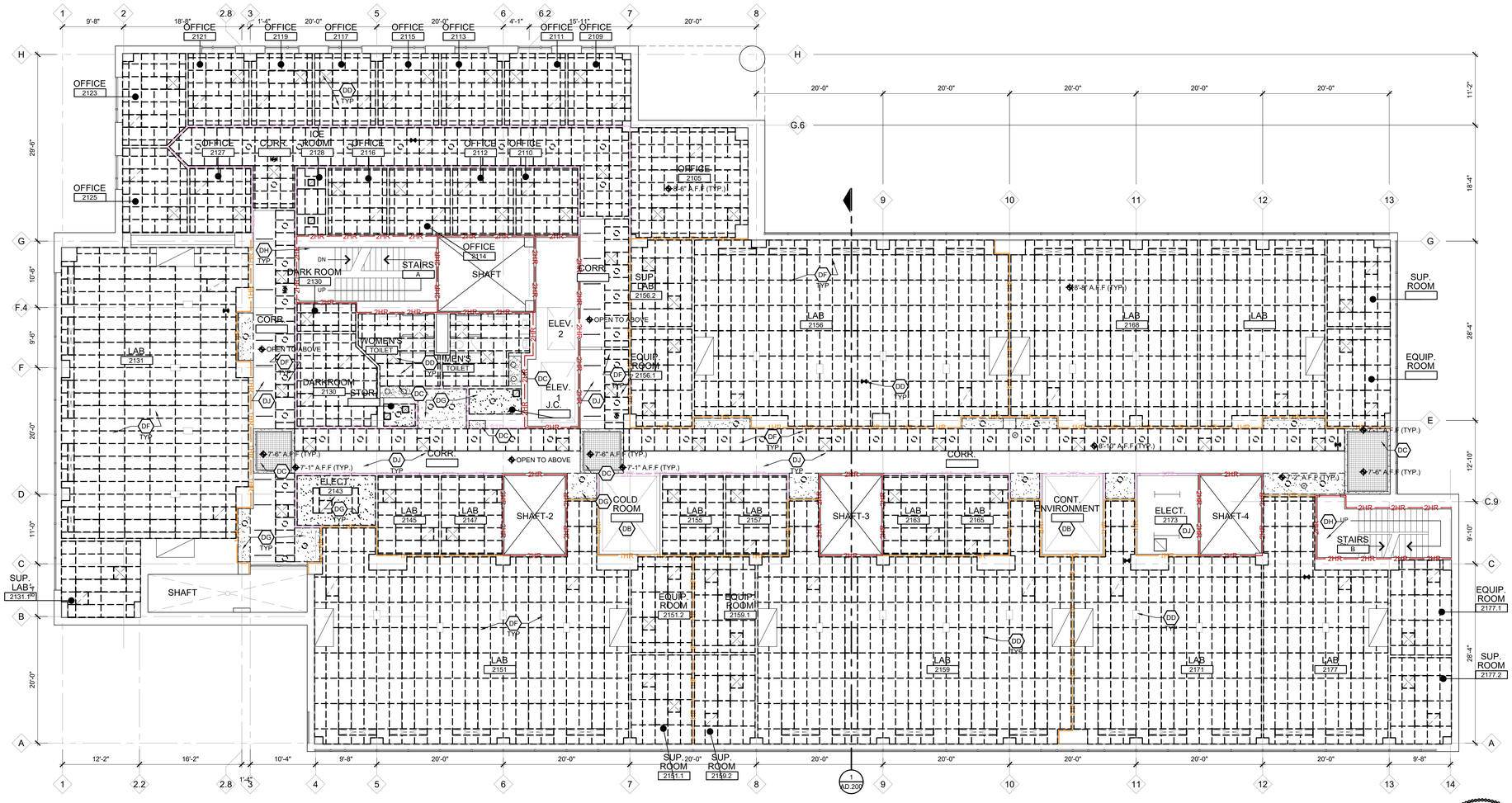
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4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
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DEMOLITION CEILING PLAN KEY NOTES:

- DA NOT USED
- DB EXISTING CEILING TO REMAIN.
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- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
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- DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
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	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



N

SECOND FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN

SCALE: 1/8" = 1'-0"

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WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
SECOND FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD202

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

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GENERAL DEMOLITION / RESTORATION NOTES:

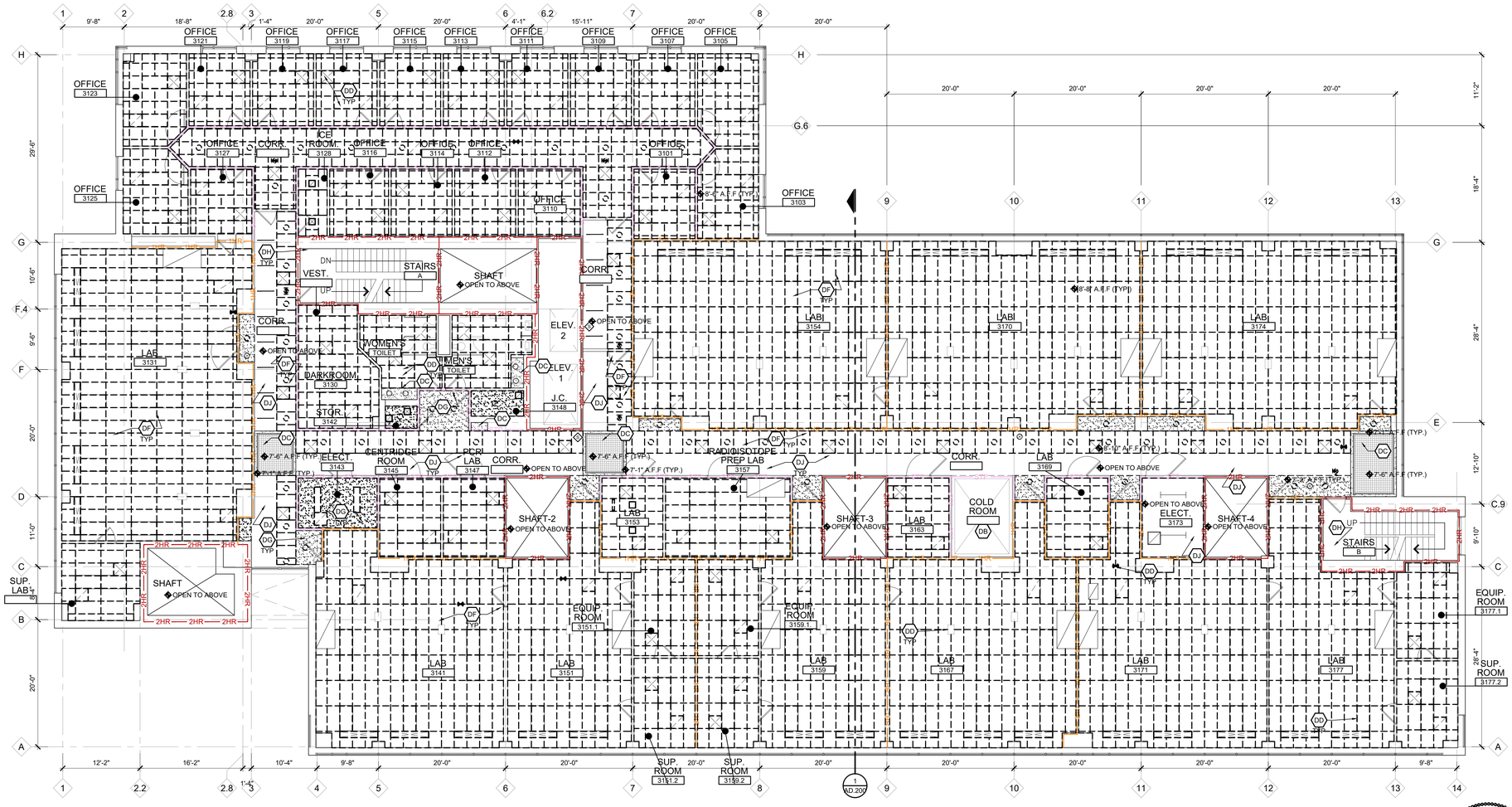
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DEMOLITION CEILING PLAN KEY NOTES:

- DA NOT USED
- DB EXISTING CEILING TO REMAIN.
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
- DE NOT USED
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- DH ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.
- DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
	EXISTING CEILING FIXTURE (LIGHT, DIFFUSER, ETC.) TO REMAIN.
	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



N

THIRD FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN

SCALE: 1/8" = 1'-0"

REVISION

REVISION

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PBA Project No: 2024.063

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WWW.STUCKYVITALE.COM
SVA

PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD203

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
2. DETERMINE EXISTING CONNECTIONS AND CONDITIONS OF SPECIALTY, OR "FIELD VERIFY" EQUIPMENT PRIOR TO DEMOLITION. COORDINATE WITH CLIENT FOR SPECIFICATIONS OF NEW FIXTURES OR EQUIPMENT.
3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
5. ANY REMOVED HVAC SYSTEM, LIGHTING, FIRE ALARM DEVICES, SUPPLY AND RETURN AIR GRILLES, TO BE RE-INSTALLED TO ITS PRE-CONSTRUCTION CONDITION.
6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION CEILING PLAN KEY NOTES:

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DB EXISTING CEILING TO REMAIN.

DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.

DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.

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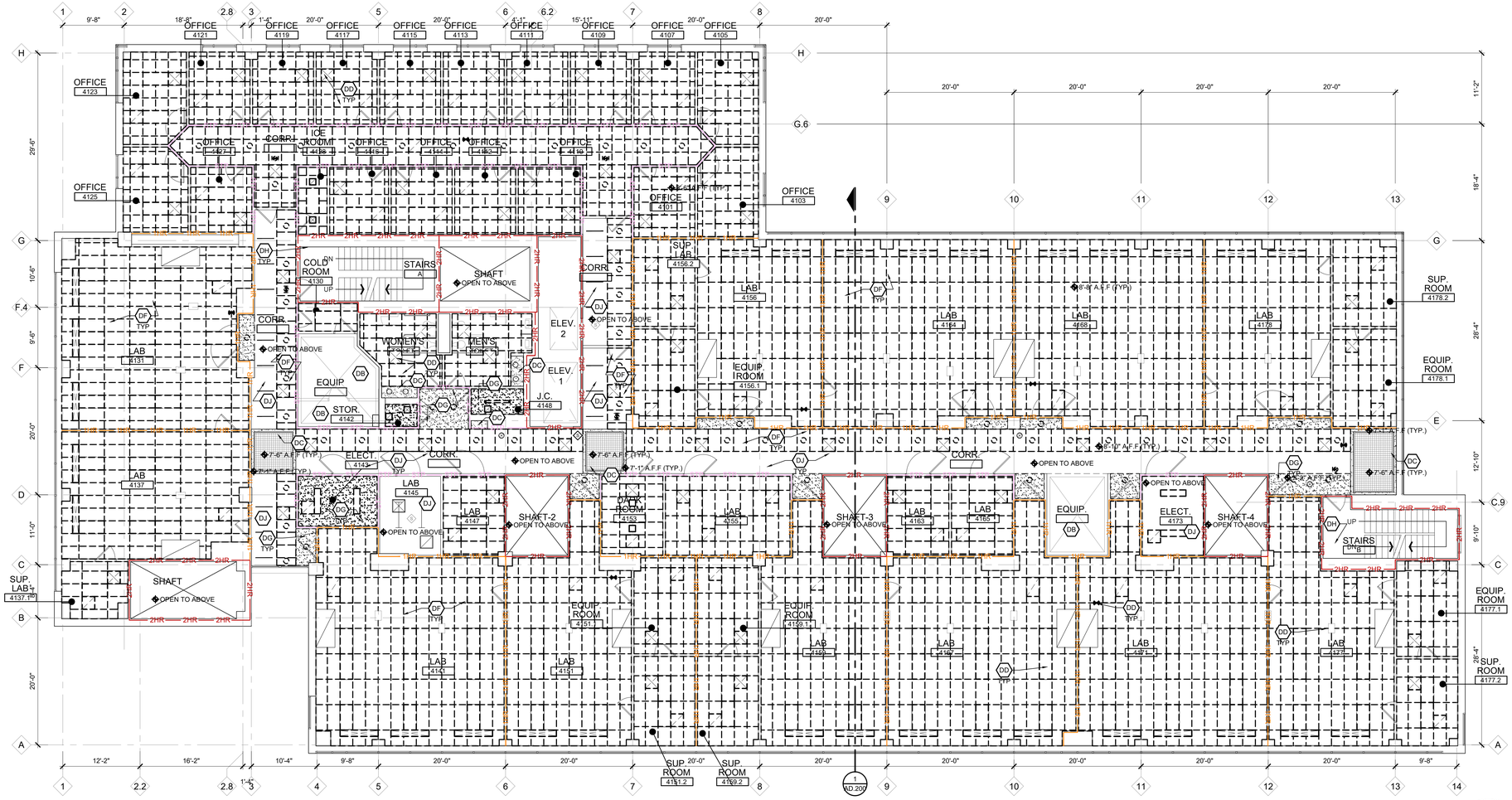
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	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



FOURTH FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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www.PeterBassoAssociates.com
PBA Project No: 2024.063

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
FOURTH FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD204

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

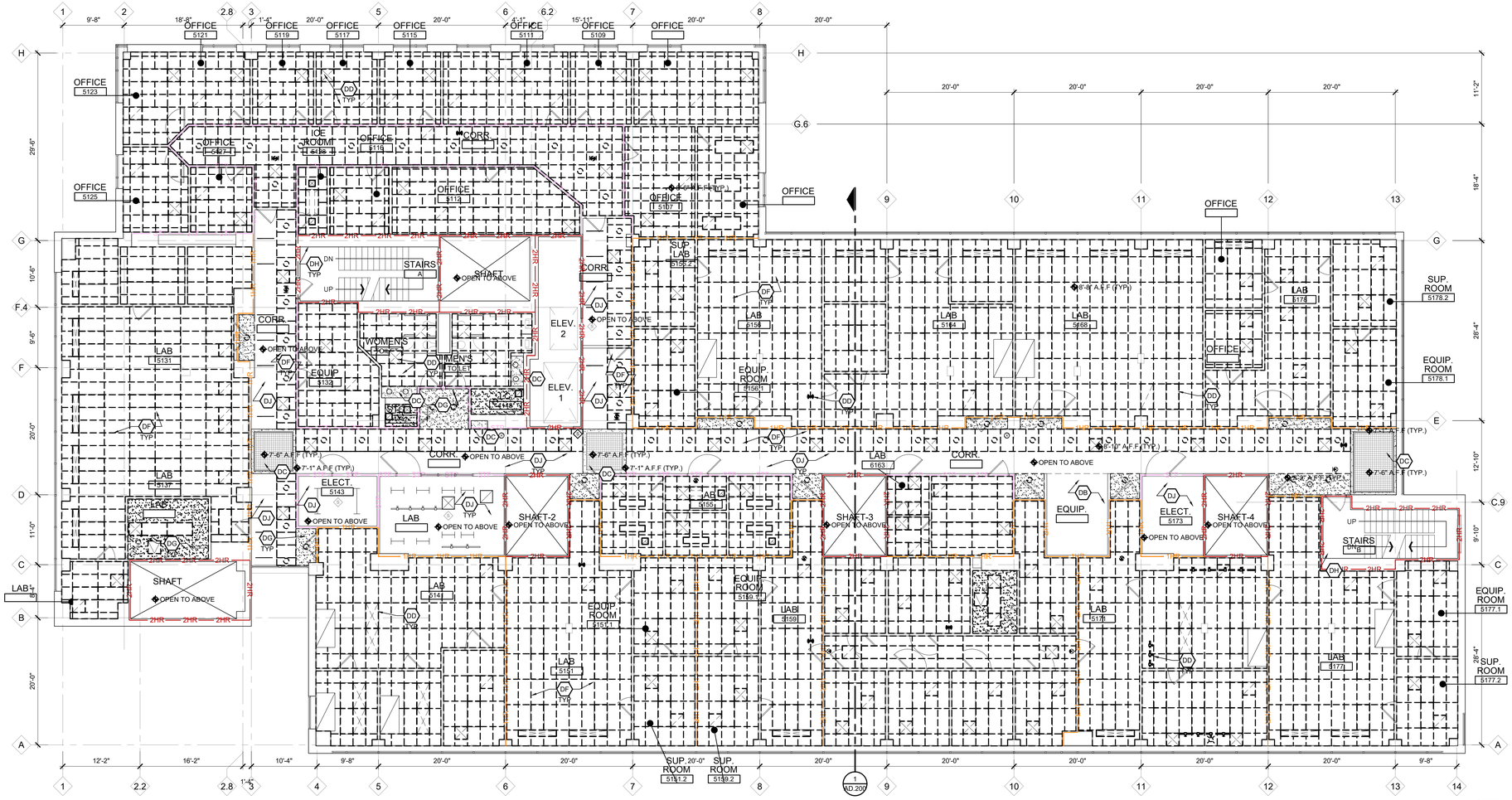
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FIFTH FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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Tel 248.852.4466
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PBA Project No: 2024.063

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PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD205

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

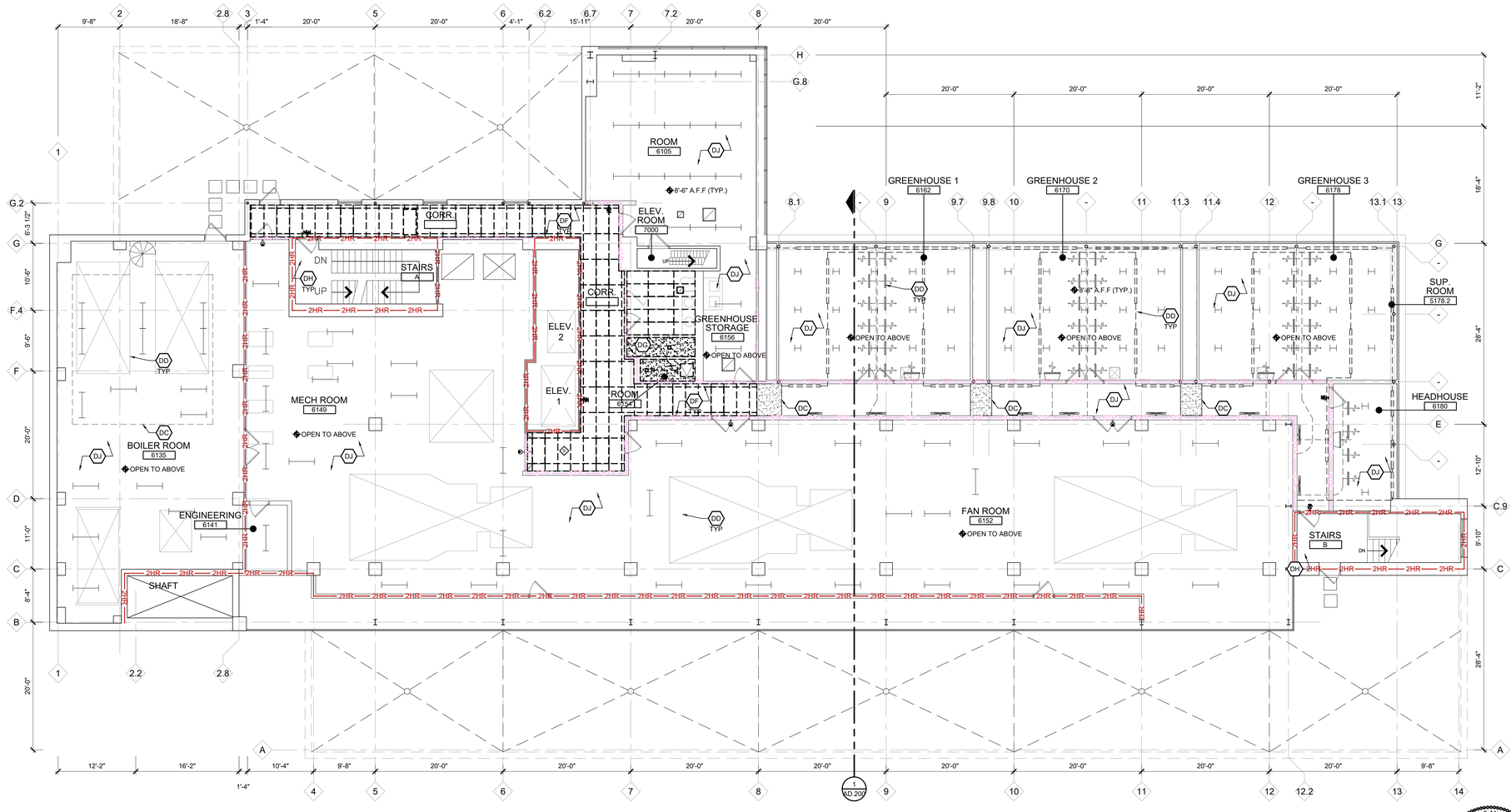
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	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



SIXTH FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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Tel 248.879.2366
www.PeterBassoAssociates.com
PBA Project No: 2024.063

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WWW.STUCKYVITALE.COM
SVA

PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD206

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

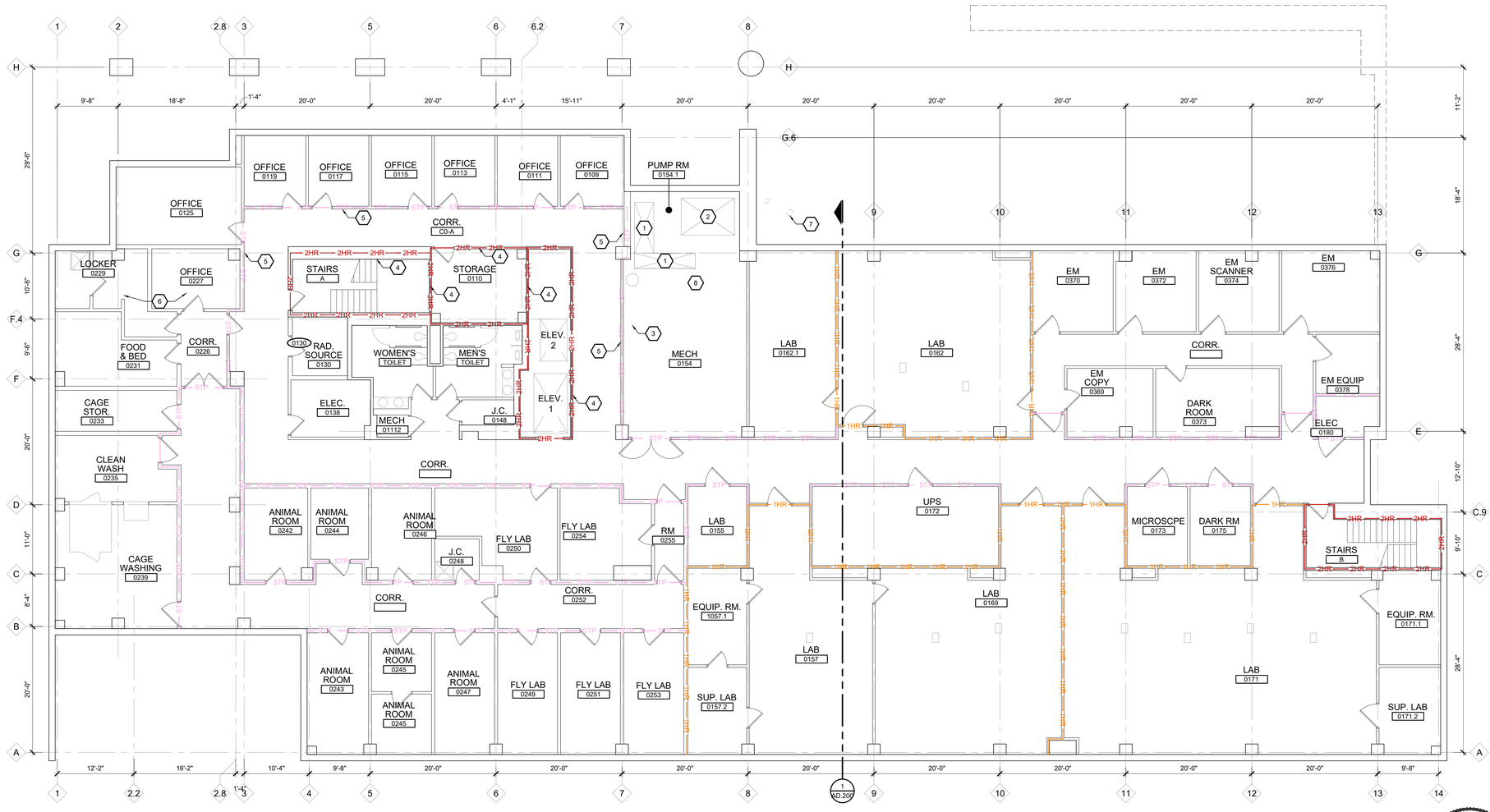
GENERAL FLOOR PLAN NOTES:

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2. ALL DIMENSIONS ARE SHOWN FROM FINISH FACE TO FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED.
3. WALL THICKNESS' ARE NOMINAL NOT ACTUAL DIMENSIONS. SEE WALL SCHEDULE FOR ACTUAL DIMENSIONS.
4. ALL WOOD, INCLUDING BLOCKING, USED ON THE PROJECT SHALL BE FIRE RETARDANT TREATED.
5. 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.
6. PROVIDE TRANSITION STRIPS AT EACH CHANGE IN FLOOR FINISH MATERIALS.
7. PAINT, 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.
11. CLEAN AND REPAIR ALL EXISTING FLOOR FINISHES AS NECESSARY.
12. ALL EXPOSED PIPES, DUCTS, AND CONDUIT TO BE PAINTED TO MATCH EXISTING.
13. PROVIDE CONTROL JOINTS IN GYPSUM BOARD PARTITIONS AT 30'-0" O.C. MAXIMUM AND AS INDICATED IN THE CONTRACT DOCUMENTS.
14. 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, ATM'S.
15. 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.
16. 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.
17. 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.
18. 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)

GROUND FLOOR PLAN KEY NOTES:

1. EXISTING FIRE PUMP. FIELD VERIFY EXACT SIZE AND LOCATION.
2. EXISTING DOMESTIC WATER PUMP. FIELD VERIFY EXACT SIZE AND LOCATION.
3. EXISTING DOMESTIC WATER HEATER. FIELD VERIFY EXACT SIZE AND LOCATION.
4. EXISTING 2 HOUR RATED WALL TO REMAIN.
5. EXISTING SMOKE TIGHT PARTITION TO REMAIN.
6. CONTRACTOR TO PROVIDE 6" CONCRETE SLAB W/ 6 X 6, W2.9 X W2.9 W.W.F. ON 4" MIN. COMPACTED SAND FILL OVER THE NEW THE UNDER FLOOR SANITARY LINES.CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE EXISTING SANITARY LINE IN THE FIELD. PATCH AND REPAIR THE EXISTING FLOORING AS NECESSARY. THE EXISTING FLOOR SHOULD ALIGN WITH THE EXISTING FLOOR SLAB.
7. EXISTING FDC CONNECTION PIPES. V.I.F. EXACT LOCATIONS. SEE FIRE PROTECTION PLANS FOR SIZES.
8. SEE FIRE PROTECTION PLANS FOR ALTERNATE ON NEW FIRE PUMP. SEE SHEET A110 FOR CONCRETE PAD DETAIL FOR PRICING.

FLOOR PLAN LEGEND	
— STP —	EXISTING SMOKE TIGHT PARTITION
— 1HR —	EXISTING 1-HOUR RATED PARTITION
— 2HR —	EXISTING 2-HOUR RATED PARTITION



N

GROUND FLOOR NEW CONSTRUCTION PLAN

SCALE: 1/8" = 1'-0"

REVISION

REVISION

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Troy, Michigan 48098-3276
Tel. 248.457.7466
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PBA Project No: 2024.063

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT # 2024.111

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR PLAN - NEW CONSTRUCTION

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
A100

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

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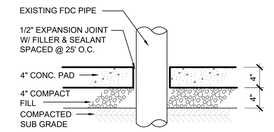
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14. COORDINATE WITH OWNER'S EQUIPMENT SUPPLIER FOR INSTALLATION REQUIREMENTS / LOCATIONS OF FLOOR / WALL / CEILING MOUNTED ITEMS; IE. CAMERAS, TV'S, SPEAKERS, SENSORS, SECURITY WIRING, VAULTS, ATM'S.
15. CONTRACTOR SHALL CONDUCT A ROUGH ELECTRICAL INSPECTION WITH OWNER, PRIOR TO ENCLOSING WALLS, FOR THE PURPOSE OF CONFIRMING ALL J-BOX LOCATIONS FOR POWER, DATA, VOICE, SWITCH, THERMOSTAT, ETC.
16. 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.
17. 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.
18. 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)

FIRST FLOOR PLAN KEY NOTES:

1. EXISTING FDC PIPES. FIELD VERIFY EXACT LOCATIONS.
2. PROVIDE CONCRETE PAD SURROUNDING FDC PIPES. PROVIDE EXPANSION JOINTS AROUND PIPES. SLOPE PAD AWAY FROM BUILDING.

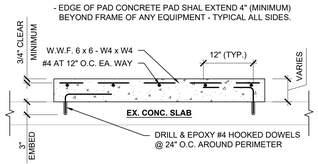
FLOOR PLAN LEGEND			
— STP —	EXISTING SMOKE TIGHT PARTITION	— 2HR —	EXISTING 2-HOUR RATED PARTITION
— 1HR —	EXISTING 1-HOUR RATED PARTITION		



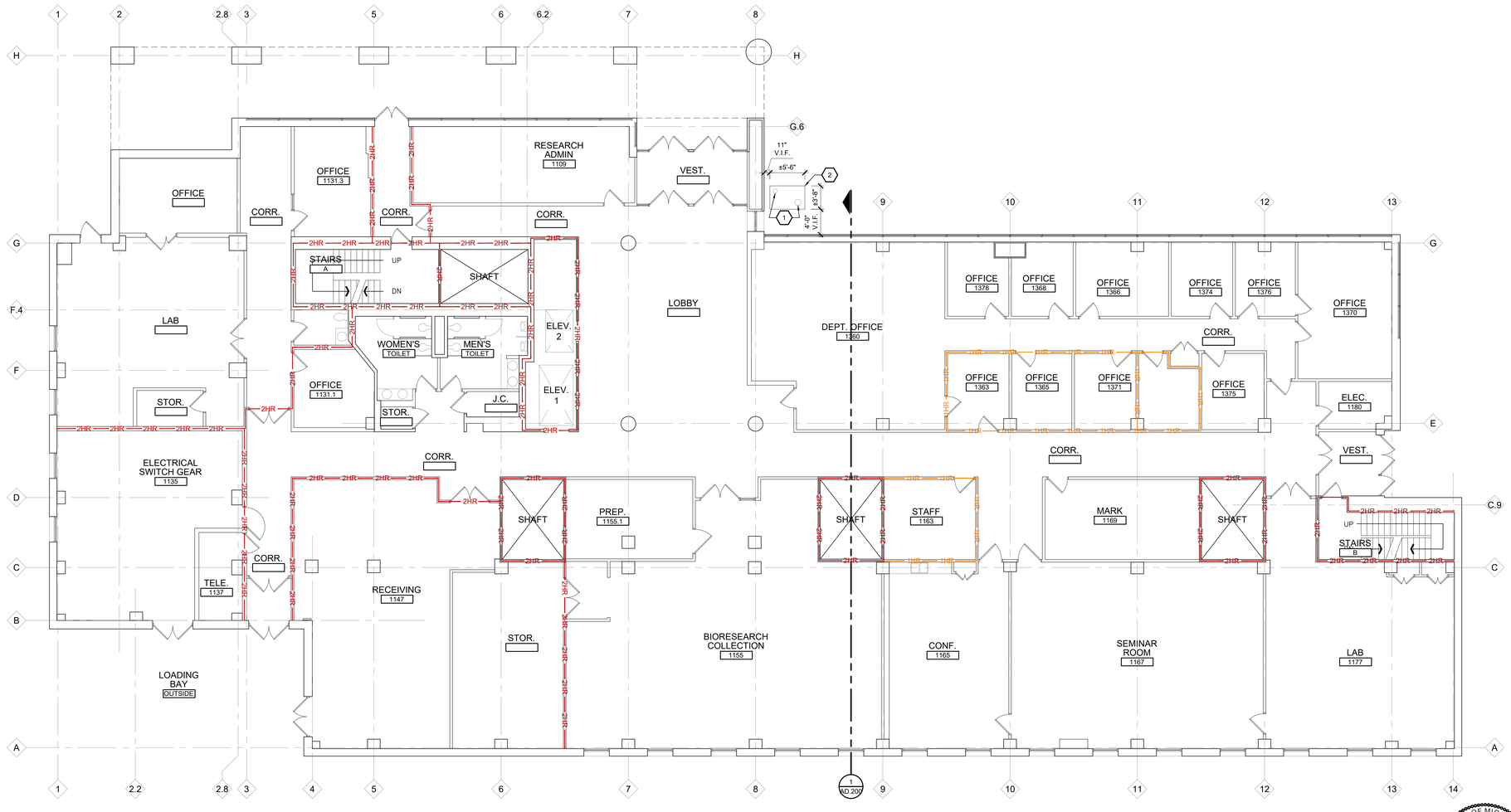
2 A110 FDC PAD DETAIL
SCALE: 1" = 1'-0"

NOTE:

- SCARIFY EXISTING CONCRETE FLOOR 4".
- SOAK SCARIFIED SLAB FOR 24 HOURS (MINIMUM) WITH LATEX BONDING AGENT PRIOR TO PLACING CONCRETE PAD.
- ALL HEIGHTS, WIDTHS, AND LENGTHS OF PADS TO BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL AS REQUIRED.
- EDGE OF PAD CONCRETE PAD SHAL EXTEND 4" (MINIMUM) BEYOND FRAME OF ANY EQUIPMENT - TYPICAL ALL SIDES.



3 A110 CONCTRETE EQUIPMENT PAD DETAIL
SCALE: 3/4" = 1'-0"



N
FIRST FLOOR NEW CONSTRUCTION PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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Troy, Michigan 48098-3276
Tel: 248.952.2500
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SVA

PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR PLAN

DATE
05-29-2026

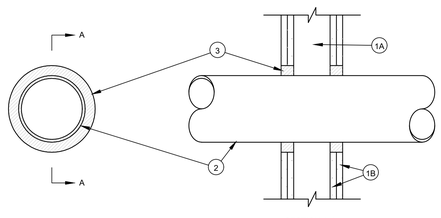
ISSUE
BIDS/PERMITS

SHEET No.
A110

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

System No. W-L-1054
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



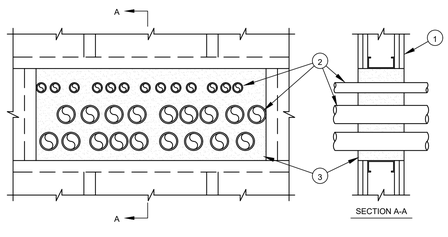
SECTION A-A

1. **Wall Assembly --** The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features.
   A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.
   B. **Gypsum Board* --** 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. **The F Rating of the firestop system is equal to the fire rating of the wall assembly.**
2. **Through-Penetrants --** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe --** Nom 30 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe --** Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. **Conduit --** Nom 4 in diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. **Copper Tubing --** Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe --** Nom 6 in. diam (or smaller) regular (or heavier) copper pipe.
3. **Fill, Void or Cavity Material* -- Sealant --** Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall .
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-1249
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 1/2 Hr



SECTION A-A

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.
   A. Studs Steel studs 3-1/2 in. deep, fabricated from 25 MSG galv steel, spaced max 24 in. OC.
   B. Gypsum Boards* The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants One or more nom 2 in. diam (or smaller) rigid steel conduit or electrical metallic tubing (EMT) to be installed within the opening. The annular space between conduits or tubing shall be min 0 in. (point contact) to max 3-3/8 in. The annular space between conduits or tubing and periphery of opening shall be min 0 in. (point contact) to max 3 in. Conduit or tubing to be rigidly supported on both sides of wall assembly.
3. Fill Void or Cavity Material - Foam* Fill material applied within annulus flush with both surfaces of the wall. Min fill material thickness for 1 Hr F Rating is 4-3/4 in. Min fill material thickness for 2 Hr F Rating is 6 in.

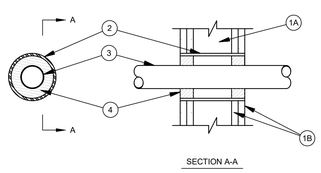
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 620 Fire Foam

*Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. W-L-2075
F Ratings - 1 & 2 Hr (See Item 4)
T Ratings - 0 and 2 Hr (see Item 4)
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. **Floor or Wall Assembly --** The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL fire Resistance Directory and shall include the following construction features:
   A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. **Gypsum Board* --** Nom 5/8 in thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 4 in.
2. **Metallic Sleeve --** (Optional) -- Nom 4 in. diam (or smaller) Schedule 40 (or thinner) steel pipe cast into wall assembly with joint compound and installed flush with wall surfaces.
3. **Electrical Nonmetallic Tubing+ --** Nom 2 in. diam (or smaller) corrugated wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC). Tubing to be rigidly supported on both sides of wall assembly. A nom annular space of 3/4 in. is required within the firestop system. See **Electrical Nonmetallic Tubing** (FKHU) category in the Electrical Construction Materials Directory for names of manufacturers.
4. **Fill, Void or Cavity Material* -- Sealant --** Installed symmetrically on both sides of the wall. **The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.** Fill material applied within the annulus, flush with each end of the steel sleeve at the thickness shown in the table below:

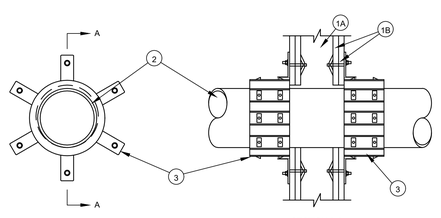
F Rating Hr	T Rating Hr	Fill Mtl Depth In.
1	0	5/8
2	2	1-1/4

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant
*Bearing the UL Listing Mark
*Bearing the UL Classification Marking

FIRESTOP SYSTEMS

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System No. W-L-2078
F Ratings - 1 & 2 Hr (See Item 1)
T Ratings - 1 & 2 Hr (see Item 1)



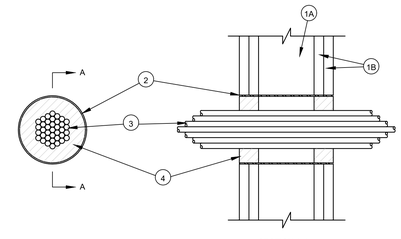
SECTION A-A

1. **Wall Assembly** The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL fire Resistance Directory and shall include the construction features noted below. **The hourly F Rating and T Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed:**
   A. **Studs** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. **Gypsum Board*** Nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 7 in.
2. **Through-Penetrants** One nonmetallic pipe, conduit or tubing to be installed within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** Nom 6 in. diam (or smaller) Schedule 40 solid-core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** Nom 6 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** Nom 6 in. diam (or smaller) Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   D. **Flame Retardant Polypropylene (FRPP) Pipe** Nom 6 in. diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   E. **Polyvinylidene Fluoride (PVDF) Pipe** Nom 4 in. diam (or smaller) PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
3. **Firestop Device* -- Firestop Collar** Firestop collar shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to both sides of the wall using the anchor hooks provided with the collar. (Minimum 2 anchor hooks for 1-1/2 and 2 in. diam pipes, 3 anchor hooks for 3 and 4 in. diam pipes, and 6 anchor hooks for 6 in. diam pipes). The anchor hooks are to be secured to the surface of wall with 3/16 2-1/2 in. long toggle bolts along with washers.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 643 50/1.5", CP 643 63/2", CP 643 90/3", CP 643 110/4" or CP 642 160/6" Firestop Collar
*Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. W-L-3065
F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr



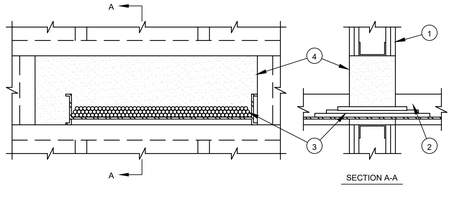
SECTION A-A

1. **Wall Assembly --** The 1 or 2 fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in . wide and spaced max 24 in. OC.
   B. **Gypsum Board* --** Nom 5/8 in. thick gypsum wallboard, with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 4 in.
   The F Rating of the firestop system is equal to the fire rating of the wall assembly.
2. **Metallic Sleeve --** (Optional) - Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 (or heavier) steel pipe or min 0.016 in. thick (28 MSG) galv steel sleeve cast into wall assembly with joint compound and installed flush with wall surfaces. When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. beyond the wall surfaces.
3. **Cables --** Aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 1/4 in. to max 3/4 in. Cables to be ridgily supported on both sides of the wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   C. Type RG/U coaxial cable with polyethylene (PE) insulation and PVC jacket having a max outside diameter of ½ in.
   D. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 5/8 in.
   E. Through Penetrating Products*-- Max three copper conductor No. 8 AWG . **Metal-Clad Cable+**.
   APC CABLE SYSTEMS INC
   F. Max 3/C (with ground)(or smaller) No. 8 AWG copper conductor cable with PVC insulation and jacketing.
4. **Fill, Void or Cavity Material* --** Sealant Fill material applied within the annulus, flush with each end of the steel sleeve or wall surface. Fill material installed symmetrically on both sides of the wall . A min 5/8 in. thickness of sealant is required for the 1 or 2 hr F Rating . An additional 1/2 in. diam bead of fill material shall be applied around the perimeter of sleeve on both sides of the wall when sleeve extends beyond surface of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP601S, CP606 or FS-One Sealant
*Bearing the UL Classification Mark

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-4034
F Ratings - 1 and 2 Hr (See Items 1 and 4)
T Rating - 0 Hr



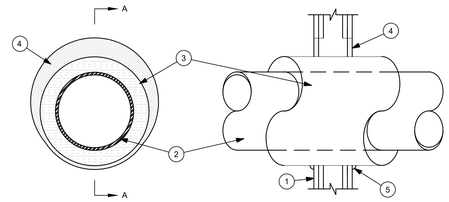
SECTION A-A

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.
   A. Studs Steel studs 3-1/2 in. deep, fabricated from 25 MSG galv steel, spaced max 24 in. OC.
   B. Gypsum Boards* The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max area of opening is 270 sq in. with max dimension of 30 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Cable Tray* Max 24 in. wide by 4 in. deep open-ladder cable tray with channel-shaped side rails formed of 0.10 thick aluminum and 1-1/2 in. wide by 1 in. channel shaped rungs spaced on 9 in. OC. The annular space between cable tray and periphery of opening shall be min 0 in. (point contact) to max 5 in. Cable tray to be rigidly supported on both sides of wall assembly.
3. Cables Aggregate cross-sectional area of cable tray to be max 45 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 300 pair No. 24 AWG telephone cable with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 500 kcmil single conductor power cable with PVC jacket material.
   C. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 3/8 in.
   D. Max 3/C No. 12 AWG copper conductor steel clad cable with PVC insulation material.
4. Firestop System The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material -- Foam Fill material applied within annulus, flush with both surfaces of the wall.Min fill material thickness for 1 Hr F Rating is 4-3/4 in. Min fill material thickness for 2 Hr F Rating is 6 in.
   B. Fill, Void or Cavity Material* -- Fire Blocks (Optional -- Not Shown) -- Nom 2 in. deep Fire Blocks applied in a single layer above cables within cable tray with 5 in. dimension projecting through opening in wall and long dimension parallel to wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS 657 Fire Block
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. W-L-5029
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 1/2, 3/4, 1 and 1-3/4 Hr (See Item 3)
L Rating At Ambient - 4 CFM/Sq Ft
L Rating At 400 F - Less Than 1 CFM/Sq Ft



SECTION A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. Wallboard, Gypsum* - 5/8 in. thick, 4 ft wide, with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants - One metallic pipe, conduit or tubing to be centered within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe - Nom 12 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Conduit - Nom 4 in. diam (or smaller) electrical metallic tubing or steel conduit.
   C. Copper Tubing - Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe - Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
3. Pipe Covering* - Nom 1, 1-1/2 or 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. See Pipe and Equipment Covering - Materials (BRGU) category in the Building Material Directory for the names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used. The hour T Rating of the firestop system is dependent on the hourly fire rating of the wall assembly in which it is installed, the size and type of through penetrant and the pipe covering thickness, as shown in the table below:

Wall Assembly Rating Hr	Through Penetrant Max Diam In.	Pipe Covering Thkns In.	Annular Space Min In.	Annular Space Max In.	T Rating Hr
1	A or B	4	1	0	1-1/2	1/2
1	C or D	2	1 or 1-1/2	0	1-1/2	1/2
1	A or B	4	1-1/2	0	1-1/2	1
1	A	12	2	0	1-7/8	3/4
1	C or D	6	2	0	1-7/8	1
2	A or B	4	1	0	1-1/2	1
2	C or D	4	1 or 1-1/2	0	1-1/2	1
2	C or D	6	2	0	1-7/8	1
2	A or B	4	1-1/2	0	1-1/2	1-3/4
2	A	12	2	0	1-7/8	1-1/2
2	C or D	6	2	0	1-7/8	1

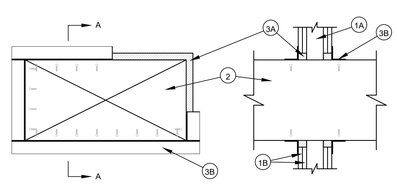
+Indicates penetrant type as itemized in Item 2.

4. Fill Void or Cavity Material* - Sealant - Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall for 1 or 2 hr walls, respectively. At the point contact location between pipe covering and gypsum wallboard, a min 1/2 in. diam bead of fill material shall be applied at the pipe covering/gypsum wallboard interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, Inc - FS-ONE Sealant
   *Bearing the UL Classification Marking

FIRESTOP SYSTEMS

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System No. W-L-7040
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr



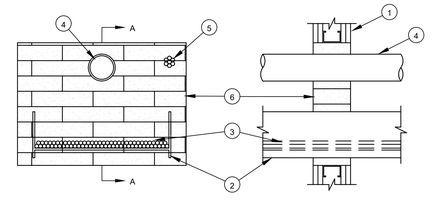
SECTION A-A

1. **Wall Assembly**The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory and shall include the following construction features:
   A. **Studs** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. Additional framing members shall be used to completely frame around opening.
   B. **Gypsum Board*** Nom 5/8 in. thick with square or tapered edges. The gypsum wallboard type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number . Max area of opening is 1300 in. with the dimension of 50 in. **The hourly F rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.**
2. **Steel Duct** Nom 24 in. by 48 in. (or smaller) No. 24 gauge (or heavier) galv steel duct to be installed within the firestop system. The annular space shall be min 0 (point contact) in. to a max 2 in. Duct to be rigidly supported on both sides of the wall assembly.
3. **Firestop System** The firestop system shall consist of the following:
   A. **Fill, Void or Cavity Material*--Sealant** Min 5/8 in. thickness of fill material applied within annulus flush with both surfaces of wall. At point contact location, a min 1/2 in. diam bead of fill material shall be applied to the wall/duct interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-ONE Sealant, CP601S Elastomeric Firestop Sealant or CP606 Flexible Sealant.
   B. **Steel Retaining Angle** No. 18 MSG (0.048 in.) galv steel angles cut to fit contour of duct with a 2 in. overlap on the duct and a min 1 in. overlap on the gypsum board assembly on both sufaces of wall. 2 in. leg of angle secured to duct with min No. 8 by 3/4 in. long sheet metal screws, spaced a max of 6 in. OC. When bead of fill material is used at joint contact locations, angles shall be installed prior to full material curing.
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. W-L-8013
F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - 5 CFM/Sq Ft
L Rating At 400 F - 2 CFM/Sq Ft



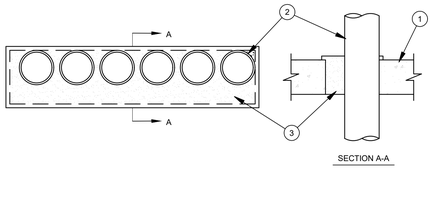
SECTION A-A

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constucted of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. Gypsum Board* 5/8 in. thick, 4 ft wide with square or tappered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max area of opening is 352 sq in. with max dimension of 22 in. wide. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Cable Tray* Max 18 in. wide by max 6 in. deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.065 in. thick aluminum or 0.060 in. thick steel and with 1-1/2 in. wide by 1 in. channel shape rungs spaced 9 in. OC or a 0.029 in. thick steel solid back, respectively. One cable tray to be installed in the opening. The max annular space between the cable tray and the periphery of the opening shall be min 1 in. to max 7 in. Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Cables Aggregate cross-sectional area of cables in cable tray to be max 30 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and PVC jacket.
   B. 100 pair - No. 24 AWG cable with PVC insulation and jacket.
   C. 1/C, 750 kcmil (or smaller) with PVC insulation and jacket.
4. Through-Penetrants One or more pipe or tube to be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces and the spacings between the pipes are maintained. The space between the pipe or tube and the periphery of the opening shall be min 1-1/2 in. to max 9-1/4 in. Pipe or tube to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of non-metallic or metallic pipes, or tubes may be used:
   A. Polyvinyl Chloride (PVC) Pipe Max 3 in. diam Schedule 40 solid core PVC pipe (or smaller) for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Steel Pipe Nom 6 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
   C. Conduit Nom 4 in. diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. Copper Pipe Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
   E. Copper Tube Nom 4 in. diam (or smaller) Type L (or heavier) copper tube.
4A. Pipe Covering (Not Shown)Nom 1-1/2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. See Pipe and Equipment Covering and Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 may be used.
5. Cables Max 1-1/2 in. diam tight bundle of cables installed within the opening and rigidly supported on both surfaces of wall. The space between the cables and periphery of the opening shall range from 1-3/16 in. min to a max of 1-1/2 in. Any combination of the following types and sizes of cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. 25 pair -- No. 24 AWG cable with PVC insulation and jacket.
   C. Type R GU/59 coaxial cable with PVC outer jacket.
   D. 24 fiber optic cable with PVC sub unit and outer jacket.
6. Firestop System The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* Fill, Void or Cavity Material*-Fire Blocks For walls incorporating max 3-5/8 in. steel studs or max 2 by 4 in. wood studs, fire block installed with 5 in. dimension projecting through and centered in opening. For walls constructed of larger steel or wood studs, fire block installed with long dimension passing through and centered in opening. Blocks may or may not be cut flush with both surfaces of wall. When multiple layers of gypsum board are used, blocks may be recessed 1/2 in. from surface of wall .
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS 657 Fire Block
   B. Fill, Void or Cavity Material* Sealant or Putty - Fill material to be forced into interstices of cables, between cables and cable trays, around each penetrant nd where obvious voids are observed to max extent possible on both surfaces of the penetration.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant, CP 618 Putty Stickor CP620 Fire Foam
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. C-AJ-1388
F Rating - 2 Hr
T Rating - 0 Hr



SECTION A-A

1. **Floor or Wall Assembly** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening 224 sq in. with max dimension of 32 in. See **Concrete Blocks** (CAZT) in the Fire Resistance Directory for names of manufacturers.
2. **Conduit** One or more nom 4 in diam (or smaller) steel electrical metallic tubing or steel conduit to be installed either concentrically or eccentrically within the firestop system. The space between conduits or tubes shall be min 0 in. (point contact) to max 1/2 in. The annular space between the conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 2-3/4 in. Conduit or tube to be rigidly supported on both sides of floor or wall assembly.
   Conduit - Nom 4 in. diam (or smaller) steel electrical metallic conduit or steel conduit.
3. **Fill, Void or Cavity Material* - Foam** Min 5 in. thickness of fill material applied within the annulus, extending 1/2 in. above the top surface of the floor or both surfaces of wall and overlapping the concrete 1/2 in. on all sides of the opening.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 620 Fire Foam
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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REVISION

REVISION

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PBA Project No.: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT # 2024.111

STOUCKY VITALE ARCHITECTS
27172 WOODWARD AVENUE
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WWW.STOUCKYVITALE.COM

SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRE STOP DETAILS

DATE
05-29-2026

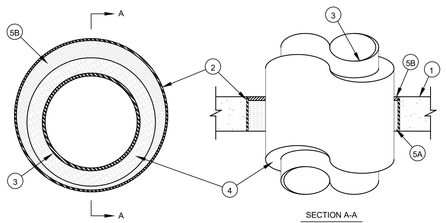
ISSUE
BIDS/PERMITS

SHEET No.
A710

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

System No. C-AJ-5091
F RATING = 2-HR.
T RATING = 1-HR.
L Rating At Ambient - 4 CFM/Sq Ft
L Rating At 400 F - Less Than 1 CFM/Sq Ft

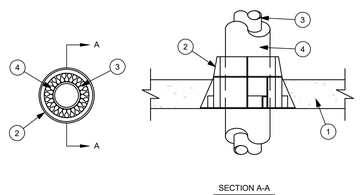


SECTION A-A

1. **Floor or Wall Assembly** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 19-1/2 in. See **Concrete Blocks** (CAZT) category in the Fire Resistance directory for names of manufacturers.
2. **Metallic Sleeve** (Optional) -- Nom 20 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
3. **Through Penetrants** One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:
A. **Steel Pipe** Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. **Copper Pipe** Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
C. **Copper Tubing** Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
4. **Pipe Covering** Nom 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all-service jacket. Longitudinal joints sealed with metal fasteners or factory-applied, self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the periphery of the opening shall be min 1/2 in. to a max 2-1/4 in.
See **Pipe Equipment Covering -- Materials** -- (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
5. **Firestop System** The firestop system shall consist of the following:
A. **Packing Material** Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
B. **Fill, Void or Cavity Material* -- Sealant** Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. F-A-5015
F Rating - 2 Hr
T Rating - 1/2 Hr



SECTION A-A

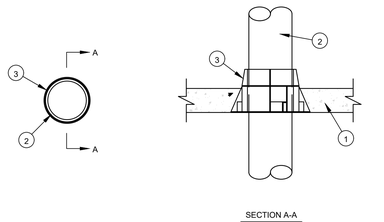
1. Floor Assembly Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete.
1A. Floor Assembly - (Optional - Not Shown) The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
A. Concrete Min 2-1/2 in thick reinforced lightweight or normal weight (100-150 pcf) concrete.
B. Steel Floor and Form Units* Composite or non-composite max 3 in. deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* Cast in place firestop device permanently embedded during concrete placement or grouted in concrete floor assembly in accordance with accompanying installation instructions with a max 2 in. projection above the top surface of the concrete.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 680-75/2.5", CP 680-110/4", CP 680-160/6"
3. Through Penetrants One nonmetallic pipe or conduit to be installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor assembly. The following types of pipe, conduit or tubing may be used:
Steel Pipe Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
Copper Tubing Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
Copper Pipe Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
The firestop device and metallic penetrant shall be sized as follows:

Nom Pipe Diameter	Firestop Device
1 in.	CP 680-75/2.5"
2 in.	CP 680-110/4"
4 in.	Cp 680-160/6"

4. Tube Insulation - Plastics+ Nom ¾ in. thick acryonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. See Plastics+ (QMFZ2) Category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. F-A-2053
F Rating - 2 Hr
T Rating - 0 Hr



SECTION A-A

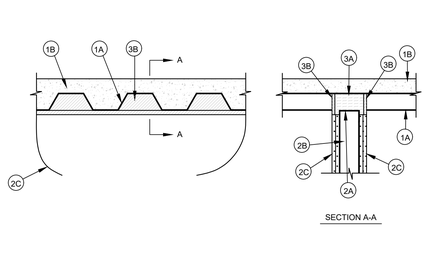
1. Floor Assembly Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete.
1A. Floor Assembly - (Optional - Not Shown) The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
A. Concrete Min 2-1/2 in thick reinforced lightweight or normal weight (100-150 pcf) concrete.
B. Steel Floor and Form Units* Composite or non-composite max 3 in. deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* Cast in place firestop device permanently embedded during concrete placement or grouted in concrete assembly in accordance with accompanying installation instructions with a max 2 in. projection above the top surface of the concrete.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 680-75/2.5", CP 680-110/4", CP 680-160/6"
3. Through Penetrants One nonmetallic pipe or conduit to be installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor- ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
A. Polyvinyl Chloride (PVC) Pipe Nom 6 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
B. Chlorinated Polyvinyl Chloride (CPVC) Pipe Nom 6 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
The firestop device and nonmetallic penetrant shall be sized as follows:

Nom Pipe Diameter	Firestop Device
1-1/2 in. to 2 in.	CP 680-75/2.5"
3 in. to 4 in.	CP 680-110/4"
6 in.	CP 680-160/6"

Nonmetallic pipes used in conjunction with CP 680-110/4" and CP 680-160/6"
Cast-In Firestop Devices are to be installed only from the top side of the assembly.
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. HW-D-0045
Assembly Ratings - 1 & 2 Hr (See Item 2)
Nominal Joint Width - 3/4 in.
Class II Movement Capabilities - 33% Compression or Extension

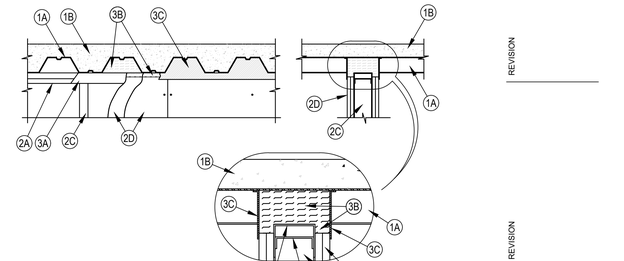


SECTION A-A

1. Floor Assembly The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 3 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 3 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
2. Wall Assembly The 1 or 2 hr fire-rated gypsum board /stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Ceiling Runners Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 2 in. flanges. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or by welds spaced 12 in. OC.
A1. Light Gauge Framing*-Slotted Ceiling Runner As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners spaced max 24 in. OC.
SLIPTRACK SYSTEMS INC -- --SLP-TRK
A2. Light Gauge Framing*-Vertical Deflection Ceiling Runner As an alternate to the ceiling runners in Item 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners spaced max 24 in. OC.
THE STEEL NETWORK INC -- VertiTrack VTD250, VTD358, VTD400, VTD600 and VTD800
B. Steel studs to be min 2-1/2 in. wide. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. OC.
C. Gypsum Board* For 1 hr assembly, one layer of 5/8 in. thick gypsum board is required in the individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. thick gypsumboard is required in the individual Wall and Partition Design. For both hourly ratings, a nominal 3/4 in. gap shall be maintained between the top of the gypsum board and the bottom surface of the steel floor units and the top row of screws shall be installed into the studs 3 in. below the valleys of the steel floor units. The hourly rating of the joint system is dependent on the hourly fire rating of the wall.
3. Joint System Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width. The joint system consists of a packing material and a fill material between the top of the wallboard and the bottom of the floor or roof, as follows:
A. Forming Material* Nom 4 pcf mineral wool batt insulation, cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck flutes above the ceiling runner. The mineral wool insulation is to project beyond each side of the ceiling runner, recessed 1/2 in. from both wall surfaces. For 2 hr assembly, an additional 1-1/2 in. thick by 3/4 in. wide sections of mineral wool batt insulation compressed 50 percent and installed cut edge first to fill the 3/4 in. gap between the top of gypsumboard and bottom of the steel deck. The forming material shall be recessed 1/2 in. from each side of the wall.
FIBREX INSULATIONS INC -- FBX Safing Insulation
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling runner recessed 1/2 in. from wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* -- Sealant Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the gypsum board and the bottom of the steel deck, flush with each surface of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP606 Flexible Firestop Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

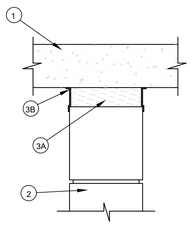
System No. HW-D-0087
Assembly Rating - 1 and 2 Hr (See Items 2 & 3B)
Nominal Joint Width - 2 In.
Class II and III Movement Capabilities - 20% Compression or Extension



1. F**loor Assembly** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor and Form Units*** Max 3 in. deep galv steel fluted floor units.
B. **Concrete** Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
C. **Spray--Applied Fire Resistive Materials*** (Optional)--(Not Shown)--Prior to the installation of the deflection channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C) the steel floor units may be sprayed with a min 5/16 in. to max 1-3/4 in. thickness of fire resistive material.
W R GRACE & CO - CONN CONSTRUCTION PRODUCTS DIV -- Type MK-6-HY
1A. **Roof Assembly** (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. **Steel Roof Deck** Max 3 in. deep galv steel fluted roof deck.
B. **Roof Insulation** Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
1B. **Roof Assembly** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. **Steel Roof Deck** Max 3 in. deep galv steel fluted roof deck.
B. **Spray--Applied Fire Resistive Materials*** (Not Shown)--Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.
2. **Wall Assembly** The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400-Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor and Ceiling Runner**s Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 1 in. flanges. Ceiling runner installed within the U-shaped deflection channel (Item 3A) with a 1-1/2 in. gap maintained between the top of ceiling runner and top of deflection plate.
A1. **Light Gauge Framing*-Slotted Ceiling Runner** (For use in Applications where the nominal joint width does not exceed 1 In.) As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners, through optional spray-applied fire resistive material, spaced max 24 in. OC. When vertical deflection ceiling runner is used, deflection channel (Item 3A) shall not be used.
METAL-LITE INC -- The System
SLIPTRACK SYSTEMS INC -- SLP-TRK
A2. **Light Gauge Framing*-Vertical Deflection Ceiling Runner** (For use in applications where the nominal joint width does not exceed 1 In.) As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners, through optional spray-applied fire resistive material, spaced max 24 in. OC. When vertical deflection ceiling runner is used, deflection channel (Item 3A) shall not be used.
THE STEEL NETWORK INC -- VertiTrack VTD250, VTD358, VTD400, VTD600 and VTD800
B. **Studs** Steel studs to be min 2-1/2 in. wide. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. OC.
C. **Gypsum Board*** Gypsum board installed to a min total thickness of 5/8 in. or 1-1/4 in. on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 2 in. gap shall be maintained between the top of the gypsum board and the bottom of the steel deck and the top row of screws shall be installed into the studs 4 to 4-1/2 in. below the lower surface of the floor or roof. **The hourly rating of the joint system is dependent on the hourly rating of the wall.**
3. J**oint System Max separation between bottom of floor and top of wall at time of installation of joint system is 2 in. The joint system is designed to accommodate a max 20 percent compression or extension from its installed width.** The joint system consists of a deflection channel, forming material and a fill material as follows:
A. **Deflection Channel** A nom 3-11/16 in. wide by 3 in. deep min No. 22 gauge steel U-shaped channel. Deflection channel secured to valleys of steel deck through fire resistive material with steel fasteners or by welds spaced max 12 in. OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1-1/2 in. gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.
B. **Forming Material*** Nom 4 pcf density mineral wool batt insulation cut approx 25 percent wider than the flutes and with a length approx equal to the overall thickness of the wall. Multiple pieces stacked on top of each other, as needed, and then compressed 50 percent in thickness and inserted into the flutes of the steel deck above the top of the ceiling runner. The mineral wool batt insulation is to project beyond each side of the ceiling runner, flush with wall surfaces. Additional 5/8 in. and 1-1/4 in. wide strips for 1 and 2 hr rated assemblies, respectively, of nom 4 pcf mineral wool batt insulation are to be cut to fill the gap between the top of the gypsum board and bottom of the steel deck. The strips of mineral wool are compressed 50 percent in thickness and tightly packed, cut edge first, into the gap between the top of the gypsum board and bottom of the steel deck on both sides of the wall.
ROCK WOOL MANUFACTURING CO -- Delta Board
B1. **Forming Material*--Plugs (For use with 3-1/2 in. deep studs or larger)** (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall project beyond each side of the ceiling runner, flush with wall surfaces. Additional forming material, described in Item 3B, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and the bottom of the steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP777 Speed Plugs
B2. **Forming Material* - Strips** (Optional) - Nom 5/8 in. and 1-1/4 in. wide precut mineral wool strips for 1 and 2 hr rated assemblies, respectively. The strips are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP 767 Speed Strips
C. **Fill, Void or Cavity Material*** Min 1/8 in. wet thickness of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. onto gypsum board and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel deck*, the fill material is to overlap the gypsum board a min of 1/2 in. and the spray-applied fire resistive material a min of 2 in. on both sides of wall. When spray-applied fire resistive materials are used, the CP672 firestop spray shall overlap the wall a min 1/2 in. and overlap the spray-applied fire resistive material a min of 2 in. on both sides of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP672 Firestop Spray
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

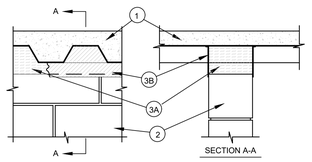
System No. HW-D-0097
Assembly Rating - 2 Hr
Nominal Joint Width - 2 In.
Class II Movement Capabilities - 12.5% Compression or Extension



1. Floor Assembly Min 4-1/2 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete.
2. Wall Assembly Min 4-5/8 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) categony in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max width of joint (at time of installation of joint system) is 2 in. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Min 4.0 pcf mineral wool batt insulation installed in joint opening as a permanent form. Batt cut to min width of 4-3/8 in. and installed cut edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and such that the compressed batt sections are recessed from both surfaces of wall to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
Rock Wool Mfg. Co. - Delta Board
B. Fill, Void or Cavity Material* - Sealant - Min 1/8 in. wet thickness of fill material applied within the joint, flush with both surfaces of wall and lapping 1/2 in. onto otom surface of floor and wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, Inc. - CP672 Firestop Spray
*Bearing the UL Classification Marking

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System No. HW-D-0098
Assembly Rating - 2 Hr
Nominal Joint Width - 1 In.
Class II and III Movement Capabilities - 12.5% Compression or Extension

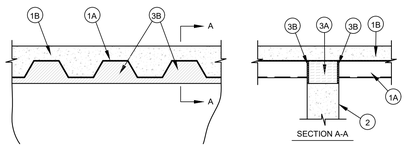


SECTION A-A

1. Floor Assembly The fire rated fluted steel unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 2 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in thick reinforced concrete as measured from top plane of the floor units.
C. Spray-Applied Fire Resistive Materials* (Optional)--(Not Shown)--Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. to max 1-3/4 in. thickness of fire resistive material.
W R GRACE & CO - CONN
CONSTRUCTION PRODUCTS DIV -- Type MK-6-HY
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 2 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
1B. Roof Assembly As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 2 in. deep galv steel fluted roof deck.
B. Spray--Applied Fire Resistive Materials* (Not Shown)--Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.
2. Wall Assembly Min 6 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Nom 4.0 pcf mineral wool batt insulation compressed and firmly packed to completely fill the flutes and the gap between the top of the wall and bottom of the floor or roof as a permanent form. Batt insulation cut to the shape of the fluted steel deck, approx 33 percent larger than the flutes. Pieces compressed and installed vertically into the flutes above the top of the wall. Additional pieces of batt insulation, min 6 in. wide, installed edge-first into joint opening between bottom f fluted steel deck and top of wall, parallel with joint direction, such that batt sections are compressed min 33 percent in thickness. Compressed batt sections are flush with both surfaces of wall. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
ROCK WOOL MANUFACTURING CO -- Delta Board
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and the bottom of the steel floor units.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* Min 1/8 in. wet thickness of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. onto wall and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel steel deck, the fill material is to overlap the wall a min of 1/2 in. and the spray-applied fire resistive material a min of 2 in. on both sides of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP672 Firestop Spray
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. HW-D-0081
Assembly Rating - 2 Hr
Nominal Joint Width - 3/4 in.
Class II Movement Capabilities - 33% Compression or Extension



1. Floor Assembly The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 3 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 3 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
2. Wall Assembly Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of an UL Classified Concrete Blocks*.
See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width. The joint system consists of a packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:
A. Forming Material Min 4 in. thickness of 4 pcf density mineral wool batt insulation was cut to the shape of the fluted deck, approximately 20 percent larger than the rea of the flutes and compressed into the flutes of the steel deck above the wall assembly. The forming material shall be recessed 1/2 in. from each side of the wall. Additional pieces of forming material, compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
FIBREX INSULATIONS INC -- FBX Safing Insulation
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted deck, friction fit to completely fill the flutes. The lugs shall be recessed 1/2 in. from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the all and the bottom of the steel deck, flush with each surface of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP606 Flexible Firestop Sealant
*Bearing the UL Classification Mark

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REVISION

REVISION

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PROJECT # 2024.111

SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRE STOP DETAILS

DATE
05-29-2026

ISSUE
BIDS/PERMITS

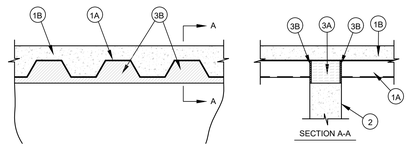
SHEET No.
A711

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

System No. HW-D-0081

Assembly Rating - 2 Hr
Nominal Joint Width - 3/4 in.
Class II Movement Capabilities - 33% Compression or Extension



1. Floor Assembly The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 3 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 3 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
2. Wall Assembly Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of an UL Classified Concrete Blocks*.
See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width. The joint system consists of a packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:
A. Forming Material Min 4 in. thickness of 4 pcf density mineral wool batt insulation was cut to the shape of the fluted deck, approximately 20 percent larger than the rea of the flutes and compressed into the flutes of the steel deck above the wall assembly. The forming material shall be recessed 1/2 in. from each side of the wall. Additional pieces of forming material, compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
FIBREX INSULATIONS INC -- FBX Safing Insulation
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted deck, friction fit to completely fill the flutes. The lugs shall be recessed 1/2 in. from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the all and the bottom of the steel deck, flush with each surface of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP606 Flexible Firestop Sealant
*Bearing the UL Classification Mark

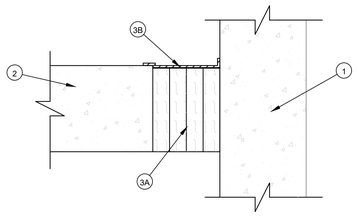
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. FW-D-1013

Assembly Rating - 2 Hr
Nominal Joint Width - 3-1/2 in.
Class II Movement Capabilities - 14% Compression or Extension



1. Wall Assembly - Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Floor Assembly - Min 4-1/2 in. thick reinforced lightweight or normal weight (100 - 150 pcf) structural concrete.
3. Joint System - Max separation between edge of floor and face of wall (at time of installation of joint system) is 3-1/2 in. The joint system is designed to accommodate a max 14 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Packing Material - Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of
4-3/8 in. and installed edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 42 percent in thickness and that the compressed batt sections are recessed from top surface of the floor as required to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in apart along the length of the joint.
B. Fill, Void or Cavity Material* - Sealant - Min 1/8 in. thickness of fill material applied within the joint, flush with top surface of floor and lapping a min 1/2 in. onto the top surface of the floor and edge of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, Inc. - CP672 Firestop Spray.
*Bearing the UL Classification Marking

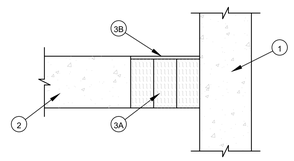
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CLASSIFIED C UL US

System No. FW-D-1037

Assembly Rating - 2 Hr
Nominal Joint Width - 6 In.
Class II Movement Capabilities - 10% Compression or Extension



1. Wall Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufactures.
2. Floor Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.
3. Joint System Max separation between edge of floor and face of wall (at time of installation of joint system) is 6 in. The joint system is designed to accommodate a max 10 percent compression or extension from its installed width. The joint system shall consist of the following.
A. Forming Material Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of 4 in. and installed edgefirst into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and that the compressed batt sections are recessed a min of 1/2 in. from top surface of the floor to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint.
THERMAFIBER L L C -- Type SAF
B. Fill Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material applied within the joint, flush with top surface of floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP604 Self-Leveling Firestop Sealant
*Bearing the UL Classification Mark

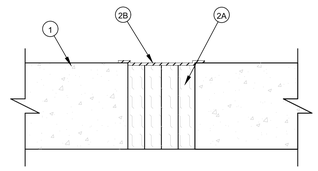
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. FF-D-1013

Assembly Rating - 2 Hr
Nominal Joint Width - 3-1/2 in.
Class II Movement Capabilities - 14% Compression or Extension



1. Floor Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100 - 150 pcf) structural concrete.
2. Joint System Max width of joint (at time of installation of joint system) is 3-1/2 in. The joint system is designed to accommodate a max 14 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Packing Material Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of 4-3/8
in. and installed edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 42 percent in thickness and that the compressed batt sections are recessed from top surface of the floor as required to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint.
B. Fill, Void or Cavity Material* - Sealant Min 1/8 in. wet thickness of fill material applied within the joint, flush with top surface of floor and lapping
a min 1/2 in. onto the top surface of the floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP672 Firestop Spray
*Bearing the UL Classification Marking

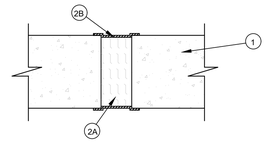
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. WW-D-0017

Assembly Rating - 2 Hr
Nominal Joint Width - 2 in.
Class II Movement Capabilities - 12.5% Compression or Extension



1. Wall Assembly Min 4-5/8 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
2. Joint System Max width of joint (at time of installation of joint system) is 2 in. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Min 4.0 pcf mineral wool batt insulation installed in joint opening as a permanent form. Batt cut to min width of 4-3/8 in. and installed cut edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and such that the compressed batt sections are recessed from both surfaces of wall to accommodate the required thickness of fill material. Adjoining lengths of
batt to be tightly butted with butted seams spaced min 48 in. apart along the lengths of the joint.
ROCK WOOL MANUFACTURING CO - Delta Board
B. Fill, Void or Cavity Material* Min 1/8 in. thickness of fill material applied within the joint, flush with both surfaces of wall and lapping 1/2 in. onto bottom surface of floor and wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP672 Firestop Spray
*Bearing the UL Classification Marking

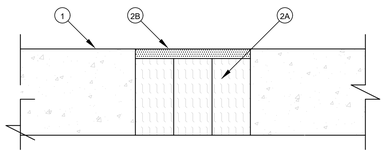
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. FF-D-1039

Assembly Rating - 2 Hr
Nominal Joint Width - 6 In.
Class II Movement Capabilities - 10% Compression or Extension



1. Floor Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.
2. Joint System Max width of joint (at time of installation of joint system) is 6 in. The joint system is designed to accommodate a max 10 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of 4 in. and installed edgefirst into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and that the compressed batt sections are recessed a min of 1/2 in. from top surface of the floor to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint.
THERMAFIBER L L C -- Type SAF
B. Fill Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material applied within the joint, flush with top surface of floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP604 Self-Leveling Firestop Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

REVISION

REVISION

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
FIRE STOP DETAILS

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
A712

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

ELECTRICAL SYMBOL LIST

(NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT)

SYMBOL	DESCRIPTION
NL/EM / X / y / ZZ–#	DENOTES NIGHT LIGHT AND/OR EMERGENCY LIGHT X DENOTES FIXTURE TYPE y DENOTES LIGHTING CONTROL ZONE ZZ–# DENOTES PANELBOARD AND BREAKER
	FILL DENOTES EMERGENCY FIXTURE
/	TROFFER LIGHT
	STRIP LIGHT
	LINEAR LIGHT
	MULTIHEAD ADJUSTABLE LIGHT
/	DOWN LIGHT
/	DIRECTIONAL DOWN LIGHT
/	DECORATIVE LIGHT
/	DECORATIVE LIGHT
/	WALL MOUNTED LIGHT
	WALL SCONCE
	ARM MOUNTED LIGHT
	LIGHTING TRACK
	TRACK LIGHT
	ADJUSTABLE FLOOD LIGHT
	STEP LIGHT
	LED TAPE
	REMOTE DRIVER
/	HIGH BAY LIGHT
	POLE MOUNTED LIGHT
	POST TOP LIGHT
/	BOLLARD LIGHT
	IN GROUND LIGHT
	EMERGENCY LIGHT
	EXIT LIGHT WITH DIRECTIONAL ARROWS (FILLED AREA INDICATES FACE)
	EXIT LIGHT WITH DIRECTIONAL ARROWS (FILLED AREA INDICATES FACE)
/	EXIT LIGHT – WALL MOUNTED (FILLED AREA INDICATES FACE)
	EXIT/EMERGENCY LIGHT COMBO – WALL MOUNTED (FILLED AREA INDICATES FACE)
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
ALCR	AUTOMATIC LOAD CONTROL RELAY
LC / y	LIGHTING CONTROL DEVICE – REFER TO LIGHTING CONTROL SCHEDULE y DENOTES LIGHTING CONTROL ZONE
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE
XX	ROOM CONTROL DESIGNATION – REFER TO LIGHTING CONTROL SCHEDULE
S	SINGLE POLE TOGGLE SWITCH
S_2	TWO POLE TOGGLE SWITCH
S_3	3 WAY TOGGLE SWITCH
S_4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K_3	3 WAY KEY OPERATED SWITCH
K_4	4 WAY KEY OPERATED SWITCH
KL	LOW VOLTAGE KEY OPERATED SWITCH
D	DIMMER SWITCH
D_3	3 WAY DIMMER SWITCH
D_O	DIMMER OCCUPANCY SENSOR SWITCH
S_P	PILOT SWITCH

SYMBOL	DESCRIPTION
TWC	TWO–WAY COMMUNICATION SYSTEM CALL STATION
TWCD	TWO–WAY COMMUNICATION SYSTEM AUTO DIALER
TWCA	TWO–WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL
TWCP	TWO–WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK–UP
TWCDP	TWO–WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK–UP
RGP	REMOTE GENERATOR ANNUCIATOR PANEL
ATS	AUTOMATIC TRANSFER SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
/	SINGLE / DUPLEX RECEPTACLE OUTLET "X" INDICATES TYPE
	SINGLE/DUPLEX RECEPTACLE OUTLET CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM (SIMILAR FOR TAMPER RESISTANT, GFCI, USB)
/	DUPLEX / TAMPER RESISTANT RECEPTACLE OUTLET HALF CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM
	QUAD RECEPTACLE OUTLET
	ABOVE COUNTER DUPLEX RECEPTACLE OUTLET (SIMILAR FOR TAMPER RESISTANT, CONTROLLED, SINGLE, QUADS, EMERGENCY, UPS, USB, AND GFCI RECEPTACLE OUTLETS)
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE OUTLET
	DEAD FRONT GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX EMERGENCY RECEPTACLE OUTLET
	DUPLEX TAMPER RESISTANT RECEPTACLE OUTLET
	QUAD TAMPER RESISTANT RECEPTACLE OUTLET
	DUPLEX UPS RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET WITH 2 USB PORTS
	4 PORT USB CHARGING STATION
/	CEILING MOUNTED DUPLEX/QUAD RECEPTACLE OUTLET
	POWER POLE
	WALL/CEILING MOUNTED SPECIAL RECEPTACLE OUTLET – REFER TO ELECTRICAL STANDARD SCHEDULES
IC	INTERCOM OUTLET
S	MULTI–OUTLET SURFACE RACEWAY
S	MULTI–SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
MIC	MICROPHONE
VC	VOLUME CONTROL/STATION SELECTOR
BL	SIGNALING BELL
	FLOOR SERVICE FITTING "X" INDICATES TYPE
	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE
	CORD REEL "X" INDICATES TYPE
	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	3–WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	4–WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	DIGITAL TIME SWITCH
	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER–ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION
	OCCUPANCY SENSOR REFER TO ELECTRICAL STANDARD SCHEDULES
	OCCUPANCY SENSOR
OS / X	OCCUPANCY SENSOR "X" INDICATES TYPE

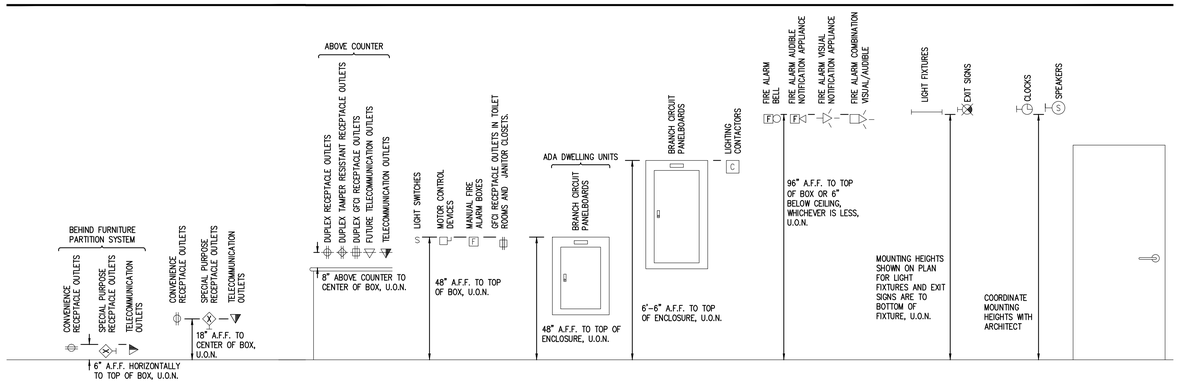
SYMBOL	DESCRIPTION
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER.
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER
	NON–FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
	GROUND ROD
	GROUND CONNECTION
HH	HANDHOLE
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
X	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	ABOVE COUNTER TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR

REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
OR	CARD READER
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
DO	DOOR OPERATOR
DA	DOOR ACTUATOR
AC	ACCESS CONTROL STATION
ACCP	ACCESS CONTROL CONTROL PANEL
ACPS	ACCESS CONTROL POWER SUPPLY
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
TS	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	KEY INTERLOCK
G	ENGINE GENERATOR
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE
CR	CONTROL RELAY
TDR	TIME DELAY RELAY
PRM	PHASE ROTATION MONITOR
	CAMLOK – MALE
	CAMLOK – FEMALE
	THERMAL OVERLOAD RELAY
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	N.O. PUSH BUTTON SINGLE CIRCUIT
	N.C. PUSH BUTTON SINGLE CIRCUIT
X–X	CABLE VAULT "X–X" INDICATES TYPE
	BRANCH CIRCUIT PANELBOARD
	LOAD CENTER
	MOTOR CONTROL CENTER
T	TRANSFORMER
	DISTRIBUTION EQUIPMENT
GB	ELECTRICAL GROUNDING BUS BAR
PB	PLUG IN BUSWAY
FB	FEEDER BUSWAY
12x4	CABLE TRAY – ALL SIZES IN INCHES

SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
RT	REMOTE TEST STATION (FOR DUCT DETECTOR)
HD	HEAT DETECTOR
BO	PROJECTED BEAM DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE NOTIFICATION APPLIANCE– CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE – CEILING MOUNTED
F	FIREFIGHTERS PHONE JACK
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
MM	ADDRESSABLE MONITORING MODULE
CM	ADDRESSABLE CONTROL MODULE
TS	ADDRESSABLE MONITORING MODULE FOR TAMPER SWITCH
FS	ADDRESSABLE MONITORING MODULE FOR FLOW SWITCH
DR	MAGNETIC DOOR RELEASE

STANDARD MOUNTING HEIGHTS



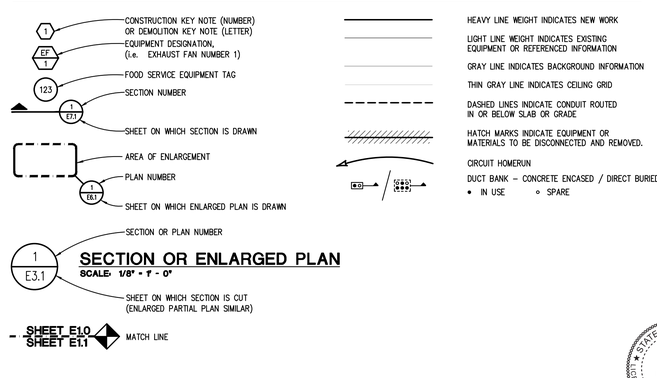
ELECTRICAL DRAWING INDEX

SHEET NO.	SHEET TITLE
E0.1	ELECTRICAL STANDARDS AND DRAWING INDEX
E0.2	ELECTRICAL STANDARD SCHEDULES
ED1.0	GROUND FLOOR ELECTRICAL DEMOLITION PLAN
ED1.1	FIRST FLOOR ELECTRICAL DEMOLITION PLAN
ED1.2	SECOND FLOOR ELECTRICAL DEMOLITION PLAN
ED1.3	THIRD FLOOR ELECTRICAL DEMOLITION PLAN
ED1.4	FOURTH FLOOR ELECTRICAL DEMOLITION PLAN
ED1.5	FIFTH FLOOR ELECTRICAL DEMOLITION PLAN
ED1.6	SIXTH FLOOR ELECTRICAL DEMOLITION PLAN
ED1.7	PENTHOUSE ELECTRICAL DEMOLITION PLAN
E1.0	GROUND FLOOR ELECTRICAL NEW WORK PLAN
E1.1	FIRST FLOOR ELECTRICAL NEW WORK PLAN
E1.2	SECOND FLOOR ELECTRICAL NEW WORK PLAN
E1.3	THIRD FLOOR ELECTRICAL NEW WORK PLAN
E1.4	FOURTH FLOOR ELECTRICAL NEW WORK PLAN
E1.5	FIFTH FLOOR ELECTRICAL NEW WORK PLAN
E1.6	SIXTH FLOOR ELECTRICAL NEW WORK PLAN
E1.7	PENTHOUSE ELECTRICAL NEW WORK PLAN
E5.1	RISER DIAGRAMS
E7.1	ELECTRICAL DETAILS AND DIAGRAMS

ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	AMPERES
AER	ARC ENERGY REDUCTION
AF	AMPERES FRAME (BREAKER RATING)
AFCI	ARC FAULT CIRCUIT INTERRUPTER
A.F.F.	ABOVE FINISH FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	AUDIENCE LEFT
ALCR	AUTOMATIC LOAD CONTROL RELAY
AR	AUDIENCE RIGHT
AT	AMPERES TRIP (BREAKER SETTING)
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
BKR	BREAKER
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DEMO	DEMOLITION
DIM	DIMENSION
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DS	DOWNSTAGE
DWG	DRAWING
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ELEC	ELECTRICAL
EM/ EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EO	ELECTRICALLY OPERATED
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FOH	FRONT OF HOUSE
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FU	FUSE
G/GRD/EG	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HOA	HAND–OFF–AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KA	THOUSAND AMP
KV	KILOVOLT
KVA	KILOVOLT – AMPERES
KW	KILOWATT
KWH	KILOWATT – HOURS
LA	LIGHTNING ARRESTOR
LP	LIGHTING PANEL
LDP	LIGHTING DISTRIBUTION PANEL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MISC.	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MOP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON–FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
P	POLE
PB	PUSHBUTTON STATION
PH	PHASE
PT	POTENTIAL TRANSFORMER
PDP	POWER DISTRIBUTION PANEL
RECEPT.	RECEPTACLE
RDP	RECEPTACLE DISTRIBUTION PANEL
RP	RECEPTACLE PANEL
RSC	RIGID STEEL CONDUIT
SCCR	SHORT CIRCUIT CURRENT RATING
SCHED	SCHEDULE
SPD	SURGE PROTECTION DEVICE
ST	SHUNT TRIP
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOX
TELECOM	TELECOMMUNICATIONS
TR	TAMPER RESISTANT
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UVR	UNDERVOLTAGE RELEASE
US	UPSTAGE
V	VOLTS
W	WIRE OR WATTS
WAP	WIRELESS ACCESS POINT
WG	WIRE GUARD
WP	WEATHERPROOF
WR	WEATHER RESISTANT
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
(E)	EXISTING
(R)	RELOCATED

STANDARD METHODS OF NOTATION



REVISION

REVISION

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
ELECTRICAL STANDARDS AND DRAWING INDEX

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E0.1

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						KEYED NOTES
	WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE				
	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G, 2PH, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)	
15–20	12	12	3/4"	3/4"	3/4"	3/4"	
25–30	10	10	3/4"	3/4"	3/4"	3/4"	
35–40	8	10	3/4"	3/4"	3/4"	3/4"	
45–50	8 (6)	10	3/4"	3/4"	3/4"	3/4"	1
60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")	1
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"	
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"	1
90–100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1
110	2 (1)	6	–	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1
125	1 (1/0)	6	–	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	1
150	1/0	6	–	1 1/2"	1 1/2"	1 1/2"	
175	2/0	6	–	2"	2"	2"	
200	3/0	6	–	2"	2"	2 1/2"	
225	4/0	4	–	2"	2"	2 1/2"	
250	250	4	–	2 1/2"	2 1/2"	2 1/2"	
300	350	4	–	2 1/2"	2 1/2"	3"	
350	500	3	–	3"	3"	3"	
400	500	3	–	3"	3"	3"	

GENERAL NOTES:
1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. COPPER CONDUCTORS ARE BASED ON THHN/THWN-2 UP TO AND INCLUDING #4/0. COPPER CONDUCTORS LARGER THAN #4/0 AND ALUMINUM CONDUCTORS ARE BASED ON XHHW-2.
4. CONDUIT SIZES ARE VALID FOR EMT OR RSC. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
5. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
6. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.

KEYED NOTES:
1. CONDUCTORS ARE BASED ON 90°C, 600V INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER(S)	WATTAGE	VOLTAGE	LIGHT CHARACTERISTICS	CONTROLS	REMARKS
X	EXIT SIGN	LITHONIA LQM SERIES SURE-LIGHT LPX SERIES COMPASS CE SERIES HE WILLIAMS EXIT SERIES	1	120/277	LQM-S-W-X-G-MVOLT-XX-XX		MATCH EXIT SIGN COLOR WITH EXISTING

GENERAL NOTES:
1. WATTAGE LISTED IS FROM THE BASIS OF DESIGN MANUFACTURER.
2. ALL LUMINAIRES TO BE AS SPECIFIED OR EQUAL APPROVED BY PBA AND/OR ILLUMINART.

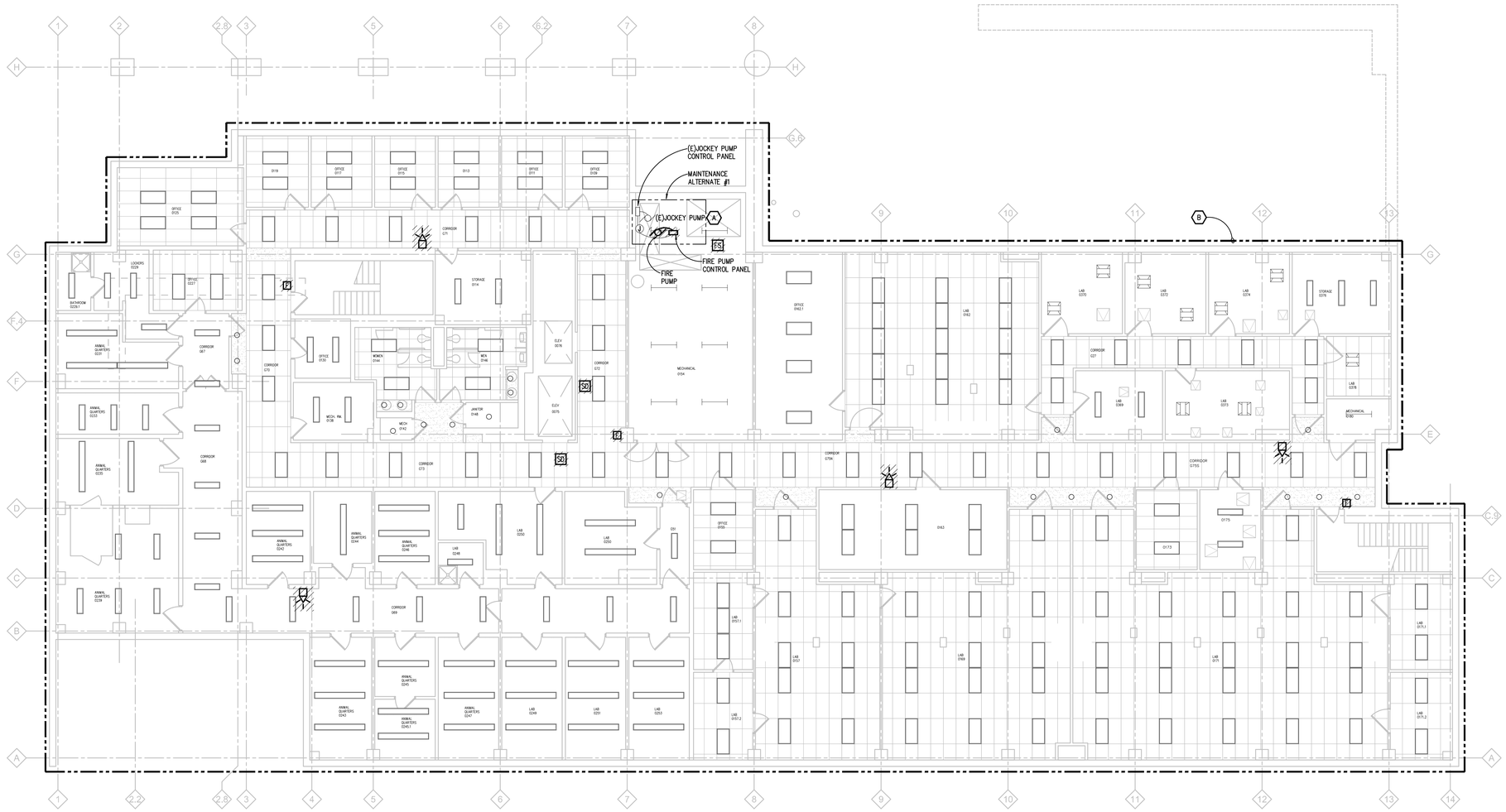
RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

	WIRE		RACEWAY				
	COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	ELECTRICAL METALLIC TUBING (EMT)	RIGID STEEL CONDUIT (RSC)	FLEXIBLE METAL CONDUIT (FMC)	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)
FEEDERS - INTERIOR						
DAMP AND WET LOCATIONS	X			X		
BRANCH CIRCUITS - INTERIOR						
CONCEALED, ACCESSIBLE CEILINGS	X		X			
CONCEALED, INACCESSIBLE CEILINGS	X		X			
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X		X		X	
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X			X		
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X		X			
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X			
EXPOSED, FINISHED SPACES	X		X			
DAMP AND WET LOCATIONS	X			X		
SPECIAL APPLICATIONS						
CONNECTIONS TO TRANSFORMERS, MOTORS AND VIBRATING EQUIPMENT		X				X

GENERAL NOTES:
1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL OR RTRC SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, CONCRETE BASES, AND ASPHALT.

| SYSTEM INPUTS | | | SYSTEM OUTPUTS: ANNUNCIATION | | | | | |

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



GROUND FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
7. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
8. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION KEY NOTES:

A. MAINTENANCE ALTERNATE #1: DISCONNECT EXISTING FIRE PUMP EQUIPMENT FOR REMOVAL BY OTHERS.

B. REMOVE AND SALVAGE LIGHT FIXTURES AND OTHER CEILING DEVICES TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION LINES AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS.

C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

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Tel: 248-879-3666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

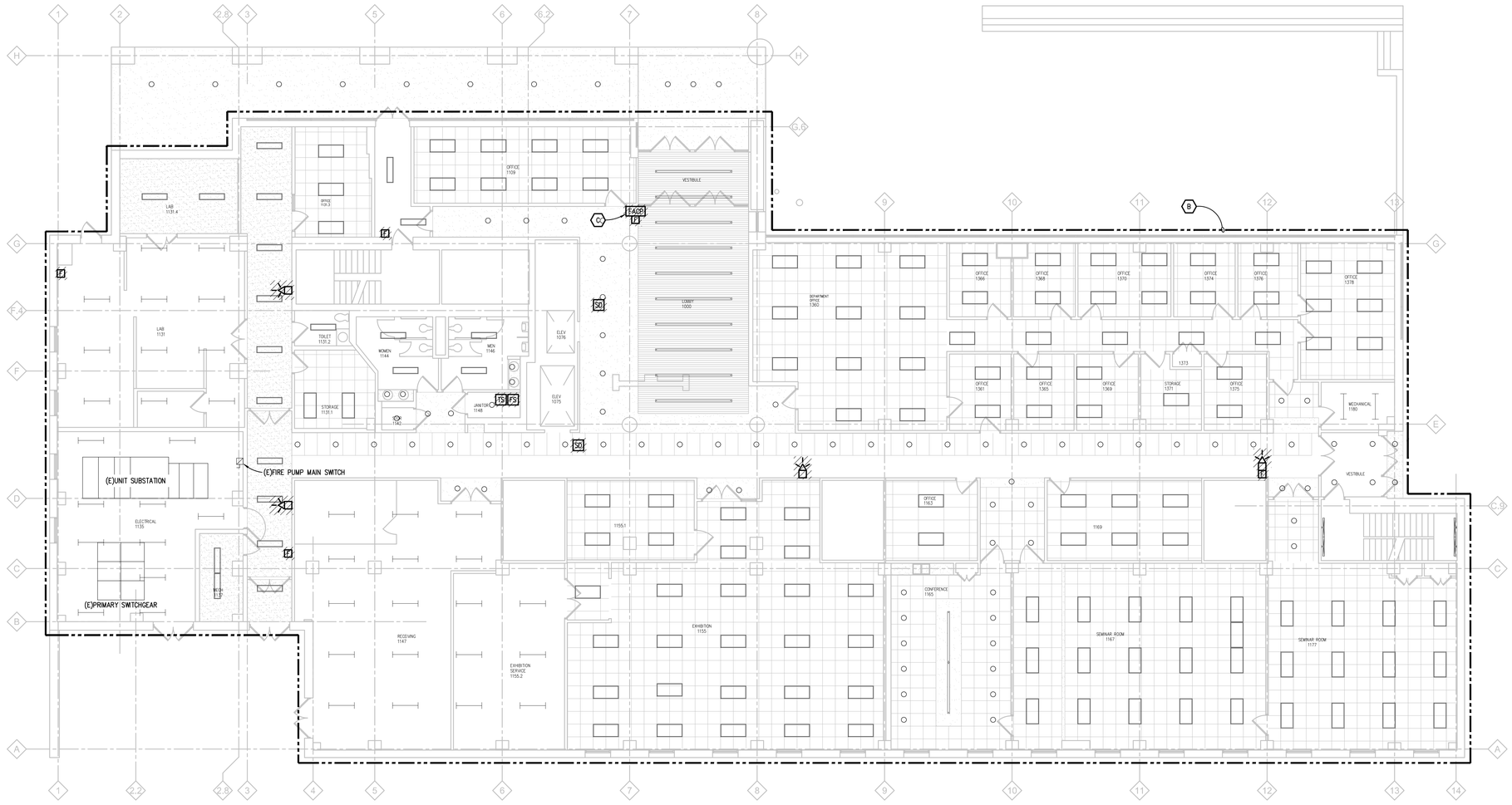
ISSUE
BIDS/PERMITS

SHEET No.
ED1.0

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
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4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
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(#) DEMOLITION KEY NOTES:

A. MAINTENANCE ALTERNATE #1: DISCONNECT EXISTING FIRE PUMP EQUIPMENT FOR REMOVAL BY OTHERS.

B. REMOVE AND SALVAGE LIGHT FIXTURES AND OTHER CEILING DEVICES TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION LINES AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS.

C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

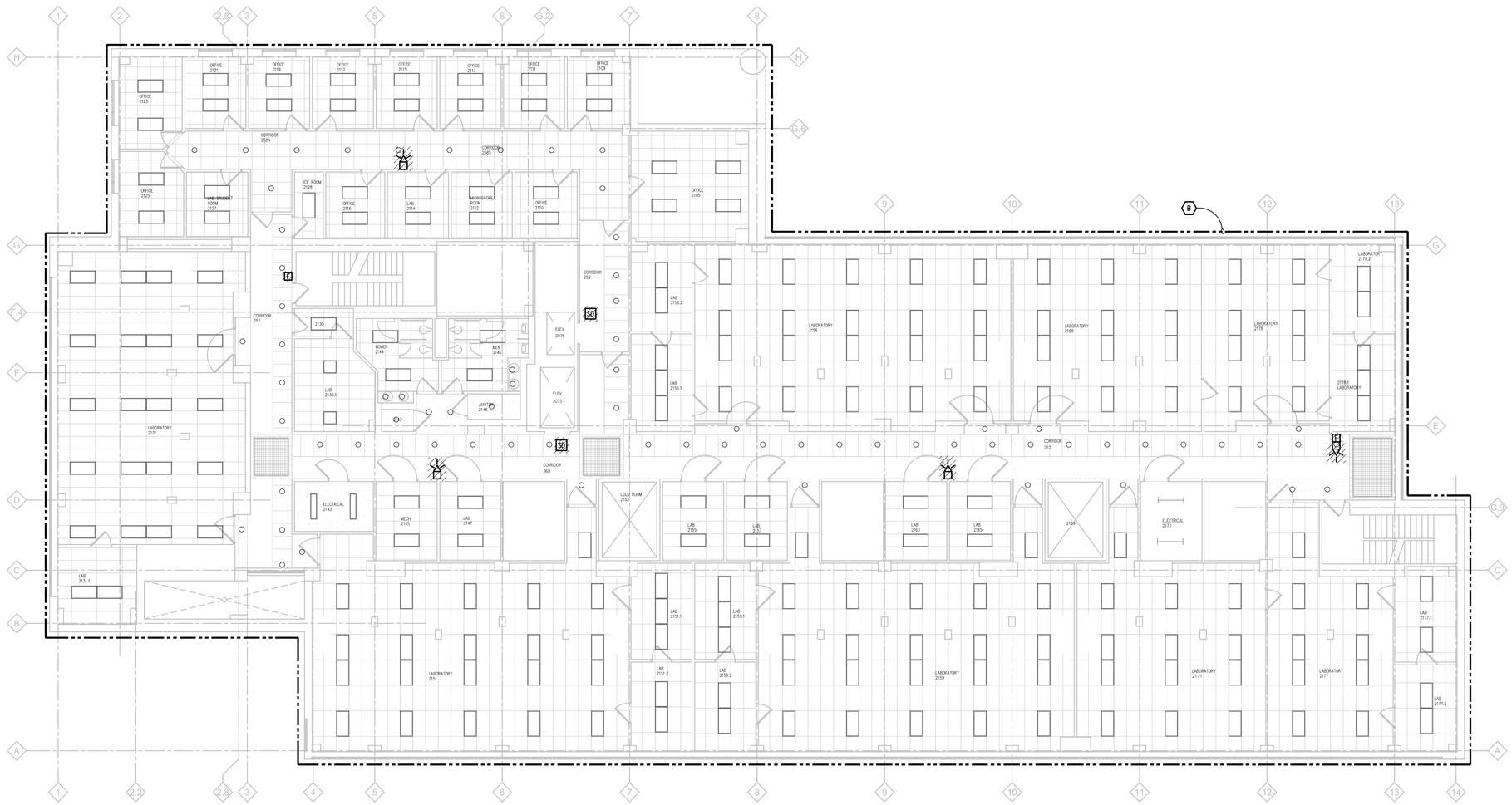
ISSUE
BIDS/PERMITS

SHEET No.
ED1.1

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND FLOOR ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
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C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

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www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SECOND FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

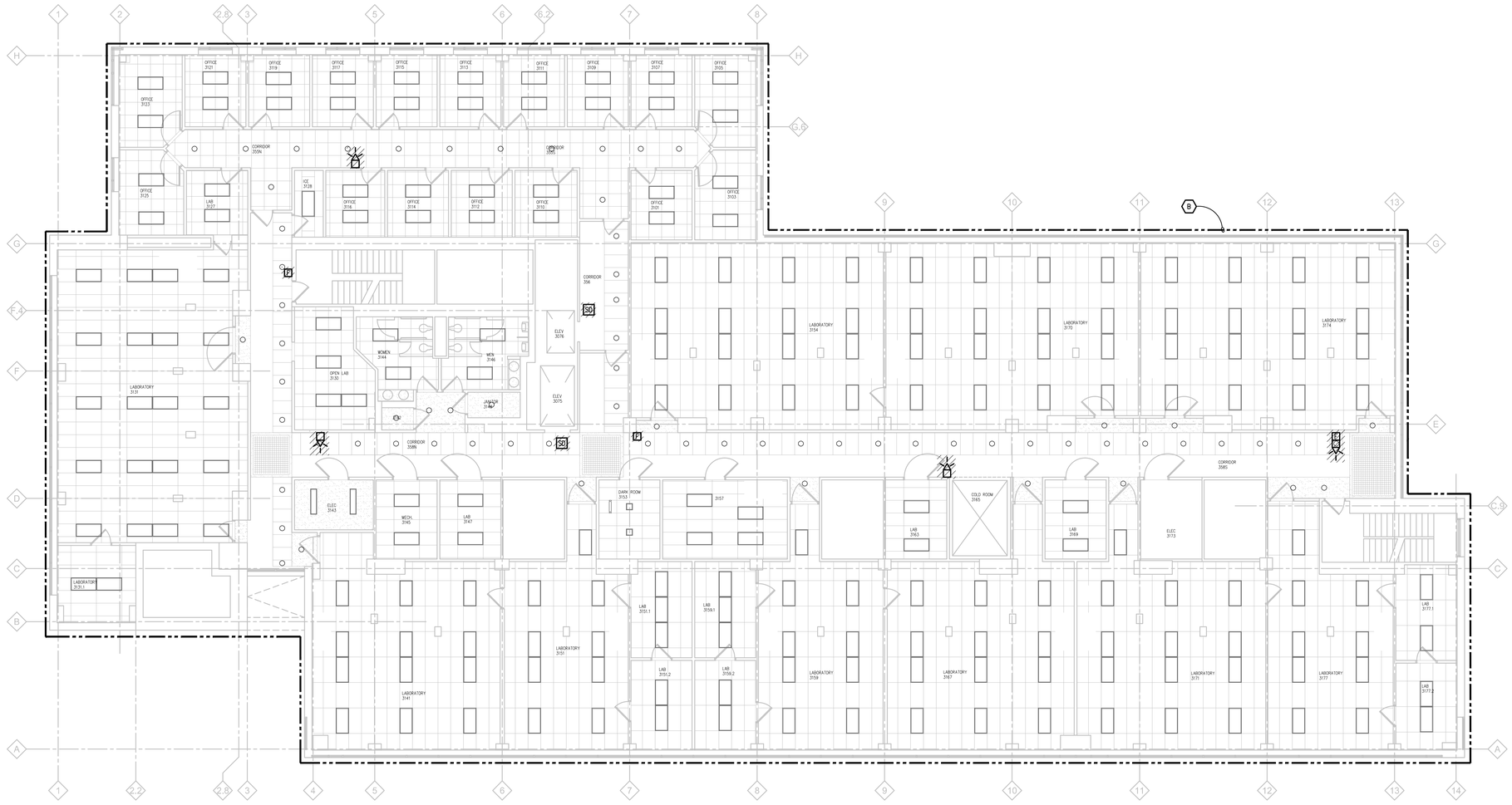
ISSUE
BIDS/PERMITS

SHEET No.
ED1.2

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP2.dwg, ED1.2, 5/29/2026 9:03:17 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



THIRD FLOOR ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
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EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.3

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

ELECTRICAL DEMOLITION GENERAL NOTES:

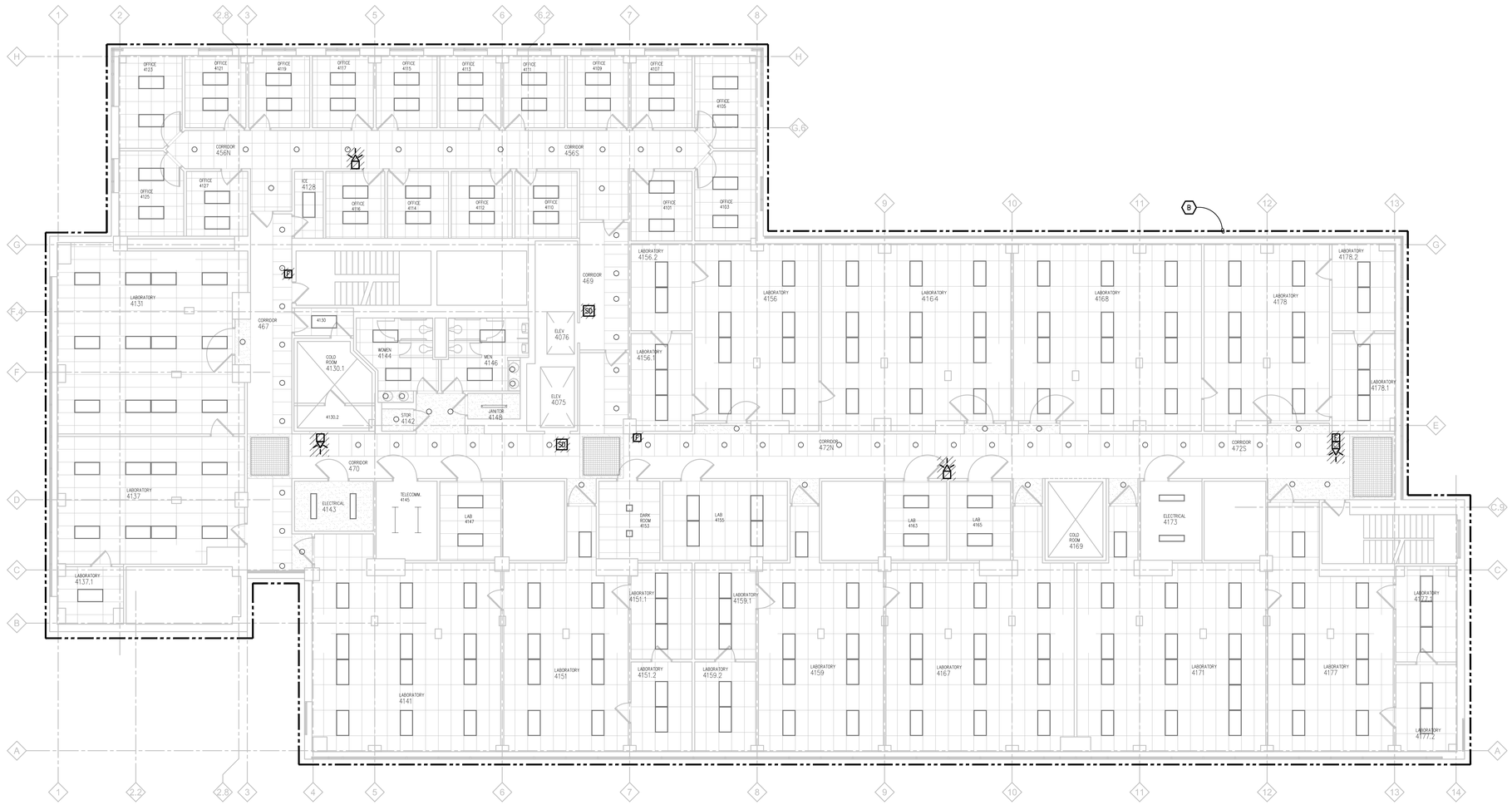
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C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.



FOURTH FLOOR ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" - 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

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www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FOURTH FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.4

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL DEMOLITION GENERAL NOTES:

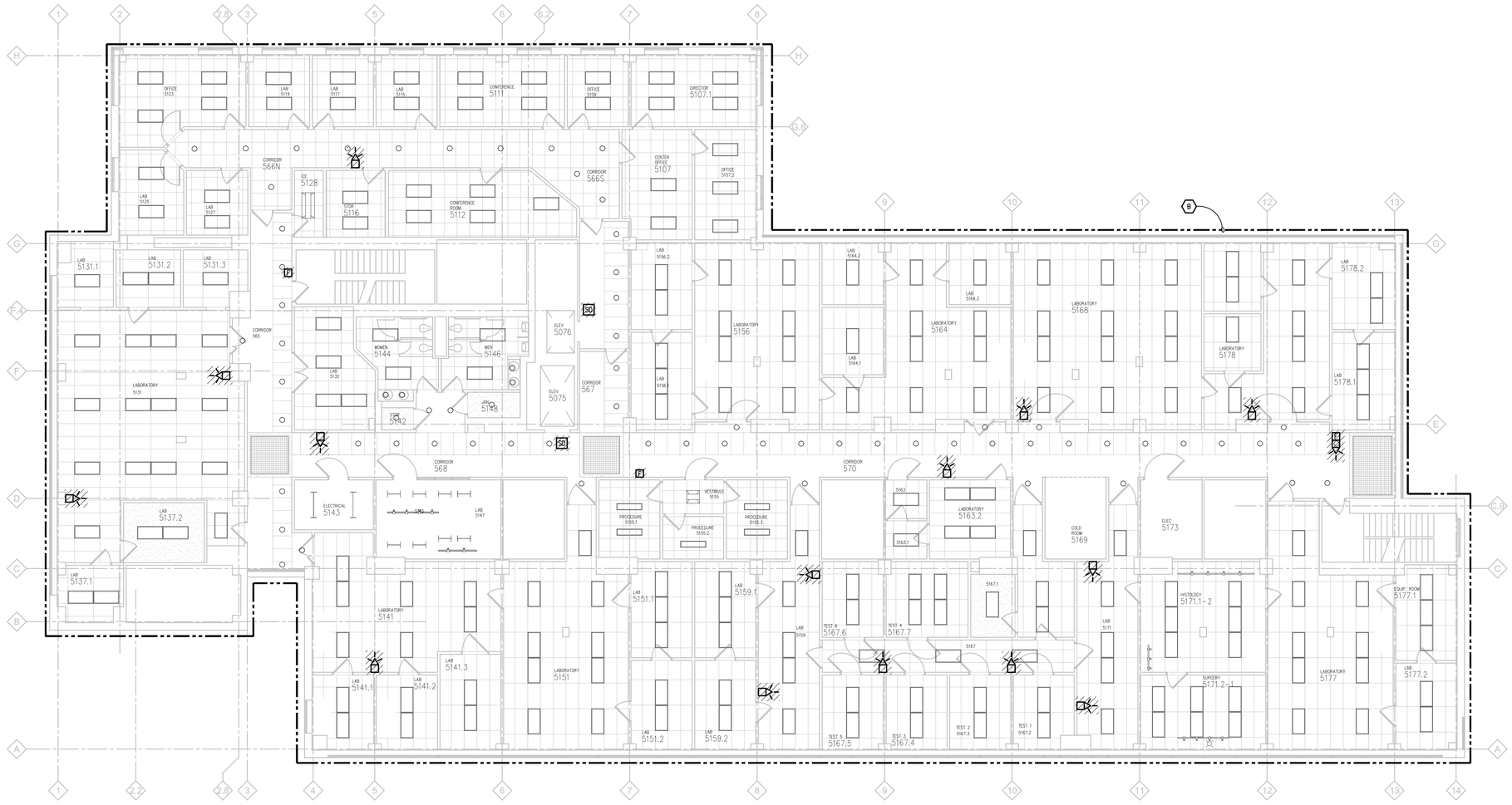
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C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.



FIFTH FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

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Tel: 248-879-5666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

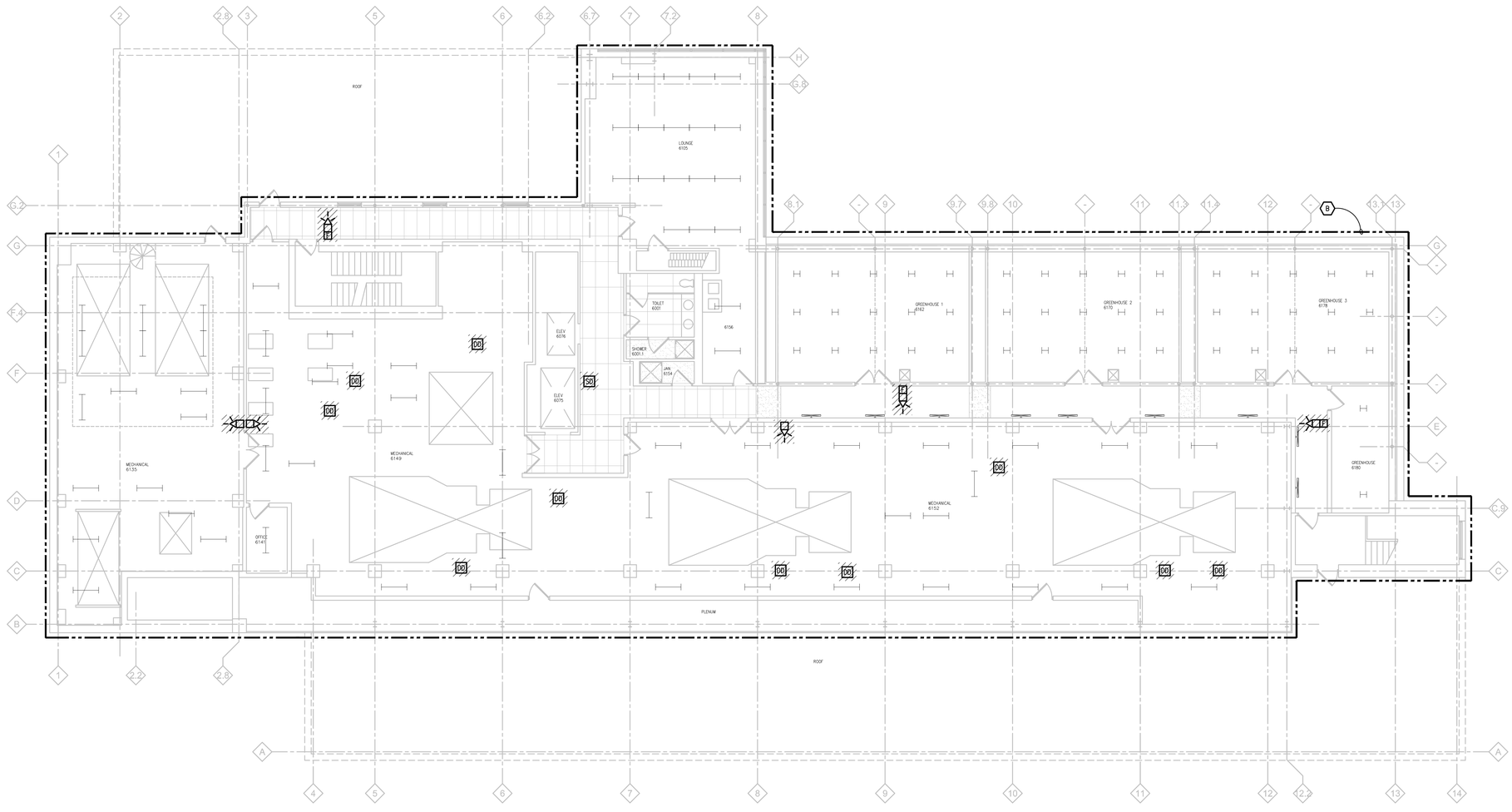
ISSUE
BIDS/PERMITS

SHEET No.
ED1.5

MYRON SCOTT GIBBS ENGINEER No. 6201061469 LICENSED PROFESSIONAL ENGINEER STATE OF MICHIGAN

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SIXTH FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
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5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
7. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
8. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION KEY NOTES:

A. MAINTENANCE ALTERNATE #1: DISCONNECT EXISTING FIRE PUMP EQUIPMENT FOR REMOVAL BY OTHERS.

B. REMOVE AND SALVAGE LIGHT FIXTURES AND OTHER CEILING DEVICES TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION LINES AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS.

C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

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www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.6

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP6.dwg, ED1.6, 5/29/2026 9:03:44 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL DEMOLITION GENERAL NOTES:

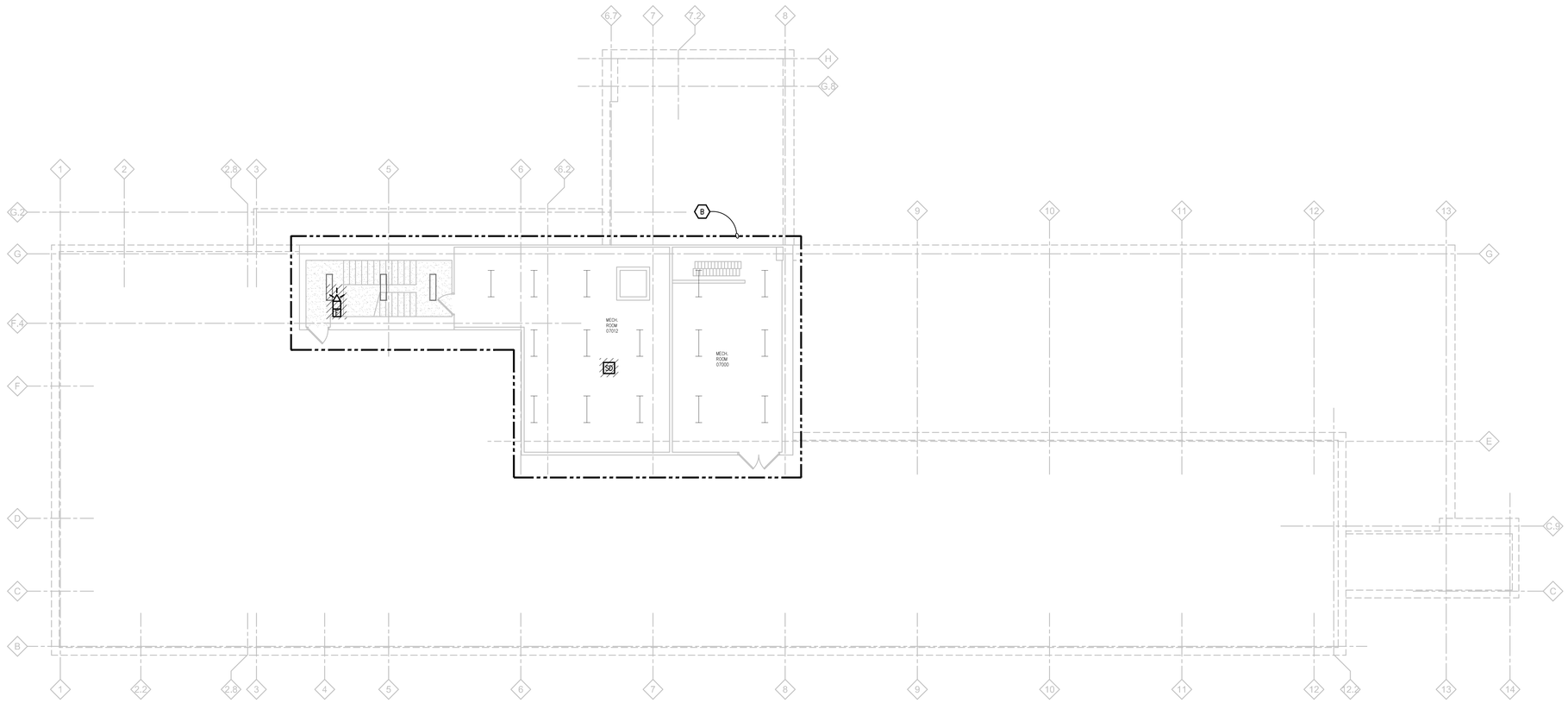
1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
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C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.



PENTHOUSE ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
PENTHOUSE ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.7

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP7.dwg, ED1.7, 5/29/2026 9:03:50 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

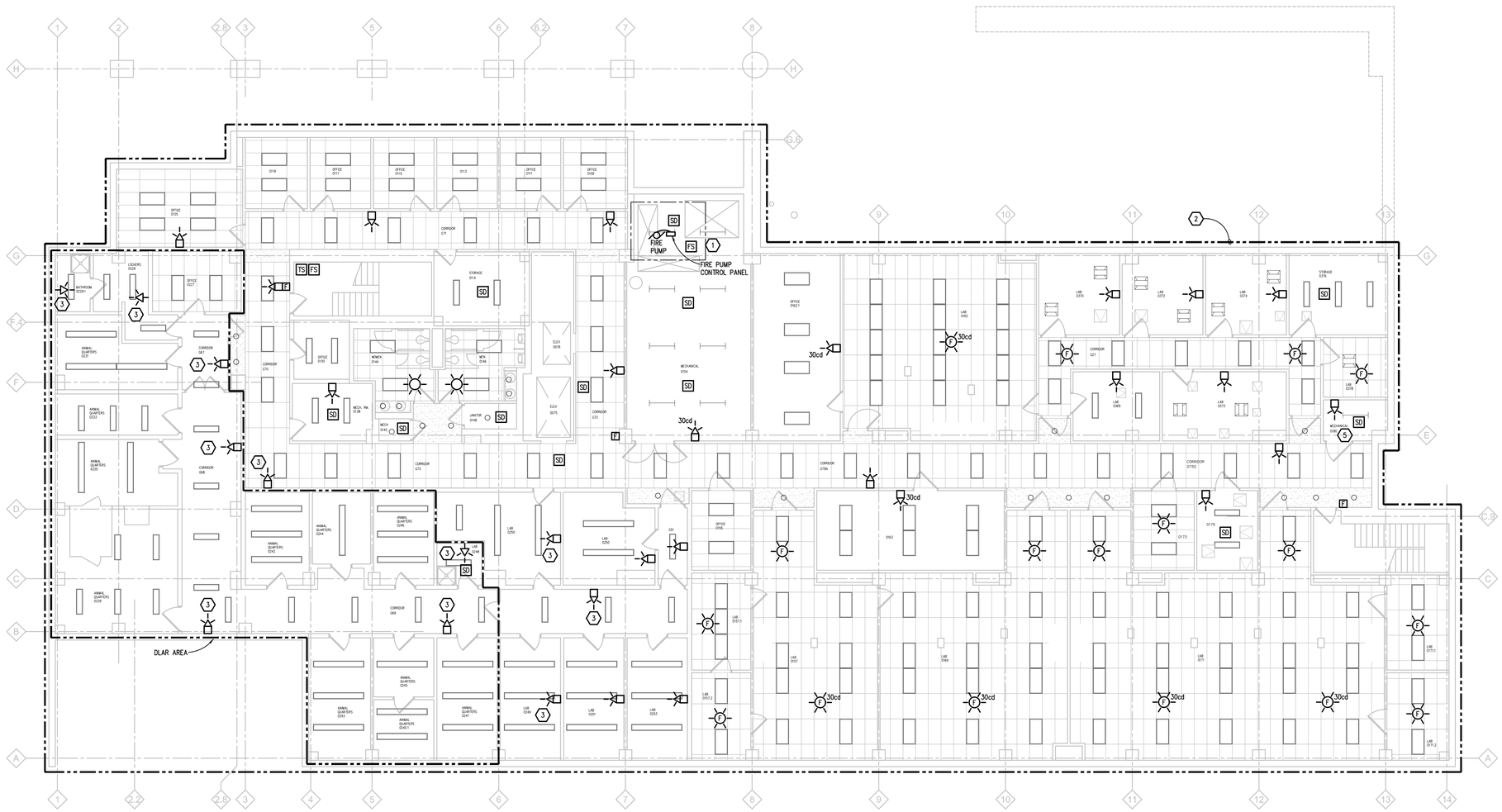
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL GENERAL NOTES:

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5. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
6. THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.
7. FIRE ALARM CABLING CAN BE INSTALLED UTILIZING J-HOOKS IN ACCESSIBLE CEILINGS. WHERE FIRE ALARM CABLING WILL BE EXPOSED OR INACCESSIBLE, THEN THAT FIRE ALARM CABLING SHALL BE INSTALLED IN CONDUIT. WHEN CONDUIT/BOXES ARE EXPOSED PAINT CONDUIT TO MATCH EXISTING CEILING/WALL COLOR.

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4. PROVIDE 1-1/4" CONDUIT FROM FACP TO NEAREST IT ROOM. PROVIDE PULL BOXES, END BUSHING AND PULL STRING.
5. PROVIDE 120V 20A DEDICATED CIRCUIT FOR FIRE ALARM NAC PANEL. COORDINATED FINAL QUANTITY AND LOCATIONS WITH FIRE ALARM VENDOR/DESIGN.
6. CONNECT TO CIRCUIT CURRENTLY SERVING EXISTING FIRE ALARM CONTROL PANEL.



GROUND FLOOR ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

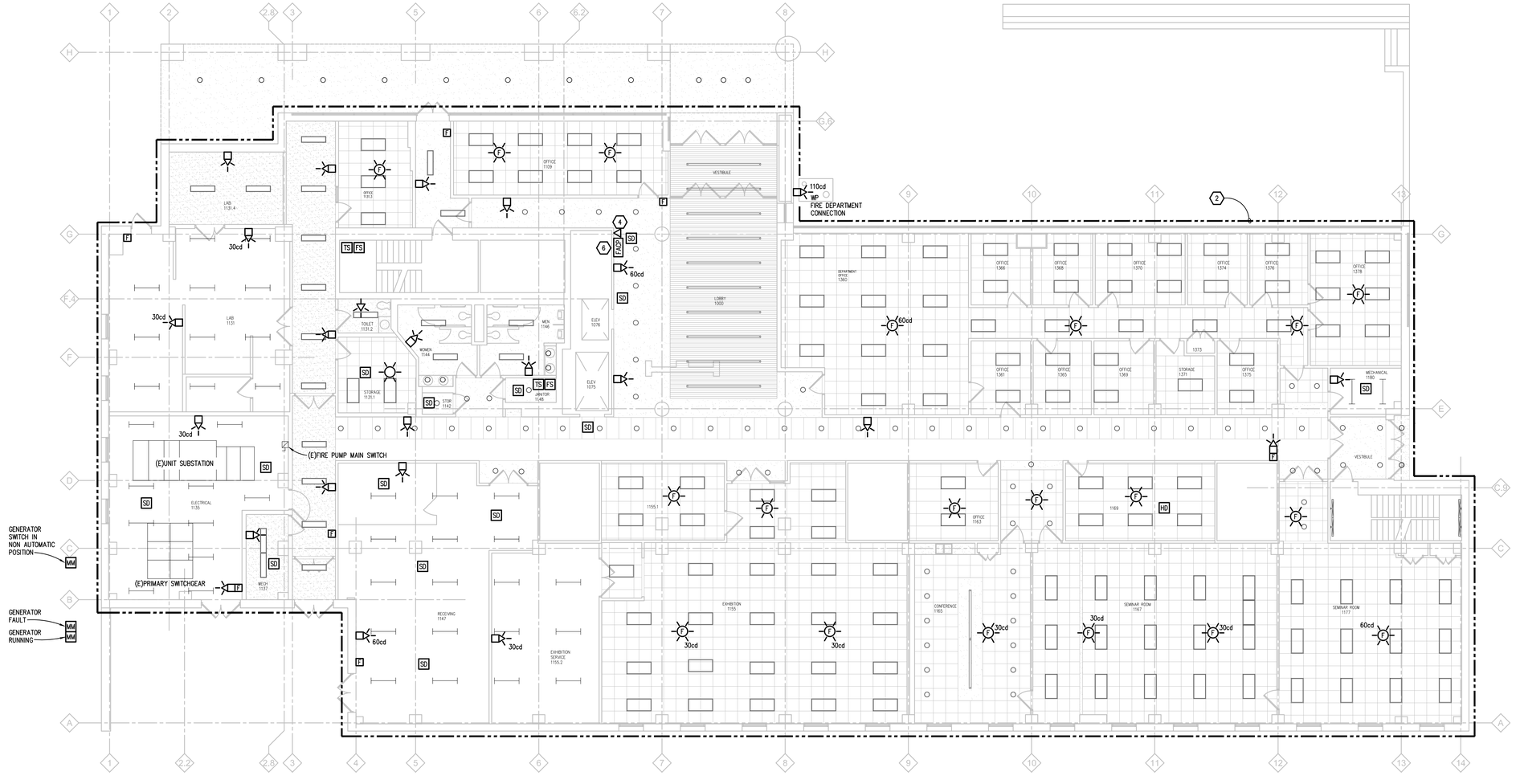
ISSUE
BIDS/PERMITS

SHEET No.
E1.0

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP0.dwg, E1.0, 5/29/2026 9:03:59 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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FIRST FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

ELECTRICAL GENERAL NOTES:

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6. CONNECT TO CIRCUIT CURRENTLY SERVING EXISTING FIRE ALARM CONTROL PANEL.

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.1

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP1.dwg, E1.1, 5/29/2026 9:04:08 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

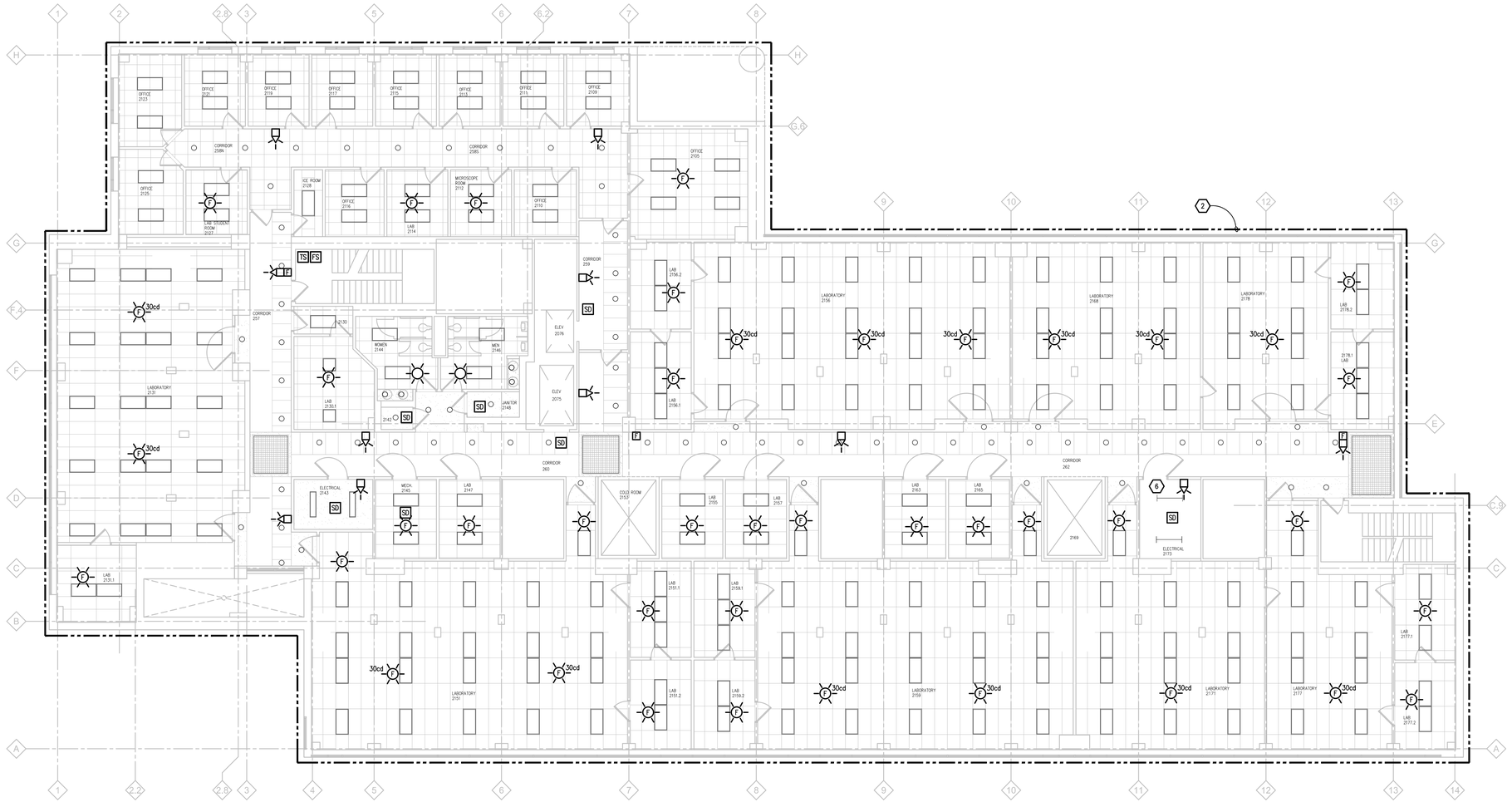
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6. CONNECT TO CIRCUIT CURRENTLY SERVING EXISTING FIRE ALARM CONTROL PANEL.



SECOND FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

REVISION

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SECOND FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

SHEET No.
E1.2

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP2.dwg, E1.2, 5/29/2026 9:04:15 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



THIRD FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

ELECTRICAL GENERAL NOTES:

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6. CONNECT TO CIRCUIT CURRENTLY SERVING EXISTING FIRE ALARM CONTROL PANEL.

REVISION

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5145 Livernois, Suite 100
Troy, Michigan 48098-3276
Tel: 248-879-9696
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.3

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP3.dwg, E1.3, 5/29/2026 9:04:24 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
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FOURTH FLOOR ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

REVISION

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5145 Livernois, Suite 100
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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FOURTH FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.4

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP4.dwg, E1.4, 5/29/2026 9:04:32 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

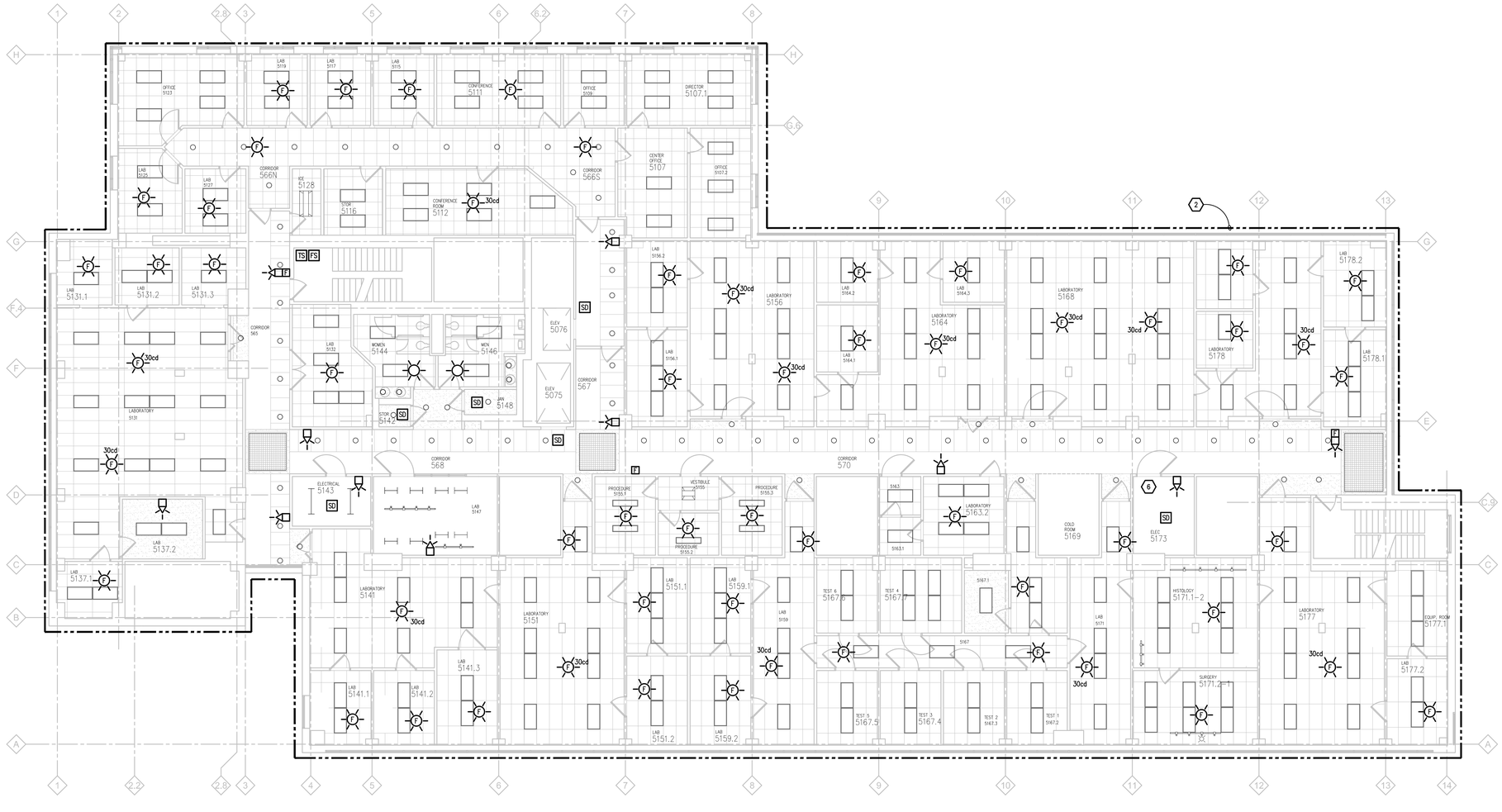
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FIFTH FLOOR ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

5145 Livernois, Suite 100
Troy, Michigan 48098-3276
Tel: 248-879-5666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

REVISION

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.5

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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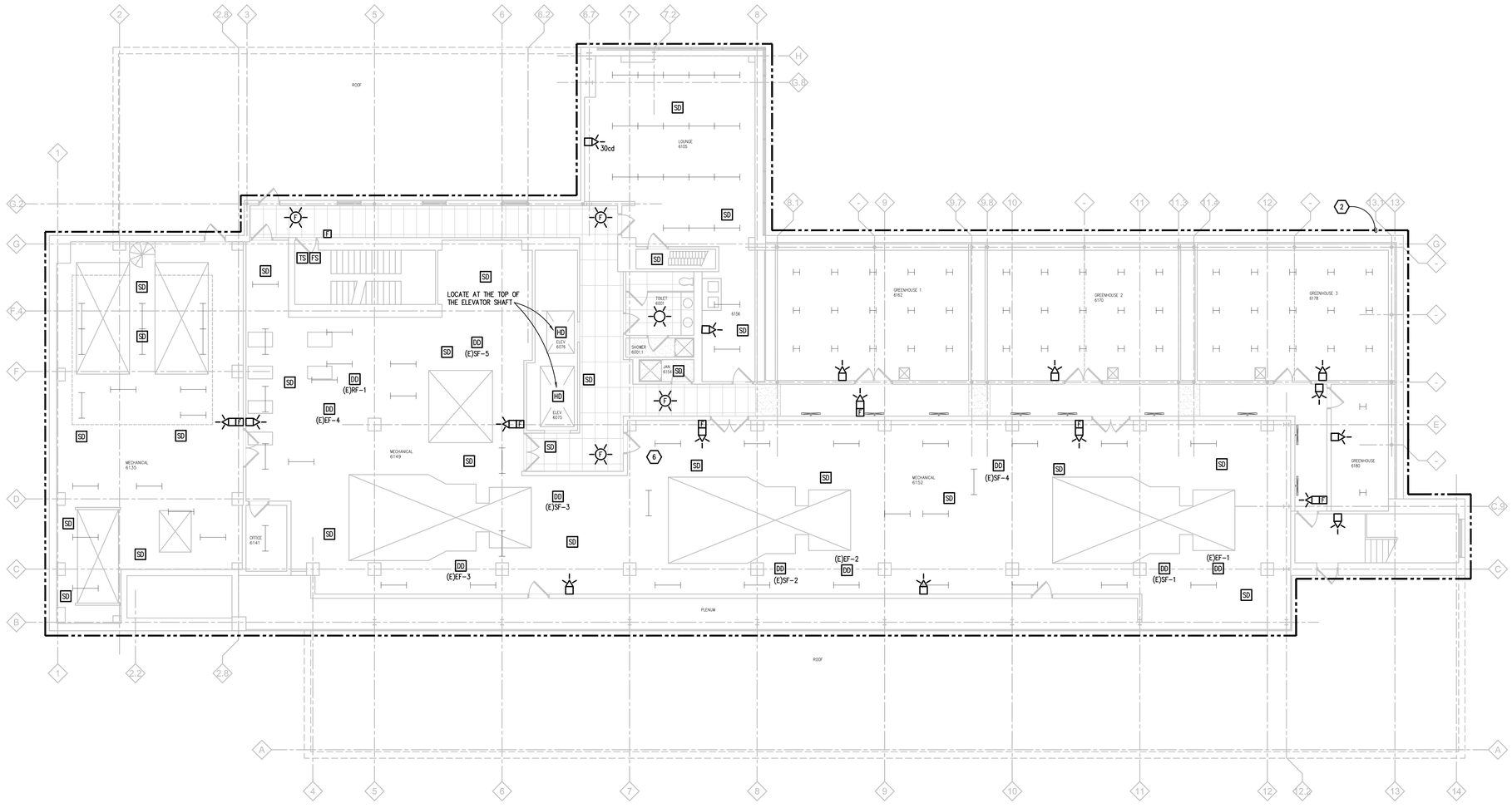
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SIXTH FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

REVISION

REVISION

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Troy, Michigan 48098-3276
Tel: 248-879-5666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.6

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

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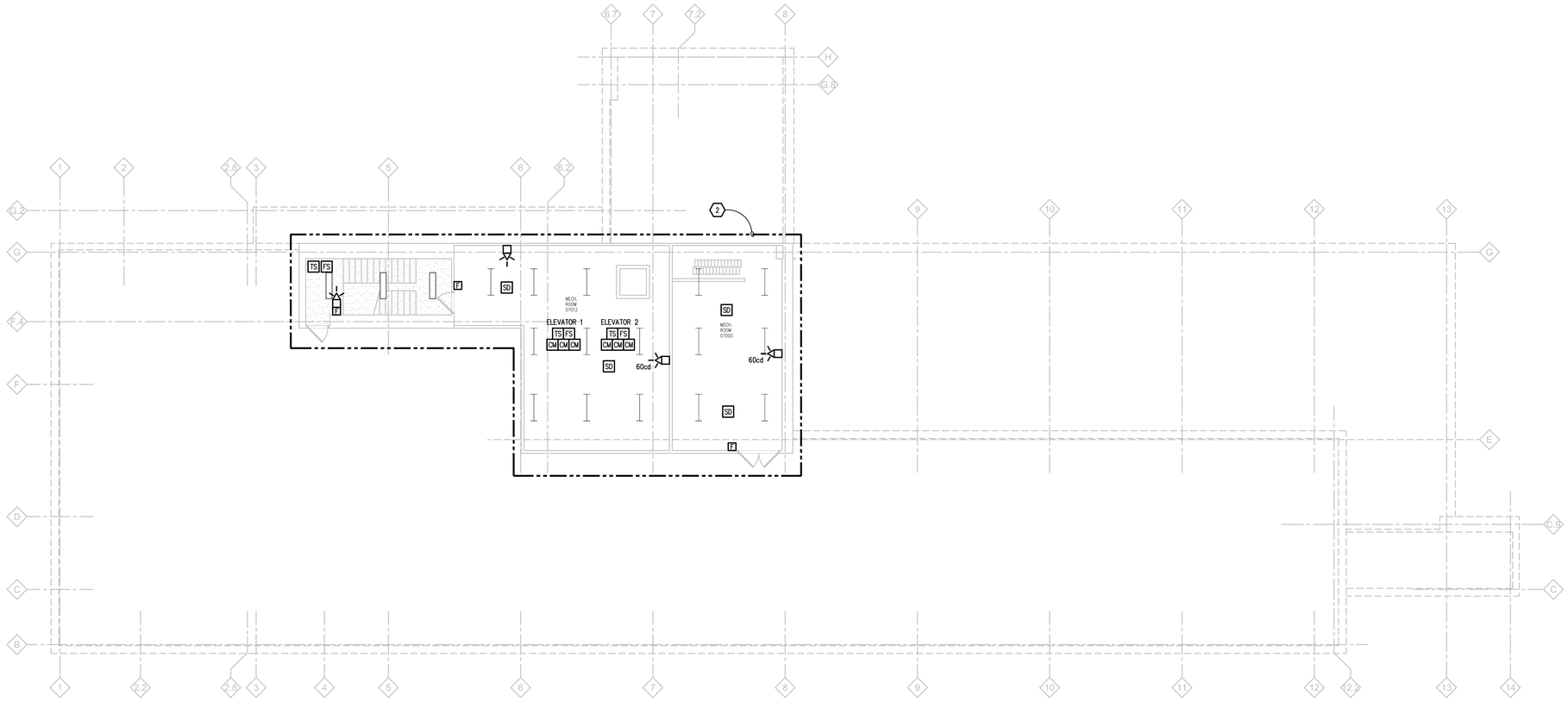
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PENTHOUSE ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

REVISION

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Troy, Michigan 48098-3276
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PROJECT TITLE
WAYNE STATE UNIVERSITY
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FIRE PROTECTION AND FIRE ALARM UPGRADES
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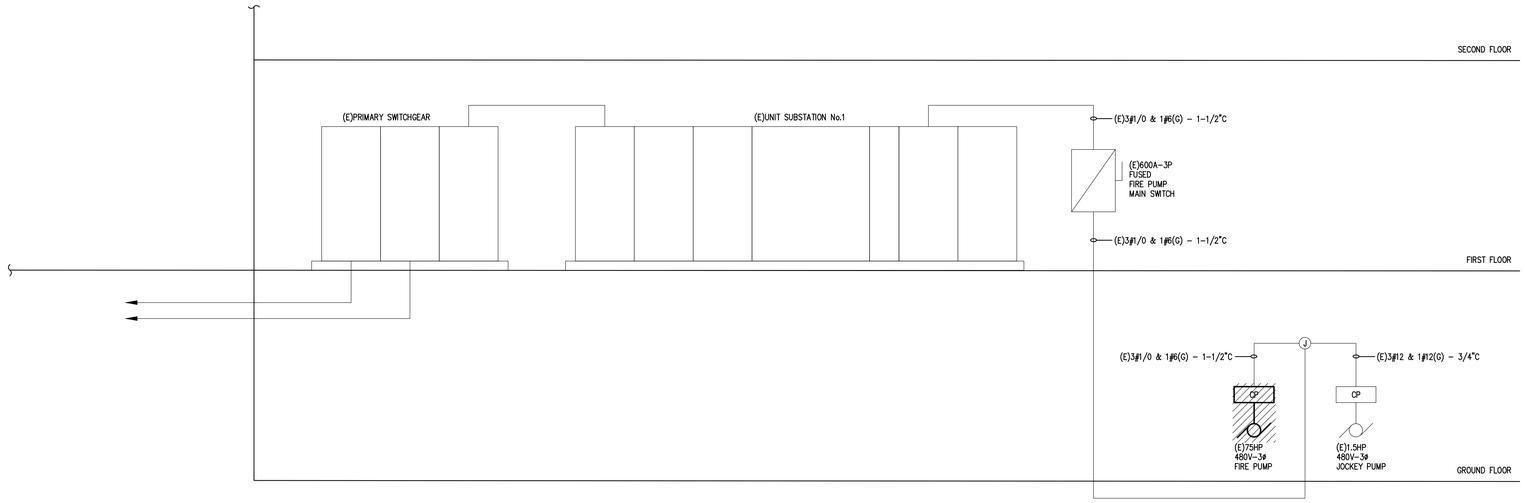
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STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
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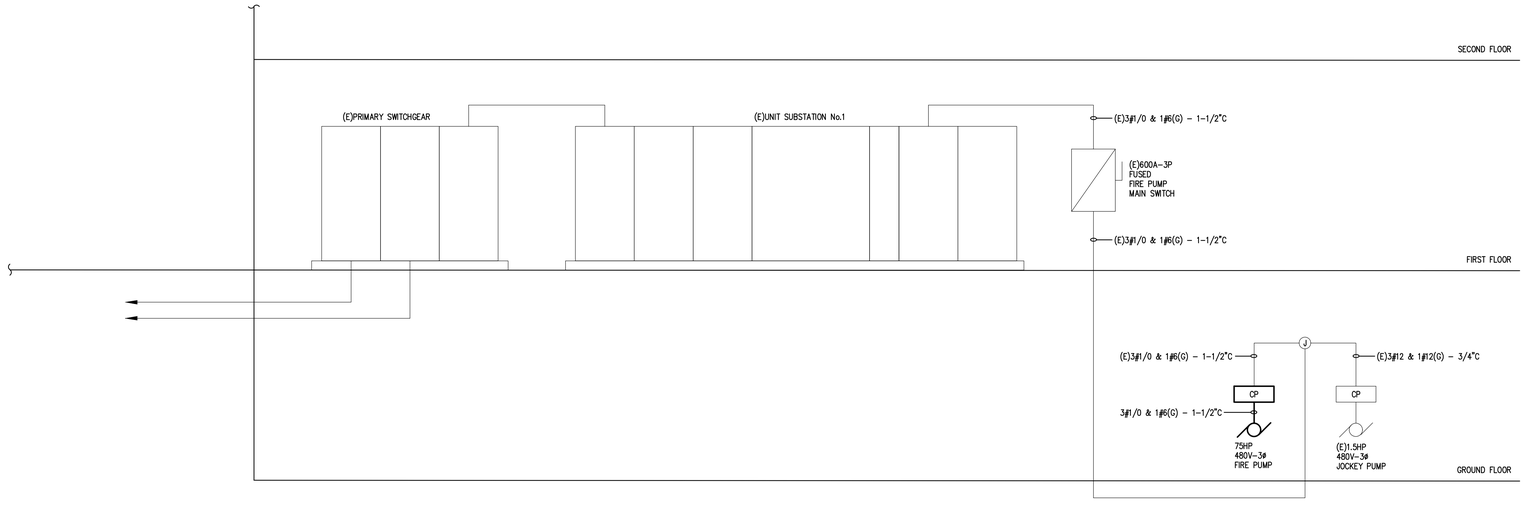
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PARTIAL RISER DIAGRAM - DEMOLITION - MAINTENANCE ALTERNATE #1

NO SCALE



PARTIAL RISER DIAGRAM - NEW WORK - MAINTENANCE ALTERNATE #1

NO SCALE

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UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
RISER DIAGRAMS

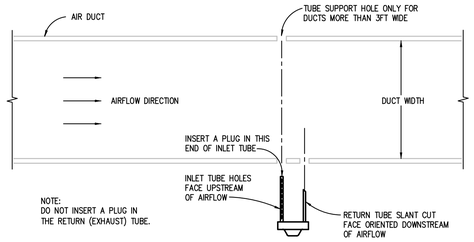
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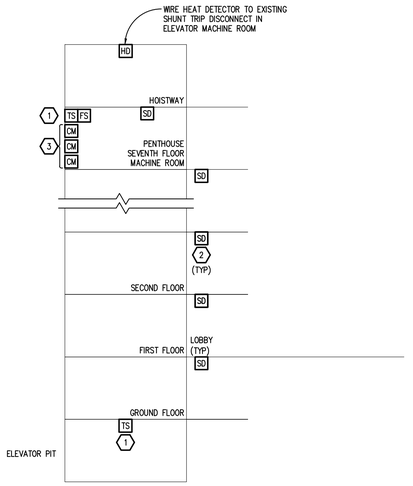


DUCT TYPE DETECTOR INSTALLATION

NO SCALE

NOTES:

1. PROVIDE SAMPLING TUBE LENGTH AS REQUIRED FOR WIDTH OF DUCT.



ELEVATOR DETAIL - MACHINE ROOM

NO SCALE

GENERAL NOTES:

1. DETAIL SHOWS GENERAL EXTENT OF WORK AND SHOULD NOT BE CONSIDERED A FABRICATION DRAWING. REFER TO PLANS FOR LOCATIONS OF ROOMS, ELEVATOR SHAFT(S), ELEVATOR MACHINE ROOM(S), ETC. COORDINATE REQUIREMENTS WITH ELEVATOR MANUFACTURER AND INSTALLER.

(#) KEYED NOTES:

1. PROVIDE FIRE ALARM SYSTEM COMPONENTS AS REQUIRED AND PROVIDE CONNECTIONS TO EACH TAMPER AND FLOW SWITCH PROVIDED WITH THE FIRE PROTECTION SYSTEM. COORDINATE EXACT LOCATIONS, QUANTITIES, AND REQUIREMENTS WITH FIRE SUPPRESSION CONTRACTOR.
2. THE LOBBY ELEVATOR SMOKE DETECTORS SHALL BE WITHIN 21' OF THE DOOR CENTERLINE. FOR LOBBIES WITH CEILINGS HIGHER THAN 15', THE SMOKE DETECTOR SHALL BE INSTALLED WITHIN 60" OF THE TOP OF THE ELEVATOR DOOR. (NFPA 72 2019 21.3.5)
3. FIRE ALARM CONTROL MODULES FOR ELEVATOR RECALL. REFER TO FIRE ALARM MATRIX FOR CONTROL MODULE FUNCTIONALITY. CONTROL MODULES TO BE LOCATED WITHIN 3' OF ELEVATOR CONTROLLER (NFPA 72 2019 21.2.4).

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
ELECTRICAL DETAILS AND DIAGRAMS

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E7.1

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 6201061469
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-E7-DT.dwg, E7.1, 5/29/2026 9:05:05 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(___#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
ATD	AIR TRANSFER DUCT
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (___#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DIR	DEIONIZED RETURN
DIS	DEIONIZED SUPPLY
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FGR	FUEL GAS RETURN
FGS	FUEL GAS SUPPLY
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE

ABBREVIATION	DESCRIPTION
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSAN	GREASE SANITARY WASTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPCW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(___)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HWR(___)	DOMESTIC HOT WATER RETURN (SPECIFIC TEMP °F)
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KA	THOUSAND AMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MEDICAL COMPRESSED AIR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIL	1/1000th INCH
MIN	MINIMUM
MISC	MISCELLANEOUS
MMBH	MILLION BRITISH THERMAL UNITS PER HOUR
MOP	MAXIMUM OVERCURRENT PROTECTION
M/S	MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MV	MANUAL AIR VENT
MVAC	MEDICAL VACUUM
N2	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER
NPHW	NON POTABLE HOT WATER
O2	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION

ABBREVIATION	DESCRIPTION
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PST	PUMPED STORM
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
ROR	REVERSE OSMOSIS RETURN
ROS	REVERSE OSMOSIS SUPPLY
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SECT	SECTION
SCCR	SHORT CIRCUIT CURRENT RATING
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(___#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TK	TANK
TMR	TIMER SWITCH
TPD	TEPID WATER
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WMSD	WASHING MACHINE SUPPLY AND DRAIN BOX
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER
ZVB	ZONE VALVE BOX

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FS	FLOW SWITCH
FM	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STEAM TRAP - BUCKET
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
	VALVE - BUTTERFLY
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT
WM	WATER METER
GM	GAS METER

PLUMBING DRAWING INDEX

SHEET NO.	SHEET TITLE
P0.1	PLUMBING STANDARDS AND DRAWING INDEX
P02.00	UNDERGROUND PLUMBING DEMOLITION PLAN
P2.00	UNDERGROUND PLUMBING NEW WORK PLAN
P2.0	GROUND FLOOR PLUMBING NEW WORK PLAN

STANDARD METHODS OF NOTATION

(2)WC-1 / ED-1 — PLUMBING FIXTURE UNIT IDENTIFICATION TAG
WATER CLOSET TYPE "1"
TYPICAL FOR 2

8 / 8 — PIPE DIAMETER NOTATION
ALL SIZES IN INCHES

1 — CONSTRUCTION KEY NOTE (NUMBER) OR
DEMOLITION KEY NOTE (LETTER)

EF / 1 — EQUIPMENT DESIGNATION,
(i.e. EXHAUST FAN NUMBER 1)

HW-1 — PIPING RISER DESIGNATION
(i.e. HOT WATER RISER NUMBER 1)

NEW SYSTEM COMPONENT
EXISTING SYSTEM COMPONENT TO REMAIN
POINT OF NEW CONNECTION SYMBOL

1 / M5.1 — SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS DRAWN

AREA OF ENLARGEMENT
PLAN NUMBER
1 / M5.1 — SHEET WHERE ENLARGED PLAN IS DRAWN

1 / M5.1 — SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS CUT OR
ENLARGED PLAN IS REFERENCED

SECTION OR ENLARGED PLAN
SCALE: 1/8" = 1' - 0"

SHEET M1.0 / SHEET M1.1 — MATCH LINE

HEAVY LINE WEIGHT INDICATES NEW WORK

LIGHT LINE WEIGHT INDICATES EXISTING
EQUIPMENT OR REFERENCED INFORMATION

GRAY LINE INDICATES BACKGROUND INFORMATION

DASHED LINES INDICATE PIPING
ROUTED BELOW SLAB OR GRADE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS
TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
PLUMBING STANDARDS AND
DRAWING INDEX

DATE
05-29-2026

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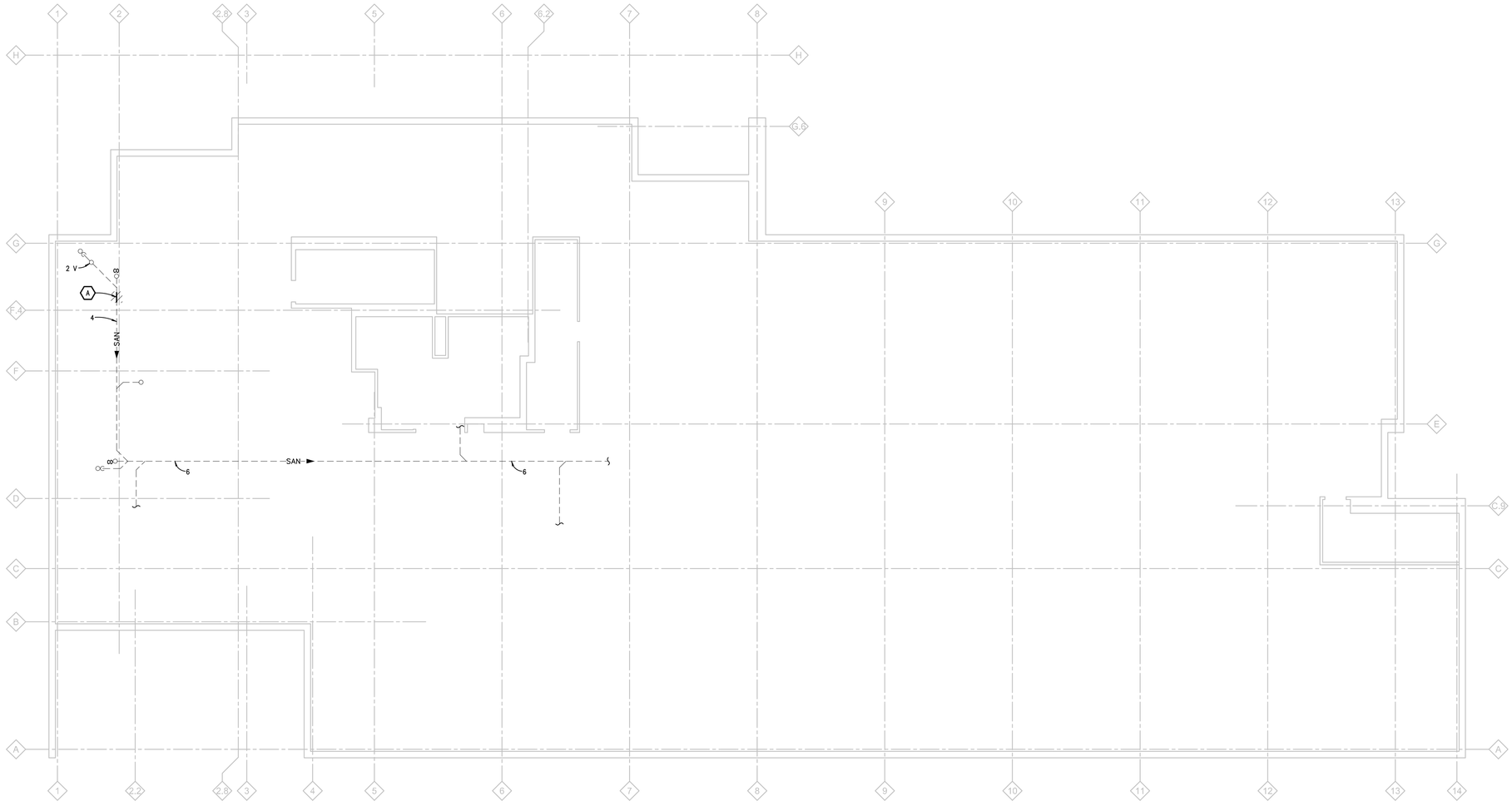
SHEET No.
P0.1

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

NOTE: ALL PLUMBING WORK SHALL BE PART OF PHASE 1 – BASE BID



UNDERGROUND PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

PLUMBING DEMOLITION GENERAL NOTES:

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO CAMERA/SCOPE FOR VERIFICATION OF LOCATION OF EXISTING UNDERGROUND PLUMBING PRIOR TO INSTALLATION OF NEW UNDERGROUND PLUMBING AND FLOOR SAWCUTTING.

(#) DEMOLITION KEY NOTES:

A. PHASE 1 – BASE BID – REMOVE SECTION OF EXISTING UNDERGROUND SANITARY PIPING AND PREPARE FOR RECONNECTION. FIRE PROTECTION AND PLUMBING CONTRACTORS TO VERIFY EXISTING CONDITIONS FOR UNDERGROUND SANITARY LOCATION PRIOR TO WORK.

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DETROIT, MICHIGAN

SHEET TITLE
UNDERGROUND PLUMBING DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

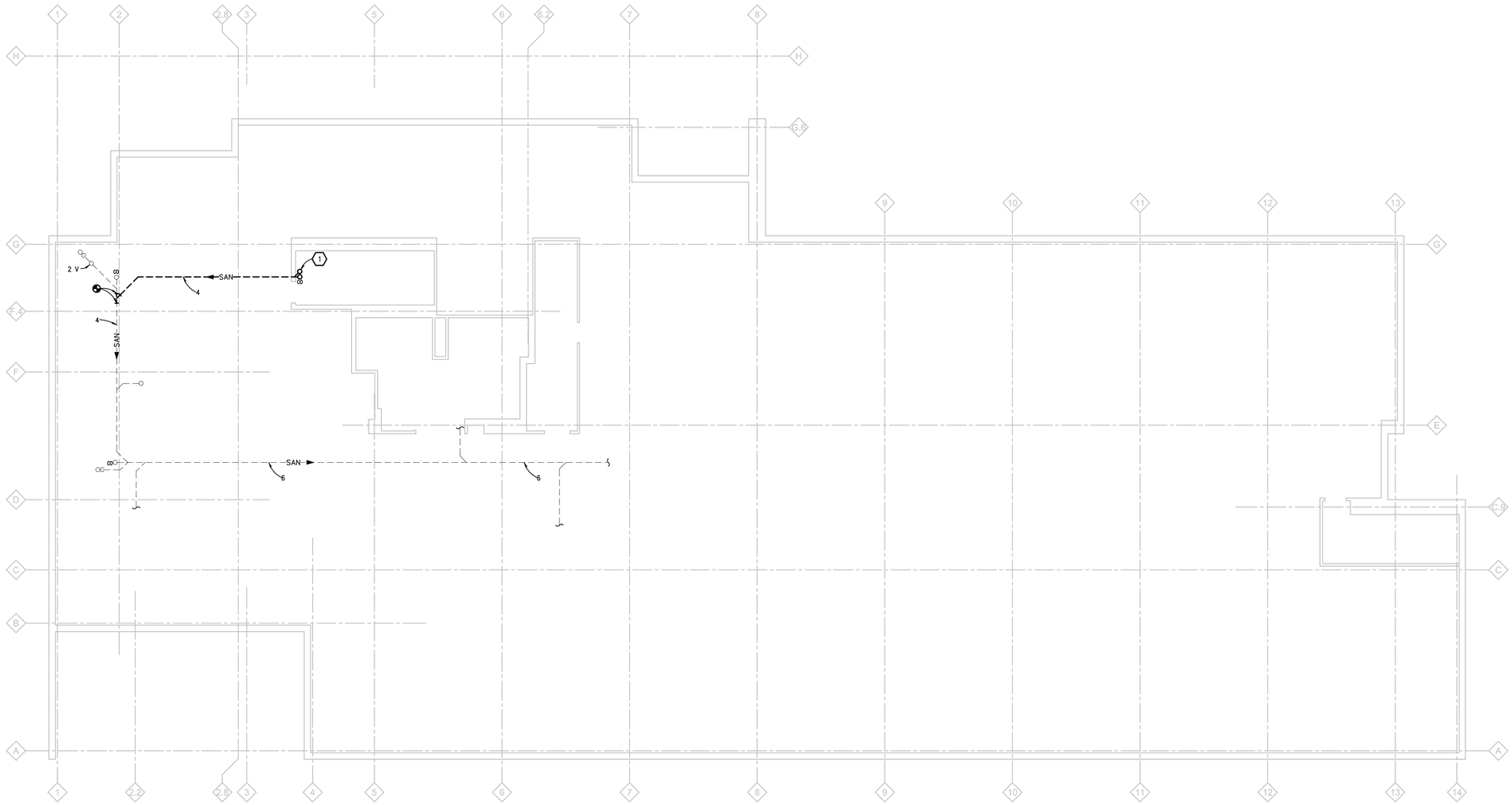
SHEET No.
PD2.00

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

NOTE: ALL PLUMBING WORK SHALL BE PART OF PHASE 1 – BASE BID



UNDERGROUND PLUMBING NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
5. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
6. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO CAMERA/SCOPE FOR VERIFICATION OF LOCATION OF EXISTING UNDERGROUND PLUMBING PRIOR TO INSTALLATION OF NEW UNDERGROUND PLUMBING AND FLOOR SAWCUTTING.

(#) CONSTRUCTION KEY NOTES:

1. PHASE 1 – BASE BID – 4 UP TO HUB DRAIN.
2. PHASE 1 – BASE BID – PROVIDE 6 RECEPTOR HUB DRAIN WITH 4 OUTLET JUST BELOW FIRE PROTECTION DRAIN RISER. PROVIDE BARRIER TYPE TRAP SEAL PROTECTION DEVICE.

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DATE
05-29-2026

ISSUE
BIDS/PERMITS

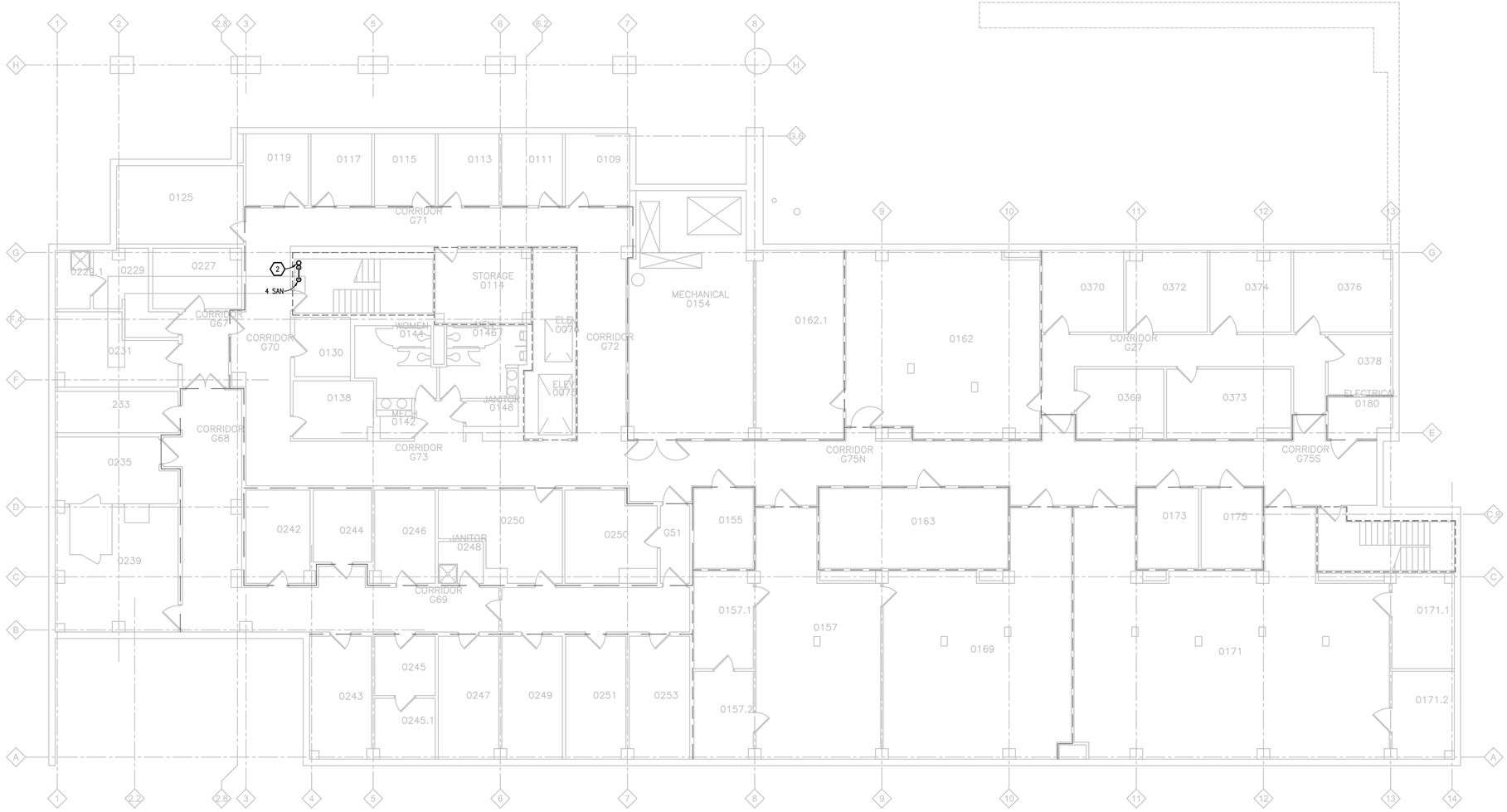
SHEET No.
P2.00

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEERS

g:\2024\2024-0403-00\CAD\2024-0403-M2-PL00.dwg, P2.00, 5/29/2026 9:05:21 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

NOTE: ALL PLUMBING WORK SHALL BE PART OF PHASE 1 – BASE BID



GROUND FLOOR PLUMBING NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
5. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
6. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO CAMERA/SCOPE FOR VERIFICATION OF LOCATION OF EXISTING UNDERGROUND PLUMBING PRIOR TO INSTALLATION OF NEW UNDERGROUND PLUMBING AND FLOOR SAWCUTTING.

(#) CONSTRUCTION KEY NOTES:

1. PHASE 1 – BASE BID – 4 UP TO HUB DRAIN.
2. PHASE 1 – BASE BID – PROVIDE 6 RECEPTOR HUB DRAIN WITH 4 OUTLET JUST BELOW FIRE PROTECTION DRAIN RISER. PROVIDE BARRIER TYPE TRAP SEAL PROTECTION DEVICE.

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR PLUMBING NEW WORK PLAN

DATE
05-29-2026

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SHEET No.
P2.0

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MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(___#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
ATD	AIR TRANSFER DUCT
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (___#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DIR	DEIONIZED RETURN
DIS	DEIONIZED SUPPLY
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FGR	FUEL GAS RETURN
FGS	FUEL GAS SUPPLY
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE

ABBREVIATION	DESCRIPTION
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSAN	GREASE SANITARY WASTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPCW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(___)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HWR(___)	DOMESTIC HOT WATER RETURN (SPECIFIC TEMP °F)
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KA	THOUSAND AMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MEDICAL COMPRESSED AIR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIL	1/1000th INCH
MIN	MINIMUM
MISC	MISCELLANEOUS
MMBH	MILLION BRITISH THERMAL UNITS PER HOUR
MOP	MAXIMUM OVERCURRENT PROTECTION
M/S	MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MV	MANUAL AIR VENT
MVAC	MEDICAL VACUUM
N	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER
NPHW	NON POTABLE HOT WATER
O	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION

ABBREVIATION	DESCRIPTION
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PST	PUMPED STORM
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
(R)	RELOCATED
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
ROR	REVERSE OSMOSIS RETURN
ROS	REVERSE OSMOSIS SUPPLY
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SECT	SECTION
SCCR	SHORT CIRCUIT CURRENT RATING
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(___#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TK	TANK
TMR	TIMER SWITCH
TPD	TEPID WATER
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WMSD	WASHING MACHINE SUPPLY AND DRAIN BOX
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER
ZVB	ZONE VALVE BOX

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FS	FLOW SWITCH
FM	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STEAM TRAP - BUCKET
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
	VALVE - BUTTERFLY
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT
	VENT
WM	WATER METER

FIRE PROTECTION DRAWING INDEX

SHEET NO.	SHEET TITLE
FP0.1	FIRE PROTECTION STANDARDS AND DRAWING INDEX
FP01.0	GROUND FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
FP01.1	FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
FP1.0	GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.1	FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.2	SECOND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.3	THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.4	FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.5	FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.6	SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.7	PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP6.1	FIRE PROTECTION DETAILS AND SCHEDULES
FP6.2	FIRE PROTECTION RISER DIAGRAM

STANDARD METHODS OF NOTATION

- 8 — PIPE DIAMETER NOTATION ALL SIZES IN INCHES
- 1 — CONSTRUCTION KEY NOTE (NUMBER) OR DEMOLITION KEY NOTE (LETTER)
- EF 1 — EQUIPMENT DESIGNATION, (i.e. EXHAUST FAN NUMBER 1)
- HW-1 — PIPING RISER DESIGNATION (i.e. HOT WATER RISER NUMBER 1)
- NEW SYSTEM COMPONENT
- EXISTING SYSTEM COMPONENT TO REMAIN
- POINT OF NEW CONNECTION SYMBOL
- 1 / M5.1 — SECTION OR PLAN NUMBER; SHEET WHERE SECTION IS DRAWN
- AREA OF ENLARGEMENT
- PLAN NUMBER
- 1 / M5.1 — SHEET WHERE ENLARGED PLAN IS DRAWN
- SECTION OR PLAN NUMBER

1 / M5.1 **SECTION OR ENLARGED PLAN**
SCALE: 1/8" = 1' - 0"

- SHEET WHERE SECTION IS CUT OR ENLARGED PLAN IS REFERENCED
- SHEET M1.0 / SHEET M1.1 — MATCH LINE
- HEAVY LINE WEIGHT INDICATES NEW WORK
- LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT OR REFERENCED INFORMATION
- GRAY LINE INDICATES BACKGROUND INFORMATION
- DASHED LINES INDICATE PIPING ROUTED BELOW SLAB OR GRADE
- HATCH MARKS INDICATE EQUIPMENT OR MATERIALS TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRE PROTECTION STANDARDS AND DRAWING INDEX

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025,

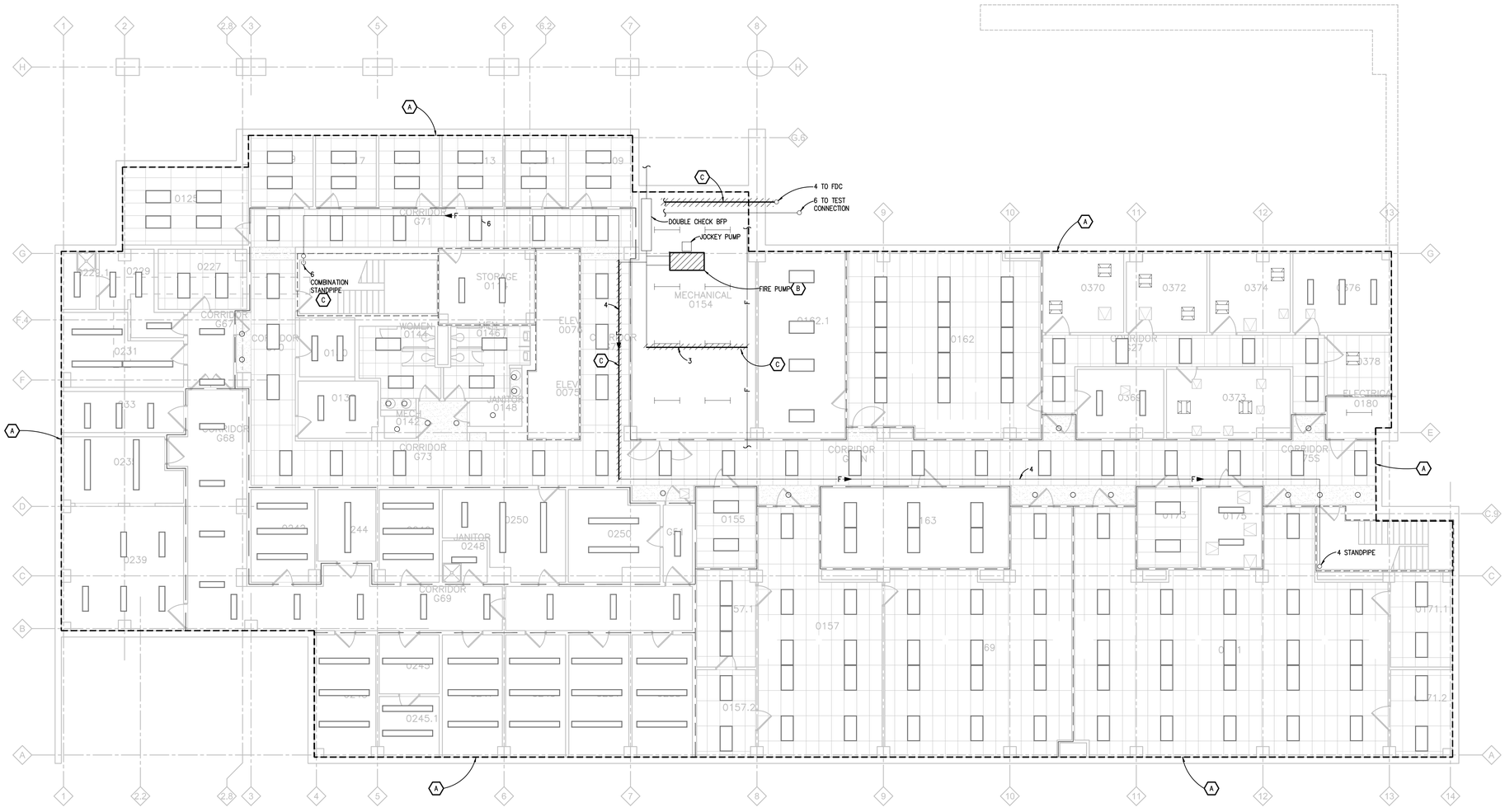
(#) DEMOLITION KEY NOTES:

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B. BASE BID – REMOVE EXISTING PUMP, CONTROLLER, AND RELATED COMPONENTS WITH THE EXCLUSION OF THE JOCKEY PUMP.

C. BASE BID – REMOVE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.

D. ALTERNATE 3 – REMOVE EXISTING EXPOSED, FREESTANDING-TYPE, 4 FIRE DEPARTMENT CONNECTION AND 6 FIRE PUMP TEST CONNECTION. TEMPORARILY CAP EXISTING PIPING AND PREPARE FOR RECONNECTION.



GROUND FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

5145 Livernois, Suite 100
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PBA Project No: 2024.1403

Peter Basso Associates
CONSULTING ENGINEERS

REVISION

REVISION

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR FIRE
PROTECTION DEMOLITION
COMPOSITE PLAN

DATE
05-29-2026

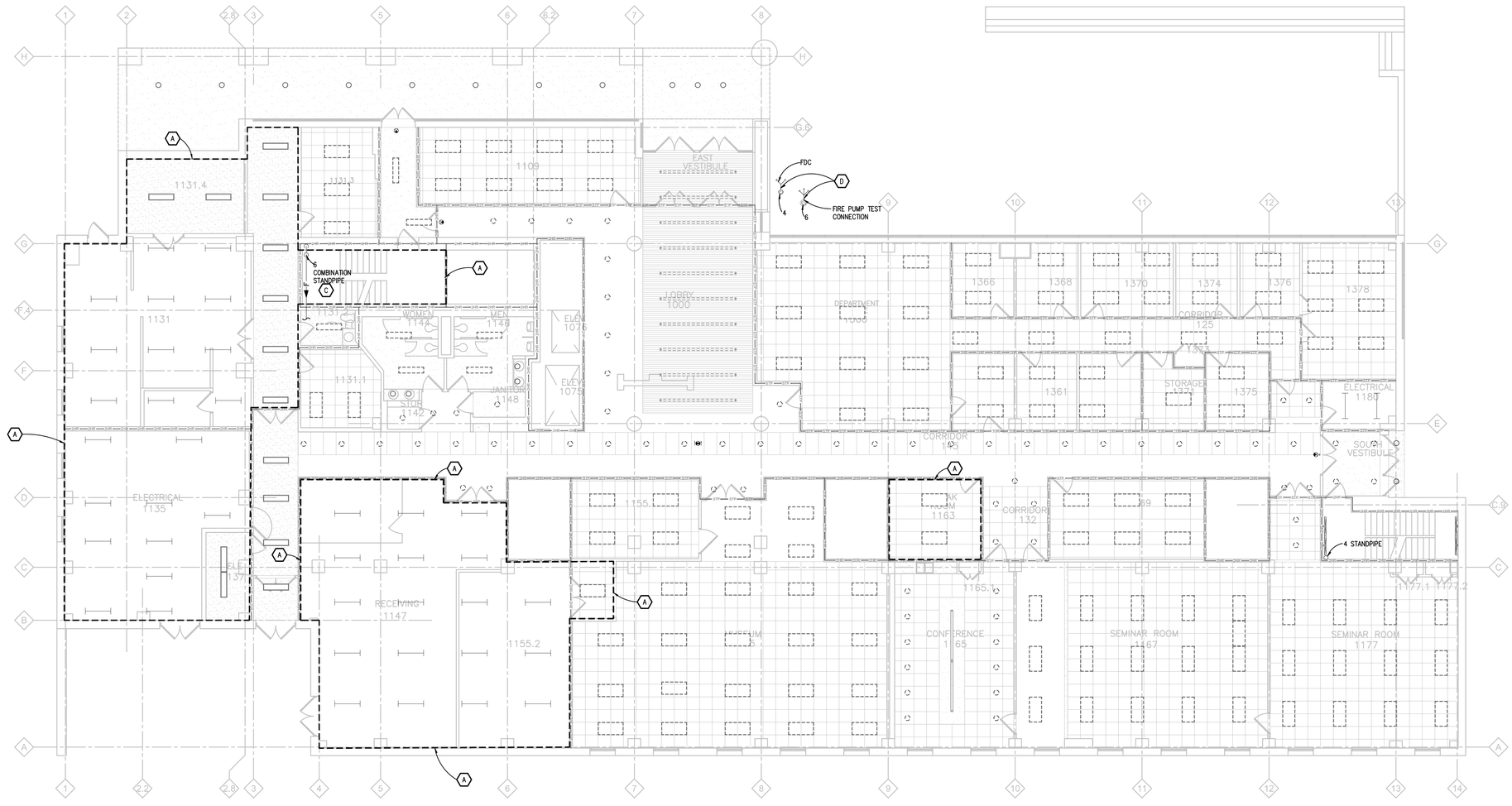
ISSUE
BIDS/PERMITS

SHEET No.
FPD1.0

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-MD1-CMP0.dwg, FPD1.0, 5/29/2026 9:05:40 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

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2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025.

(#) DEMOLITION KEY NOTES:

A. BASE BID – OUTLINED AREA REPRESENTS EXISTING FIRE PROTECTION PIPING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM.

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EXISTING WALL LEGEND	
	1/2 HOUR (SMOKE TIGHT)
	1 HOUR
	2 HOUR

REVISION

REVISION

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Tel: 248-879-3666
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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN

DATE
05-29-2026

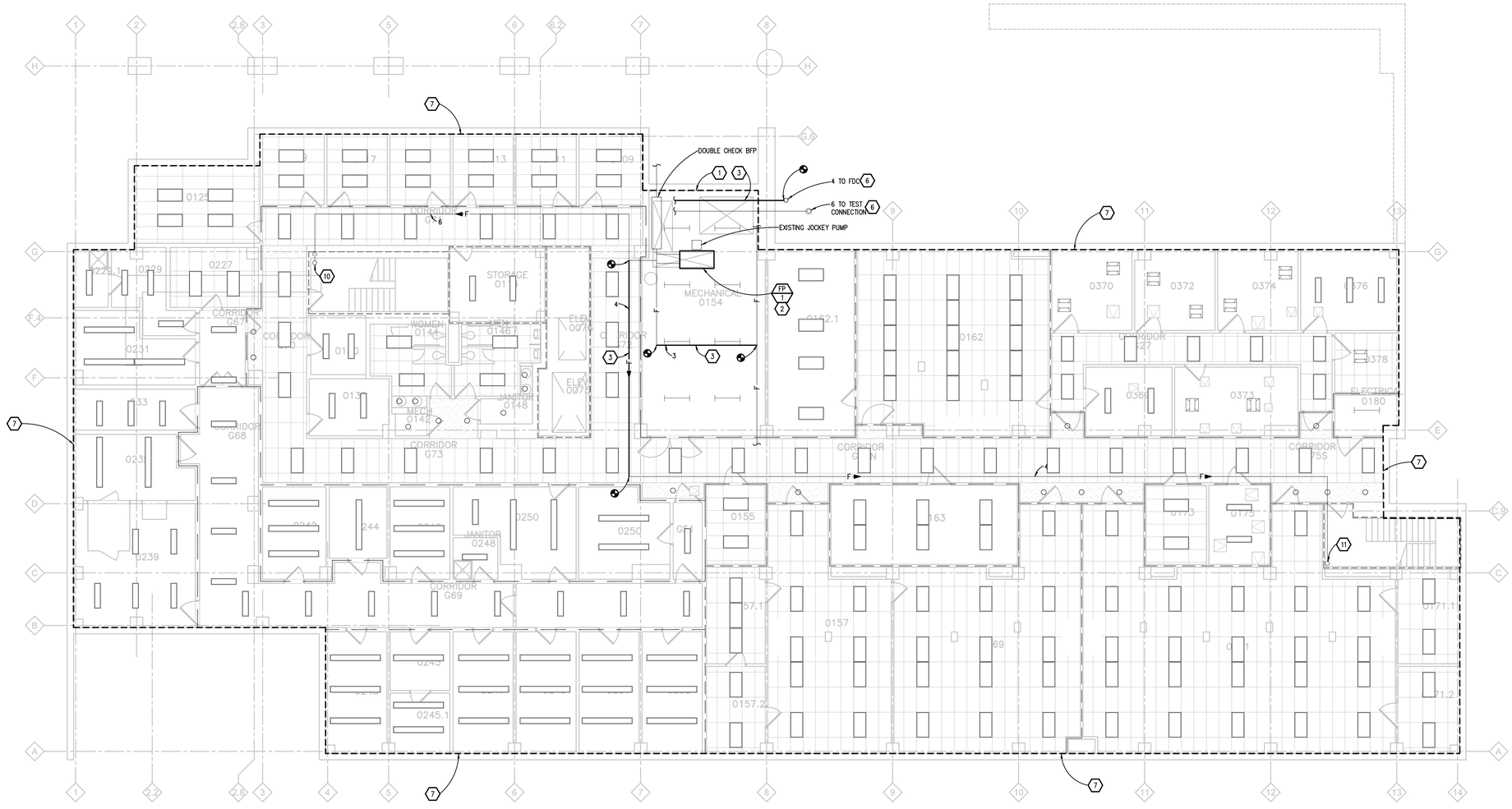
ISSUE
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SHEET No.
FPD1.1

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-MD1-CMP1.dwg, FPD1.1, 5/29/2026 9:05:48 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
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4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
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10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
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REVISION

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Tel: 248-879-5666
www.PeterBasso.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
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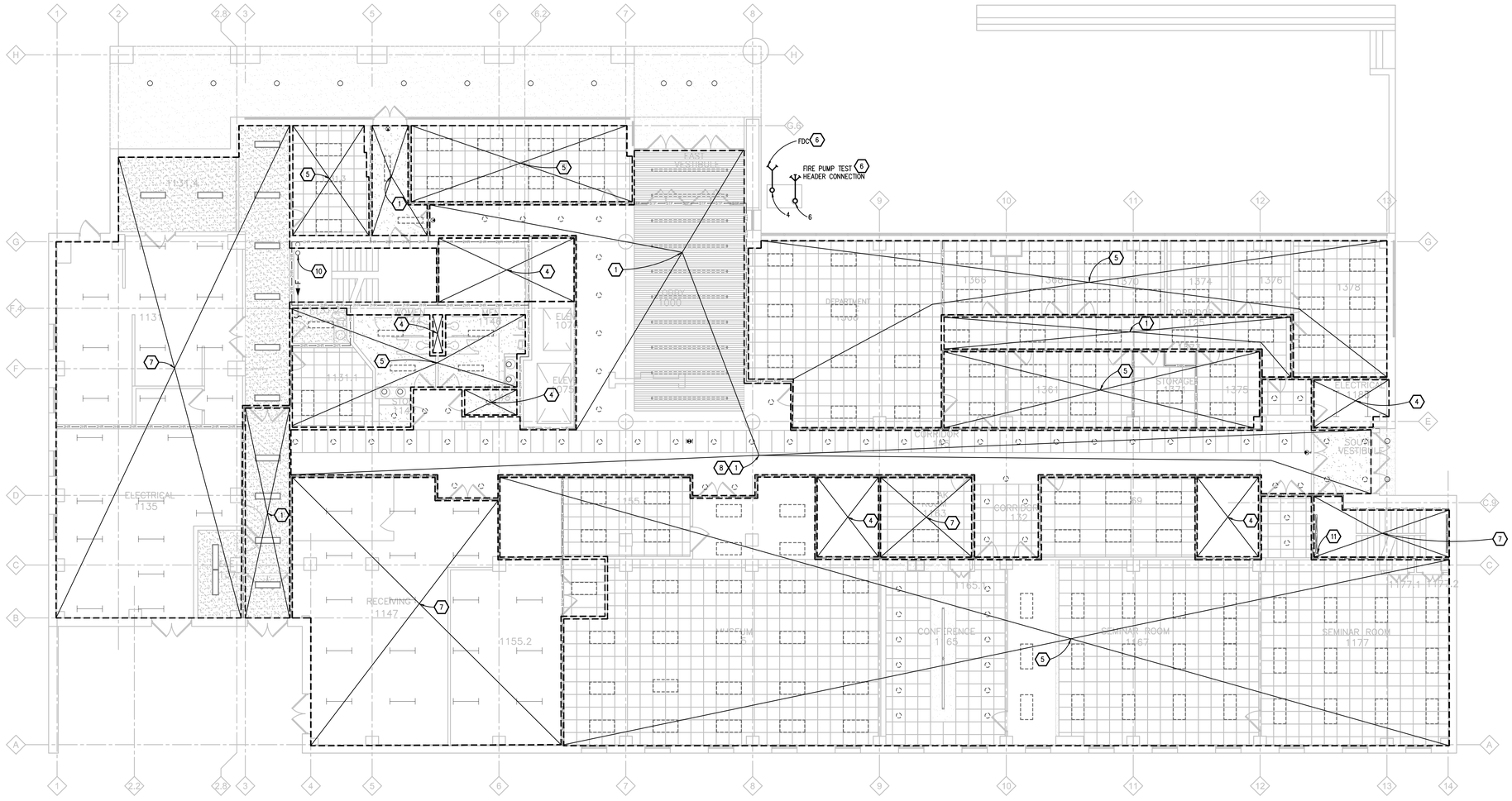
ISSUE
BIDS/PERMITS

SHEET No.
FP1.0

STATE OF MICHIGAN
GEORGE P ISHERWOOD
ENGINEER
No. 6201039660
REGISTERED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP0.dwg, FP1.0, 5/29/2026 9:05:55 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

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EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

STATE OF MICHIGAN
GEORGE P ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

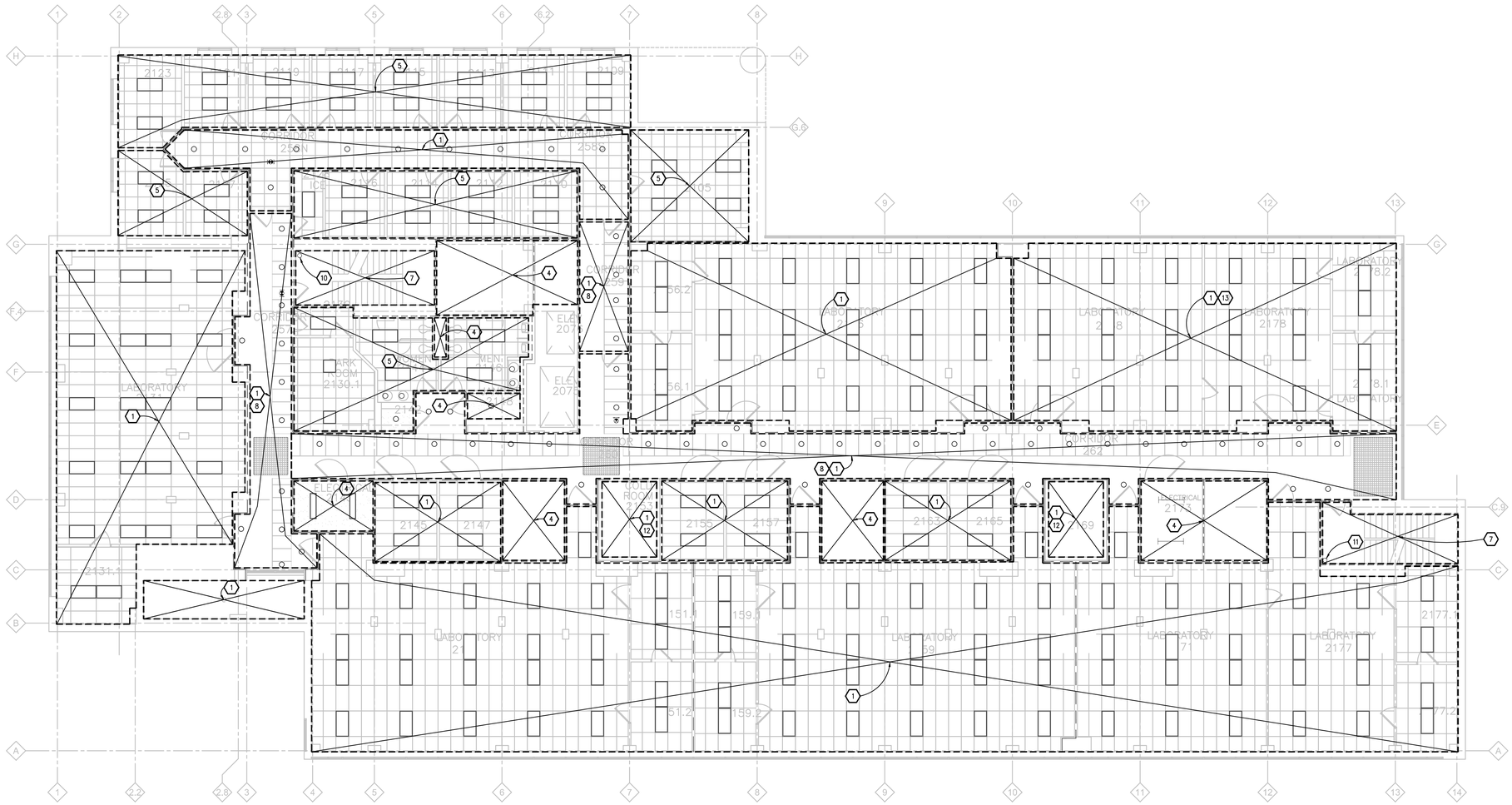
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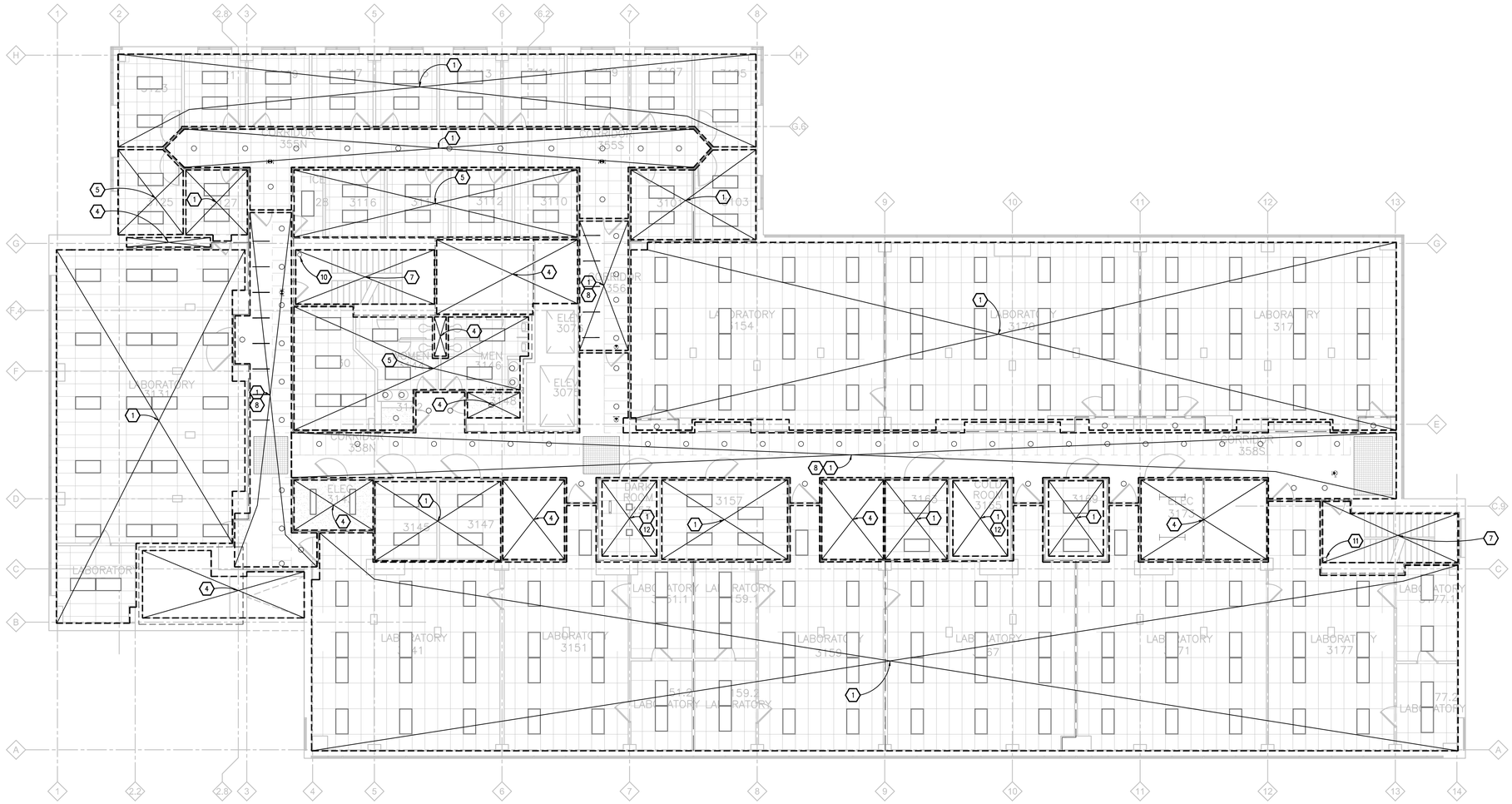
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LABORATORY 2178
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ELEC. 2072
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DARK ROOM 2146.1
DARK ROOM 2162.1
DARK ROOM 2176.1
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DOUBLE DOOR 2171
DOUBLE DOOR

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025,

CONSTRUCTION KEY NOTES:

1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
2. PHASE 1 – BASE BID – REPLACE FIRE PUMP, CONTROLLER, AND ASSOCIATED COMPONENTS.
3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
4. OUTLINED AREA REPRESENTS PHASE 2 – ALTERNATE 1 (THESE AREAS INCLUDE: MECHANICAL SPACES, MECHANICAL SHAFTS, JANITORS CLOSETS). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
5. OUTLINED AREA REPRESENTS PHASE 3 – ALTERNATE 2 (THESE AREAS INCLUDE: ADMINISTRATION, OFFICE SPACES, TOILET ROOMS, STORAGE ROOMS, AND ALL OTHER REMAINING SPACES). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
6. ALTERNATE 3 – PROVIDE 8 INCH CONCRETE PAD FOR SECURE AND STABLE CONNECTION FOR REINSTALLATION OF THE EXISTING FREESTANDING FIRE DEPARTMENT CONNECTION AND THE EXISTING FIRE PUMP TEST HEADER CONNECTION.
7. EXISTING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM TO THE REMAINDER OF GROUND FLOOR AND FIRST FLOOR AND MEET CURRENT CODE REQUIREMENTS.
8. PROVIDE SPRINKLER HEADS ABOVE AND BELOW OPEN CEILING IN OUTLINED AREA INDICATED
9. PROVIDE HIGH TEMPERATURE SPRINKLER HEADS RATED FOR 212 DEGREES F. IN GREENHOUSE ROOMS
10. EXISTING 6 COMBINATION STANDPIPE SPRINKLER RISER. REFER TO FIRE PROTECTION RISER DIAGRAM ON DRAWING FP6.2 FOR FLOOR CONTROL ASSEMBLY REQUIREMENTS.
11. EXISTING 4 STANDPIPE RISER.
12. PROVIDE DRY SPRINKLER AT COLD ROOM.
13. FIRE PROTECTION BRANCH LINE IS PROVIDED FOR OUTLINED AREA. FIRE PROTECTION CONTRACTOR TO VERIFY BRANCH FEED IS PROPERLY SIZED FOR THIS AREA..

EXISTING WALL LEGEND	
	1/2 HOUR (SMOKE TIGHT)
	1 HOUR
	2 HOUR

REVISION

REVISION

5145 Livernois, Suite 100
Troy, Michigan 48098-3276
Tel: 248-879-3666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
05-29-2026

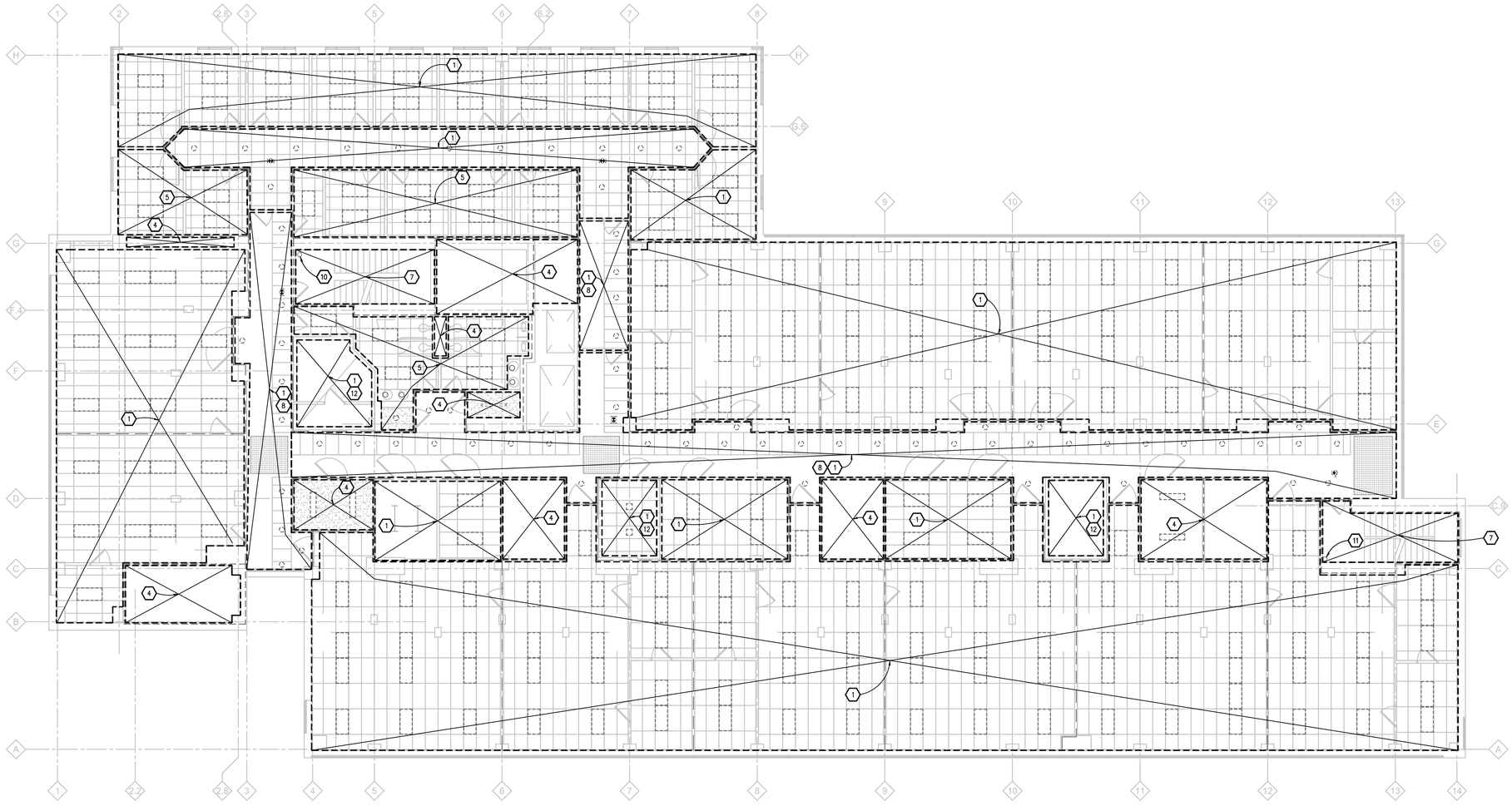
ISSUE
BIDS/PERMITS

SHEET No.
FP1.3

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP3.dwg, FP1.3, 5/29/2026 9:06:19 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

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2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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EXISTING WALL LEGEND
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- 1 HOUR
- 2 HOUR

REVISION

REVISION

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Troy, Michigan 48098-3276
Tel: 248-813-2666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
05-29-2026

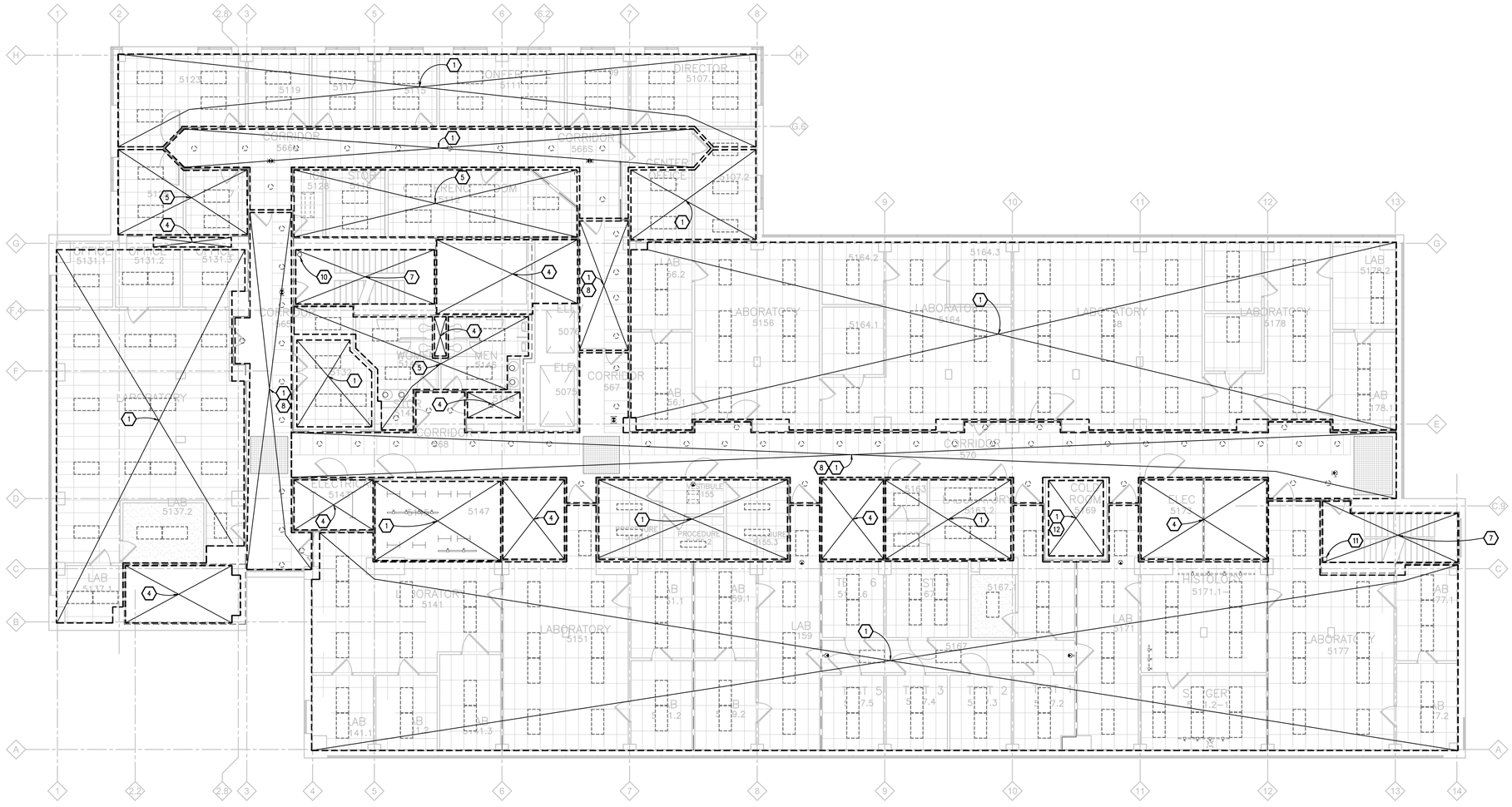
ISSUE
BIDS/PERMITS

SHEET No.
FP1.4

STATE OF MICHIGAN
GEORGE P ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\C40\2024-0403-M1-CMP4.dwg, FP1.4, 5/29/2026 9:06:27 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

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EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

REVISION

5145 Livernois, Suite 100
Troy, Michigan 48098-3276
Tel: 248-879-5666
www.PeterBasso.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
05-29-2026

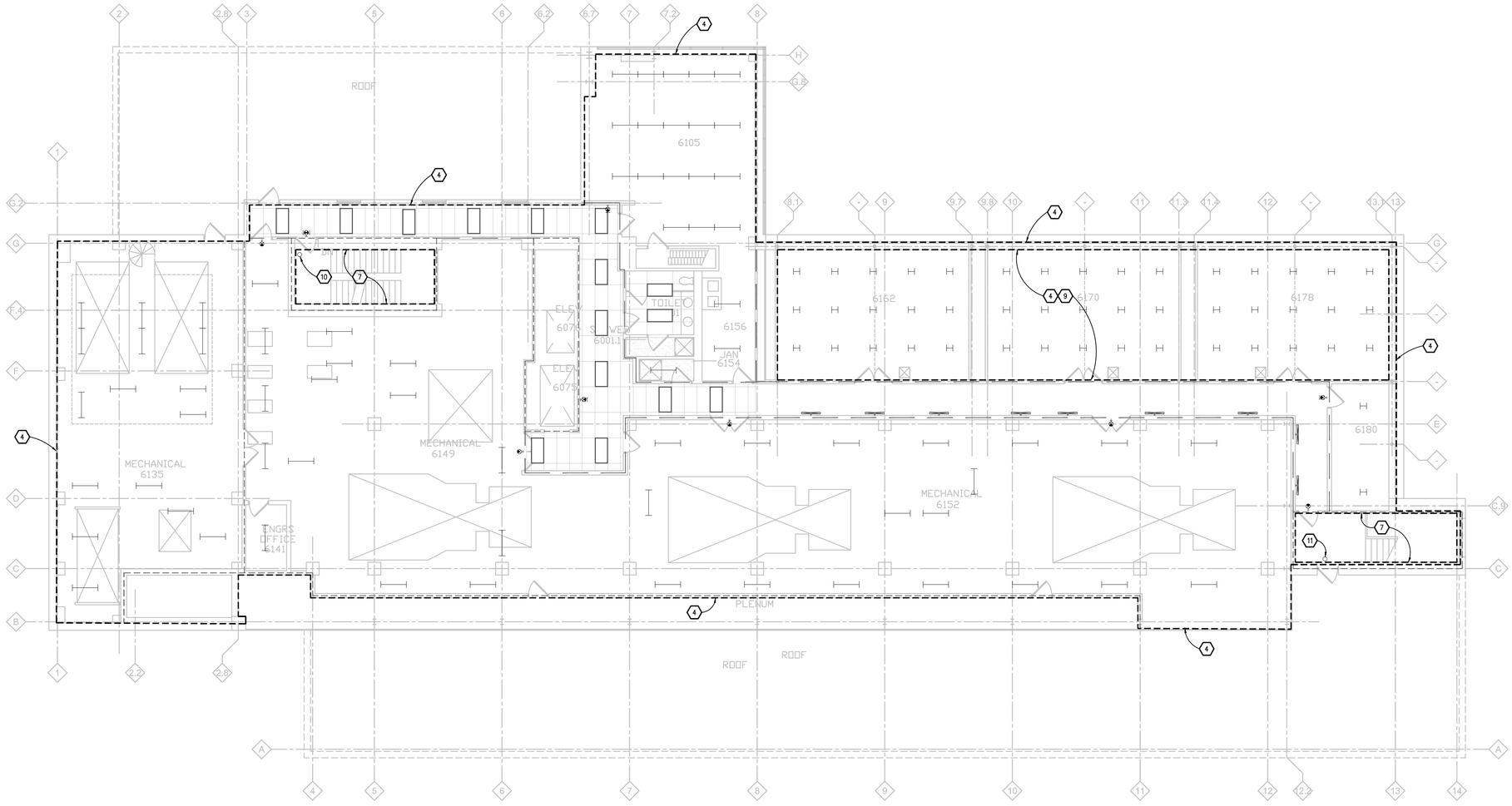
ISSUE
BIDS/PERMITS

SHEET No.
FP1.5

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP5.dwg, FP1.5, 5/29/2026 9:06:36 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

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3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
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9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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4. OUTLINED AREA REPRESENTS PHASE 2 – ALTERNATE 1 (THESE AREAS INCLUDE: MECHANICAL SPACES, MECHANICAL SHAFTS, JANITORS CLOSETS). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
5. OUTLINED AREA REPRESENTS PHASE 3 – ALTERNATE 2 (THESE AREAS INCLUDE: ADMINISTRATION, OFFICE SPACES, TOILET ROOMS, STORAGE ROOMS, AND ALL OTHER REMAINING SPACES). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
6. ALTERNATE 3 – PROVIDE 8 INCH CONCRETE PAD FOR SECURE AND STABLE CONNECTION FOR REINSTALLATION OF THE EXISTING FREESTANDING FIRE DEPARTMENT CONNECTION AND THE EXISTING FIRE PUMP TEST HEADER CONNECTION.
7. EXISTING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM TO THE REMAINDER OF GROUND FLOOR AND FIRST FLOOR AND MEET CURRENT CODE REQUIREMENTS.
8. PROVIDE SPRINKLER HEADS ABOVE AND BELOW OPEN CEILING IN OUTLINED AREA INDICATED
9. PROVIDE HIGH TEMPERATURE SPRINKLER HEADS RATED FOR 212 DEGREES F. IN GREENHOUSE ROOMS
10. EXISTING 6 COMBINATION STANDPIPE SPRINKLER RISER. REFER TO FIRE PROTECTION RISER DIAGRAM ON DRAWING FP6.2 FOR FLOOR CONTROL ASSEMBLY REQUIREMENTS.
11. EXISTING 4 STANDPIPE RISER.
12. PROVIDE DRY SPRINKLER AT COLD ROOM.
13. FIRE PROTECTION BRANCH LINE IS PROVIDED FOR OUTLINED AREA. FIRE PROTECTION CONTRACTOR TO VERIFY BRANCH FEED IS PROPERLY SIZED FOR THIS AREA..

EXISTING WALL LEGEND	
— - - —	1/2 HOUR (SMOKE TIGHT)
—— - ——	1 HOUR
— — — —	2 HOUR

REVISION

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
05-29-2026

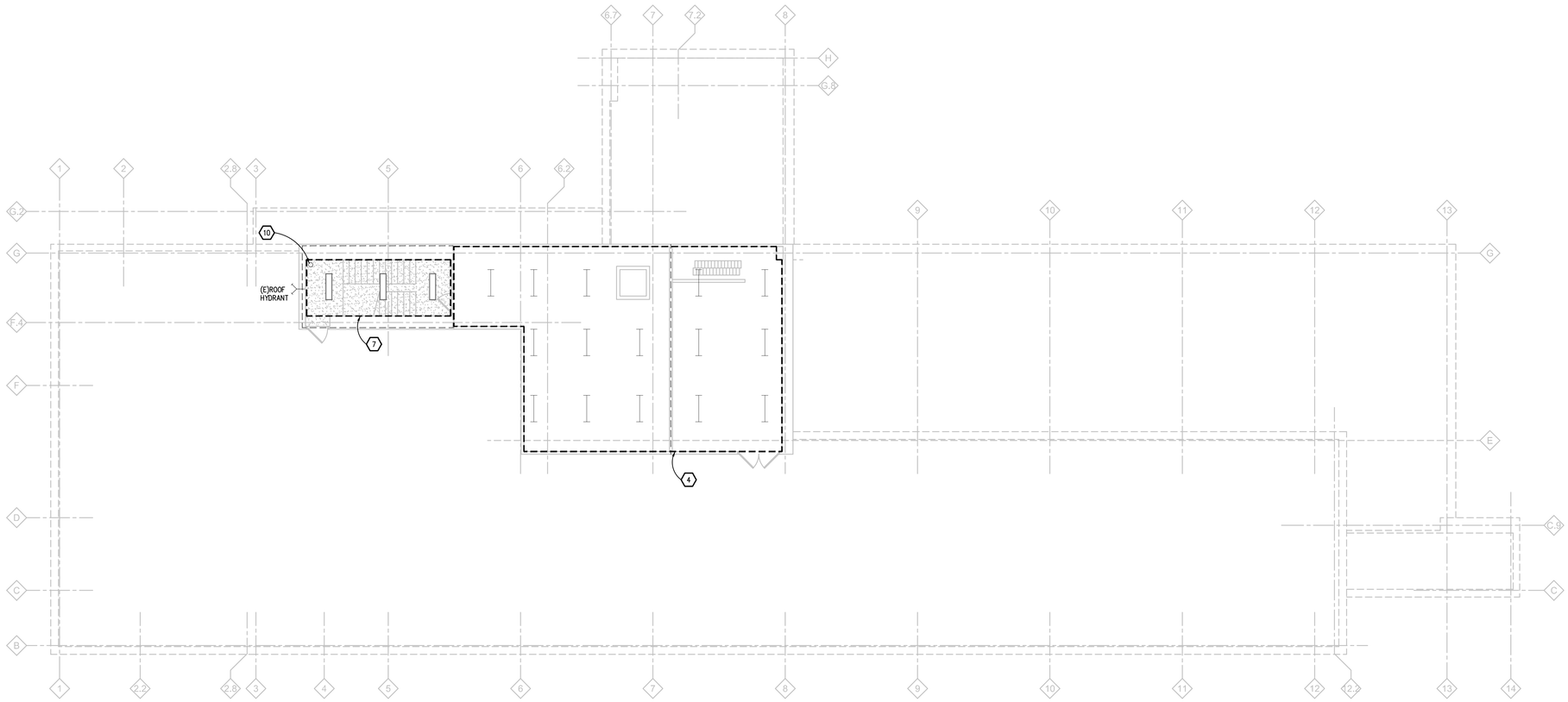
ISSUE
BIDS/PERMITS

SHEET No.
FP1.6

STATE OF MICHIGAN
GEORGE P ISHERWOOD
ENGINEER
No. 6201039660
LICENSED PROFESSIONAL ENGINEER

g:\2024\2024-0403-00\C40\2024-0403-M1-CMP6.dwg, FP1.6, 5/29/2026 9:06:43 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025.

CONSTRUCTION KEY NOTES:

1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
2. PHASE 1 – BASE BID – REPLACE FIRE PUMP, CONTROLLER, AND ASSOCIATED COMPONENTS.
3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
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EXISTING WALL LEGEND	
— — — —	1/2 HOUR (SMOKE TIGHT)
—— - ——	1 HOUR
— — — —	2 HOUR

REVISION

REVISION

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www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FP1.7

STATE OF MICHIGAN
GEORGE P. ISHERWOOD
ENGINEER
No. 6201039660
REGISTERED PROFESSIONAL ENGINEER

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FIRE PUMP SCHEDULE (ALTERNATE #2)

UNIT IDENTIFICATION	SYSTEM SERVED	LOCATION	TYPE	COUPLING TYPE	WATERFLOW GPM	FLUID TYPE	COLDEST SYSTEM OPERATING TEMP. °F FOR PUMP SELECTION	PUMP HEAD PSI	OVERLOAD GPM	MINIMUM EFFICIENCY %	MOTOR			MODULATION/ CONTROL TYPE	ELECTRICAL			MFG/MODEL NUMBER	GENERAL NOTES
											BHP	HP	RPM		VOLTS	PHASE	OPTIONS/ ACCESSORIES		
FP-1	FIRE PROTECTION	FIRE PUMP ROOM	HORIZONTAL SPLIT CASE	CLOSE	750	WATER	40	110	NON-OVERLOADING	68	76	75	3600	AUTO	480	3	NOTES 1 & 2 BELOW	AC FIRE PUMP SERIES 8100 6X6X9F	1, 2

GENERAL NOTES:
1. INCLUDE TORNATECH GPS SOFT START FULL SERVICE CONTROL PANEL.
2. INCLUDE WITH 3 1/2 INCH DRY PRESSURE GAUGES, 3/4 INCH NPT AUTOMATIC AIR RELEASE VALVE, 3/4 INCH NPT UL LISTED CLAVAL MODEL 55L60 RELIEF VALVE.

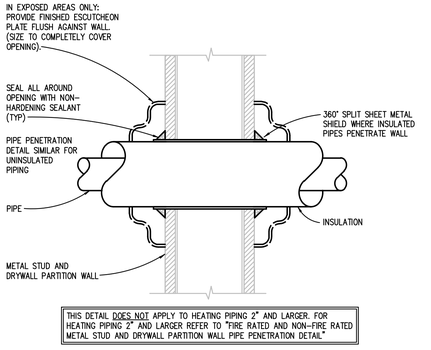
FLOW TEST DATA

STATIC	56 PSI
RESIDUAL	38 PSI
FLOW	750 GPM
ESTIMATED FLOW @ 20 PSI	2454 GPM
TEST DATE	06-19-2020
FLOW TEST BY	ESCO MARTIN HILL

SPRINKLER DETAILS (FM GLOBAL) SCHEDULE

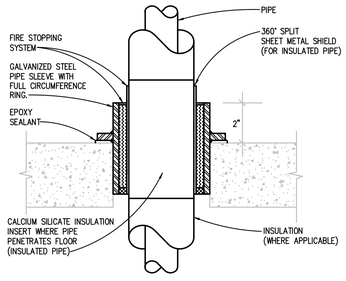
SPRINKLERED AREA	HYDRAULIC DESIGN	SYSTEM TYPE
LABORATORIES	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET
OFFICES	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET
MAINTENANCE (UTILITY) ROOM	0.2 GPM/SQFT OVER 2500 SQFT (HC-2)	WET
GREENHOUSE	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET
FREEZERS	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET

NOTES:
1) HC-1 DESIGNS PER THIS TABLE ARE ACCEPTABLE UP TO A MAXIMUM CEILING HEIGHT OF 9 METERS (30 FEET) PER FM GLOBAL DATA SHEET 3-26, TABLE 2.3.1.10. IF THIS HEIGHT IS EXCEEDED, THE DEMAND AREA SHOULD BE INCREASED.

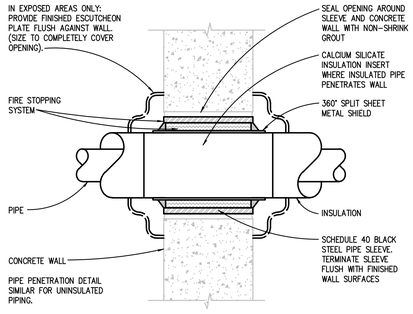


THIS DETAIL DOES NOT APPLY TO HEATING PIPING 2" AND LARGER. FOR HEATING PIPING 2" AND LARGER REFER TO "FIRE RATED AND NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL."

NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL
NO SCALE

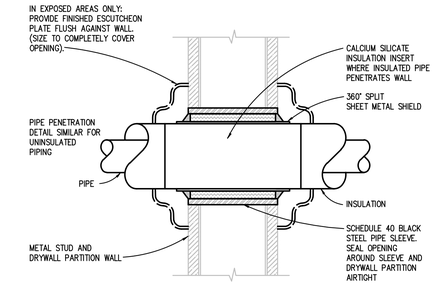


EXISTING FLOOR PIPE PENETRATION DETAIL
NO SCALE



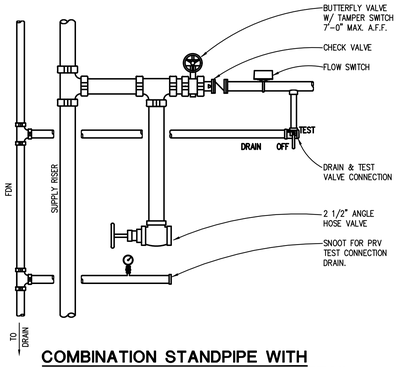
DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

FIRE RATED AND NON-FIRE RATED POURED CONCRETE OR BLOCK WALL PIPE PENETRATION DETAIL
NO SCALE

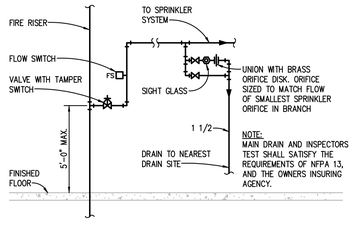


DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

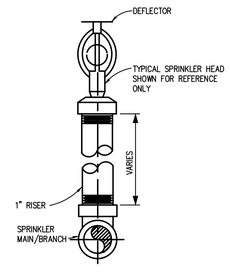
FIRE RATED AND NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL
NO SCALE



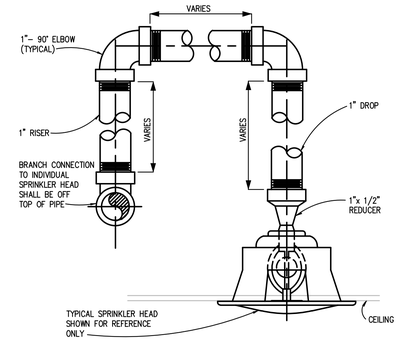
COMBINATION STANDPIPE WITH PRESSURE REDUCING VALVE DETAIL
NO SCALE



DRAIN/INSPECTORS TEST DETAIL
NO SCALE



TYPICAL UPRIGHT SPRINKLER PIPING DETAIL
NO SCALE



TYPICAL SPRINKLER PIPING DETAIL
NO SCALE

REVISION

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRE PROTECTION DETAILS AND SCHEDULES

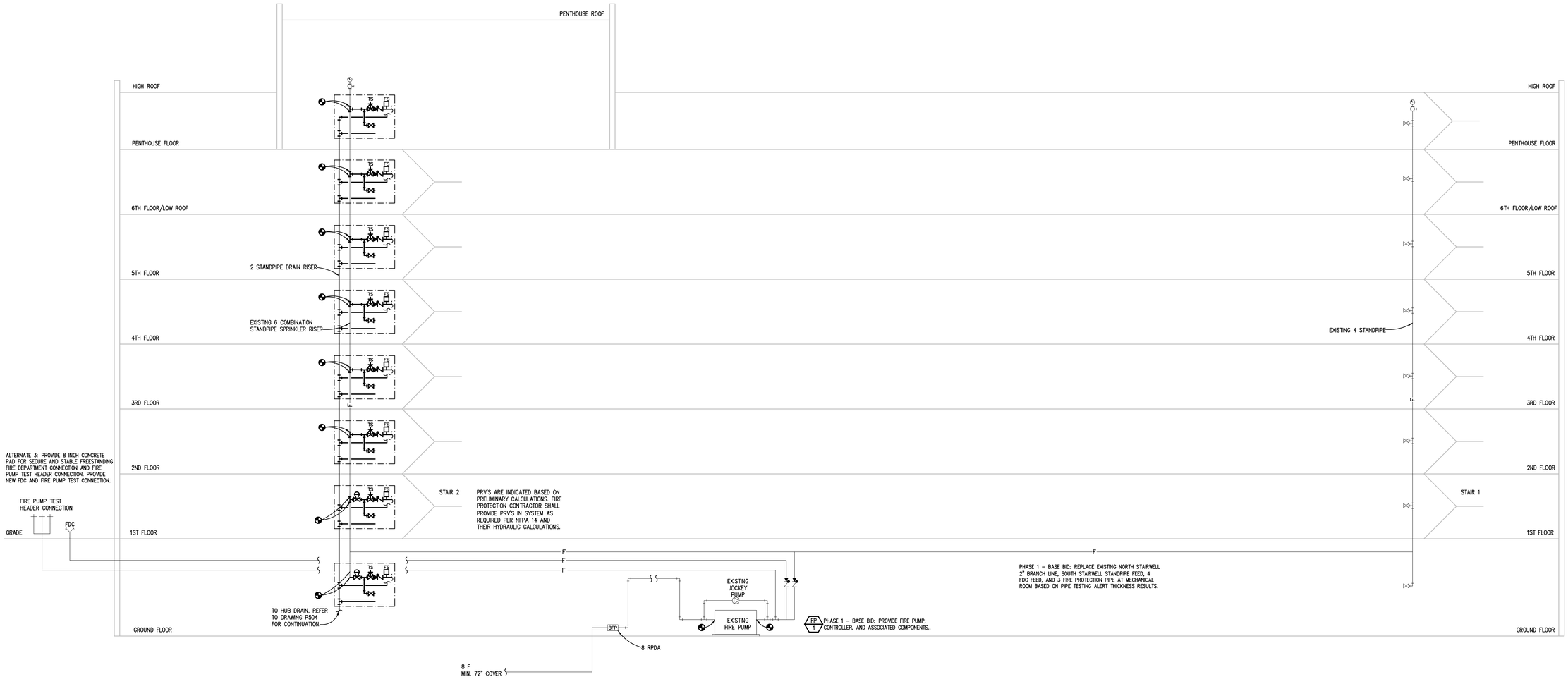
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FP6.1

STATE OF MICHIGAN
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FIRE PROTECTION RISER DIAGRAM

NO SCALE

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PBA Project No: 2024.0403

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PROJECT TITLE
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FIRE PROTECTION AND FIRE ALARM UPGRADES
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SHEET TITLE
FIRE PROTECTION RISER DIAGRAM

DATE
05-29-2026

ISSUE
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FP6.2

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No. 6201039560
PROFESSIONAL ENGINEER

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WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES

5047 Gullen Mall Detroit, MI 48202

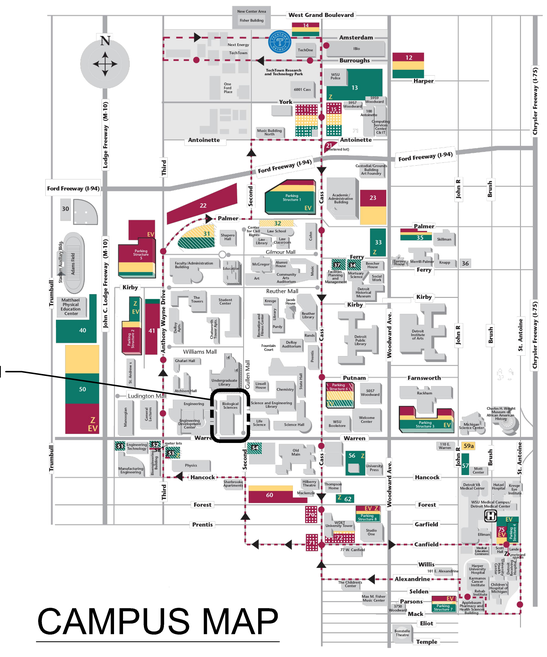
BIDS/PERMITS 05-29-2026

WAYNE STATE UNIVERSITY

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PBA Project No.: 2024.0403



CAMPUS MAP

CODES AND STANDARDS

2016	NFPA 13 – STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS
2016	NFPA 14 – STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS
2016	NFPA 20 – STANDARD FOR THE INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION
2019	MICHIGAN FIRE ALARM CODE – NFPA 72
2021	MICHIGAN PLUMBING CODE
2021	MICHIGAN MECHANICAL CODE
2021	MICHIGAN BUILDING CODE
2023	MICHIGAN ELECTRICAL CODE
	BUILDING OCCUPANCY CLASSIFICATION – II-B CONSTRUCTION

Stucky Vitale Architects
27172 Woodward Avenue
Royal Oak, MI 48067
Ph: 248-546-6700

ARCHITECTURAL DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	AD100	GROUND FLOOR DEMOLITION PLAN
●	AD200	GROUND FLOOR DEMOLITION CEILING PLAN
●	AD201	FIRST FLOOR DEMOLITION CEILING PLAN
●	AD202	SECOND FLOOR DEMOLITION CEILING PLAN
●	AD203	THIRD FLOOR DEMOLITION CEILING PLAN
●	AD204	FOURTH FLOOR DEMOLITION CEILING PLAN
●	AD205	FIFTH FLOOR DEMOLITION CEILING PLAN
●	AD206	SIXTH FLOOR DEMOLITION CEILING PLAN
●	A100	GROUND FLOOR PLAN – NEW CONSTRUCTION
●	A110	FIRST FLOOR PLAN
●	A710	FIRE STOP DETAILS
●	A711	FIRE STOP DETAILS
●	A712	FIRE STOP DETAILS

ELECTRICAL DRAWING INDEX

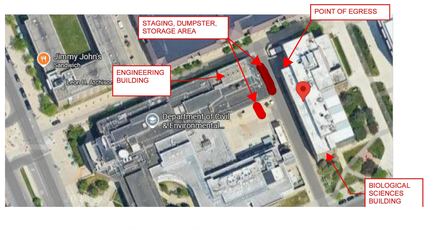
BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	E0.1	ELECTRICAL STANDARDS AND DRAWING INDEX
●	E0.2	ELECTRICAL STANDARD SCHEDULES
●	ED1.0	GROUND FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.1	FIRST FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.2	SECOND FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.3	THIRD FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.4	FOURTH FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.5	FIFTH FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.6	SIXTH FLOOR ELECTRICAL DEMOLITION PLAN
●	ED1.7	PENTHOUSE ELECTRICAL DEMOLITION PLAN
●	E1.0	GROUND FLOOR ELECTRICAL NEW WORK PLAN
●	E1.1	FIRST FLOOR ELECTRICAL NEW WORK PLAN
●	E1.2	SECOND FLOOR ELECTRICAL NEW WORK PLAN
●	E1.3	THIRD FLOOR ELECTRICAL NEW WORK PLAN
●	E1.4	FOURTH FLOOR ELECTRICAL NEW WORK PLAN
●	E1.5	FIFTH FLOOR ELECTRICAL NEW WORK PLAN
●	E1.6	SIXTH FLOOR ELECTRICAL NEW WORK PLAN
●	E1.7	PENTHOUSE ELECTRICAL NEW WORK PLAN
●	E5.1	RISER DIAGRAMS
●	E7.1	ELECTRICAL DETAILS AND DIAGRAMS

PLUMBING DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	P0.1	PLUMBING STANDARDS AND DRAWING INDEX
●	PD2.00	UNDERGROUND PLUMBING DEMOLITION PLAN
●	P2.00	UNDERGROUND PLUMBING NEW WORK PLAN
●	P2.0	GROUND FLOOR PLUMBING NEW WORK PLAN

FIREPROTECTION DRAWING INDEX

BIDS/PERMITS 05-29-2026	SHEET NO.	SHEET TITLE
●	FP0.1	FIRE PROTECTION STANDARDS AND DRAWING INDEX
●	FPD1.0	GROUND FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
●	FPD1.1	FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
●	FP1.0	GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.1	FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.2	SECOND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.3	THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.4	FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.5	FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.6	SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP1.7	PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN
●	FP6.1	FIRE PROTECTION DETAILS AND SCHEDULES
●	FP6.2	FIRE PROTECTION RISER DIAGRAM



STAGING AREA

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

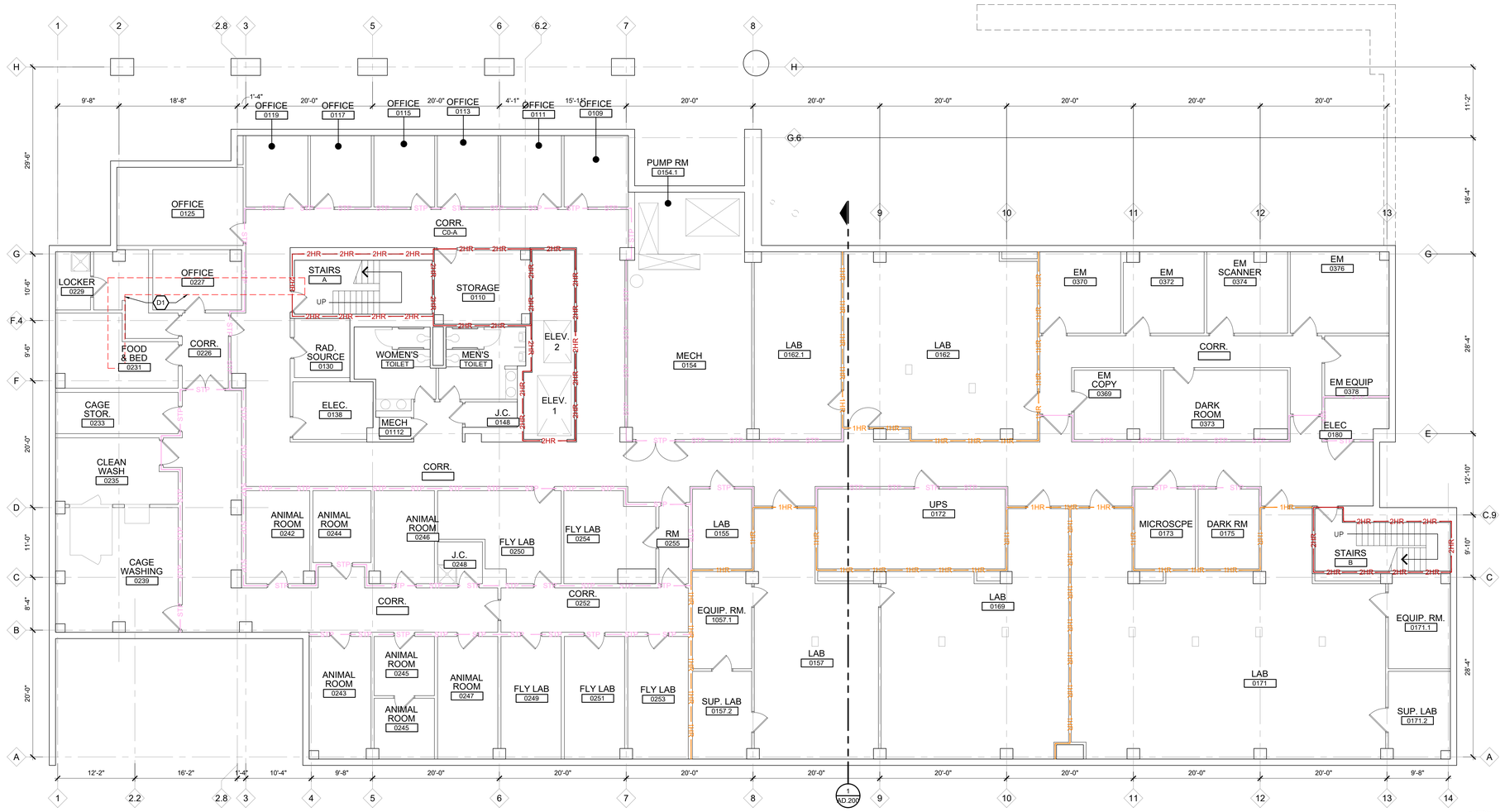
1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
2. DETERMINE EXISTING CONNECTIONS AND CONDITIONS OF SPECIALTY, OR "FIELD VERIFY" EQUIPMENT PRIOR TO DEMOLITION. COORDINATE WITH CLIENT FOR SPECIFICATIONS OF NEW FIXTURES OR EQUIPMENT.
3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
5. ANY REMOVED HVAC SYSTEM, LIGHTING, FIRE ALARM DEVICES, SUPPLY AND RETURN AIR GRILLES, TO BE RE-INSTALLED TO ITS PRE-CONSTRUCTION CONDITION.
6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION PLAN KEY NOTES:

(D1) CONTRACTOR TO REMOVE THE EXISTING CONCRETE SLAB AND COMPACTED SAND FILL (32"WIDE OR AS NEEDED) TO PROVIDE FOR THE 4 INCH UNDER FLOOR SANITARY LINES, CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE EXISTING SANITARY LINE IN THE FILED. PATCH AND REPAIR THE EXISTING FLOORING AS NECESSARY. REFER TO THE PLUMBING SHEETS FOR COORDINATION OF WORK.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
	EXISTING CEILING FIXTURE (LIGHT, DIFFUSER, ETC.) TO REMAIN.
	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



GROUND FLOOR LIMITED DEMOLITION / RESTORATION FLOOR PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD100

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
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6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

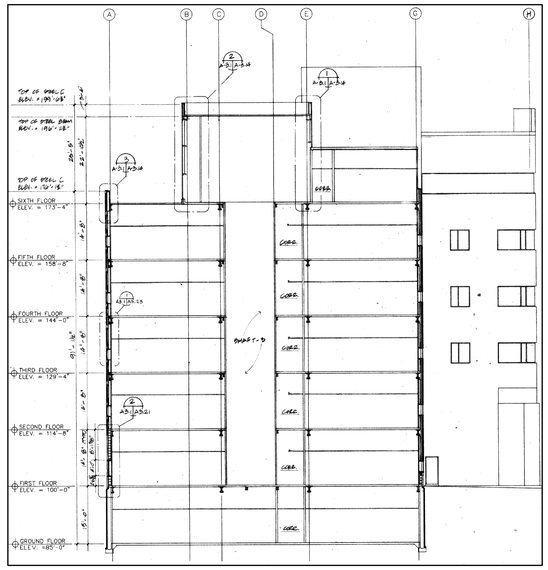
DEMOLITION CEILING PLAN KEY NOTES:

(1) GROUND FLOOR EXISTING CONDITIONS ARE FULLY SUPPRESSED. EXISTING CEILINGS, EQUIPMENT, AND FIRE SUPPRESSION SYSTEM TO REMAIN, UNLESS NOTED OTHERWISE. COORDINATE WITH MECHANICAL, PLUMBING, AND ELECTRICAL TRADES AND DRAWINGS.

(DA) ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.

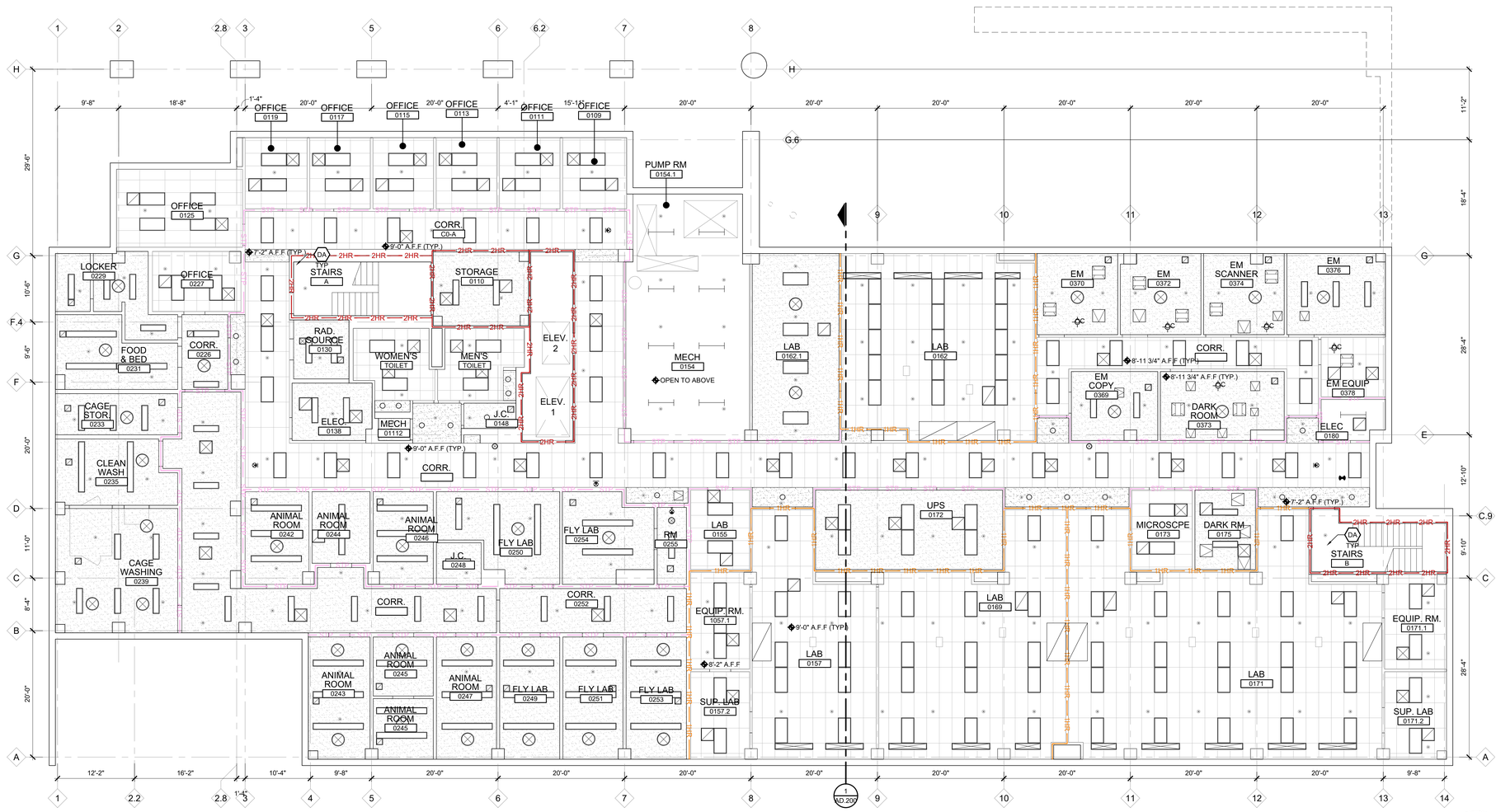
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	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
	EXISTING CEILING FIXTURE (LIGHT, DIFFUSER, ETC.) TO REMAIN.
	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



1 AD200 REFERENCE CROSS SECTION
SCALE: N.T.S.

DRAWING FOR BUILDING HEIGHTS ONLY



N GROUND FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

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REVISION

REVISION

PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD200

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

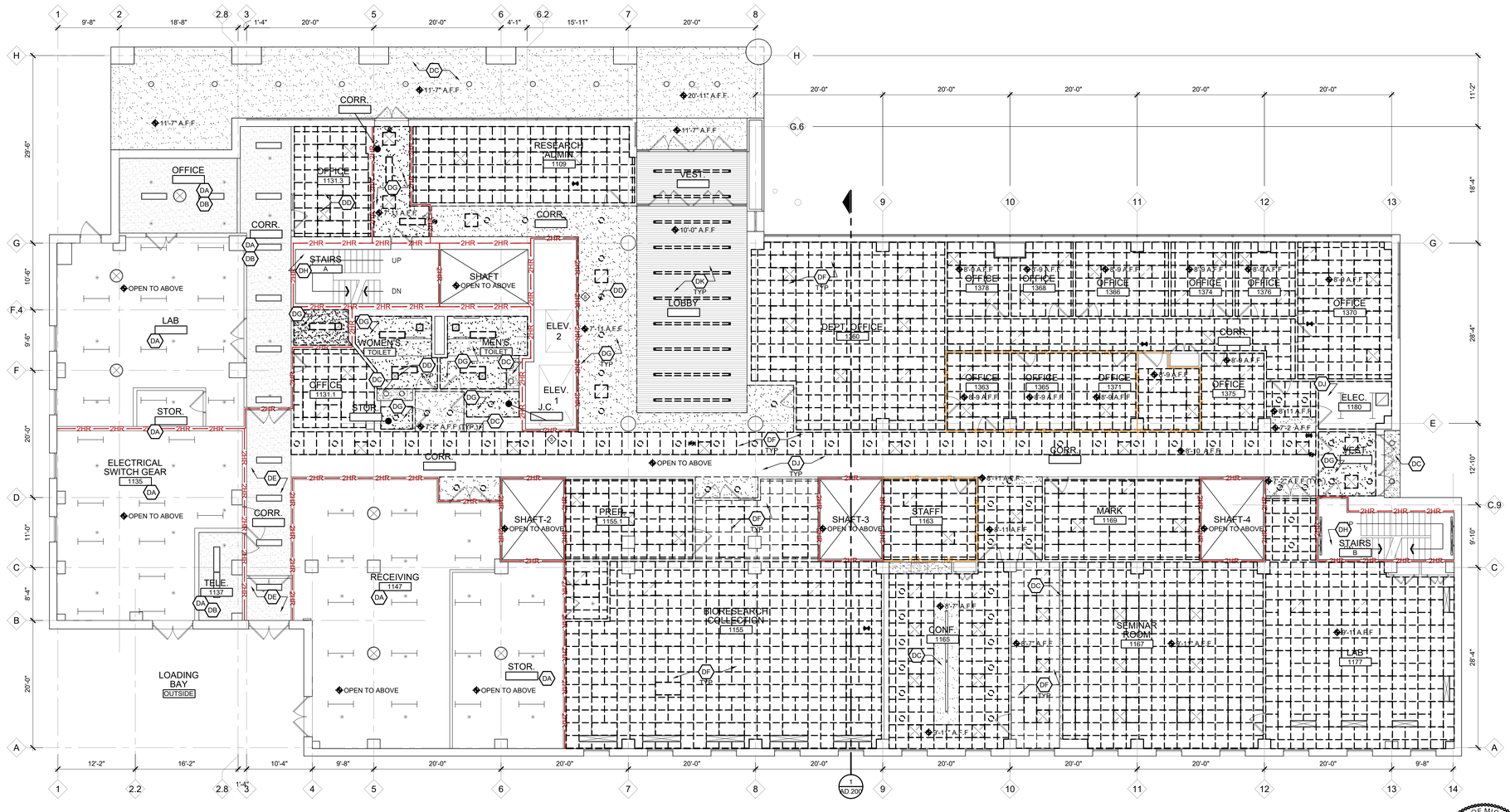
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3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
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6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION CEILING PLAN KEY NOTES:

- DA EXISTING AREA NOT IN CURRENT SCOPE OF WORK.
- DB EXISTING CEILING TO REMAIN.
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
- DE EXISTING GYP. BOARD CEILING TO REMAIN. COORDINATE WITH FIRE SUPPRESSION CONTRACTOR FOR NEEDED ACCESS POINTS TO CONCEALED AREA FOR SYSTEM INSTALLATION.
- DF REMOVE THE EXISTING ACT TILE AND GRID AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE ACT TILE AND GRID TO PRE-CONSTRUCTION CONDITION. ANY DAMAGED CEILING TILE WILL BE REPLACED FROM THE W.S.U. ATTIC STOCK.
- DG REMOVE THE EXISTING DRYWALL CEILING AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE DRYWALL CEILING SYSTEM TO PRE-CONSTRUCTION CONDITION. REPAINT THE ENTIRE DRYWALL (CEILING-ROOM AREA) TO INSURE A COHESIVE PAINT COLOR, COLOR OF PAINT TO MATCH THE EXISTING ADJACENT COLOR SCHEME.
- DH ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.
- DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.
- DK REMOVE EXISTING LINEAR METAL CEILING SYSTEM AS REQUIRED TO PROVIDE NEW SPRINKLER SYSTEM. ANY NEW SPRINKLER HEADS TO INCLUDE A FINISH TRIM RING AT PENETRATION. TO COORDINATE WITH THE METAL CEILING SYSTEM.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
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	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



N

FIRST FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN

SCALE: 1/8" = 1'-0"

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REVISION

REVISION

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
FIRST FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD201

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

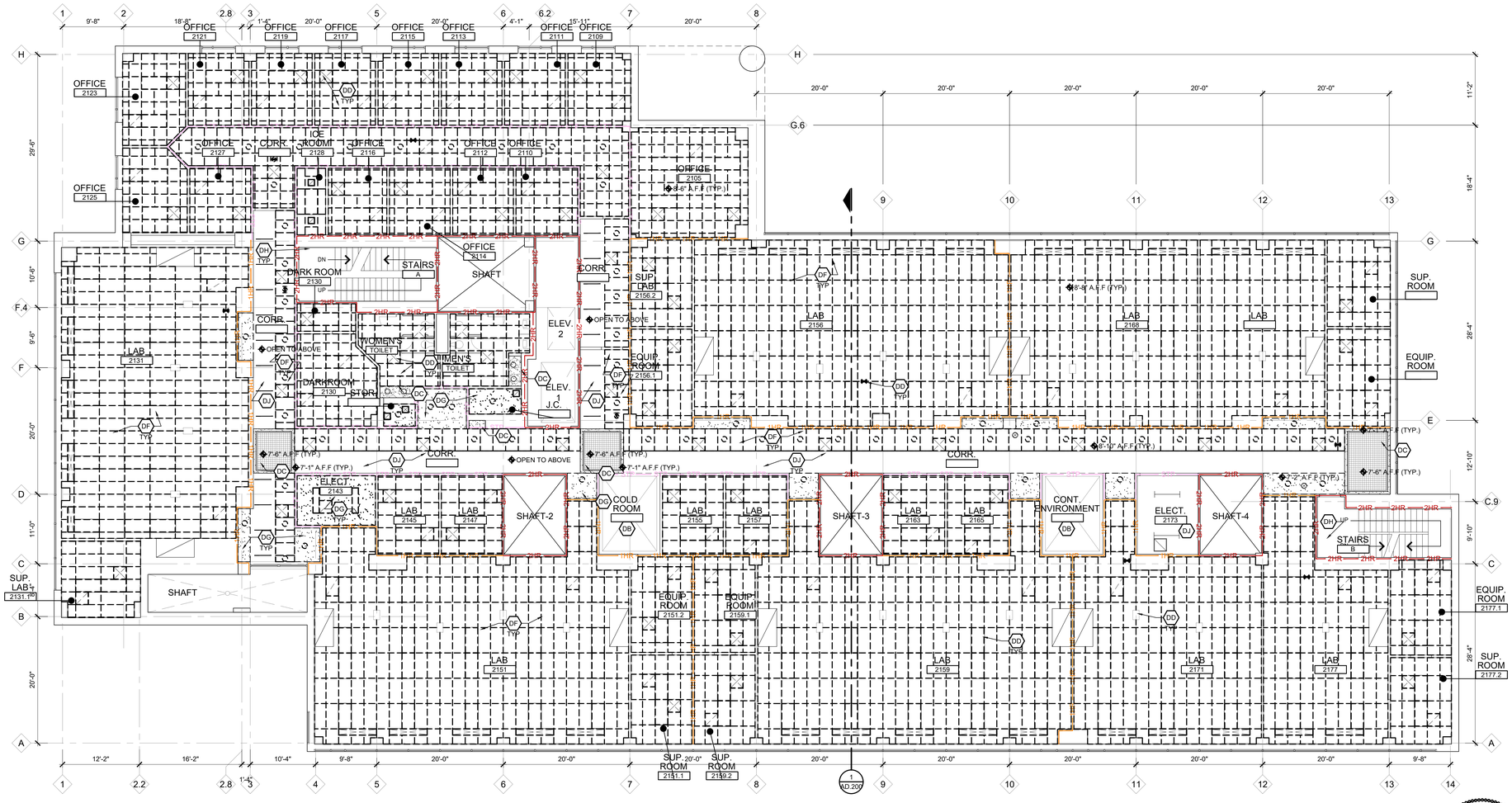
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6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION CEILING PLAN KEY NOTES:

- DA NOT USED
- DB EXISTING CEILING TO REMAIN.
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
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- DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
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	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



N

SECOND FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN

SCALE: 1/8" = 1'-0"

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Tel 248.879.2366
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PBA Project No: 2024.063

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REVISION

REVISION

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
SECOND FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD202

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

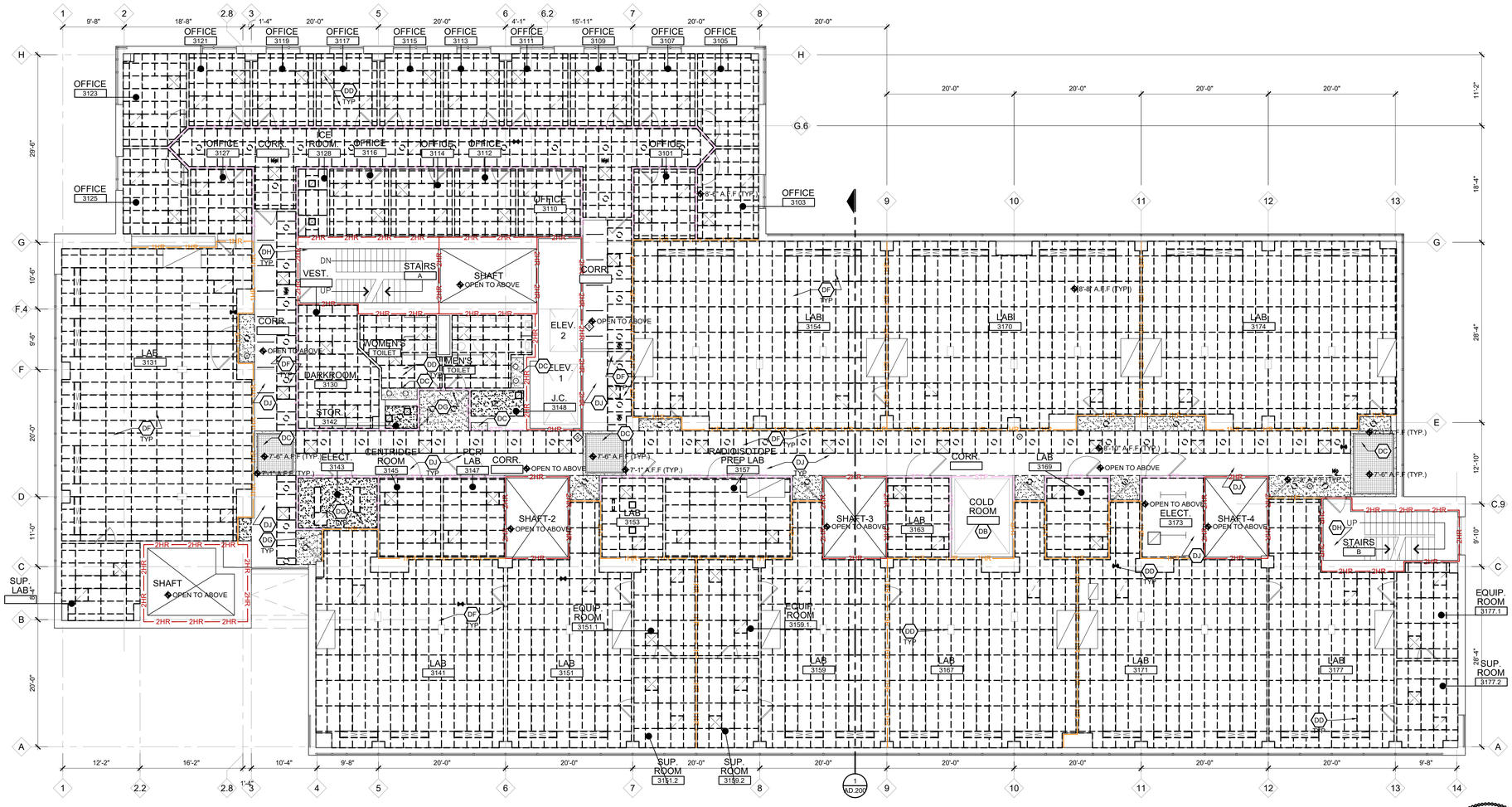
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DEMOLITION CEILING PLAN KEY NOTES:

- DA NOT USED
- DB EXISTING CEILING TO REMAIN.
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
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	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



N

THIRD FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN

SCALE: 1/8" = 1'-0"

REVISION

REVISION

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PBA Project No: 2024.063

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SVA

PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD203

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
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DEMOLITION CEILING PLAN KEY NOTES:

DA NOT USED

DB EXISTING CEILING TO REMAIN.

DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.

DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.

DE NOT USED

DF REMOVE THE EXISTING ACT TILE AND GRID AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE ACT TILE AND GRID TO PRE-CONSTRUCTION CONDITION. ANY DAMAGED CEILING TILE WILL BE REPLACED FROM THE W.S.U. ATTIC STOCK.

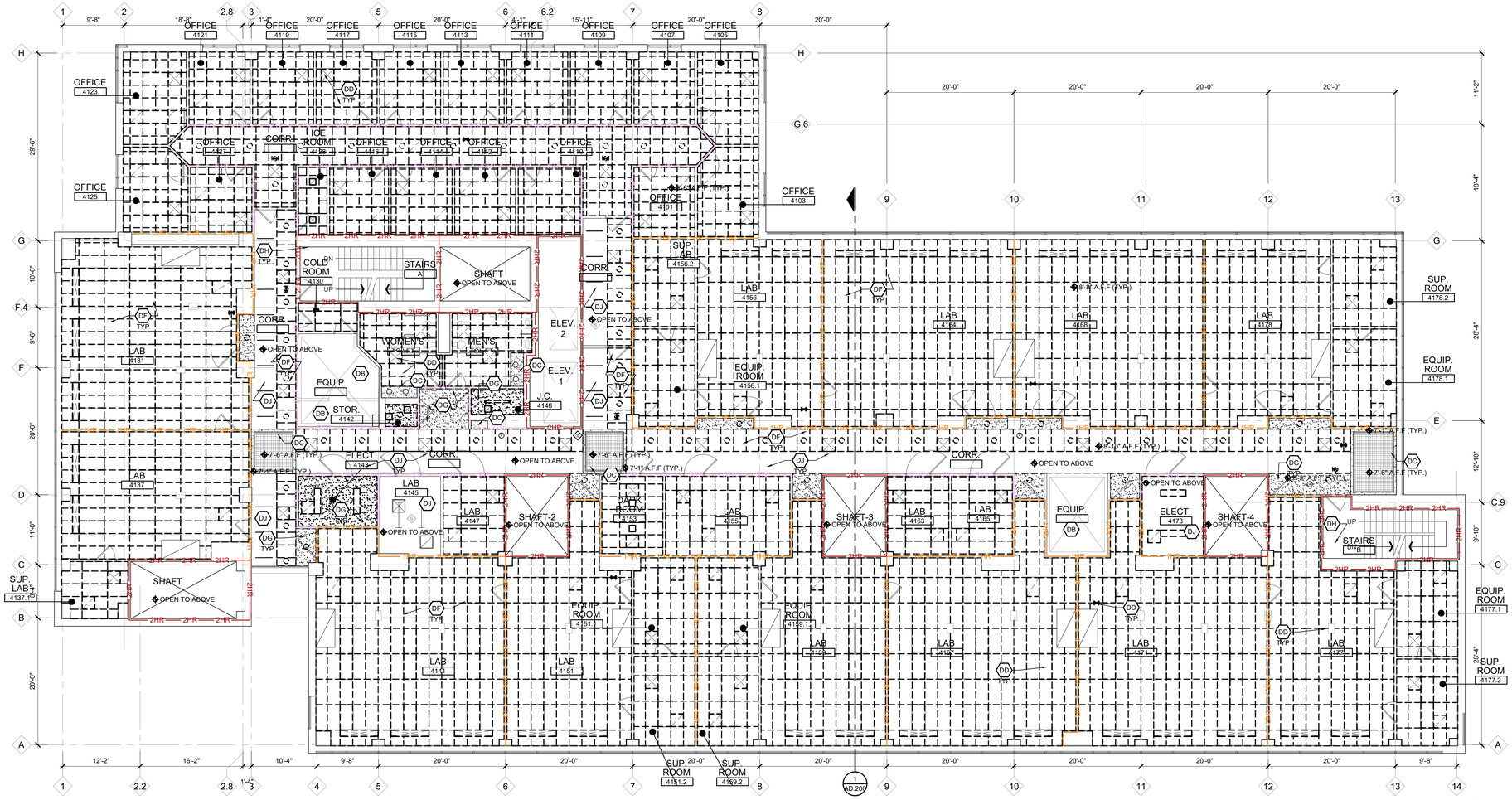
DG REMOVE THE EXISTING DRYWALL CEILING AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE DRYWALL CEILING SYSTEM TO PRE-CONSTRUCTION CONDITION. REPAINT THE ENTIRE DRYWALL (CEILING-ROOM AREA) TO INSURE A COHESIVE PAINT COLOR, COLOR OF PAINT TO MATCH THE EXISTING ADJACENT COLOR SCHEME.

DH ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.

DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.

DEMOLITION CEILING LEGEND

	EXISTING CEILING GRID ASSEMBLY TO REMAIN.
	EXISTING CEILING GRID ASSEMBLY TO BE REMOVED.
	EXISTING CEILING FIXTURE (LIGHT, DIFFUSER, ETC.) TO REMAIN.
	CEILING (LIGHT, DIFFUSER, ETC.) FIXTURE TO BE REMOVED UNLESS NOTED OTHERWISE.
	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



FOURTH FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

5145 Livernois, Suite 100
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www.PeterBassoAssociates.com
PBA Project No: 2024.063

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
FOURTH FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD204

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

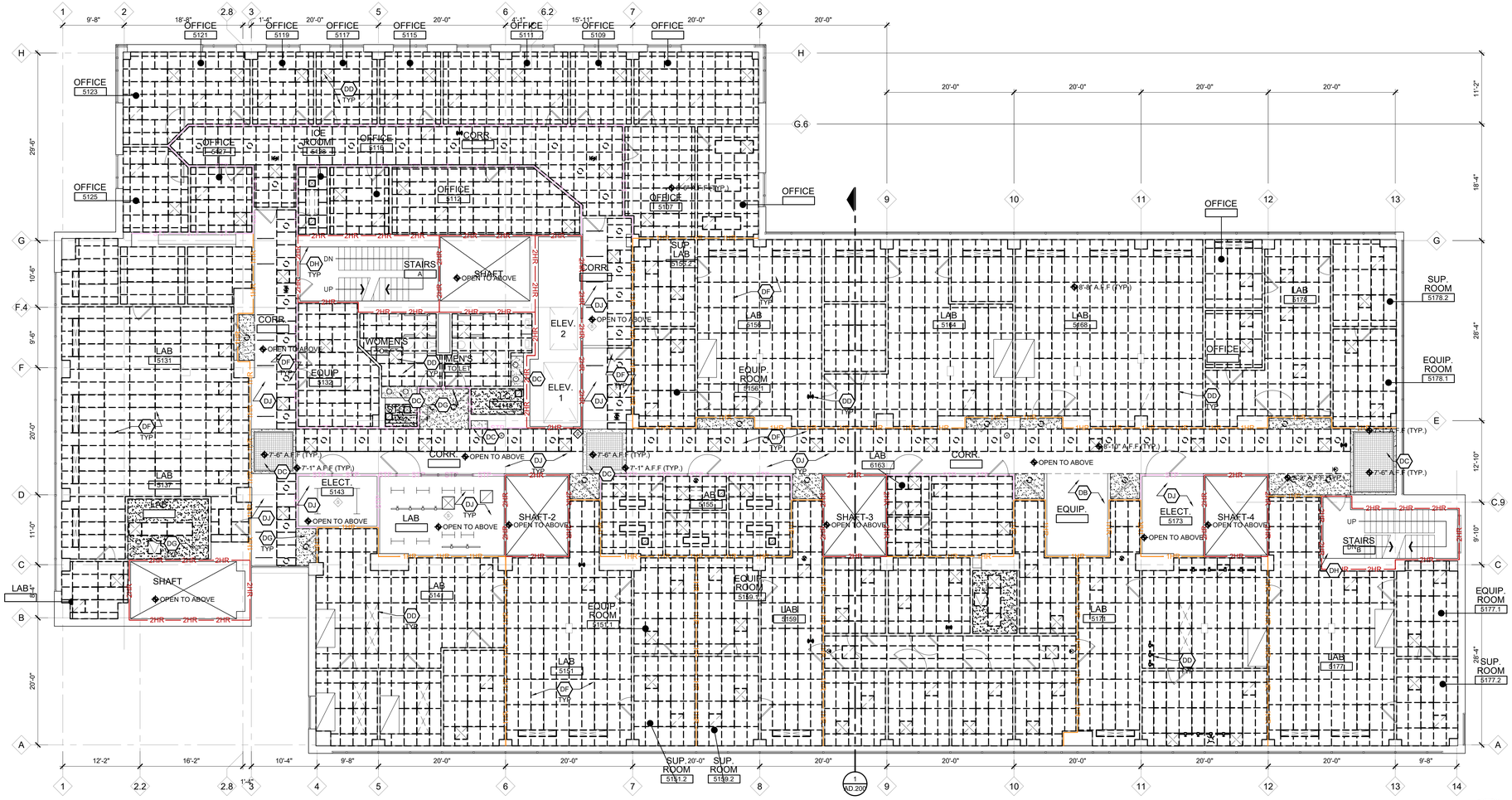
1. FIELD VERIFY EXISTING CONDITIONS FOR FIXTURES AND EQUIPMENT NOT NOTED ON PLANS PRIOR TO DEMOLITION WITHIN AREAS OF NEW WORK SCOPE. EXISTING CEILING FIXTURES AND EQUIPMENT NOT NOTED ON PLANS ARE TO BE REPLACED IN THEIR EXISTING LOCATIONS WITH NEW FIXTURES OR EQUIPMENT TO THE STANDARD OF THE PROJECT'S NEW WORK SCOPE.
2. DETERMINE EXISTING CONNECTIONS AND CONDITIONS OF SPECIALTY, OR "FIELD VERIFY" EQUIPMENT PRIOR TO DEMOLITION. COORDINATE WITH CLIENT FOR SPECIFICATIONS OF NEW FIXTURES OR EQUIPMENT.
3. FIRE PROTECTION CONTRACTOR SHALL REMOVE EXISTING HEADS AND TURN UP DURING CONSTRUCTION. ONCE CEILING GRID HAS BEEN ESTABLISHED, DROP NEW QUICK RESPONSE HEADS AS NEEDED WITH NEW CEILING PLAN LAYOUT.
4. ALL PENETRATIONS THROUGH EXISTING WALLS TO BE SEALED AROUND NEW PIPING. IF RATED WALL PENETRATIONS SEALANT TO BE APPROVED FOR USE IN RATED WALL CONSTRUCTION.
5. ANY REMOVED HVAC SYSTEM, LIGHTING, FIRE ALARM DEVICES, SUPPLY AND RETURN AIR GRILLES, TO BE RE-INSTALLED TO ITS PRE-CONSTRUCTION CONDITION.
6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION CEILING PLAN KEY NOTES:

- DA NOT USED
- DB EXISTING CEILING TO REMAIN.
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
- DD EXISTING CEILING EQUIPMENT TO BE SALVAGED / REPLACED. VERIFY USE AND EXISTING CONDITIONS.
- DE NOT USED
- DF REMOVE THE EXISTING ACT TILE AND GRID AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE ACT TILE AND GRID TO PRE-CONSTRUCTION CONDITION. ANY DAMAGED CEILING TILE WILL BE REPLACED FROM THE W.S.U. ATTIC STOCK.
- DG REMOVE THE EXISTING DRYWALL CEILING AS NEEDED TO ACCOMMODATE THE INSTALLATION OF THE NEW FIRE SUPPRESSION SYSTEM. PATCH, REPAIR AND REINSTALL THE DRYWALL CEILING SYSTEM TO PRE-CONSTRUCTION CONDITION. REPAINT THE ENTIRE DRYWALL (CEILING-ROOM AREA) TO INSURE A COHESIVE PAINT COLOR, COLOR OF PAINT TO MATCH THE EXISTING ADJACENT COLOR SCHEME.
- DH ANY STANDPIPE PIPING REPLACEMENT TO BE PAINTED RED TO MATCH THE EXISTING COLOR AND FINISH IN THE COMPLEX.
- DJ ANY NEW PIPING INSTALLED IN THE AREA WITH EXPOSED STRUCTURE AND DECKING IS TO BE PAINTED TO MATCH THE EXISTING EXPOSED STRUCTURE, DECKING AND HVAC DUCTWORK COLOR SCHEME.

DEMOLITION CEILING LEGEND

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	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



FIFTH FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD205

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

GENERAL DEMOLITION / RESTORATION NOTES:

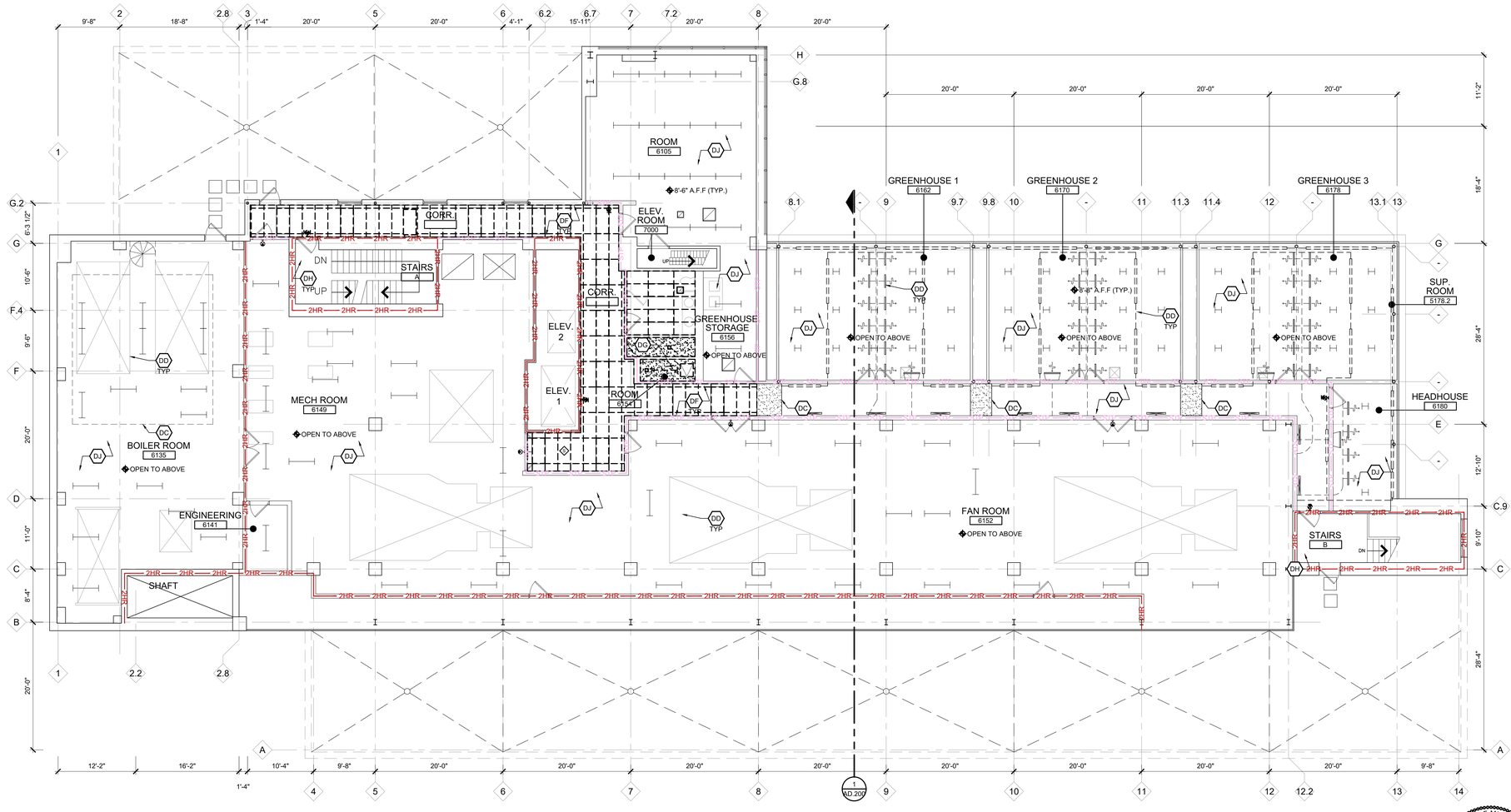
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5. ANY REMOVED HVAC SYSTEM, LIGHTING, FIRE ALARM DEVICES, SUPPLY AND RETURN AIR GRILLES, TO BE RE-INSTALLED TO ITS PRE-CONSTRUCTION CONDITION.
6. ALL EXISTING CEILING HEIGHTS TO BE FIELD VERIFIED.

DEMOLITION CEILING PLAN KEY NOTES:

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- DB NOT USED
- DC EXISTING SOFFIT TO REMAIN. VERIFY IN FIELD HEIGHTS.
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	EXISTING CEILING FINISH TO REMAIN.
	EXISTING SOFFIT TO REMAIN.
	EXISTING CEILING FINISH / SOFFIT TO BE REMOVED.



SIXTH FLOOR LIMITED DEMOLITION / RESTORATION CEILING PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

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PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR DEMOLITION CEILING PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
AD206

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

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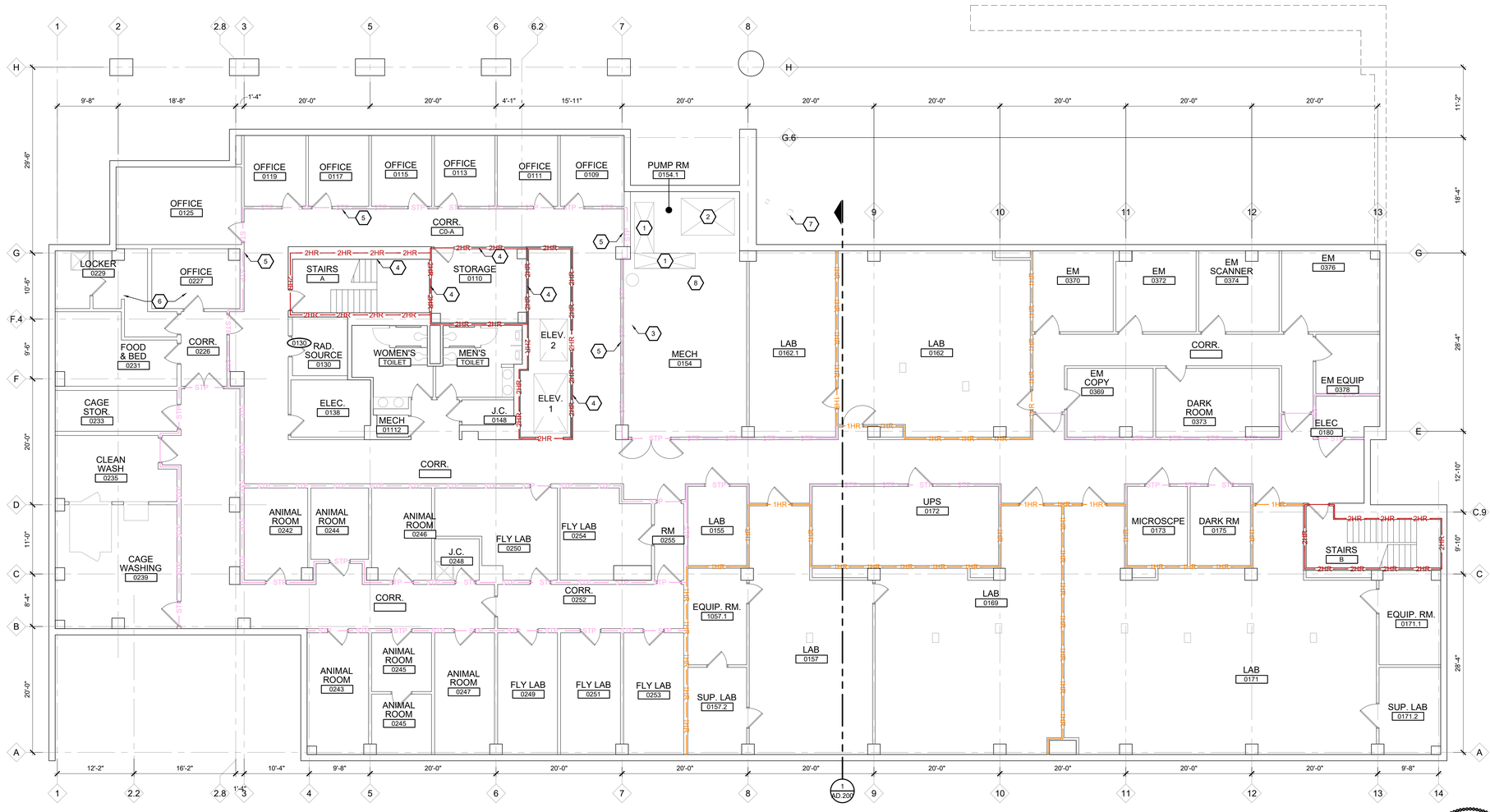
GENERAL FLOOR PLAN NOTES:

1. 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.
2. ALL DIMENSIONS ARE SHOWN FROM FINISH FACE TO FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED.
3. WALL THICKNESS' ARE NOMINAL NOT ACTUAL DIMENSIONS. SEE WALL SCHEDULE FOR ACTUAL DIMENSIONS.
4. ALL WOOD, INCLUDING BLOCKING, USED ON THE PROJECT SHALL BE FIRE RETARDANT TREATED.
5. 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.
6. PROVIDE TRANSITION STRIPS AT EACH CHANGE IN FLOOR FINISH MATERIALS.
7. PAINT, 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.
11. CLEAN AND REPAIR ALL EXISTING FLOOR FINISHES AS NECESSARY.
12. ALL EXPOSED PIPES, DUCTS, AND CONDUIT TO BE PAINTED TO MATCH EXISTING.
13. PROVIDE CONTROL JOINTS IN GYPSUM BOARD PARTITIONS AT 30'-0" O.C. MAXIMUM AND AS INDICATED IN THE CONTRACT DOCUMENTS.
14. 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, ATM'S.
15. 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.
16. 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.
17. 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.
18. 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)

GROUND FLOOR PLAN KEY NOTES:

1. EXISTING FIRE PUMP. FIELD VERIFY EXACT SIZE AND LOCATION.
2. EXISTING DOMESTIC WATER PUMP. FIELD VERIFY EXACT SIZE AND LOCATION.
3. EXISTING DOMESTIC WATER HEATER. FIELD VERIFY EXACT SIZE AND LOCATION.
4. EXISTING 2 HOUR RATED WALL TO REMAIN.
5. EXISTING SMOKE TIGHT PARTITION TO REMAIN.
6. CONTRACTOR TO PROVIDE 6" CONCRETE SLAB W/ 6 X 6, W2.9 X W2.9 W.W.F. ON 4" MIN. COMPACTED SAND FILL OVER THE NEW THE UNDER FLOOR SANITARY LINES.CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE EXISTING SANITARY LINE IN THE FIELD. PATCH AND REPAIR THE EXISTING FLOORING AS NECESSARY. THE EXISTING FLOOR SHOULD ALIGN WITH THE EXISTING FLOOR SLAB.
7. EXISTING FDC CONNECTION PIPES. V.I.F. EXACT LOCATIONS. SEE FIRE PROTECTION PLANS FOR SIZES.
8. SEE FIRE PROTECTION PLANS FOR ALTERNATE ON NEW FIRE PUMP. SEE SHEET A110 FOR CONCRETE PAD DETAIL FOR PRICING.

FLOOR PLAN LEGEND	
— STP —	EXISTING SMOKE TIGHT PARTITION
— 1HR —	EXISTING 1-HOUR RATED PARTITION
— 2HR —	EXISTING 2-HOUR RATED PARTITION



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GROUND FLOOR NEW CONSTRUCTION PLAN

SCALE: 1/8" = 1'-0"

REVISION

REVISION

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Tel. 248.457.7466
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PBA Project No: 2024.063

Peter Basso Associates
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PROJECT # 2024.111

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR PLAN - NEW CONSTRUCTION

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
A100

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

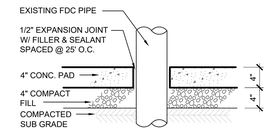
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6. PROVIDE TRANSITION STRIPS AT EACH CHANGE IN FLOOR FINISH MATERIALS.
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18. PROVIDE PERMANENT MIN 3-INCH HIGH CONTRASTING COLOR MARKING AND IDENTIFICATION AT ALL FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, 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)

FIRST FLOOR PLAN KEY NOTES:

1. EXISTING FDC PIPES. FIELD VERIFY EXACT LOCATIONS.
2. PROVIDE CONCRETE PAD SURROUNDING FDC PIPES. PROVIDE EXPANSION JOINTS AROUND PIPES. SLOPE PAD AWAY FROM BUILDING.

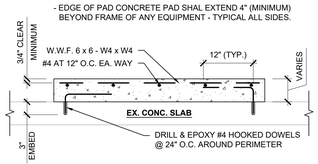
FLOOR PLAN LEGEND			
— STP —	EXISTING SMOKE TIGHT PARTITION	— 2HR —	EXISTING 2-HOUR RATED PARTITION
— 1HR —	EXISTING 1-HOUR RATED PARTITION		



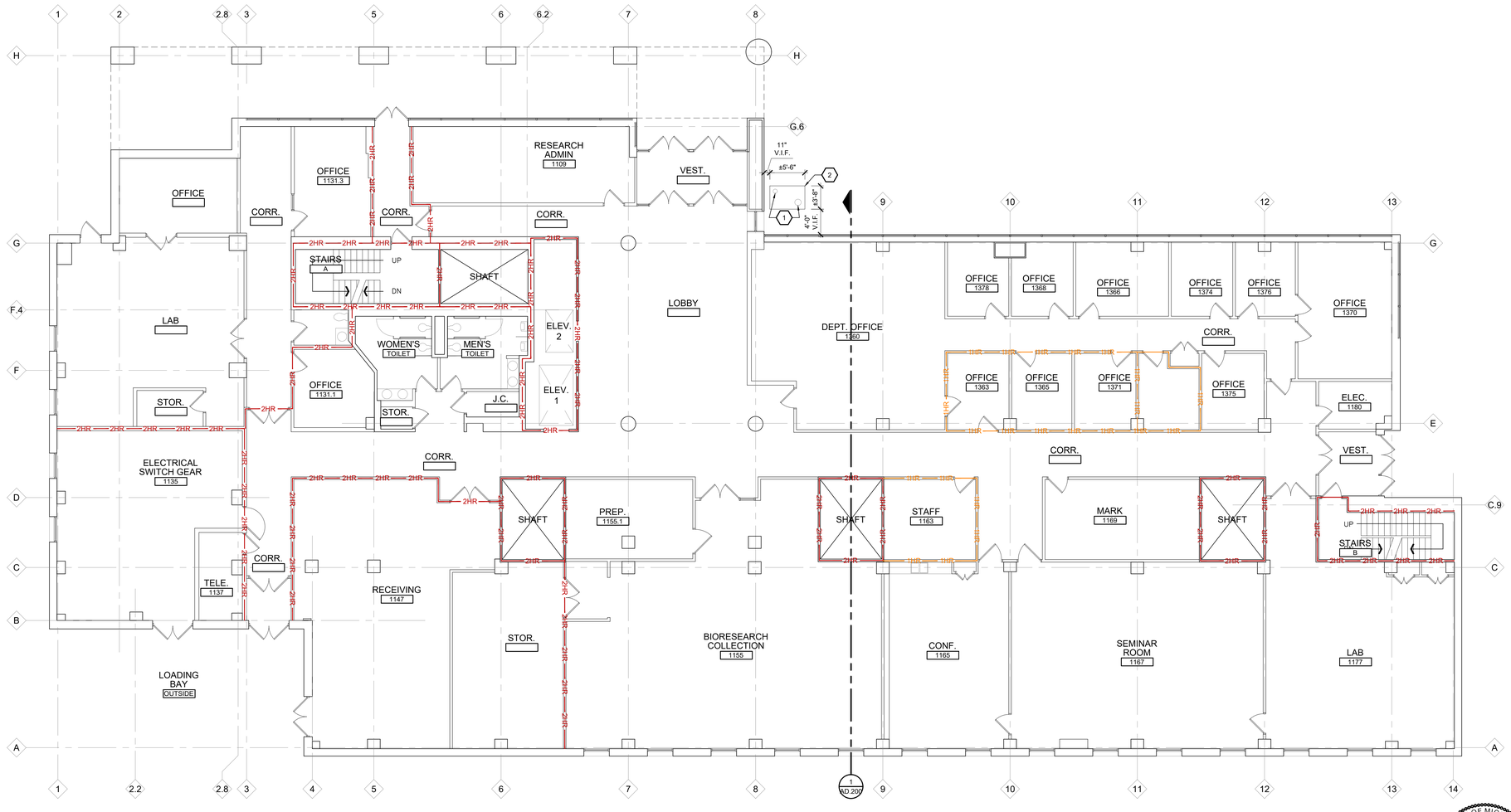
2 A110 FDC PAD DETAIL
SCALE: 1" = 1'-0"

NOTE:

- SCARIFY EXISTING CONCRETE FLOOR 4".
- SOAK SCARIFIED SLAB FOR 24 HOURS (MINIMUM) WITH LATEX BONDING AGENT PRIOR TO PLACING CONCRETE PAD.
- ALL HEIGHTS, WIDTHS, AND LENGTHS OF PADS TO BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL AS REQUIRED.
- EDGE OF PAD CONCRETE PAD SHAL EXTEND 4" (MINIMUM) BEYOND FRAME OF ANY EQUIPMENT - TYPICAL ALL SIDES.



3 A110 CONCTRETE EQUIPMENT PAD DETAIL
SCALE: 3/4" = 1'-0"



N
FIRST FLOOR NEW CONSTRUCTION PLAN
SCALE: 1/8" = 1'-0"

REVISION

REVISION

5145 Livernois, Suite 100
Troy, Michigan 48098-3276
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PROJECT # 2024.111

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR PLAN

DATE
05-29-2026

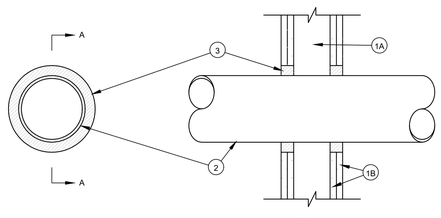
ISSUE
BIDS/PERMITS

SHEET No.
A110

STATE OF MICHIGAN
JOHN A. VITALE
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No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

System No. W-L-1054
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



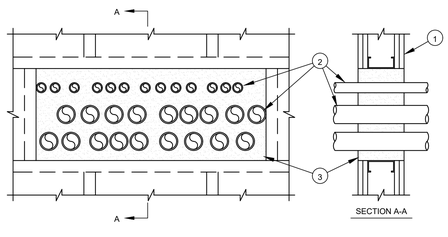
SECTION A-A

1. **Wall Assembly --** The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features.
   A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.
   B. **Gypsum Board* --** 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. **The F Rating of the firestop system is equal to the fire rating of the wall assembly.**
2. **Through-Penetrants --** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe --** Nom 30 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe --** Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. **Conduit --** Nom 4 in diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. **Copper Tubing --** Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe --** Nom 6 in. diam (or smaller) regular (or heavier) copper pipe.
3. **Fill, Void or Cavity Material* -- Sealant --** Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall .
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. W-L-1249
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 1/2 Hr



SECTION A-A

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.
   A. Studs Steel studs 3-1/2 in. deep, fabricated from 25 MSG galv steel, spaced max 24 in. OC.
   B. Gypsum Boards* The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants One or more nom 2 in. diam (or smaller) rigid steel conduit or electrical metallic tubing (EMT) to be installed within the opening. The annular space between conduits or tubing shall be min 0 in. (point contact) to max 3-3/8 in. The annular space between conduits or tubing and periphery of opening shall be min 0 in. (point contact) to max 3 in. Conduit or tubing to be rigidly supported on both sides of wall assembly.
3. Fill Void or Cavity Material - Foam* Fill material applied within annulus flush with both surfaces of the wall. Min fill material thickness for 1 Hr F Rating is 4-3/4 in. Min fill material thickness for 2 Hr F Rating is 6 in.

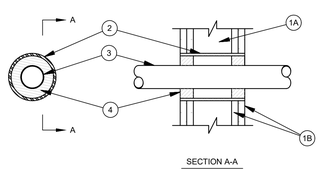
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 620 Fire Foam

*Bearing the UL Classification Mark

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-2075
F Ratings - 1 & 2 Hr (See Item 4)
T Ratings - 0 and 2 Hr (see Item 4)
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. **Floor or Wall Assembly --** The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL fire Resistance Directory and shall include the following construction features:
   A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. **Gypsum Board* --** Nom 5/8 in thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 4 in.
2. **Metallic Sleeve --** (Optional) -- Nom 4 in. diam (or smaller) Schedule 40 (or thinner) steel pipe cast into wall assembly with joint compound and installed flush with wall surfaces.
3. **Electrical Nonmetallic Tubing+ --** Nom 2 in. diam (or smaller) corrugated wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC). Tubing to be rigidly supported on both sides of wall assembly. A nom annular space of 3/4 in. is required within the firestop system. See **Electrical Nonmetallic Tubing** (FKHU) category in the Electrical Construction Materials Directory for names of manufacturers.
4. **Fill, Void or Cavity Material* -- Sealant --** Installed symmetrically on both sides of the wall. **The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.** Fill material applied within the annulus, flush with each end of the steel sleeve at the thickness shown in the table below:

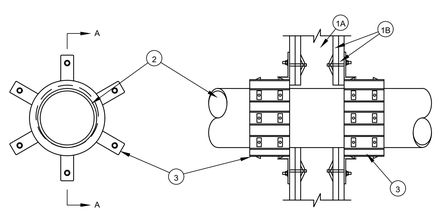
F Rating Hr	T Rating Hr	Fill Mtl Depth In.
1	0	5/8
2	2	1-1/4

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant
*Bearing the UL Listing Mark
*Bearing the UL Classification Marking

FIRESTOP SYSTEMS

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System No. W-L-2078
F Ratings - 1 & 2 Hr (See Item 1)
T Ratings - 1 & 2 Hr (see Item 1)



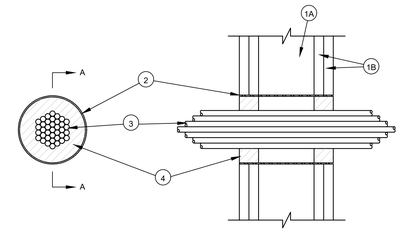
SECTION A-A

1. **Wall Assembly** The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL fire Resistance Directory and shall include the construction features noted below. **The hourly F Rating and T Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed:**
   A. **Studs** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. **Gypsum Board*** Nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 7 in.
2. **Through-Penetrants** One nonmetallic pipe, conduit or tubing to be installed within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** Nom 6 in. diam (or smaller) Schedule 40 solid-core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** Nom 6 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** Nom 6 in. diam (or smaller) Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   D. **Flame Retardant Polypropylene (FRPP) Pipe** Nom 6 in. diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   E. **Polyvinylidene Fluoride (PVDF) Pipe** Nom 4 in. diam (or smaller) PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
3. **Firestop Device* -- Firestop Collar** Firestop collar shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to both sides of the wall using the anchor hooks provided with the collar. (Minimum 2 anchor hooks for 1-1/2 and 2 in. diam pipes, 3 anchor hooks for 3 and 4 in. diam pipes, and 6 anchor hooks for 6 in. diam pipes). The anchor hooks are to be secured to the surface of wall with 3/16 2-1/2 in. long toggle bolts along with washers.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 643 50/1.5", CP 643 63/2", CP 643 90/3", CP 643 110/4" or CP 642 160/6" Firestop Collar
*Bearing the UL Classification Mark

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-3065
F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr



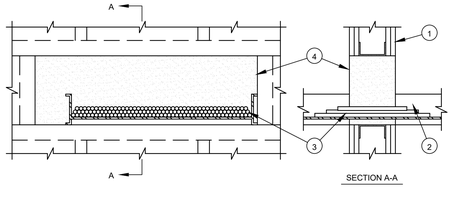
SECTION A-A

1. **Wall Assembly --** The 1 or 2 fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in . wide and spaced max 24 in. OC.
   B. **Gypsum Board* --** Nom 5/8 in. thick gypsum wallboard, with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 4 in.
   The F Rating of the firestop system is equal to the fire rating of the wall assembly.
2. **Metallic Sleeve --** (Optional) - Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 (or heavier) steel pipe or min 0.016 in. thick (28 MSG) galv steel sleeve cast into wall assembly with joint compound and installed flush with wall surfaces. When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. beyond the wall surfaces.
3. **Cables --** Aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 1/4 in. to max 3/4 in. Cables to be ridgily supported on both sides of the wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   C. Type RG/U coaxial cable with polyethylene (PE) insulation and PVC jacket having a max outside diameter of ½ in.
   D. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 5/8 in.
   E. Through Penetrating Products*-- Max three copper conductor No. 8 AWG . **Metal-Clad Cable+**.
   APC CABLE SYSTEMS INC
   F. Max 3/C (with ground)(or smaller) No. 8 AWG copper conductor cable with PVC insulation and jacketing.
4. **Fill, Void or Cavity Material* --** Sealant Fill material applied within the annulus, flush with each end of the steel sleeve or wall surface. Fill material installed symmetrically on both sides of the wall . A min 5/8 in. thickness of sealant is required for the 1 or 2 hr F Rating . An additional 1/2 in. diam bead of fill material shall be applied around the perimeter of sleeve on both sides of the wall when sleeve extends beyond surface of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP601S, CP606 or FS-One Sealant
*Bearing the UL Classification Mark

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-4034
F Ratings - 1 and 2 Hr (See Items 1 and 4)
T Rating - 0 Hr



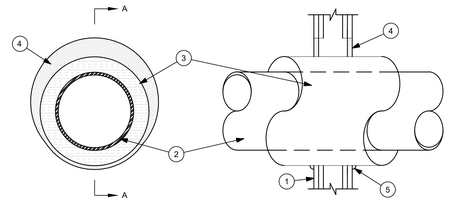
SECTION A-A

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.
   A. Studs Steel studs 3-1/2 in. deep, fabricated from 25 MSG galv steel, spaced max 24 in. OC.
   B. Gypsum Boards* The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max area of opening is 270 sq in. with max dimension of 30 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Cable Tray* Max 24 in. wide by 4 in. deep open-ladder cable tray with channel-shaped side rails formed of 0.10 thick aluminum and 1-1/2 in. wide by 1 in. channel shaped rungs spaced on 9 in. OC. The annular space between cable tray and periphery of opening shall be min 0 in. (point contact) to max 5 in. Cable tray to be rigidly supported on both sides of wall assembly.
3. Cables Aggregate cross-sectional area of cable tray to be max 45 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 300 pair No. 24 AWG telephone cable with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 500 kcmil single conductor power cable with PVC jacket material.
   C. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 3/8 in.
   D. Max 3/C No. 12 AWG copper conductor steel clad cable with PVC insulation material.
4. Firestop System The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material -- Foam Fill material applied within annulus, flush with both surfaces of the wall.Min fill material thickness for 1 Hr F Rating is 4-3/4 in. Min fill material thickness for 2 Hr F Rating is 6 in.
   B. Fill, Void or Cavity Material* -- Fire Blocks (Optional -- Not Shown) -- Nom 2 in. deep Fire Blocks applied in a single layer above cables within cable tray with 5 in. dimension projecting through opening in wall and long dimension parallel to wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS 657 Fire Block
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. W-L-5029
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 1/2, 3/4, 1 and 1-3/4 Hr (See Item 3)
L Rating At Ambient - 4 CFM/Sq Ft
L Rating At 400 F - Less Than 1 CFM/Sq Ft



SECTION A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. Wallboard, Gypsum* - 5/8 in. thick, 4 ft wide, with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants - One metallic pipe, conduit or tubing to be centered within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe - Nom 12 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Conduit - Nom 4 in. diam (or smaller) electrical metallic tubing or steel conduit.
   C. Copper Tubing - Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe - Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
3. Pipe Covering* - Nom 1, 1-1/2 or 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. See Pipe and Equipment Covering - Materials (BRGU) category in the Building Material Directory for the names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used. The hour T Rating of the firestop system is dependent on the hourly fire rating of the wall assembly in which it is installed, the size and type of through penetrant and the pipe covering thickness, as shown in the table below:

Wall Assembly Rating Hr	Through Penetrant Max Diam In.	Pipe Covering Thkns In.	Annular Space Min In.	Annular Space Max In.	T Rating Hr
1	A or B	4	1	0	1-1/2	1/2
1	C or D	2	1 or 1-1/2	0	1-1/2	1/2
1	A or B	4	1-1/2	0	1-1/2	1
1	A	12	2	0	1-7/8	3/4
1	C or D	6	2	0	1-7/8	1
2	A or B	4	1	0	1-1/2	1
2	C or D	4	1 or 1-1/2	0	1-1/2	1
2	C or D	6	2	0	1-7/8	1
2	A or B	4	1-1/2	0	1-1/2	1-3/4
2	A	12	2	0	1-7/8	1-1/2
2	C or D	6	2	0	1-7/8	1

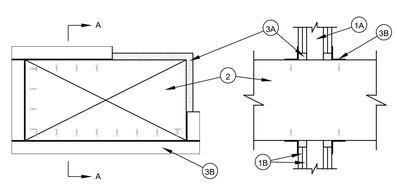
+Indicates penetrant type as itemized in Item 2.

4. Fill Void or Cavity Material* - Sealant - Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall for 1 or 2 hr walls, respectively. At the point contact location between pipe covering and gypsum wallboard, a min 1/2 in. diam bead of fill material shall be applied at the pipe covering/gypsum wallboard interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, Inc - FS-ONE Sealant
   *Bearing the UL Classification Marking

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-7040
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr



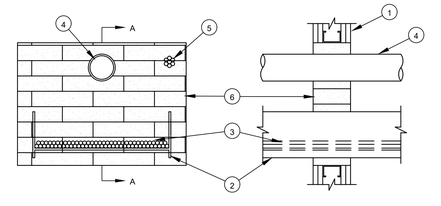
SECTION A-A

1. **Wall Assembly**The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory and shall include the following construction features:
   A. **Studs** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. Additional framing members shall be used to completely frame around opening.
   B. **Gypsum Board*** Nom 5/8 in. thick with square or tapered edges. The gypsum wallboard type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number . Max area of opening is 1300 in. with the dimension of 50 in. **The hourly F rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.**
2. **Steel Duct** Nom 24 in. by 48 in. (or smaller) No. 24 gauge (or heavier) galv steel duct to be installed within the firestop system. The annular space shall be min 0 (point contact) in. to a max 2 in. Duct to be rigidly supported on both sides of the wall assembly.
3. **Firestop System** The firestop system shall consist of the following:
   A. **Fill, Void or Cavity Material*--Sealant** Min 5/8 in. thickness of fill material applied within annulus flush with both surfaces of wall. At point contact location, a min 1/2 in. diam bead of fill material shall be applied to the wall/duct interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-ONE Sealant, CP601S Elastomeric Firestop Sealant or CP606 Flexible Sealant.
   B. **Steel Retaining Angle** No. 18 MSG (0.048 in.) galv steel angles cut to fit contour of duct with a 2 in. overlap on the duct and a min 1 in. overlap on the gypsum board assembly on both sufaces of wall. 2 in. leg of angle secured to duct with min No. 8 by 3/4 in. long sheet metal screws, spaced a max of 6 in. OC. When bead of fill material is used at joint contact locations, angles shall be installed prior to full material curing.
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

System No. W-L-8013
F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - 5 CFM/Sq Ft
L Rating At 400 F - 2 CFM/Sq Ft



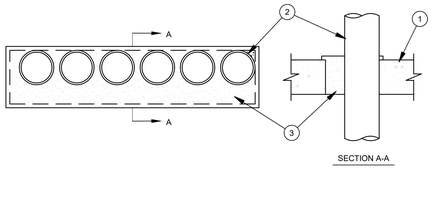
SECTION A-A

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constucted of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. Gypsum Board* 5/8 in. thick, 4 ft wide with square or tappered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max area of opening is 352 sq in. with max dimension of 22 in. wide. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Cable Tray* Max 18 in. wide by max 6 in. deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.065 in. thick aluminum or 0.060 in. thick steel and with 1-1/2 in. wide by 1 in. channel shape rungs spaced 9 in. OC or a 0.029 in. thick steel solid back, respectively. One cable tray to be installed in the opening. The max annular space between the cable tray and the periphery of the opening shall be min 1 in. to max 7 in. Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Cables Aggregate cross-sectional area of cables in cable tray to be max 30 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and PVC jacket.
   B. 100 pair - No. 24 AWG cable with PVC insulation and jacket.
   C. 1/C, 750 kcmil (or smaller) with PVC insulation and jacket.
4. Through-Penetrants One or more pipe or tube to be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces and the spacings between the pipes are maintained. The space between the pipe or tube and the periphery of the opening shall be min 1-1/2 in. to max 9-1/4 in. Pipe or tube to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of non-metallic or metallic pipes, or tubes may be used:
   A. Polyvinyl Chloride (PVC) Pipe Max 3 in. diam Schedule 40 solid core PVC pipe (or smaller) for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Steel Pipe Nom 6 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
   C. Conduit Nom 4 in. diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. Copper Pipe Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
   E. Copper Tube Nom 4 in. diam (or smaller) Type L (or heavier) copper tube.
4A. Pipe Covering (Not Shown)Nom 1-1/2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. See Pipe and Equipment Covering and Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 may be used.
5. Cables Max 1-1/2 in. diam tight bundle of cables installed within the opening and rigidly supported on both surfaces of wall. The space between the cables and periphery of the opening shall range from 1-3/16 in. min to a max of 1-1/2 in. Any combination of the following types and sizes of cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. 25 pair -- No. 24 AWG cable with PVC insulation and jacket.
   C. Type R GU/59 coaxial cable with PVC outer jacket.
   D. 24 fiber optic cable with PVC sub unit and outer jacket.
6. Firestop System The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* Fill, Void or Cavity Material*-Fire Blocks For walls incorporating max 3-5/8 in. steel studs or max 2 by 4 in. wood studs, fire block installed with 5 in. dimension projecting through and centered in opening. For walls constructed of larger steel or wood studs, fire block installed with long dimension passing through and centered in opening. Blocks may or may not be cut flush with both surfaces of wall. When multiple layers of gypsum board are used, blocks may be recessed 1/2 in. from surface of wall .
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS 657 Fire Block
   B. Fill, Void or Cavity Material* Sealant or Putty - Fill material to be forced into interstices of cables, between cables and cable trays, around each penetrant nd where obvious voids are observed to max extent possible on both surfaces of the penetration.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant, CP 618 Putty Stickor CP620 Fire Foam
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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System No. C-AJ-1388
F Rating - 2 Hr
T Rating - 0 Hr



SECTION A-A

1. **Floor or Wall Assembly** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening 224 sq in. with max dimension of 32 in. See **Concrete Blocks** (CAZT) in the Fire Resistance Directory for names of manufacturers.
2. **Conduit** One or more nom 4 in diam (or smaller) steel electrical metallic tubing or steel conduit to be installed either concentrically or eccentrically within the firestop system. The space between conduits or tubes shall be min 0 in. (point contact) to max 1/2 in. The annular space between the conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 2-3/4 in. Conduit or tube to be rigidly supported on both sides of floor or wall assembly.
   Conduit - Nom 4 in. diam (or smaller) steel electrical metallic conduit or steel conduit.
3. **Fill, Void or Cavity Material* - Foam** Min 5 in. thickness of fill material applied within the annulus, extending 1/2 in. above the top surface of the floor or both surfaces of wall and overlapping the concrete 1/2 in. on all sides of the opening.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 620 Fire Foam
   *Bearing the UL Classification Mark

FIRESTOP SYSTEMS

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REVISION

REVISION

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Troy, Michigan 48098-3276
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PBA Project No.: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT # 2024.111

STOUCKY VITALE ARCHITECTS
27172 WOODWARD AVENUE
ROYAL OAK, MI 48067-0925
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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRE STOP DETAILS

DATE
05-29-2026

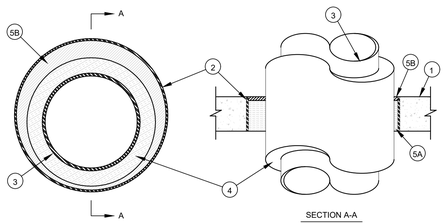
ISSUE
BIDS/PERMITS

SHEET No.
A710

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

System No. C-AJ-5091
F RATING = 2-HR.
T RATING = 1-HR.
L Rating At Ambient - 4 CFM/Sq Ft
L Rating At 400 F - Less Than 1 CFM/Sq Ft

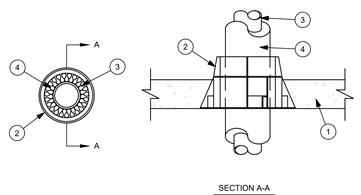


SECTION A-A

1. **Floor or Wall Assembly** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 19-1/2 in. See **Concrete Blocks** (CAZT) category in the Fire Resistance directory for names of manufacturers.
2. **Metallic Sleeve** (Optional) -- Nom 20 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
3. **Through Penetrants** One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:
A. **Steel Pipe** Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. **Copper Pipe** Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
C. **Copper Tubing** Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
4. **Pipe Covering** Nom 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all-service jacket. Longitudinal joints sealed with metal fasteners or factory-applied, self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the periphery of the opening shall be min 1/2 in. to a max 2-1/4 in.
See **Pipe Equipment Covering -- Materials** -- (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
5. **Firestop System** The firestop system shall consist of the following:
A. **Packing Material** Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
B. **Fill, Void or Cavity Material* -- Sealant** Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-One Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. F-A-5015
F Rating - 2 Hr
T Rating - 1/2 Hr



SECTION A-A

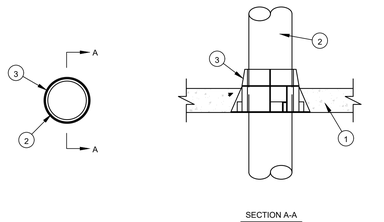
1. Floor Assembly Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete.
1A. Floor Assembly - (Optional - Not Shown) The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
A. Concrete Min 2-1/2 in thick reinforced lightweight or normal weight (100-150 pcf) concrete.
B. Steel Floor and Form Units* Composite or non-composite max 3 in. deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* Cast in place firestop device permanently embedded during concrete placement or grouted in concrete floor assembly in accordance with accompanying installation instructions with a max 2 in. projection above the top surface of the concrete.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 680-75/2.5", CP 680-110/4", CP 680-160/6"
3. Through Penetrants One nonmetallic pipe or conduit to be installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor assembly. The following types of pipe, conduit or tubing may be used:
Steel Pipe Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
Copper Tubing Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
Copper Pipe Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
The firestop device and metallic penetrant shall be sized as follows:

Nom Pipe Diameter	Firestop Device
1 in.	CP 680-75/2.5"
2 in.	CP 680-110/4"
4 in.	Cp 680-160/6"

4. Tube Insulation - Plastics+ Nom ¾ in. thick acryonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. See Plastics+ (QMFZ2) Category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. F-A-2053
F Rating - 2 Hr
T Rating - 0 Hr



SECTION A-A

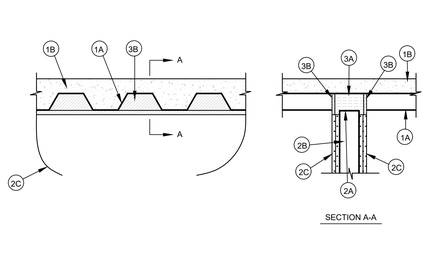
1. Floor Assembly Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete.
1A. Floor Assembly - (Optional - Not Shown) The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
A. Concrete Min 2-1/2 in thick reinforced lightweight or normal weight (100-150 pcf) concrete.
B. Steel Floor and Form Units* Composite or non-composite max 3 in. deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* Cast in place firestop device permanently embedded during concrete placement or grouted in concrete assembly in accordance with accompanying installation instructions with a max 2 in. projection above the top surface of the concrete.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 680-75/2.5", CP 680-110/4", CP 680-160/6"
3. Through Penetrants One nonmetallic pipe or conduit to be installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor- ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
A. Polyvinyl Chloride (PVC) Pipe Nom 6 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
B. Chlorinated Polyvinyl Chloride (CPVC) Pipe Nom 6 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
The firestop device and nonmetallic penetrant shall be sized as follows:

Nom Pipe Diameter	Firestop Device
1-1/2 in. to 2 in.	CP 680-75/2.5"
3 in. to 4 in.	CP 680-110/4"
6 in.	CP 680-160/6"

Nonmetallic pipes used in conjunction with CP 680-110/4" and CP 680-160/6"
Cast-In Firestop Devices are to be installed only from the top side of the assembly.
*Bearing the UL Classification Mark

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System No. HW-D-0045
Assembly Ratings - 1 & 2 Hr (See Item 2)
Nominal Joint Width - 3/4 in.
Class II Movement Capabilities - 33% Compression or Extension

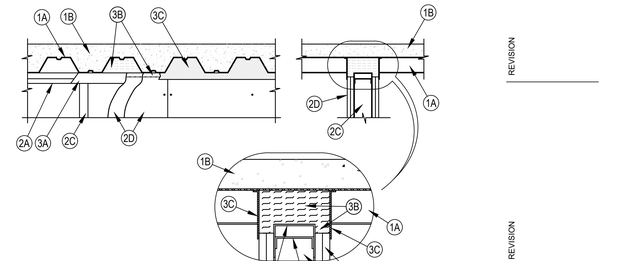


SECTION A-A

1. Floor Assembly The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 3 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 3 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
2. Wall Assembly The 1 or 2 hr fire-rated gypsum board /stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Ceiling Runners Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 2 in. flanges. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or by welds spaced 12 in. OC.
A1. Light Gauge Framing*-Slotted Ceiling Runner As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners spaced max 24 in. OC.
SLIPTRACK SYSTEMS INC -- --SLP-TRK
A2. Light Gauge Framing*-Vertical Deflection Ceiling Runner As an alternate to the ceiling runners in Item 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners spaced max 24 in. OC.
THE STEEL NETWORK INC -- VertiTrack VTD250, VTD358, VTD400, VTD600 and VTD800
B. Steel studs to be min 2-1/2 in. wide. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. OC.
C. Gypsum Board* For 1 hr assembly, one layer of 5/8 in. thick gypsum board is required in the individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. thick gypsumboard is required in the individual Wall and Partition Design. For both hourly ratings, a nominal 3/4 in. gap shall be maintained between the top of the gypsum board and the bottom surface of the steel floor units and the top row of screws shall be installed into the studs 3 in. below the valleys of the steel floor units. The hourly rating of the joint system is dependent on the hourly fire rating of the wall.
3. Joint System Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width. The joint system consists of a packing material and a fill material between the top of the wallboard and the bottom of the floor or roof, as follows:
A. Forming Material* Nom 4 pcf mineral wool batt insulation, cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck flutes above the ceiling runner. The mineral wool insulation is to project beyond each side of the ceiling runner, recessed 1/2 in. from both wall surfaces. For 2 hr assembly, an additional 1-1/2 in. thick by 3/4 in. wide sections of mineral wool batt insulation compressed 50 percent and installed cut edge first to fill the 3/4 in. gap between the top of gypsumboard and bottom of the steel deck. The forming material shall be recessed 1/2 in. from each side of the wall.
FIBREX INSULATIONS INC -- FBX Safing Insulation
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling runner recessed 1/2 in. from wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* -- Sealant Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the gypsum board and the bottom of the steel deck, flush with each surface of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP606 Flexible Firestop Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

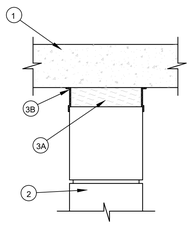
System No. HW-D-0087
Assembly Rating - 1 and 2 Hr (See Items 2 & 3B)
Nominal Joint Width - 2 In.
Class II and III Movement Capabilities - 20% Compression or Extension



1. F**loor Assembly** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor and Form Units*** Max 3 in. deep galv steel fluted floor units.
B. **Concrete** Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
C. **Spray--Applied Fire Resistive Materials*** (Optional)--(Not Shown)--Prior to the installation of the deflection channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C) the steel floor units may be sprayed with a min 5/16 in. to max 1-3/4 in. thickness of fire resistive material.
W R GRACE & CO - CONN CONSTRUCTION PRODUCTS DIV -- Type MK-6-HY
1A. **Roof Assembly** (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. **Steel Roof Deck** Max 3 in. deep galv steel fluted roof deck.
B. **Roof Insulation** Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
1B. **Roof Assembly** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. **Steel Roof Deck** Max 3 in. deep galv steel fluted roof deck.
B. **Spray--Applied Fire Resistive Materials*** (Not Shown)--Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.
2. **Wall Assembly** The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400-Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor and Ceiling Runner**s Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 1 in. flanges. Ceiling runner installed within the U-shaped deflection channel (Item 3A) with a 1-1/2 in. gap maintained between the top of ceiling runner and top of deflection plate.
A1. **Light Gauge Framing*-Slotted Ceiling Runner** (For use in Applications where the nominal joint width does not exceed 1 In.) As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners, through optional spray-applied fire resistive material, spaced max 24 in. OC. When vertical deflection ceiling runner is used, deflection channel (Item 3A) shall not be used.
METAL-LITE INC -- The System
SLIPTRACK SYSTEMS INC -- SLP-TRK
A2. **Light Gauge Framing*-Vertical Deflection Ceiling Runner** (For use in applications where the nominal joint width does not exceed 1 In.) As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners, through optional spray-applied fire resistive material, spaced max 24 in. OC. When vertical deflection ceiling runner is used, deflection channel (Item 3A) shall not be used.
THE STEEL NETWORK INC -- VertiTrack VTD250, VTD358, VTD400, VTD600 and VTD800
B. **Studs** Steel studs to be min 2-1/2 in. wide. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. OC.
C. **Gypsum Board*** Gypsum board installed to a min total thickness of 5/8 in. or 1-1/4 in. on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 2 in. gap shall be maintained between the top of the gypsum board and the bottom of the steel deck and the top row of screws shall be installed into the studs 4 to 4-1/2 in. below the lower surface of the floor or roof. **The hourly rating of the joint system is dependent on the hourly rating of the wall.**
3. J**oint System Max separation between bottom of floor and top of wall at time of installation of joint system is 2 in. The joint system is designed to accommodate a max 20 percent compression or extension from its installed width.** The joint system consists of a deflection channel, forming material and a fill material as follows:
A. **Deflection Channel** A nom 3-11/16 in. wide by 3 in. deep min No. 22 gauge steel U-shaped channel. Deflection channel secured to valleys of steel deck through fire resistive material with steel fasteners or by welds spaced max 12 in. OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1-1/2 in. gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.
B. **Forming Material*** Nom 4 pcf density mineral wool batt insulation cut approx 25 percent wider than the flutes and with a length approx equal to the overall thickness of the wall. Multiple pieces stacked on top of each other, as needed, and then compressed 50 percent in thickness and inserted into the flutes of the steel deck above the top of the ceiling runner. The mineral wool batt insulation is to project beyond each side of the ceiling runner, flush with wall surfaces. Additional 5/8 in. and 1-1/4 in. wide strips for 1 and 2 hr rated assemblies, respectively, of nom 4 pcf mineral wool batt insulation are to be cut to fill the gap between the top of the gypsum board and bottom of the steel deck. The strips of mineral wool are compressed 50 percent in thickness and tightly packed, cut edge first, into the gap between the top of the gypsum board and bottom of the steel deck on both sides of the wall.
ROCK WOOL MANUFACTURING CO -- Delta Board
B1. **Forming Material*--Plugs (For use with 3-1/2 in. deep studs or larger)** (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall project beyond each side of the ceiling runner, flush with wall surfaces. Additional forming material, described in Item 3B, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and the bottom of the steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP777 Speed Plugs
B2. **Forming Material* - Strips** (Optional) - Nom 5/8 in. and 1-1/4 in. wide precut mineral wool strips for 1 and 2 hr rated assemblies, respectively. The strips are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP 767 Speed Strips
C. **Fill, Void or Cavity Material*** Min 1/8 in. wet thickness of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. onto gypsum board and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel deck*, the fill material is to overlap the gypsum board a min of 1/2 in. and the spray-applied fire resistive material a min of 2 in. on both sides of wall. When spray-applied fire resistive materials are used, the CP672 firestop spray shall overlap the wall a min 1/2 in. and overlap the spray-applied fire resistive material a min of 2 in. on both sides of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP672 Firestop Spray
*Bearing the UL Classification Mark

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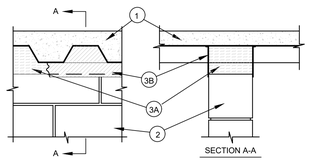
System No. HW-D-0097
Assembly Rating - 2 Hr
Nominal Joint Width - 2 In.
Class II Movement Capabilities - 12.5% Compression or Extension



1. Floor Assembly Min 4-1/2 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete.
2. Wall Assembly Min 4-5/8 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) categony in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max width of joint (at time of installation of joint system) is 2 in. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Min 4.0 pcf mineral wool batt insulation installed in joint opening as a permanent form. Batt cut to min width of 4-3/8 in. and installed cut edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and such that the compressed batt sections are recessed from both surfaces of wall to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
Rock Wool Mfg. Co. - Delta Board
B. Fill, Void or Cavity Material* - Sealant - Min 1/8 in. wet thickness of fill material applied within the joint, flush with both surfaces of wall and lapping 1/2 in. onto otom surface of floor and wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, Inc. - CP672 Firestop Spray
*Bearing the UL Classification Marking

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System No. HW-D-0098
Assembly Rating - 2 Hr
Nominal Joint Width - 1 In.
Class II and III Movement Capabilities - 12.5% Compression or Extension

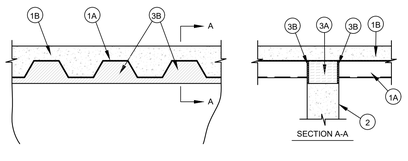


SECTION A-A

1. Floor Assembly The fire rated fluted steel unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 2 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in thick reinforced concrete as measured from top plane of the floor units.
C. Spray-Applied Fire Resistive Materials* (Optional)--(Not Shown)--Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. to max 1-3/4 in. thickness of fire resistive material.
W R GRACE & CO - CONN
CONSTRUCTION PRODUCTS DIV -- Type MK-6-HY
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 2 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
1B. Roof Assembly As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 2 in. deep galv steel fluted roof deck.
B. Spray--Applied Fire Resistive Materials* (Not Shown)--Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.
2. Wall Assembly Min 6 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Nom 4.0 pcf mineral wool batt insulation compressed and firmly packed to completely fill the flutes and the gap between the top of the wall and bottom of the floor or roof as a permanent form. Batt insulation cut to the shape of the fluted steel deck, approx 33 percent larger than the flutes. Pieces compressed and installed vertically into the flutes above the top of the wall. Additional pieces of batt insulation, min 6 in. wide, installed edge-first into joint opening between bottom f fluted steel deck and top of wall, parallel with joint direction, such that batt sections are compressed min 33 percent in thickness. Compressed batt sections are flush with both surfaces of wall. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
ROCK WOOL MANUFACTURING CO -- Delta Board
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and the bottom of the steel floor units.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* Min 1/8 in. wet thickness of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. onto wall and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel steel deck, the fill material is to overlap the wall a min of 1/2 in. and the spray-applied fire resistive material a min of 2 in. on both sides of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP672 Firestop Spray
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. — C UL US CLASSIFIED

System No. HW-D-0081
Assembly Rating - 2 Hr
Nominal Joint Width - 3/4 in.
Class II Movement Capabilities - 33% Compression or Extension



1. Floor Assembly The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 3 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 3 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
2. Wall Assembly Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of an UL Classified Concrete Blocks*.
See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width. The joint system consists of a packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:
A. Forming Material Min 4 in. thickness of 4 pcf density mineral wool batt insulation was cut to the shape of the fluted deck, approximately 20 percent larger than the rea of the flutes and compressed into the flutes of the steel deck above the wall assembly. The forming material shall be recessed 1/2 in. from each side of the wall. Additional pieces of forming material, compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
FIBREX INSULATIONS INC -- FBX Safing Insulation
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted deck, friction fit to completely fill the flutes. The lugs shall be recessed 1/2 in. from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the all and the bottom of the steel deck, flush with each surface of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP606 Flexible Firestop Sealant
*Bearing the UL Classification Mark

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REVISION

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PBA Project No.: 2024.063
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PROJECT # 2024.111

SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRE STOP DETAILS

DATE
05-29-2026

ISSUE
BIDS/PERMITS

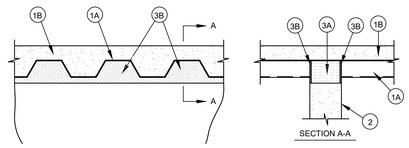
SHEET No.
A711

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

System No. HW-D-0081

Assembly Rating - 2 Hr
Nominal Joint Width - 3/4 in.
Class II Movement Capabilities - 33% Compression or Extension



1. Floor Assembly The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:
A. Steel Floor and Form Units* Max 3 in. deep galv steel fluted floor units.
B. Concrete Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
1A. Roof Assembly (Not Shown) -- As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. Steel Roof Deck Max 3 in. deep galv steel fluted roof deck.
B. Roof Insulation Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.
2. Wall Assembly Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of an UL Classified Concrete Blocks*.
See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. Joint System Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width. The joint system consists of a packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:
A. Forming Material Min 4 in. thickness of 4 pcf density mineral wool batt insulation was cut to the shape of the fluted deck, approximately 20 percent larger than the rea of the flutes and compressed into the flutes of the steel deck above the wall assembly. The forming material shall be recessed 1/2 in. from each side of the wall. Additional pieces of forming material, compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
FIBREX INSULATIONS INC -- FBX Safing Insulation
A1. Forming Material*--Plugs (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted deck, friction fit to completely fill the flutes. The lugs shall be recessed 1/2 in. from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP777 Speed Plugs
B. Fill, Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the all and the bottom of the steel deck, flush with each surface of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP606 Flexible Firestop Sealant
*Bearing the UL Classification Mark

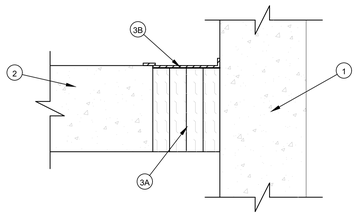
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. FW-D-1013

Assembly Rating - 2 Hr
Nominal Joint Width - 3-1/2 in.
Class II Movement Capabilities - 14% Compression or Extension



1. Wall Assembly - Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Floor Assembly - Min 4-1/2 in. thick reinforced lightweight or normal weight (100 - 150 pcf) structural concrete.
3. Joint System - Max separation between edge of floor and face of wall (at time of installation of joint system) is 3-1/2 in. The joint system is designed to accommodate a max 14 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Packing Material - Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of
4-3/8 in. and installed edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 42 percent in thickness and that the compressed batt sections are recessed from top surface of the floor as required to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in apart along the length of the joint.
B. Fill, Void or Cavity Material* - Sealant - Min 1/8 in. thickness of fill material applied within the joint, flush with top surface of floor and lapping a min 1/2 in. onto the top surface of the floor and edge of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, Inc. - CP672 Firestop Spray.
*Bearing the UL Classification Marking

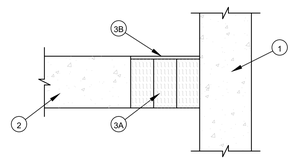
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. FW-D-1037

Assembly Rating - 2 Hr
Nominal Joint Width - 6 In.
Class II Movement Capabilities - 10% Compression or Extension



1. Wall Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufactures.
2. Floor Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.
3. Joint System Max separation between edge of floor and face of wall (at time of installation of joint system) is 6 in. The joint system is designed to accommodate a max 10 percent compression or extension from its installed width. The joint system shall consist of the following.
A. Forming Material Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of 4 in. and installed edgefirst into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and that the compressed batt sections are recessed a min of 1/2 in. from top surface of the floor to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint.
THERMAFIBER L L C -- Type SAF
B. Fill Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material applied within the joint, flush with top surface of floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP604 Self-Leveling Firestop Sealant
*Bearing the UL Classification Mark

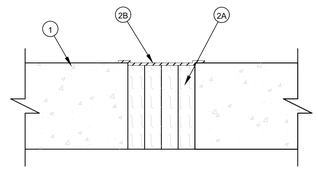
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CLASSIFIED C UL US

System No. FF-D-1013

Assembly Rating - 2 Hr
Nominal Joint Width - 3-1/2 in.
Class II Movement Capabilities - 14% Compression or Extension



1. Floor Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100 - 150 pcf) structural concrete.
2. Joint System Max width of joint (at time of installation of joint system) is 3-1/2 in. The joint system is designed to accommodate a max 14 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Packing Material Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of 4-3/8
in. and installed edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 42 percent in thickness and that the compressed batt sections are recessed from top surface of the floor as required to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint.
B. Fill, Void or Cavity Material* - Sealant Min 1/8 in. wet thickness of fill material applied within the joint, flush with top surface of floor and lapping
a min 1/2 in. onto the top surface of the floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP672 Firestop Spray
*Bearing the UL Classification Marking

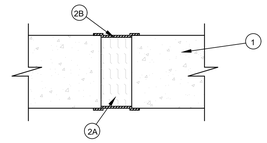
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. WW-D-0017

Assembly Rating - 2 Hr
Nominal Joint Width - 2 in.
Class II Movement Capabilities - 12.5% Compression or Extension



1. Wall Assembly Min 4-5/8 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.
2. Joint System Max width of joint (at time of installation of joint system) is 2 in. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Min 4.0 pcf mineral wool batt insulation installed in joint opening as a permanent form. Batt cut to min width of 4-3/8 in. and installed cut edge-first into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and such that the compressed batt sections are recessed from both surfaces of wall to accommodate the required thickness of fill material. Adjoining lengths of
batt to be tightly butted with butted seams spaced min 48 in. apart along the lengths of the joint.
ROCK WOOL MANUFACTURING CO - Delta Board
B. Fill, Void or Cavity Material* Min 1/8 in. thickness of fill material applied within the joint, flush with both surfaces of wall and lapping 1/2 in. onto bottom surface of floor and wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP672 Firestop Spray
*Bearing the UL Classification Marking

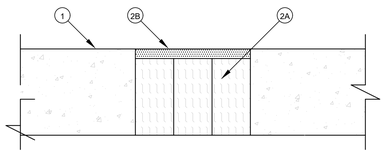
HILTI FIRESTOP SYSTEMS

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CLASSIFIED C UL US

System No. FF-D-1039

Assembly Rating - 2 Hr
Nominal Joint Width - 6 In.
Class II Movement Capabilities - 10% Compression or Extension



1. Floor Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.
2. Joint System Max width of joint (at time of installation of joint system) is 6 in. The joint system is designed to accommodate a max 10 percent compression or extension from its installed width. The joint system shall consist of the following:
A. Forming Material Min 4 pcf mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt cut to min width of 4 in. and installed edgefirst into joint opening, parallel with joint direction, such that batt sections are compressed min 50 percent in thickness and that the compressed batt sections are recessed a min of 1/2 in. from top surface of the floor to accommodate the required thickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint.
THERMAFIBER L L C -- Type SAF
B. Fill Void or Cavity Material* - Sealant Min 1/2 in. thickness of fill material applied within the joint, flush with top surface of floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP604 Self-Leveling Firestop Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS

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SVA

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCE BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

PROJECT # 2024.111

SHEET TITLE
FIRE STOP DETAILS

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
A712

STATE OF MICHIGAN
JOHN A. VITALE
ARCHITECT
No. 1301029086
LICENSED ARCHITECT

ELECTRICAL SYMBOL LIST

(NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT)

SYMBOL	DESCRIPTION
NL/EM / X / y / ZZ–#	DENOTES NIGHT LIGHT AND/OR EMERGENCY LIGHT X DENOTES FIXTURE TYPE y DENOTES LIGHTING CONTROL ZONE ZZ–# DENOTES PANELBOARD AND BREAKER
	FILL DENOTES EMERGENCY FIXTURE
/	TROFFER LIGHT
	STRIP LIGHT
	LINEAR LIGHT
	MULTIHEAD ADJUSTABLE LIGHT
/	DOWN LIGHT
/	DIRECTIONAL DOWN LIGHT
/	DECORATIVE LIGHT
/	DECORATIVE LIGHT
/	WALL MOUNTED LIGHT
	WALL SCONCE
	ARM MOUNTED LIGHT
	LIGHTING TRACK
	TRACK LIGHT
	ADJUSTABLE FLOOD LIGHT
	STEP LIGHT
	LED TAPE
	REMOTE DRIVER
/	HIGH BAY LIGHT
	POLE MOUNTED LIGHT
	POST TOP LIGHT
/	BOLLARD LIGHT
	IN GROUND LIGHT
	EMERGENCY LIGHT
	EXIT LIGHT WITH DIRECTIONAL ARROWS (FILLED AREA INDICATES FACE)
	EXIT LIGHT WITH DIRECTIONAL ARROWS (FILLED AREA INDICATES FACE)
	EXIT LIGHT – WALL MOUNTED (FILLED AREA INDICATES FACE)
	EXIT/EMERGENCY LIGHT COMBO – WALL MOUNTED (FILLED AREA INDICATES FACE)
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
ALCR	AUTOMATIC LOAD CONTROL RELAY
LC / y	LIGHTING CONTROL DEVICE – REFER TO LIGHTING CONTROL SCHEDULE y DENOTES LIGHTING CONTROL ZONE
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE
XX	ROOM CONTROL DESIGNATION – REFER TO LIGHTING CONTROL SCHEDULE
S	SINGLE POLE TOGGLE SWITCH
S_2	TWO POLE TOGGLE SWITCH
S_3	3 WAY TOGGLE SWITCH
S_4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K_3	3 WAY KEY OPERATED SWITCH
K_4	4 WAY KEY OPERATED SWITCH
KL	LOW VOLTAGE KEY OPERATED SWITCH
D	DIMMER SWITCH
D_3	3 WAY DIMMER SWITCH
D_O	DIMMER OCCUPANCY SENSOR SWITCH
S_P	PILOT SWITCH

SYMBOL	DESCRIPTION
TWC	TWO–WAY COMMUNICATION SYSTEM CALL STATION
TWCD	TWO–WAY COMMUNICATION SYSTEM AUTO DIALER
TWCA	TWO–WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL
TWCP	TWO–WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK–UP
TWCDP	TWO–WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK–UP
RGP	REMOTE GENERATOR ANNUCIATOR PANEL
ATS	AUTOMATIC TRANSFER SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
/ X	SINGLE / DUPLEX RECEPTACLE OUTLET "X" INDICATES TYPE
/	SINGLE/DUPLEX RECEPTACLE OUTLET CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM (SIMILAR FOR TAMPER RESISTANT, GFCI, USB)
/	DUPLEX / TAMPER RESISTANT RECEPTACLE OUTLET HALF CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM
	QUAD RECEPTACLE OUTLET
	ABOVE COUNTER DUPLEX RECEPTACLE OUTLET (SIMILAR FOR TAMPER RESISTANT, CONTROLLED, SINGLE, QUADS, EMERGENCY, UPS, USB, AND GFCI RECEPTACLE OUTLETS)
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE OUTLET
	DEAD FRONT GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX EMERGENCY RECEPTACLE OUTLET
	DUPLEX TAMPER RESISTANT RECEPTACLE OUTLET
X	QUAD TAMPER RESISTANT RECEPTACLE OUTLET
	DUPLEX UPS RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET WITH 2 USB PORTS
	4 PORT USB CHARGING STATION
/	CEILING MOUNTED DUPLEX/QUAD RECEPTACLE OUTLET
	POWER POLE
/	WALL/CEILING MOUNTED SPECIAL RECEPTACLE OUTLET – REFER TO ELECTRICAL STANDARD SCHEDULES
	MULTI–OUTLET SURFACE RACEWAY
"X"	MULTI–SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
PTX	POKE–THROUGH ASSEMBLY "X" INDICATES TYPE
FBX	FLOOR SERVICE FITTING "X" INDICATES TYPE
AFX	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE
RX	CORD REEL "X" INDICATES TYPE
S_3	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S_3S_3	3–WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S_4S_4	4–WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S_T	DIGITAL TIME SWITCH
S_I	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER–ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION
S_O	OCCUPANCY SENSOR
S_{O2}	OCCUPANCY SENSOR
OS X	OCCUPANCY SENSOR "X" INDICATES TYPE

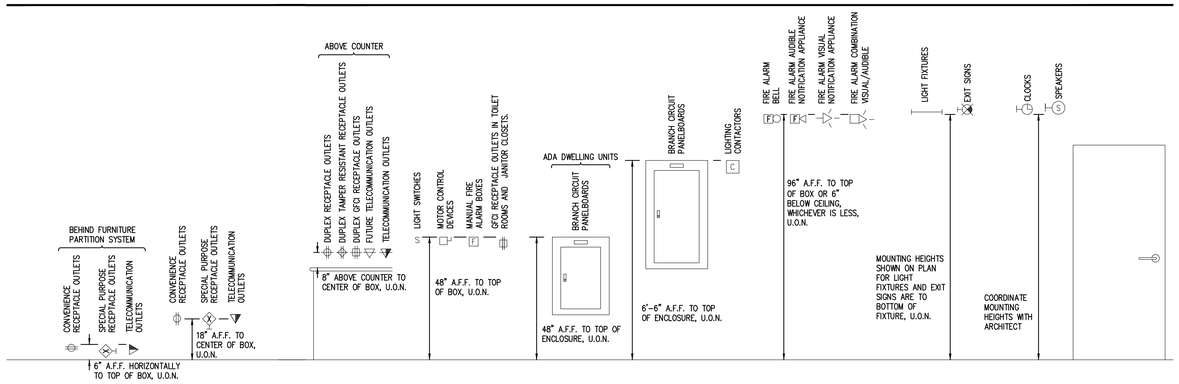
REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER.
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER
	NON–FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
	GROUND ROD
	GROUND CONNECTION
HH	HANDHOLE
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
X	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	ABOVE COUNTER TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR
IC	INTERCOM OUTLET
S	SPEAKER
S	SPEAKER – WALL MOUNTED
MIC	MICROPHONE
VC	VOLUME CONTROL/STATION SELECTOR
B	SIGNALING BELL
	SINGLE FACE CLOCK – CEILING MOUNTED
	SINGLE FACE CLOCK – WALL MOUNTED
	DOUBLE FACE CLOCK – CEILING MOUNTED
	DOUBLE FACE CLOCK – WALL MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED
TC	TIME CLOCK
C	CONTACTOR
P	PHOTOCELL
TT	TWIST TIMER
EVSE	ELECTRICAL VEHICLE SUPPLY EQUIPMENT
DCFC	DC FAST CHARGER – STANDALONE
DCPM	DC FAST CHARGER – POWER MODULE
DCDP	DC FAST CHARGER – DISPENSER

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
OR	CARD READER
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
DO	DOOR OPERATOR
DA	DOOR ACTUATOR
AC	ACCESS CONTROL STATION
ACCP	ACCESS CONTROL CONTROL PANEL
ACPS	ACCESS CONTROL POWER SUPPLY
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
X	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	KEY INTERLOCK
G	ENGINE GENERATOR
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE
CR	CONTROL RELAY
TDR	TIME DELAY RELAY
PRM	PHASE ROTATION MONITOR
	CAMLOK – MALE
	CAMLOK – FEMALE
	THERMAL OVERLOAD RELAY
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	N.O. PUSH BUTTON SINGLE CIRCUIT
	N.C. PUSH BUTTON SINGLE CIRCUIT
X–X	CABLE VAULT "X–X" INDICATES TYPE
	BRANCH CIRCUIT PANELBOARD
	LOAD CENTER
	MOTOR CONTROL CENTER
T	TRANSFORMER
	DISTRIBUTION EQUIPMENT
GB	ELECTRICAL GROUNDING BUS BAR
PB	PLUG IN BUSWAY
FB	FEEDER BUSWAY
12x4	CABLE TRAY – ALL SIZES IN INCHES

SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
RT	REMOTE TEST STATION (FOR DUCT DETECTOR)
HD	HEAT DETECTOR
BD	PROJECTED BEAM DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE NOTIFICATION APPLIANCE– CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE – CEILING MOUNTED
F	FIREFIGHTERS PHONE JACK
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
MM	ADDRESSABLE MONITORING MODULE
CM	ADDRESSABLE CONTROL MODULE
TS	ADDRESSABLE MONITORING MODULE FOR TAMPER SWITCH
FS	ADDRESSABLE MONITORING MODULE FOR FLOW SWITCH
DR	MAGNETIC DOOR RELEASE

STANDARD MOUNTING HEIGHTS



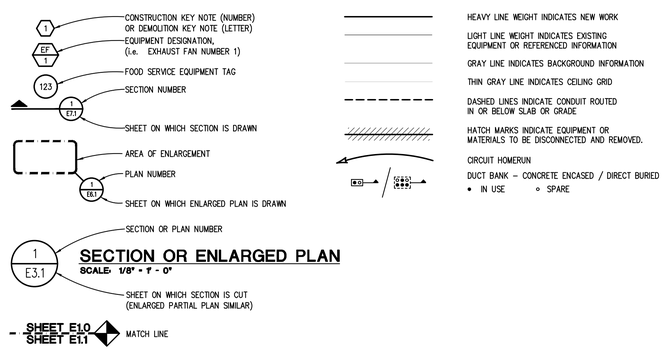
ELECTRICAL DRAWING INDEX

SHEET NO.	SHEET TITLE
E0.1	ELECTRICAL STANDARDS AND DRAWING INDEX
E0.2	ELECTRICAL STANDARD SCHEDULES
ED1.0	GROUND FLOOR ELECTRICAL DEMOLITION PLAN
ED1.1	FIRST FLOOR ELECTRICAL DEMOLITION PLAN
ED1.2	SECOND FLOOR ELECTRICAL DEMOLITION PLAN
ED1.3	THIRD FLOOR ELECTRICAL DEMOLITION PLAN
ED1.4	FOURTH FLOOR ELECTRICAL DEMOLITION PLAN
ED1.5	FIFTH FLOOR ELECTRICAL DEMOLITION PLAN
ED1.6	SIXTH FLOOR ELECTRICAL DEMOLITION PLAN
ED1.7	PENTHOUSE ELECTRICAL DEMOLITION PLAN
E1.0	GROUND FLOOR ELECTRICAL NEW WORK PLAN
E1.1	FIRST FLOOR ELECTRICAL NEW WORK PLAN
E1.2	SECOND FLOOR ELECTRICAL NEW WORK PLAN
E1.3	THIRD FLOOR ELECTRICAL NEW WORK PLAN
E1.4	FOURTH FLOOR ELECTRICAL NEW WORK PLAN
E1.5	FIFTH FLOOR ELECTRICAL NEW WORK PLAN
E1.6	SIXTH FLOOR ELECTRICAL NEW WORK PLAN
E1.7	PENTHOUSE ELECTRICAL NEW WORK PLAN
E5.1	RISER DIAGRAMS
E7.1	ELECTRICAL DETAILS AND DIAGRAMS

ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	AMPERES
AER	ARC ENERGY REDUCTION
AF	AMPERES FRAME (BREAKER RATING)
AFCI	ARC FAULT CIRCUIT INTERRUPTER
A.F.F.	ABOVE FINISH FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	AUDIENCE LEFT
ALCR	AUTOMATIC LOAD CONTROL RELAY
AR	AUDIENCE RIGHT
AT	AMPERES TRIP (BREAKER SETTING)
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
BKR	BREAKER
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DEMO	DEMOLITION
DIM	DIMENSION
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DS	DOWNSTAGE
DWG	DRAWING
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ELEC	ELECTRICAL
EM/ EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EO	ELECTRICALLY OPERATED
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FOH	FRONT OF HOUSE
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FU	FUSE
G/GRD/EG	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HOA	HAND–OFF–AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KA	THOUSAND AMP
KV	KILOVOLT
KVA	KILOVOLT – AMPERES
KW	KILOWATT
KWH	KILOWATT – HOURS
LA	LIGHTNING ARRESTOR
LP	LIGHTING PANEL
LDP	LIGHTING DISTRIBUTION PANEL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MISC.	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MOP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON–FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
P	POLE
PB	PUSHBUTTON STATION
PH	PHASE
PT	POTENTIAL TRANSFORMER
PDP	POWER DISTRIBUTION PANEL
RECEPT.	RECEPTACLE
RDP	RECEPTACLE DISTRIBUTION PANEL
RP	RECEPTACLE PANEL
RSC	RIGID STEEL CONDUIT
SCCR	SHORT CIRCUIT CURRENT RATING
SCHED	SCHEDULE
SPD	SURGE PROTECTION DEVICE
ST	SHUNT TRIP
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOX
TELECOM	TELECOMMUNICATIONS
TR	TAMPER RESISTANT
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UVR	UNDERVOLTAGE RELEASE
US	UPSTAGE
V	VOLTS
W	WIRE OR WATTS
WAP	WIRELESS ACCESS POINT
WG	WIRE GUARD
WP	WEATHERPROOF
WR	WEATHER RESISTANT
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
(E)	EXISTING
(R)	RELOCATED

STANDARD METHODS OF NOTATION



REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
ELECTRICAL STANDARDS AND DRAWING INDEX

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E0.1

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FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						KEYED NOTES
	WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE				
	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G, 2PH, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)	
15–20	12	12	3/4"	3/4"	3/4"	3/4"	
25–30	10	10	3/4"	3/4"	3/4"	3/4"	
35–40	8	10	3/4"	3/4"	3/4"	3/4"	
45–50	8 (6)	10	3/4"	3/4"	3/4"	3/4"	1
60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")	1
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"	
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"	1
90–100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1
110	2 (1)	6	–	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1
125	1 (1/0)	6	–	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	1
150	1/0	6	–	1 1/2"	1 1/2"	1 1/2"	
175	2/0	6	–	2"	2"	2"	
200	3/0	6	–	2"	2"	2 1/2"	
225	4/0	4	–	2"	2"	2 1/2"	
250	250	4	–	2 1/2"	2 1/2"	2 1/2"	
300	350	4	–	2 1/2"	2 1/2"	3"	
350	500	3	–	3"	3"	3"	
400	500	3	–	3"	3"	3"	

GENERAL NOTES:
1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. COPPER CONDUCTORS ARE BASED ON THHN/THWN-2 UP TO AND INCLUDING #4/0. COPPER CONDUCTORS LARGER THAN #4/0 AND ALUMINUM CONDUCTORS ARE BASED ON XHHW-2.
4. CONDUIT SIZES ARE VALID FOR EMT OR RSC. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
5. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
6. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.

KEYED NOTES:
1. CONDUCTORS ARE BASED ON 90°C, 600V INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER(S)	WATTAGE	VOLTAGE	LIGHT CHARACTERISTICS	CONTROLS	REMARKS
X	EXIT SIGN	LITHONIA LQM SERIES SURE-LIGHT LPX SERIES COMPASS CE SERIES HE WILLIAMS EXIT SERIES	1	120/277	LQM-S-W-X-G-MVOLT-XX-XX		MATCH EXIT SIGN COLOR WITH EXISTING

GENERAL NOTES:
1. WATTAGE LISTED IS FROM THE BASIS OF DESIGN MANUFACTURER.
2. ALL LUMINAIRES TO BE AS SPECIFIED OR EQUAL APPROVED BY PBA AND/OR ILLUMINART.

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

	WIRE		RACEWAY			
	COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	ELECTRICAL METALLIC TUBING (EMT)	RIGID STEEL CONDUIT (RSC)	FLEXIBLE METAL CONDUIT (FMC)	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)
FEEDERS - INTERIOR						
DAMP AND WET LOCATIONS	X			X		
BRANCH CIRCUITS - INTERIOR						
CONCEALED, ACCESSIBLE CEILINGS	X		X			
CONCEALED, INACCESSIBLE CEILINGS	X		X			
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X		X		X	
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X			X		
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X		X			
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X			
EXPOSED, FINISHED SPACES	X		X			
DAMP AND WET LOCATIONS	X			X		
SPECIAL APPLICATIONS						
CONNECTIONS TO TRANSFORMERS, MOTORS AND VIBRATING EQUIPMENT		X				X

GENERAL NOTES:
1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL OR RTRC SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, CONCRETE BASES, AND ASPHALT.

SYSTEM INPUTS			SYSTEM OUTPUTS: ANNUNCIATION													SYSTEM OUTPUTS: NOTIFICATION													SYSTEM OUTPUTS: FIRE SAFETY												
			INITIATE FIRE ALARM SIGNAL	INITIATE CARBON MONOXIDE ALARM SIGNAL	IDENTIFY ALARM AT FACP	IDENTIFY ALARM AT REMOTE ANNUNCIATOR(S)	ANNUNCIATE SUPERVISORY SIGNAL AT FACP	ANNUNCIATE SUPERVISORY SIGNAL AT REMOTE ANNUNCIATOR(S)	ANNUNCIATE TROUBLE SIGNAL AT FACP	ANNUNCIATE TROUBLE SIGNAL AT REMOTE ANNUNCIATOR(S)	ACTUATE ALARM SEQUENCE ON EXISTING FACP	ACTIVATE ELEVATOR LOBBY "FLASH HAT" WARNING	ACTIVATE IN ELEVATOR IN-CAR WARNING SIGNAL	DISPLAY ELEVATOR RECALL STATUS AT ANNUNCIATOR	OPERATE ALARM NOTIFICATION APPLIANCES CONTINUOUSLY	ACTIVATE VOICE/ALARM COMMUNICATION SYSTEM	TRANSMIT ALARM SIGNAL TO REMOTE ALARM RECEIVING STATION	TRANSMIT SUPERVISORY SIGNAL TO REMOTE ALARM RECEIVING STATION	TRANSMIT TROUBLE SIGNAL TO REMOTE ALARM RECEIVING STATION	RECORD EVENTS IN THE SYSTEM MEMORY	RECORD EVENTS BY THE SYSTEM PRINTER	UNLOCK ELECTRIC DOOR LOCKS IN DESIGNATED EGRESS PATHS	DISABLE SOUND MASKING, PAGING, OR AUDIO SYSTEMS	RELEASE FIRE AND SMOKE DOORS	TURN ON EGRESS LIGHTING TO FULL BRIGHTNESS	DISABLE AUTOMATIC DOORS	SHUTDOWN ASSOCIATED AIR DISTRIBUTION SYSTEM	CLOSE ASSOCIATED SMOKE DAMPER	RECALL ELEVATOR TO DESIGNATED RECALL LEVEL	RECALL ELEVATOR TO ALTERNATE RECALL LEVEL
INITIATION		MANUAL FIRE BOX OPERATION	●		●	●					●				●	●	●					●	●	●	●										
		AREA SMOKE DETECTION	●		●	●					●				●	●	●					●	●	●	●										
		HEAT DETECTOR OPERATION	●		●	●					●				●	●	●					●	●	●	●										
		SMOKE DETECTOR OPERATION AT SMOKE DAMPER					●	●										●											●							
		SMOKE DETECTOR OPERATION AT/IN RETURN AND/OR SUPPLY DUCTWORK					●	●										●										●							
		SMOKE DETECTOR OPERATION AT/IN COMMON RETURN AIR RISER					●	●										●										●							
		SMOKE DETECTOR AT EGRESS DOORS																								●									
		FIRE SUPPRESSION SYSTEM WATER FLOW OPERATION	●		●	●					●				●	●	●					●	●	●	●										
		SMOKE DETECTION IN ELEVATOR LOBBY – DESIGNATED RECALL LEVEL	●		●	●					●			●	●	●	●					●	●	●	●										●
		SMOKE DETECTION IN ELEVATOR LOBBY – ALL OTHER LEVELS	●		●	●					●			●	●	●	●					●	●	●	●								●		
		SMOKE OR HEAT DETECTION IN ELEVATOR HOISTWAY	●		●	●					●	●	●	●	●	●	●					●	●	●	●								●		
		FIRE SUPPRESSION SYSTEM WATER FLOW IN ELEVATOR HOISTWAY	●		●	●					●	●		●	●	●	●					●	●	●	●								●		
		SMOKE OR HEAT DETECTION IN ELEVATOR MACHINE ROOM	●		●	●					●	●	●	●	●	●	●					●	●	●	●								●		
	EXTERNAL SYSTEM INPUT	FIRE SUPPRESSION SYSTEM VALVE TAMPER OPERATION					●	●										●			●	●													
	STATUS	OPEN CIRCUIT							●	●										●	●	●													
		GROUND FAULT							●	●										●	●	●													
		NOTIFICATION APPLIANCE CIRCUIT SHORT							●	●										●	●	●													
		FACP AC POWER FAILURE							●	●										●	●	●													
		FACP LOW SYSTEM BATTERY							●	●										●	●	●													
		FIRE PUMP RUNNING					●	●										●			●	●													
		FIRE PUMP LOSS OF PHASE					●	●										●			●	●													
		FIRE PUMP PHASE REVERSAL					●	●										●			●	●													
		FIRE PUMP CONTROLLER CONNECTED TO ALTERNATE SOURCE					●	●										●			●	●													
		GENERATOR FAULT							●	●										●	●	●													
		GENERATOR SWITCH IN NON AUTOMATIC POSITION							●	●										●	●	●													
		GENERATOR RUNNING					●	●										●			●	●													
		KNOX BOX OPEN					●	●										●			●	●													

FIRE ALARM MATRIX

NO SCALE

PROVIDE CROSS-TIE TO EXISTING FIRE ALARM PANEL/SYSTEM SO THAT THE NEW SYSTEM PICKS UP ANY ALARM, TROUBLE AND SUPERVISORY CONDITIONS UNTIL THE NEW FIRE ALARM SYSTEM IS FULLY OPERATIONAL.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
ELECTRICAL STANDARD SCHEDULES

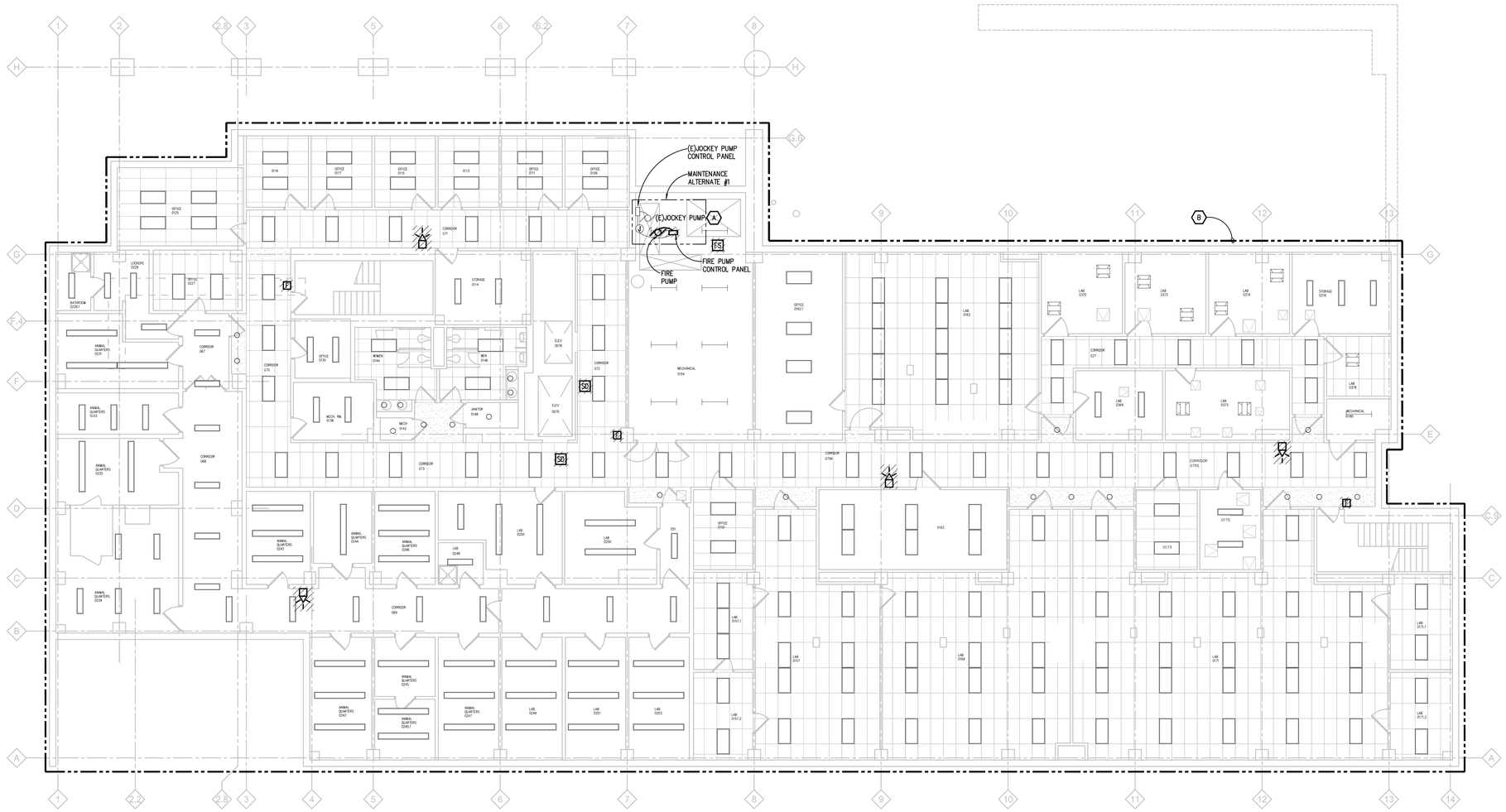
DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E0.2

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



GROUND FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
7. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
8. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION KEY NOTES:

A. MAINTENANCE ALTERNATE #1: DISCONNECT EXISTING FIRE PUMP EQUIPMENT FOR REMOVAL BY OTHERS.

B. REMOVE AND SALVAGE LIGHT FIXTURES AND OTHER CEILING DEVICES TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION LINES AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS.

C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

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www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.0

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP0.dwg, ED1.0, 5/29/2026 9:03:02 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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FIRST FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

ELECTRICAL DEMOLITION GENERAL NOTES:

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR ELECTRICAL DEMOLITION PLAN

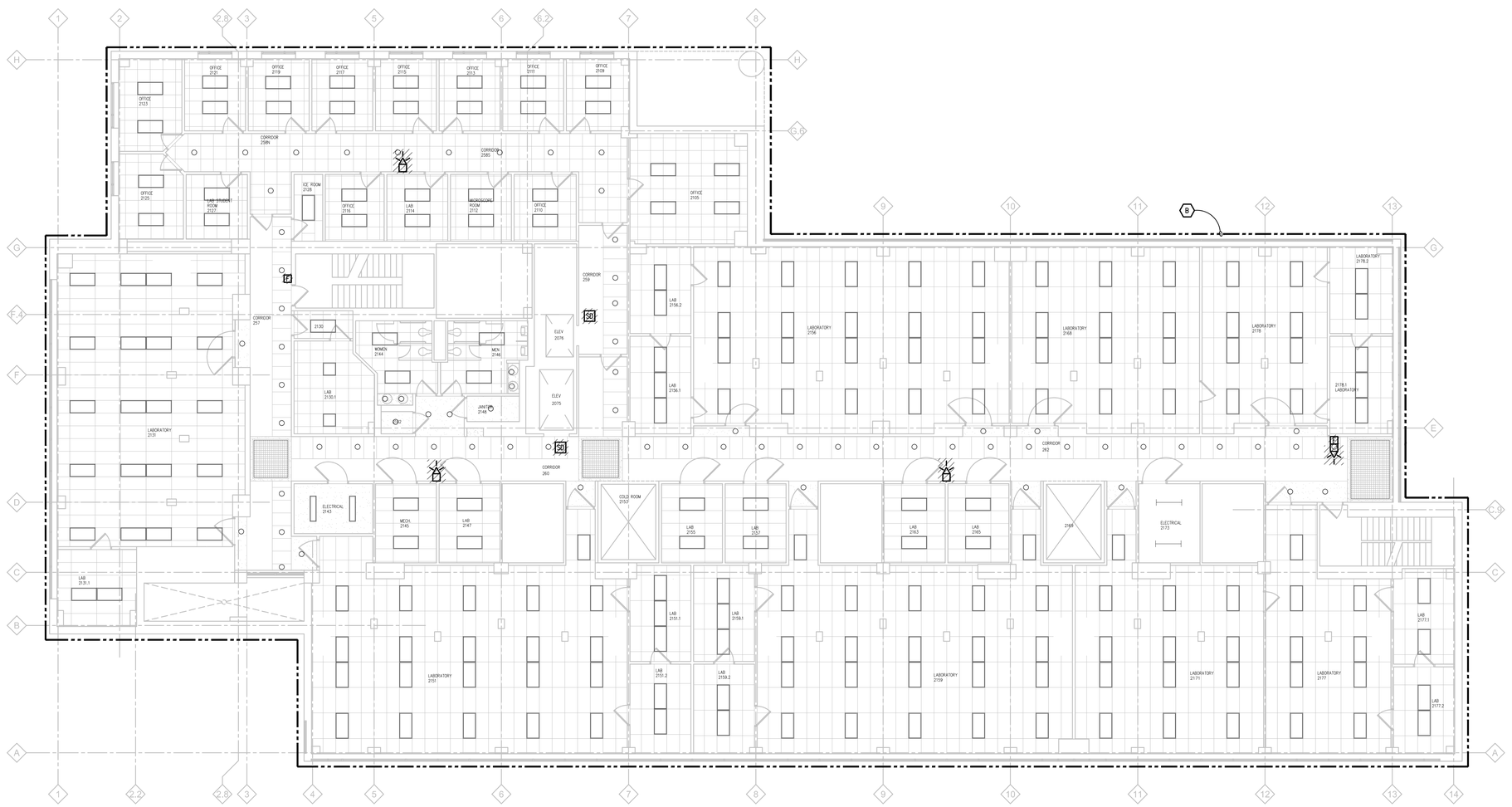
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SHEET No.
ED1.1

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



SECOND FLOOR ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1' - 0"

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EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SECOND FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.2

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL DEMOLITION GENERAL NOTES:

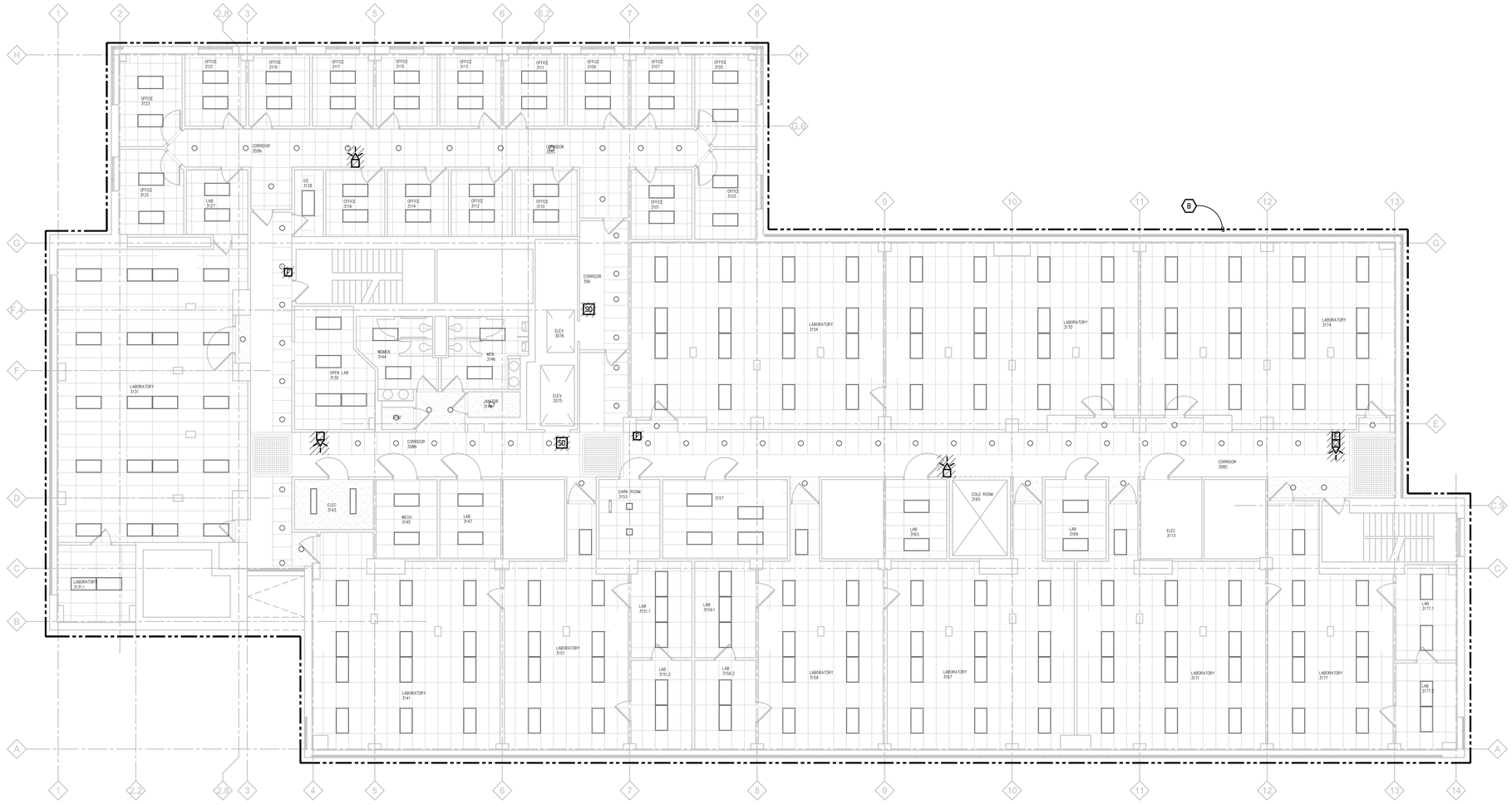
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C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.



THIRD FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR ELECTRICAL DEMOLITION PLAN

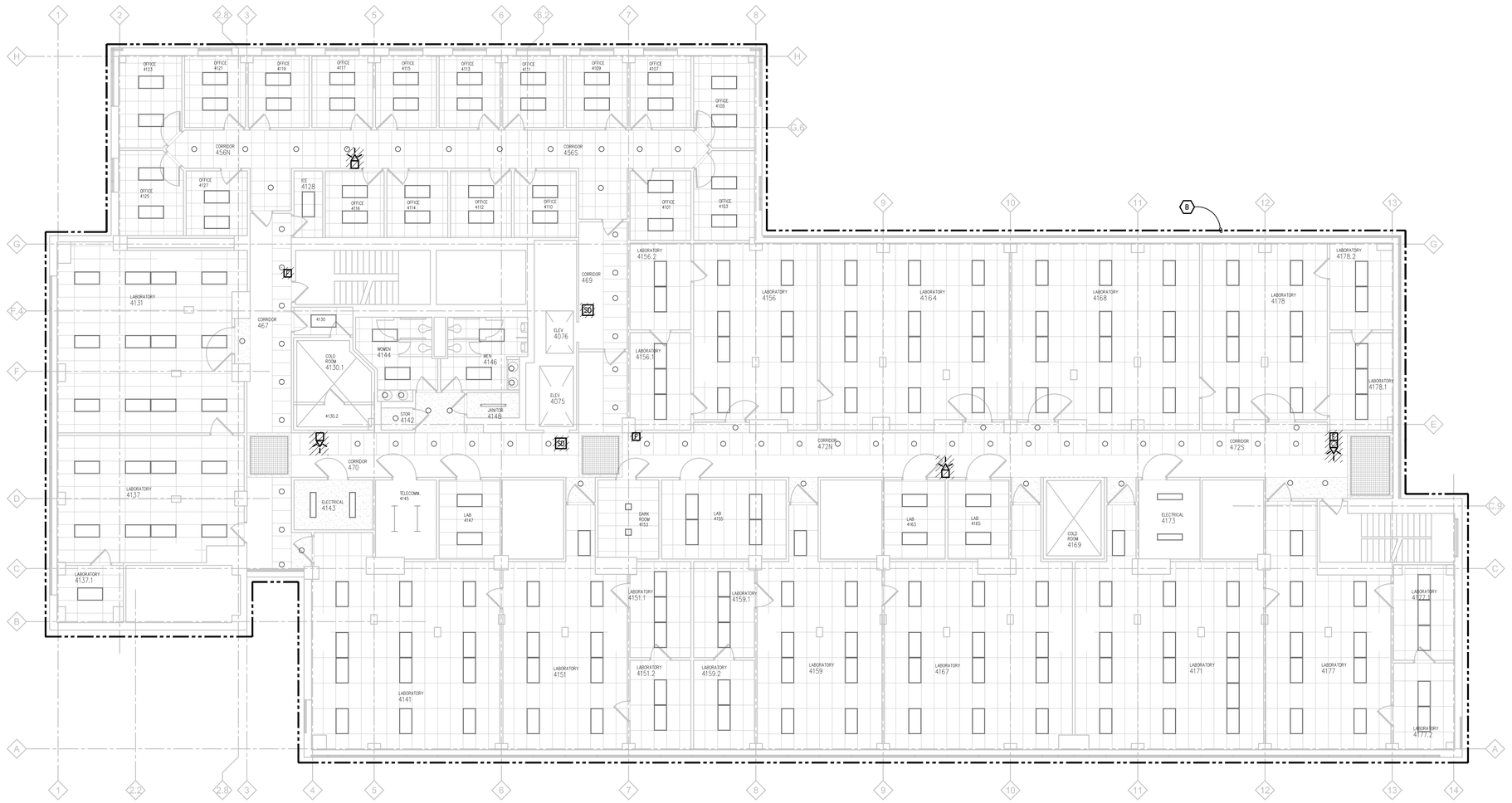
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SHEET No.
ED1.3

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FOURTH FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" - 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

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C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FOURTH FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
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SHEET No.
ED1.4

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP4.dwg, ED1.4, 5/29/2026 9:03:31 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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ELECTRICAL DEMOLITION GENERAL NOTES:

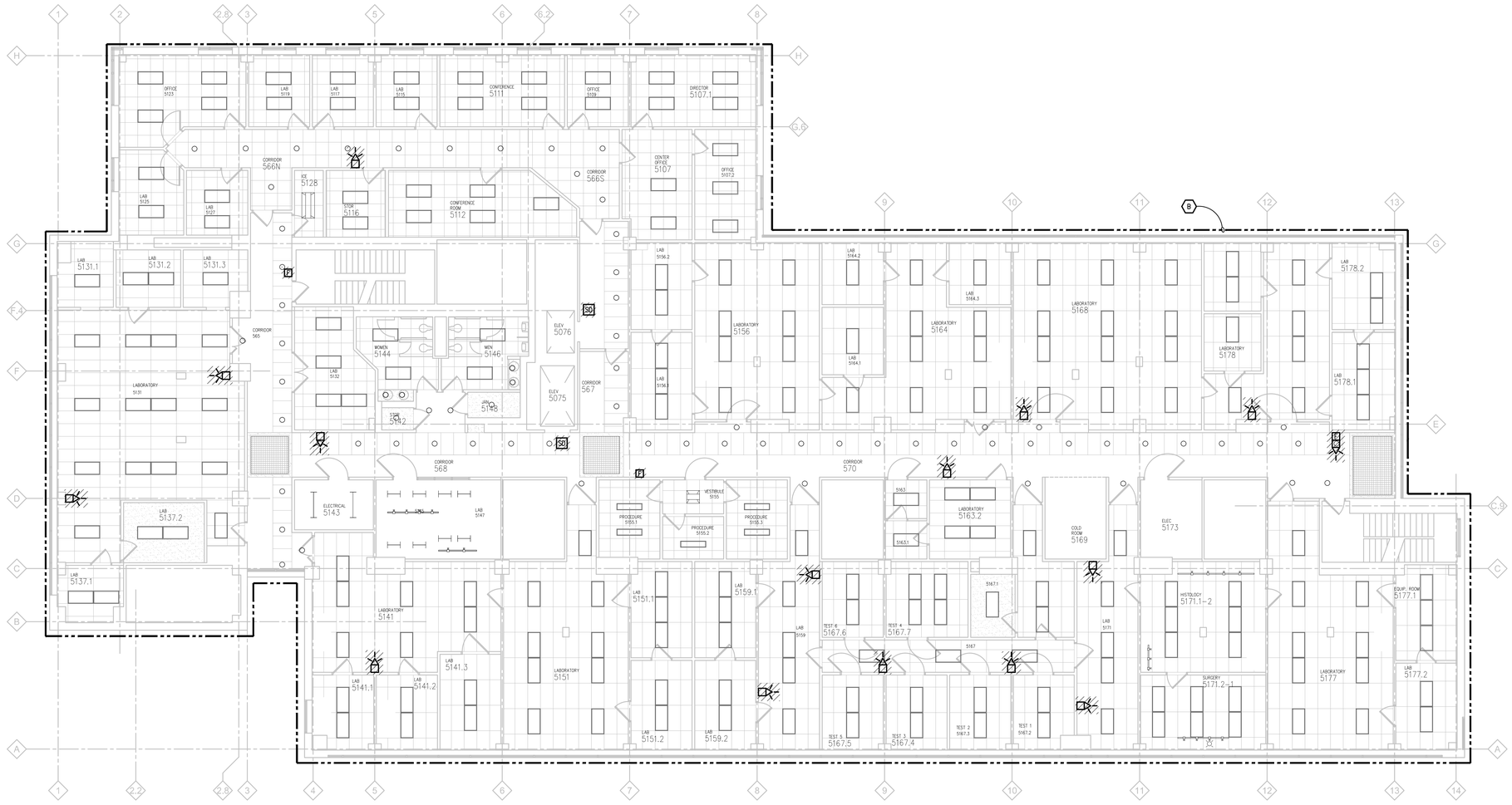
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FIFTH FLOOR ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

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WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR ELECTRICAL DEMOLITION PLAN

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ED1.5

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP5.dwg, ED1.5, 5/29/2026 9:03:38 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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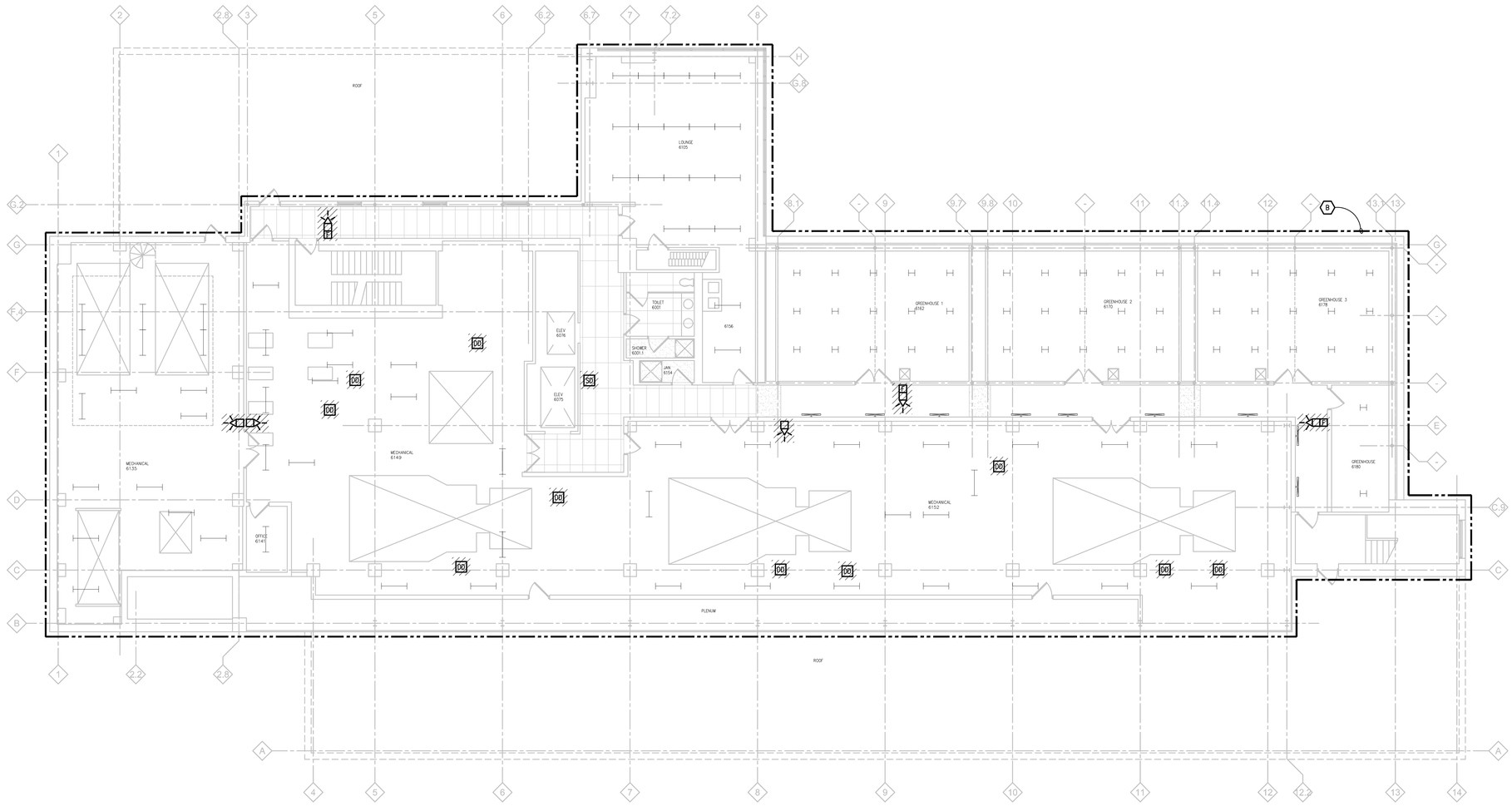
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8. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION KEY NOTES:

A. MAINTENANCE ALTERNATE #1: DISCONNECT EXISTING FIRE PUMP EQUIPMENT FOR REMOVAL BY OTHERS.

B. REMOVE AND SALVAGE LIGHT FIXTURES AND OTHER CEILING DEVICES TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION LINES AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS.

C. REUSE EXISTING POWER CIRCUIT TO SERVE NEW FIRE ALARM CONTROL PANEL. SEE NEW FLOOR PLAN FOR LOCATION.



SIXTH FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

REVISION

5145 Livernois, Suite 100
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www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.6

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP6.dwg, ED1.6, 5/29/2026 9:03:44 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL DEMOLITION GENERAL NOTES:

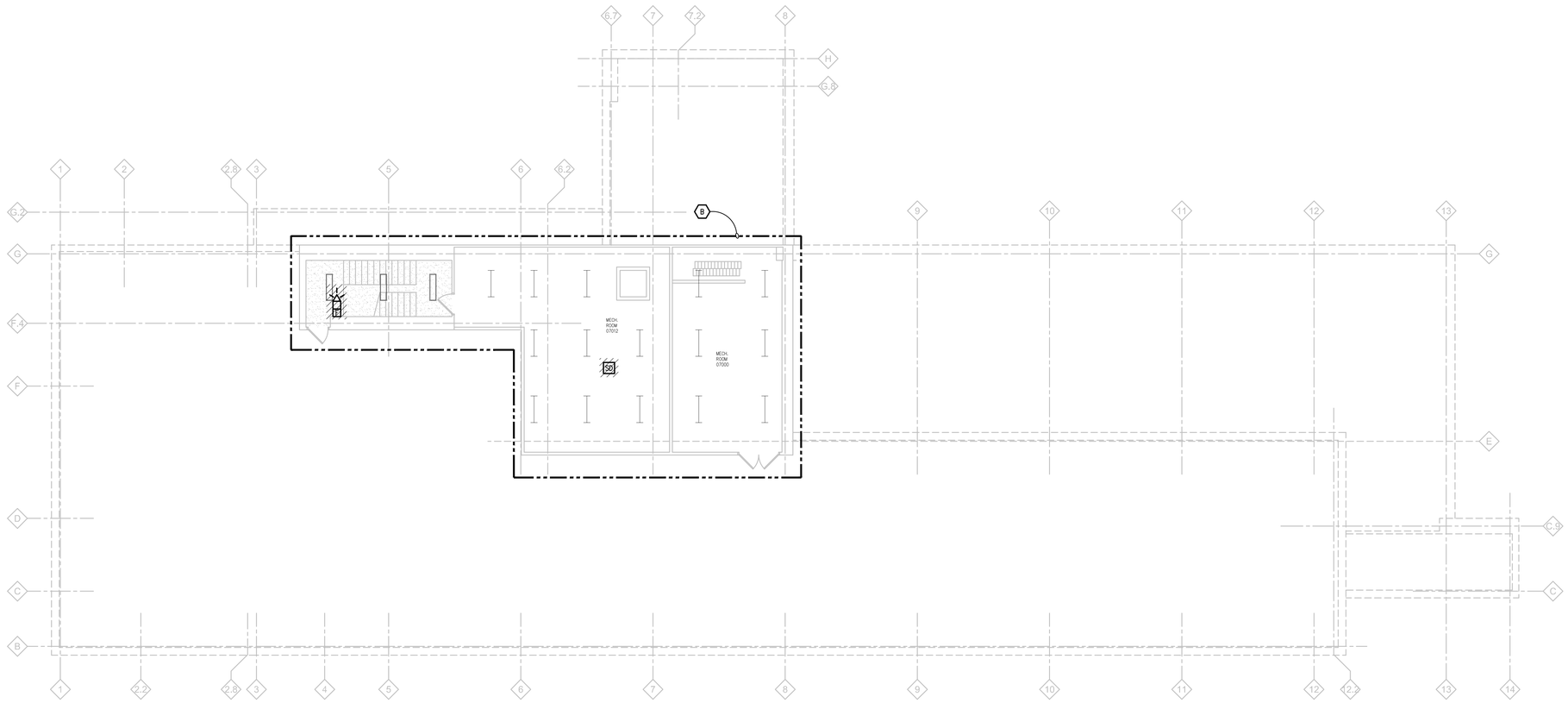
1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
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PENTHOUSE ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

EXISTING FIRE ALARM SYSTEM TO BE IN SERVICE UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED AND COMMISSIONED

REVISION

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CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
PENTHOUSE ELECTRICAL DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
ED1.7

g:\2024\2024-0403-00\CAD\2024-0403-ED1-CMP7.dwg, ED1.7, 5/29/2026 9:03:50 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

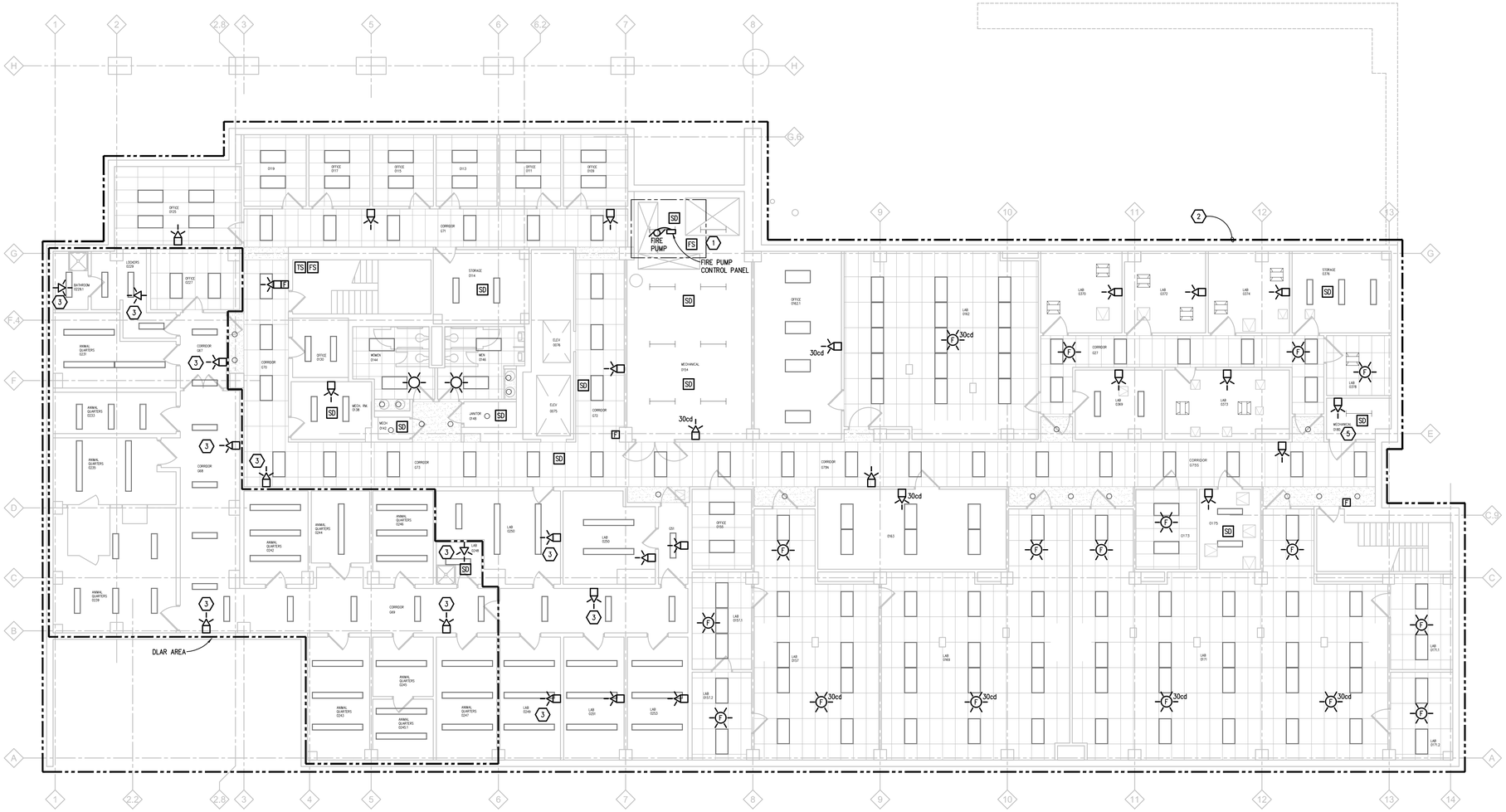
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GROUND FLOOR ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

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WAYNE STATE UNIVERSITY
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DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR ELECTRICAL NEW WORK PLAN

DATE
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E1.0

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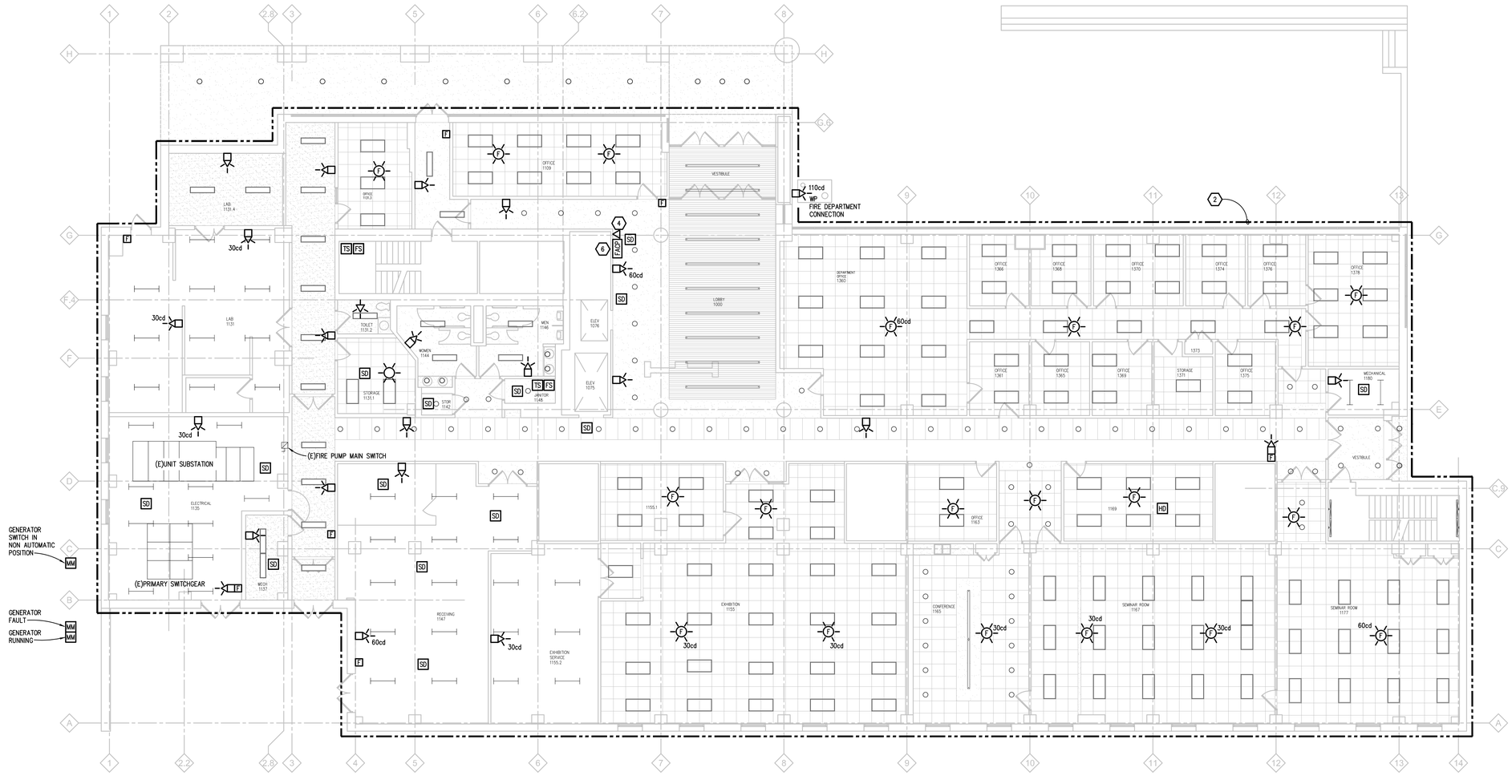
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FIRST FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.1

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP1.dwg, E1.1, 5/29/2026 9:04:08 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

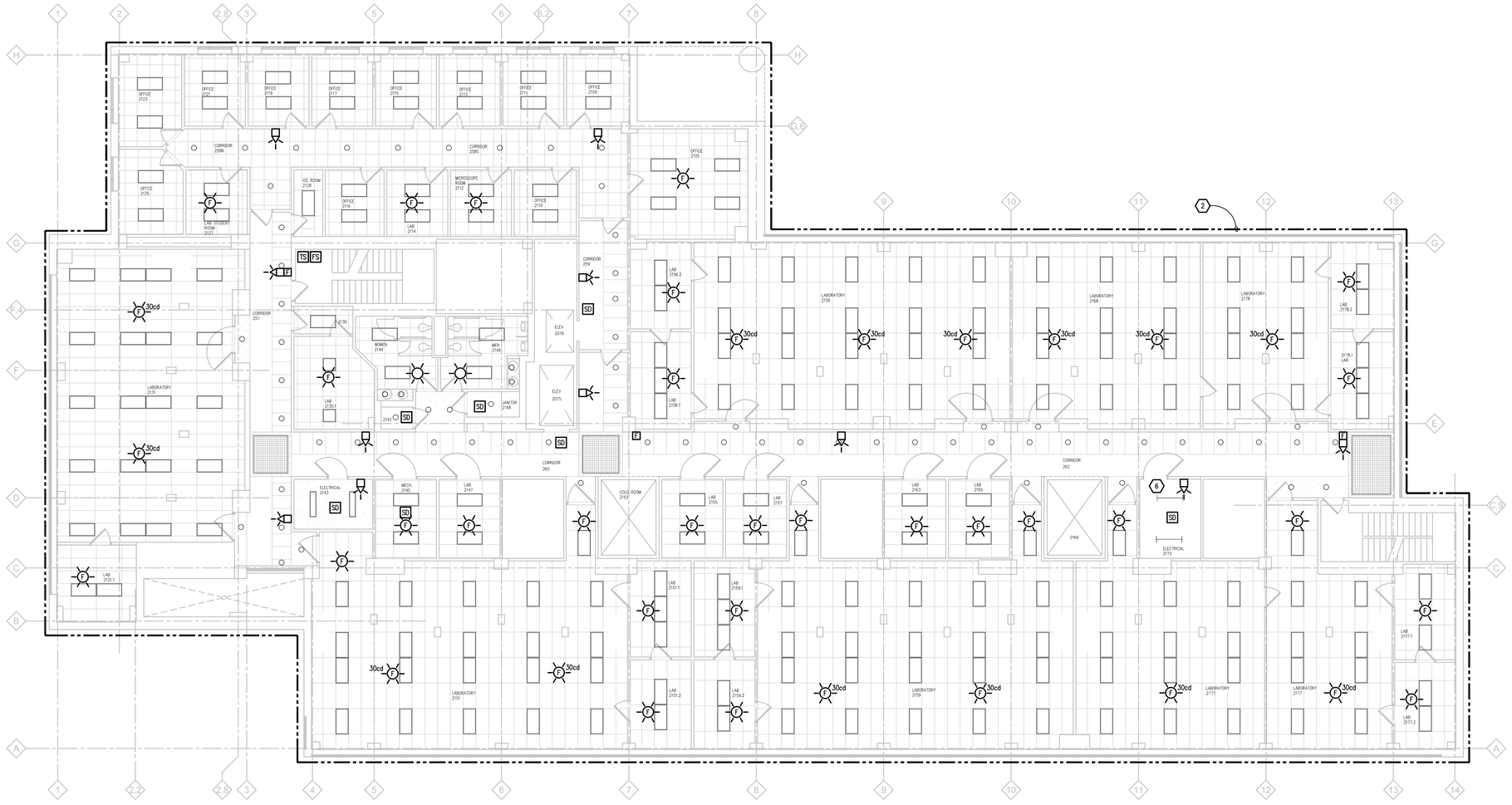
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SECOND FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SECOND FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
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SHEET No.
E1.2

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP2.dwg, E1.2, 5/29/2026 9:04:15 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

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THIRD FLOOR ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

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ISSUE
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SHEET No.
E1.3

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP3.dwg, E1.3, 5/29/2026 9:04:24 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
6. THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.
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6. CONNECT TO CIRCUIT CURRENTLY SERVING EXISTING FIRE ALARM CONTROL PANEL.



FOURTH FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

REVISION

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Tel: 248-879-5666
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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FOURTH FLOOR ELECTRICAL NEW WORK PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
E1.4

g:\2024\2024-0403-00\CAD\2024-0403-E1-CMP4.dwg, E1.4, 5/29/2026 9:04:32 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

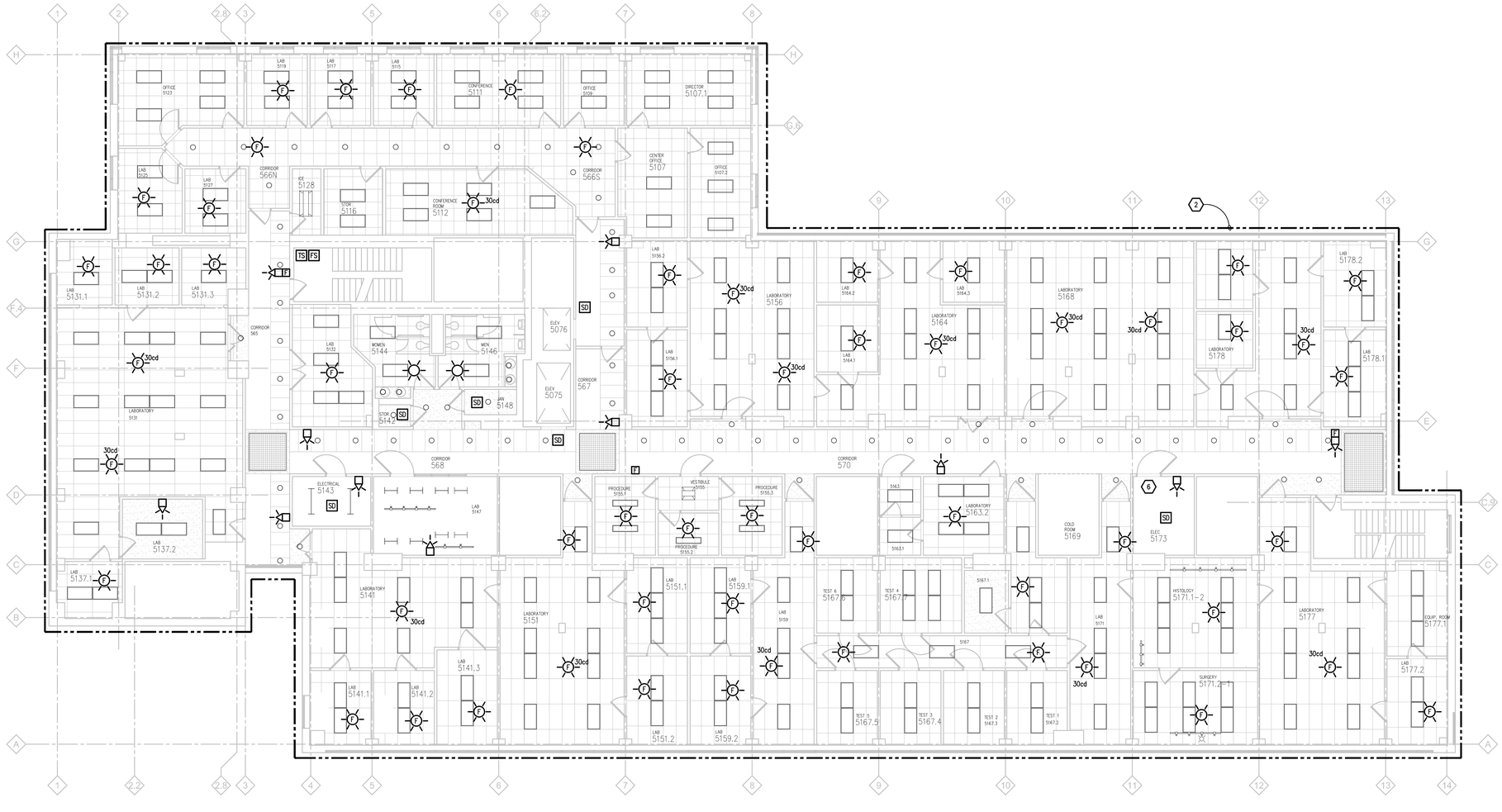
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FIFTH FLOOR ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR ELECTRICAL NEW WORK PLAN

DATE
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ISSUE
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SHEET No.
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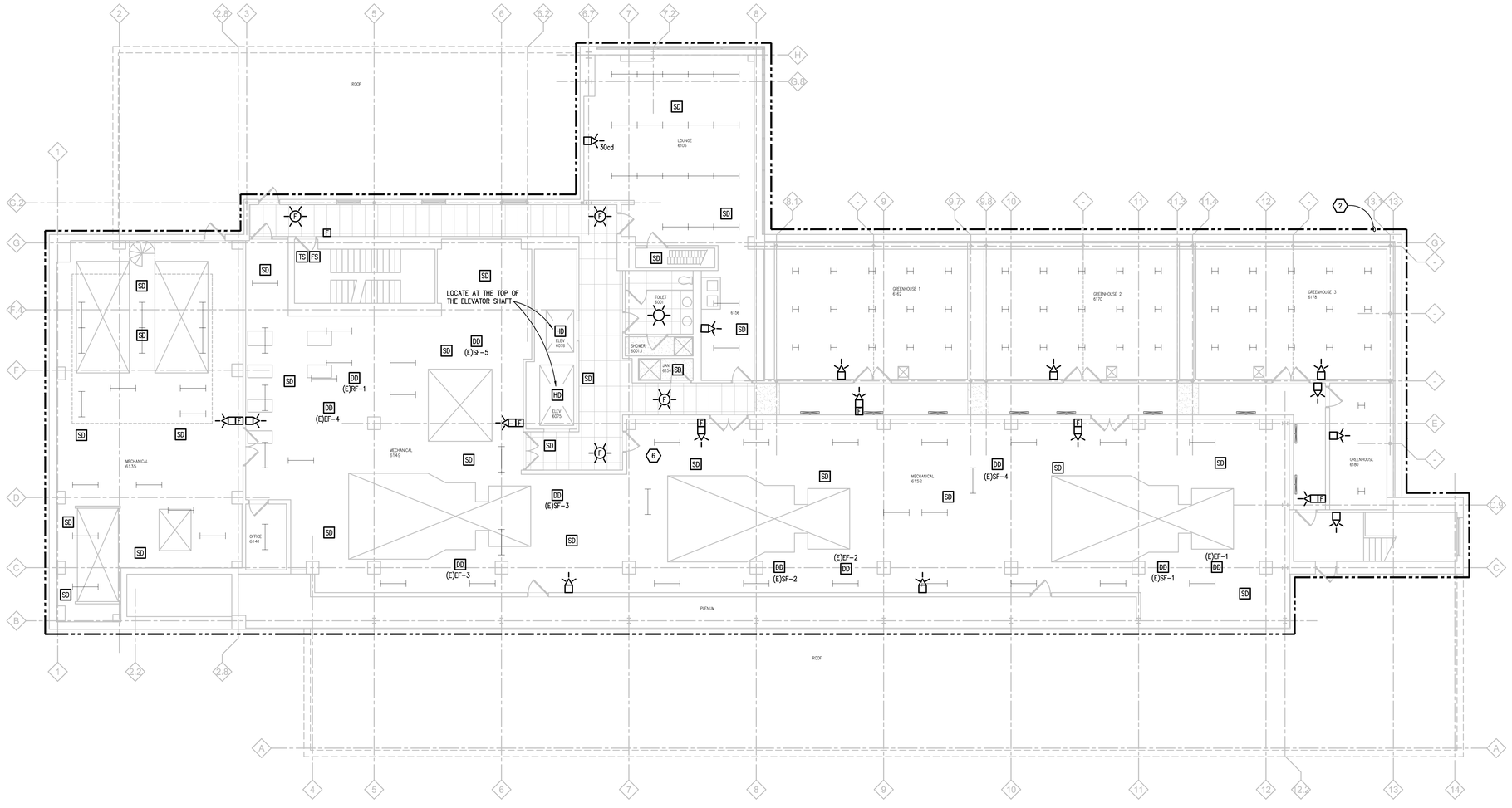
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SIXTH FLOOR ELECTRICAL NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

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BIOLOGICAL SCIENCES BUILDING
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DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR ELECTRICAL NEW WORK PLAN

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ISSUE
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SHEET No.
E1.6

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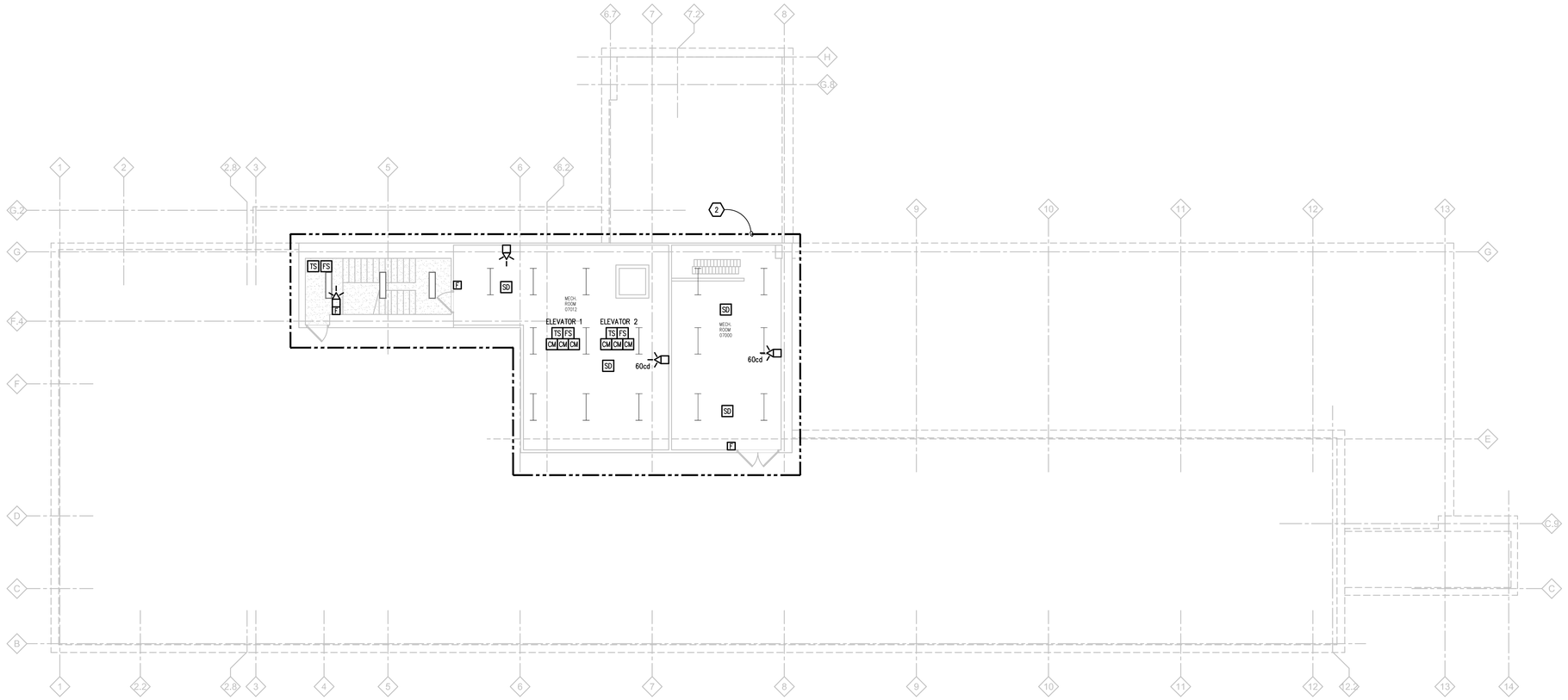
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PENTHOUSE ELECTRICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

REVISION

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WAYNE STATE UNIVERSITY
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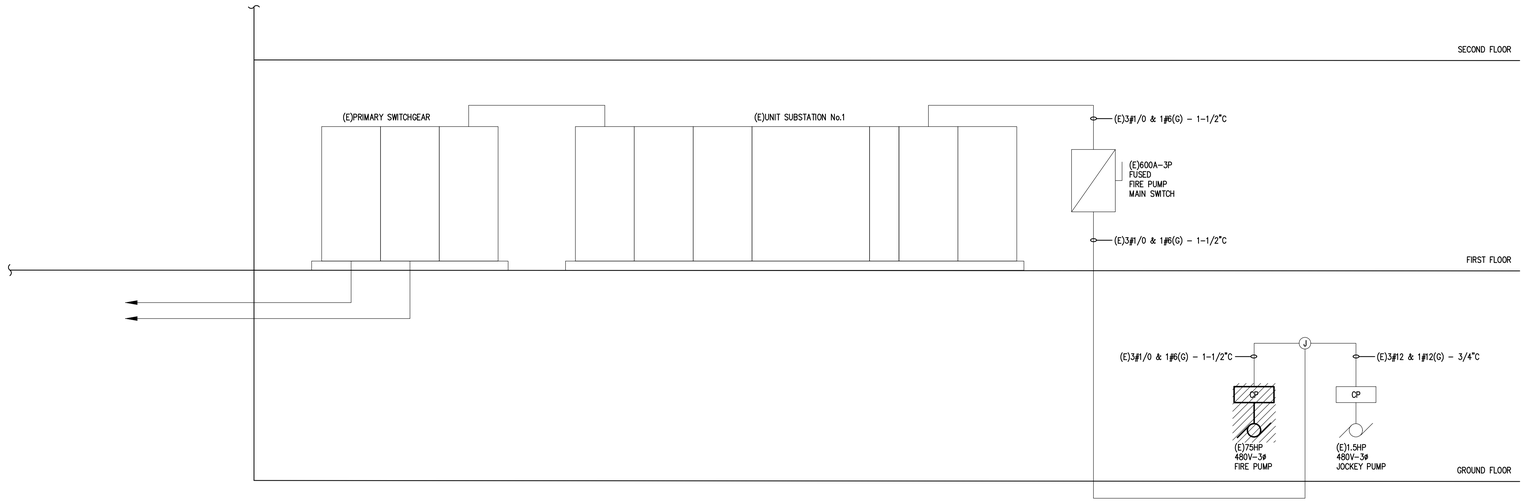
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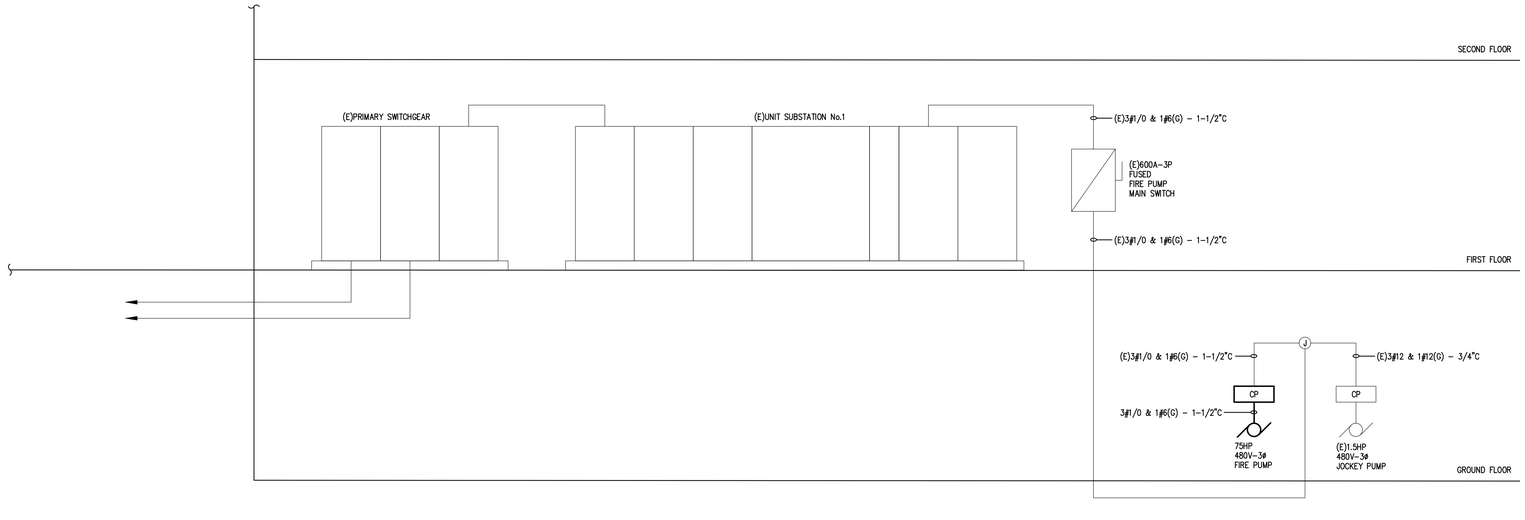
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PARTIAL RISER DIAGRAM - DEMOLITION - MAINTENANCE ALTERNATE #1

NO SCALE



PARTIAL RISER DIAGRAM - NEW WORK - MAINTENANCE ALTERNATE #1

NO SCALE

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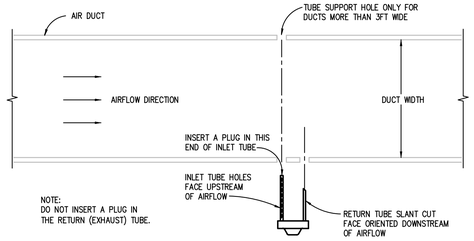
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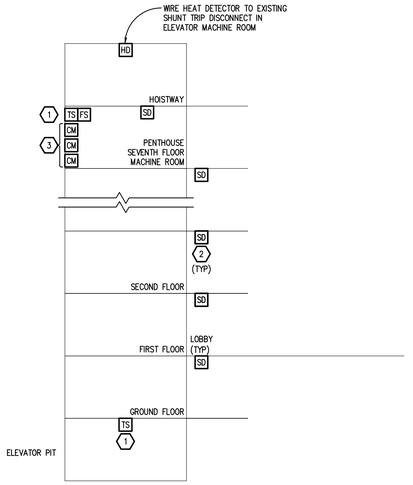


DUCT TYPE DETECTOR INSTALLATION

NO SCALE

NOTES:

1. PROVIDE SAMPLING TUBE LENGTH AS REQUIRED FOR WIDTH OF DUCT.



ELEVATOR DETAIL - MACHINE ROOM

NO SCALE

GENERAL NOTES:

1. DETAIL SHOWS GENERAL EXTENT OF WORK AND SHOULD NOT BE CONSIDERED A FABRICATION DRAWING. REFER TO PLANS FOR LOCATIONS OF ROOMS, ELEVATOR SHAFT(S), ELEVATOR MACHINE ROOM(S), ETC. COORDINATE REQUIREMENTS WITH ELEVATOR MANUFACTURER AND INSTALLER.

(#) KEYED NOTES:

1. PROVIDE FIRE ALARM SYSTEM COMPONENTS AS REQUIRED AND PROVIDE CONNECTIONS TO EACH TAMPER AND FLOW SWITCH PROVIDED WITH THE FIRE PROTECTION SYSTEM. COORDINATE EXACT LOCATIONS, QUANTITIES, AND REQUIREMENTS WITH FIRE SUPPRESSION CONTRACTOR.

2. THE LOBBY ELEVATOR SMOKE DETECTORS SHALL BE WITHIN 21' OF THE DOOR CENTERLINE. FOR LOBBIES WITH CEILINGS HIGHER THAN 15', THE SMOKE DETECTOR SHALL BE INSTALLED WITHIN 60" OF THE TOP OF THE ELEVATOR DOOR. (NFPA 72 2019 21.3.5)

3. FIRE ALARM CONTROL MODULES FOR ELEVATOR RECALL. REFER TO FIRE ALARM MATRIX FOR CONTROL MODULE FUNCTIONALITY. CONTROL MODULES TO BE LOCATED WITHIN 3' OF ELEVATOR CONTROLLER (NFPA 72 2019 21.2.4).

REVISION

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WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
ELECTRICAL DETAILS AND DIAGRAMS

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E7.1

g:\2024\2024-0403-00\CAD\2024-0403-E7-DT.dwg, E7.1, 5/29/2026 9:05:05 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(___#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
ATD	AIR TRANSFER DUCT
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (___#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DIR	DEIONIZED RETURN
DIS	DEIONIZED SUPPLY
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FGR	FUEL GAS RETURN
FGS	FUEL GAS SUPPLY
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE

ABBREVIATION	DESCRIPTION
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSAN	GREASE SANITARY WASTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPCW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(___)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HWR(___)	DOMESTIC HOT WATER RETURN (SPECIFIC TEMP °F)
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KA	THOUSAND AMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MEDICAL COMPRESSED AIR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIL	1/1000th INCH
MIN	MINIMUM
MISC	MISCELLANEOUS
MMBH	MILLION BRITISH THERMAL UNITS PER HOUR
MOP	MAXIMUM OVERCURRENT PROTECTION
M/S	MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MV	MANUAL AIR VENT
MVAC	MEDICAL VACUUM
N	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER
NPHW	NON POTABLE HOT WATER
O	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION

ABBREVIATION	DESCRIPTION
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PST	PUMPED STORM
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
ROR	REVERSE OSMOSIS RETURN
ROS	REVERSE OSMOSIS SUPPLY
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SECT	SECTION
SCCR	SHORT CIRCUIT CURRENT RATING
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(___#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TK	TANK
TMR	TIMER SWITCH
TPD	TEPID WATER
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WMSD	WASHING MACHINE SUPPLY AND DRAIN BOX
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER
ZVB	ZONE VALVE BOX

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FS	FLOW SWITCH
FM	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STEAM TRAP - BUCKET
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
	VALVE - BUTTERFLY
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT
	VENT
WM	WATER METER
GM	GAS METER

PLUMBING DRAWING INDEX

SHEET NO.	SHEET TITLE
P0.1	PLUMBING STANDARDS AND DRAWING INDEX
P02.00	UNDERGROUND PLUMBING DEMOLITION PLAN
P2.00	UNDERGROUND PLUMBING NEW WORK PLAN
P2.0	GROUND FLOOR PLUMBING NEW WORK PLAN

STANDARD METHODS OF NOTATION

(2)WC-1 / ED-1 — PLUMBING FIXTURE UNIT IDENTIFICATION TAG
WATER CLOSET TYPE "1"
TYPICAL FOR 2

8 / 8 — PIPE DIAMETER NOTATION
ALL SIZES IN INCHES

1 — CONSTRUCTION KEY NOTE (NUMBER) OR
DEMOLITION KEY NOTE (LETTER)

EF / 1 — EQUIPMENT DESIGNATION,
(i.e. EXHAUST FAN NUMBER 1)

HW-1 — PIPING RISER DESIGNATION
(i.e. HOT WATER RISER NUMBER 1)

NEW SYSTEM COMPONENT
EXISTING SYSTEM COMPONENT TO REMAIN
POINT OF NEW CONNECTION SYMBOL

1 / M5.1 — SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS DRAWN

AREA OF ENLARGEMENT
PLAN NUMBER
1 / M5.1 — SHEET WHERE ENLARGED PLAN IS DRAWN

1 / M5.1 — SECTION OR PLAN NUMBER

SECTION OR ENLARGED PLAN

SCALE: 1/8" = 1' - 0"

SHEET WHERE SECTION IS CUT OR
ENLARGED PLAN IS REFERENCED

SHEET M1.0 / SHEET M1.1 — MATCH LINE

HEAVY LINE WEIGHT INDICATES NEW WORK

LIGHT LINE WEIGHT INDICATES EXISTING
EQUIPMENT OR REFERENCED INFORMATION

GRAY LINE INDICATES BACKGROUND INFORMATION

DASHED LINES INDICATE PIPING
ROUTED BELOW SLAB OR GRADE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS
TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
PLUMBING STANDARDS AND DRAWING INDEX

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
P0.1

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

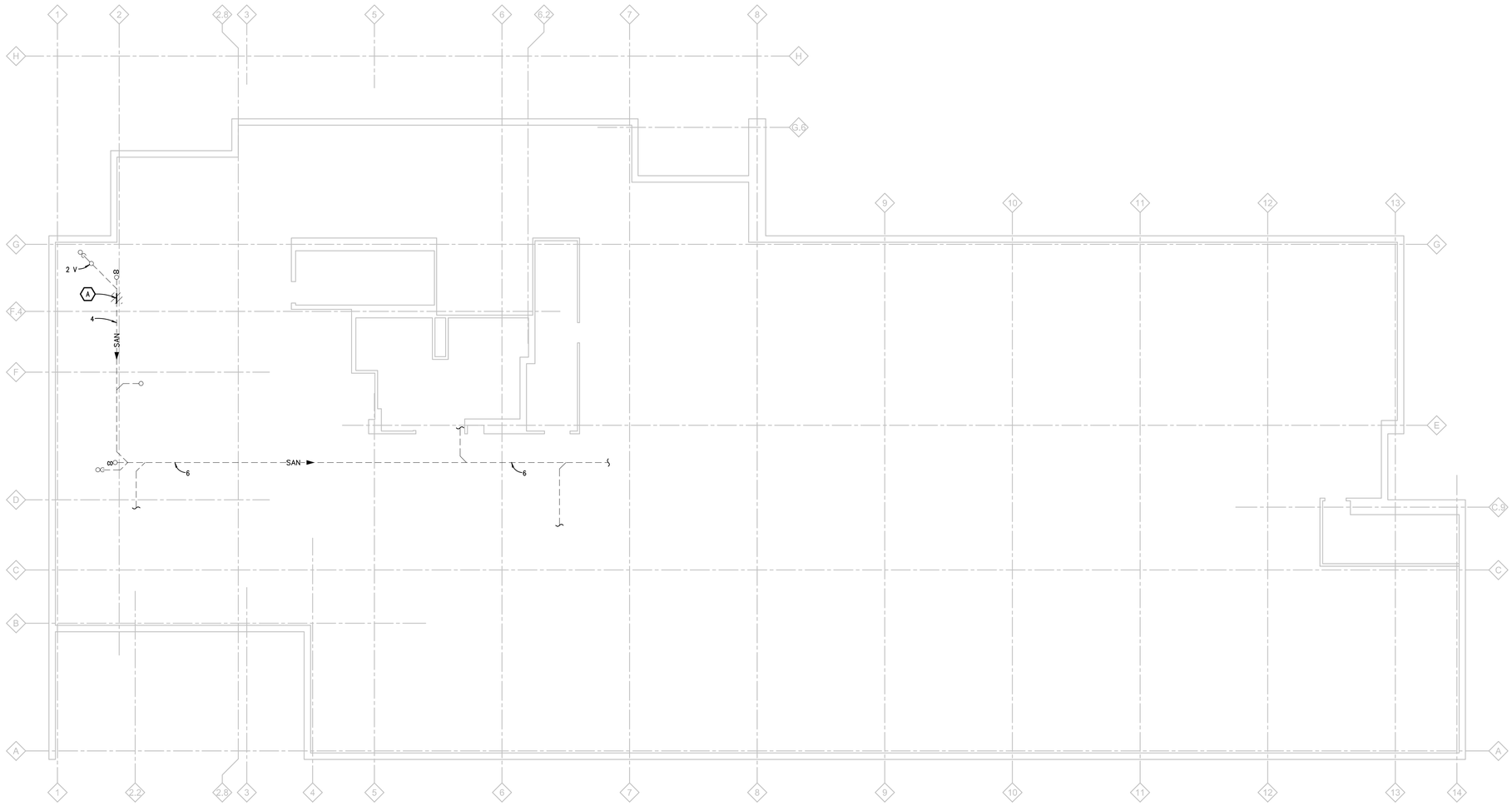
NOTE: ALL PLUMBING WORK SHALL BE PART OF PHASE 1 – BASE BID

PLUMBING DEMOLITION GENERAL NOTES:

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO CAMERA/SCOPE FOR VERIFICATION OF LOCATION OF EXISTING UNDERGROUND PLUMBING PRIOR TO INSTALLATION OF NEW UNDERGROUND PLUMBING AND FLOOR SAWCUTTING.

(#) DEMOLITION KEY NOTES:

A. PHASE 1 – BASE BID – REMOVE SECTION OF EXISTING UNDERGROUND SANITARY PIPING AND PREPARE FOR RECONNECTION. FIRE PROTECTION AND PLUMBING CONTRACTORS TO VERIFY EXISTING CONDITIONS FOR UNDERGROUND SANITARY LOCATION PRIOR TO WORK.



UNDERGROUND PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

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BIOLOGICAL SCIENCES BUILDING
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DETROIT, MICHIGAN

SHEET TITLE
UNDERGROUND PLUMBING DEMOLITION PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
PD2.00

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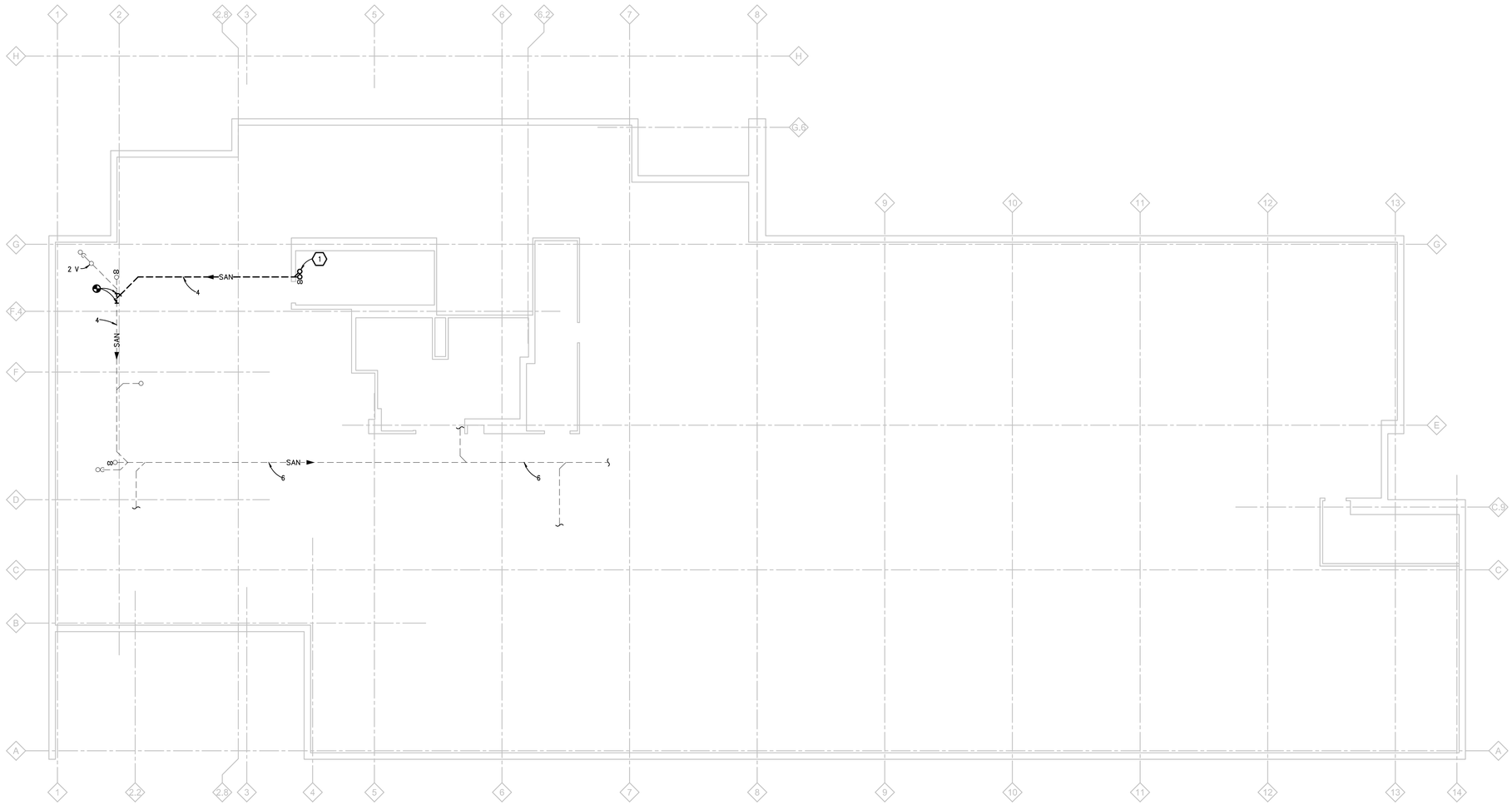
NOTE: ALL PLUMBING WORK SHALL BE PART OF PHASE 1 – BASE BID

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
5. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
6. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO CAMERA/SCOPE FOR VERIFICATION OF LOCATION OF EXISTING UNDERGROUND PLUMBING PRIOR TO INSTALLATION OF NEW UNDERGROUND PLUMBING AND FLOOR SAWCUTTING.

(#) CONSTRUCTION KEY NOTES:

1. PHASE 1 – BASE BID – 4 UP TO HUB DRAIN.
2. PHASE 1 – BASE BID – PROVIDE 6 RECEPTOR HUB DRAIN WITH 4 OUTLET JUST BELOW FIRE PROTECTION DRAIN RISER. PROVIDE BARRIER TYPE TRAP SEAL PROTECTION DEVICE.



UNDERGROUND PLUMBING NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

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SHEET TITLE
UNDERGROUND PLUMBING NEW WORK PLAN

DATE
05-29-2026

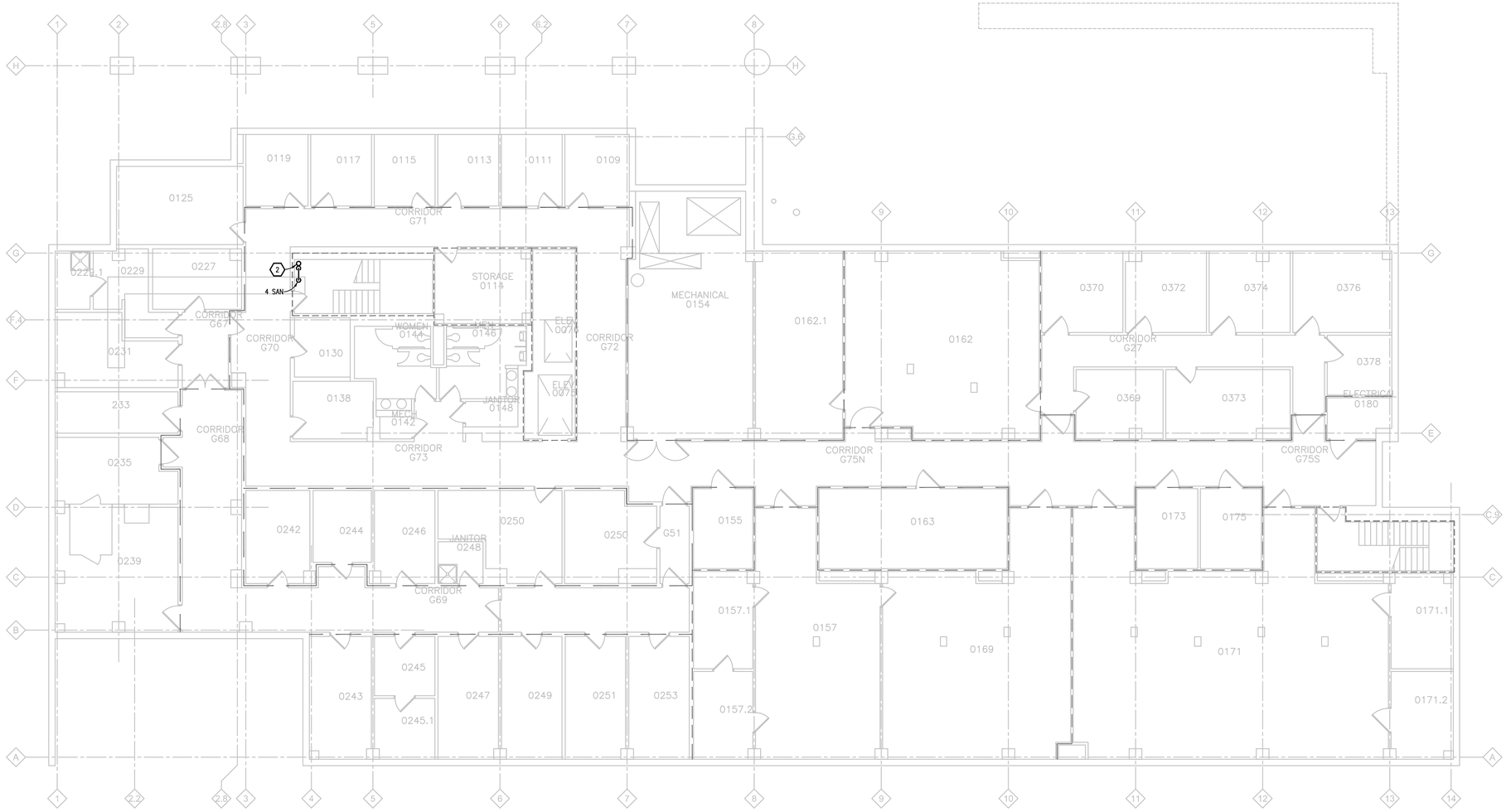
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BIDS/PERMITS

SHEET No.
P2.00

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

NOTE: ALL PLUMBING WORK SHALL BE PART OF PHASE 1 – BASE BID



GROUND FLOOR PLUMBING NEW WORK PLAN

SCALE: 1/8" = 1' - 0"

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
5. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
6. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO CAMERA/SCOPE FOR VERIFICATION OF LOCATION OF EXISTING UNDERGROUND PLUMBING PRIOR TO INSTALLATION OF NEW UNDERGROUND PLUMBING AND FLOOR SAWCUTTING.

(#) CONSTRUCTION KEY NOTES:

1. PHASE 1 – BASE BID – 4 UP TO HUB DRAIN.
2. PHASE 1 – BASE BID – PROVIDE 6 RECEPTOR HUB DRAIN WITH 4 OUTLET JUST BELOW FIRE PROTECTION DRAIN RISER. PROVIDE BARRIER TYPE TRAP SEAL PROTECTION DEVICE.

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PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR PLUMBING NEW WORK PLAN

DATE
05-29-2026

ISSUE
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SHEET No.
P2.0

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MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(___#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
ATD	AIR TRANSFER DUCT
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (___#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DIR	DEIONIZED RETURN
DIS	DEIONIZED SUPPLY
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FGR	FUEL GAS RETURN
FGS	FUEL GAS SUPPLY
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE

ABBREVIATION	DESCRIPTION
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSAN	GREASE SANITARY WASTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPCW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(___)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HWR(___)	DOMESTIC HOT WATER RETURN (SPECIFIC TEMP °F)
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KA	THOUSAND AMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MEDICAL COMPRESSED AIR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIL	1/1000th INCH
MIN	MINIMUM
MISC	MISCELLANEOUS
MMBH	MILLION BRITISH THERMAL UNITS PER HOUR
MOP	MAXIMUM OVERCURRENT PROTECTION
M/S	MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MV	MANUAL AIR VENT
MVAC	MEDICAL VACUUM
N2	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER
NPHW	NON POTABLE HOT WATER
O2	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION

ABBREVIATION	DESCRIPTION
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PST	PUMPED STORM
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
(R)	RELOCATED
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
ROR	REVERSE OSMOSIS RETURN
ROS	REVERSE OSMOSIS SUPPLY
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SECT	SECTION
SCCR	SHORT CIRCUIT CURRENT RATING
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(___#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TK	TANK
TMR	TIMER SWITCH
TPD	TEPID WATER
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WMSD	WASHING MACHINE SUPPLY AND DRAIN BOX
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER
ZVB	ZONE VALVE BOX

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FS	FLOW SWITCH
FM	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STEAM TRAP - BUCKET
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
	VALVE - BUTTERFLY
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT
	VENT
WM	WATER METER

FIRE PROTECTION DRAWING INDEX

SHEET NO.	SHEET TITLE
FP0.1	FIRE PROTECTION STANDARDS AND DRAWING INDEX
FP01.0	GROUND FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
FP01.1	FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN
FP1.0	GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.1	FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.2	SECOND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.3	THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.4	FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.5	FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.6	SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP1.7	PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN
FP6.1	FIRE PROTECTION DETAILS AND SCHEDULES
FP6.2	FIRE PROTECTION RISER DIAGRAM

STANDARD METHODS OF NOTATION

- 8 — PIPE DIAMETER NOTATION ALL SIZES IN INCHES
- 1 — CONSTRUCTION KEY NOTE (NUMBER) OR DEMOLITION KEY NOTE (LETTER)
- EF 1 — EQUIPMENT DESIGNATION, (i.e. EXHAUST FAN NUMBER 1)
- HW-1 — PIPING RISER DESIGNATION (i.e. HOT WATER RISER NUMBER 1)
- NEW SYSTEM COMPONENT
- EXISTING SYSTEM COMPONENT TO REMAIN
- POINT OF NEW CONNECTION SYMBOL
- 1 / M5.1 — SECTION OR PLAN NUMBER; SHEET WHERE SECTION IS DRAWN
- AREA OF ENLARGEMENT
- PLAN NUMBER
- 1 / M5.1 — SHEET WHERE ENLARGED PLAN IS DRAWN
- SECTION OR PLAN NUMBER

1 / M5.1 **SECTION OR ENLARGED PLAN**
SCALE: 1/8" = 1' - 0"

- SHEET WHERE SECTION IS CUT OR ENLARGED PLAN IS REFERENCED
- SHEET M1.0 / SHEET M1.1 — MATCH LINE
- HEAVY LINE WEIGHT INDICATES NEW WORK
- LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT OR REFERENCED INFORMATION
- GRAY LINE INDICATES BACKGROUND INFORMATION
- DASHED LINES INDICATE PIPING ROUTED BELOW SLAB OR GRADE
- HATCH MARKS INDICATE EQUIPMENT OR MATERIALS TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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CONSULTING ENGINEERS

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FIRE PROTECTION STANDARDS AND DRAWING INDEX

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025,

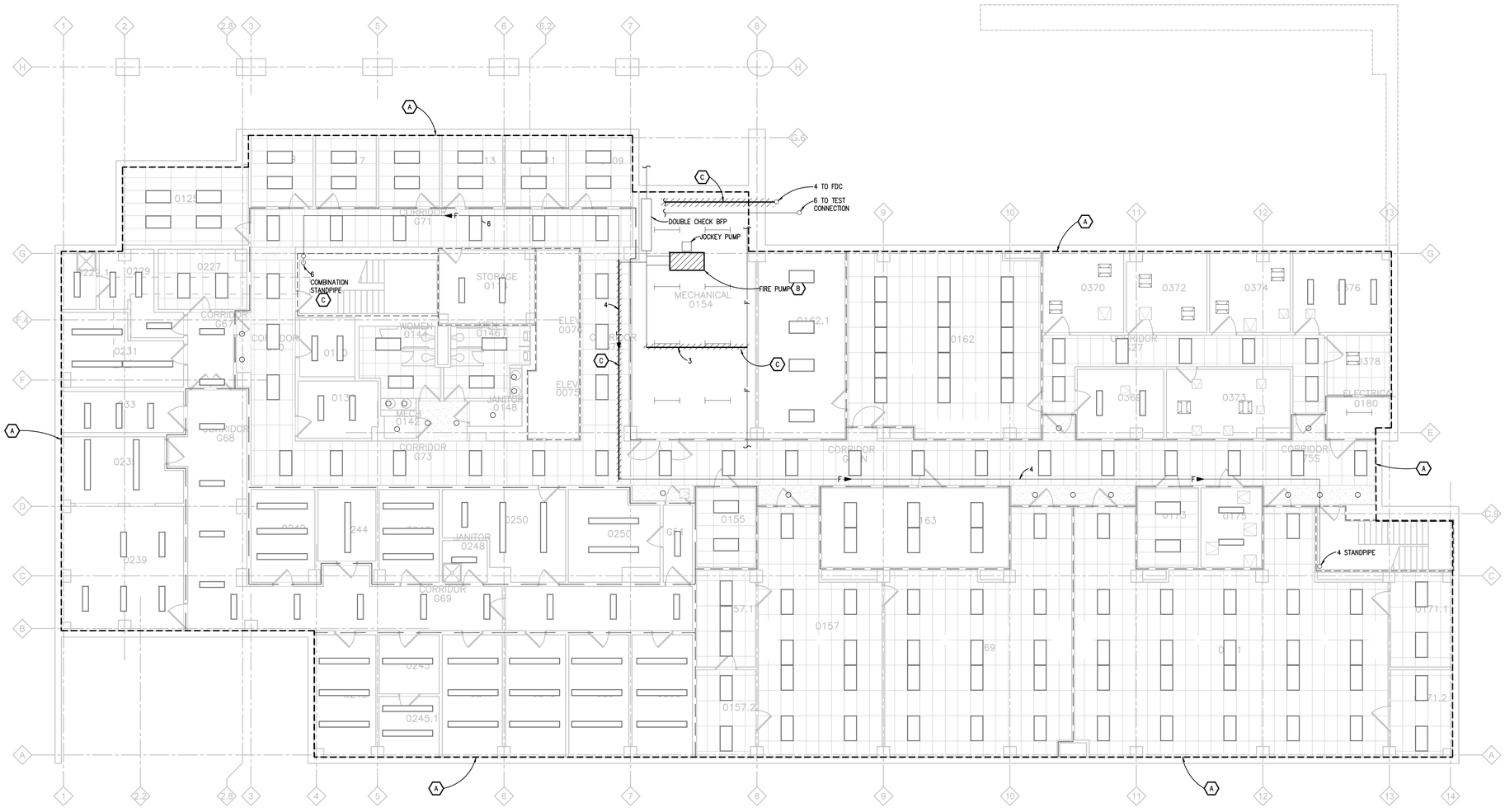
(#) DEMOLITION KEY NOTES:

A. BASE BID – OUTLINED AREA REPRESENTS EXISTING FIRE PROTECTION PIPING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM.

B. BASE BID – REMOVE EXISTING PUMP, CONTROLLER, AND RELATED COMPONENTS WITH THE EXCLUSION OF THE JOCKEY PUMP.

C. BASE BID – REMOVE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.

D. ALTERNATE 3 – REMOVE EXISTING EXPOSED, FREESTANDING-TYPE, 4 FIRE DEPARTMENT CONNECTION AND 6 FIRE PUMP TEST CONNECTION. TEMPORARILY CAP EXISTING PIPING AND PREPARE FOR RECONNECTION.



GROUND FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

REVISION

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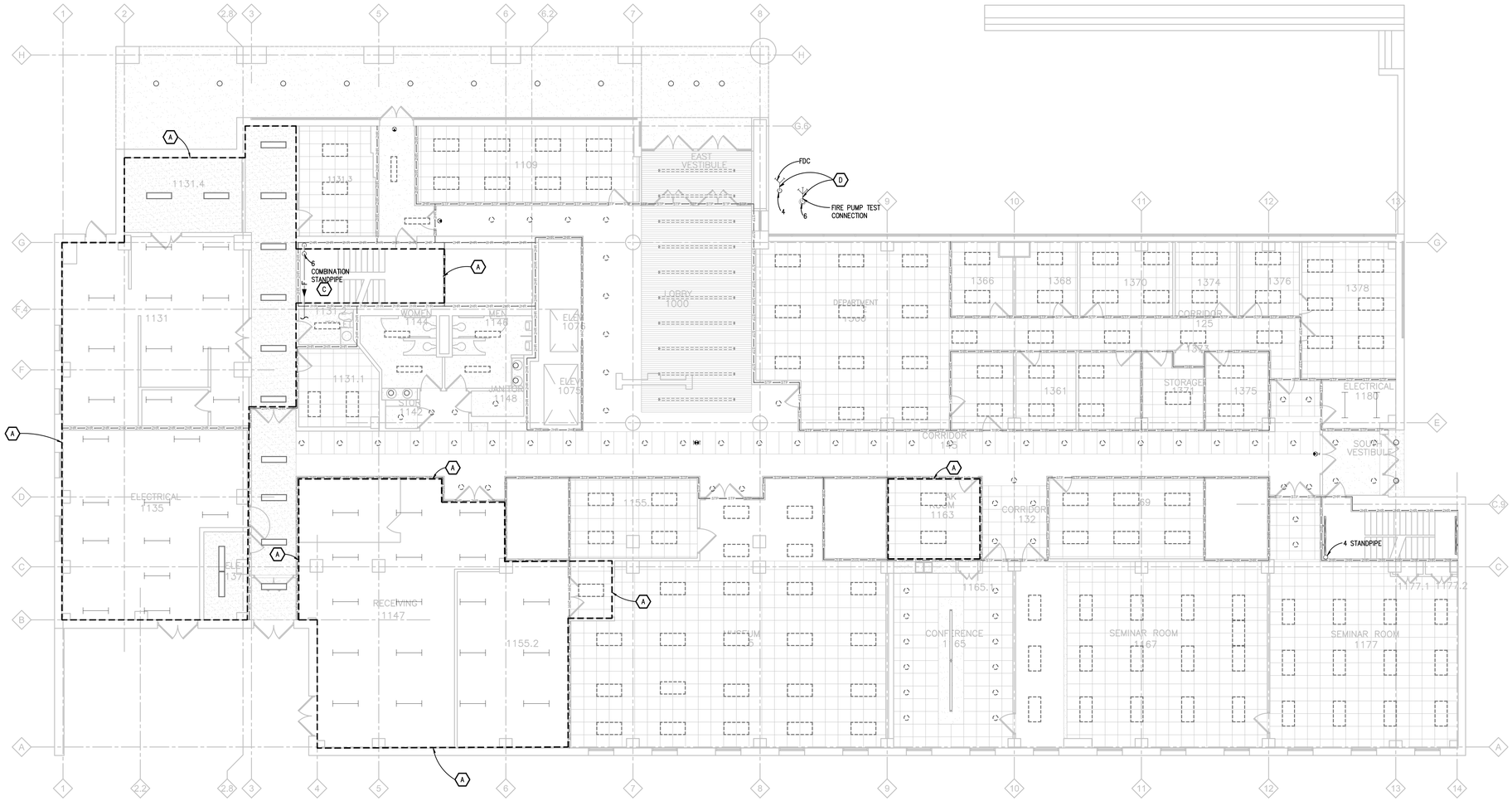
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FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025.

(#) DEMOLITION KEY NOTES:

A. BASE BID – OUTLINED AREA REPRESENTS EXISTING FIRE PROTECTION PIPING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM.

B. BASE BID – REMOVE EXISTING PUMP, CONTROLLER, AND RELATED COMPONENTS WITH THE EXCLUSION OF THE JOCKEY PUMP.

C. BASE BID – REMOVE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.

D. ALTERNATE 3 – REMOVE EXISTING EXPOSED, FREESTANDING-TYPE, 4 FIRE DEPARTMENT CONNECTION AND 6 FIRE PUMP TEST CONNECTION. TEMPORARILY CAP EXISTING PIPING AND PREPARE FOR RECONNECTION.

EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

REVISION

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Tel: 248-879-3666
www.PeterBasso.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIRST FLOOR FIRE PROTECTION DEMOLITION COMPOSITE PLAN

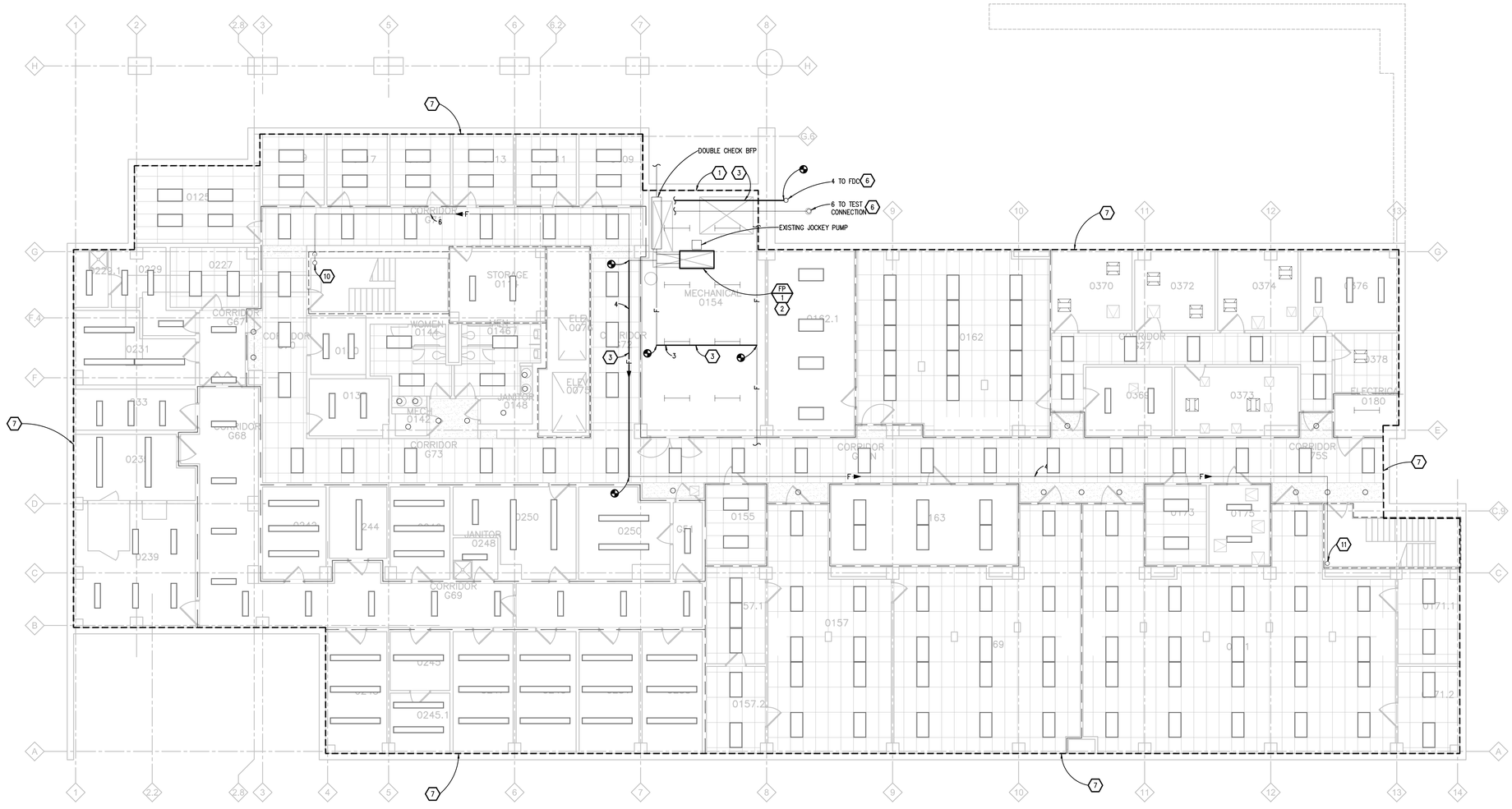
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05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FPD1.1

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

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10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
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13. FIRE PROTECTION BRANCH LINE IS PROVIDED FOR OUTLINED AREA. FIRE PROTECTION CONTRACTOR TO VERIFY BRANCH FEED IS PROPERLY SIZED FOR THIS AREA..

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
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BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
GROUND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

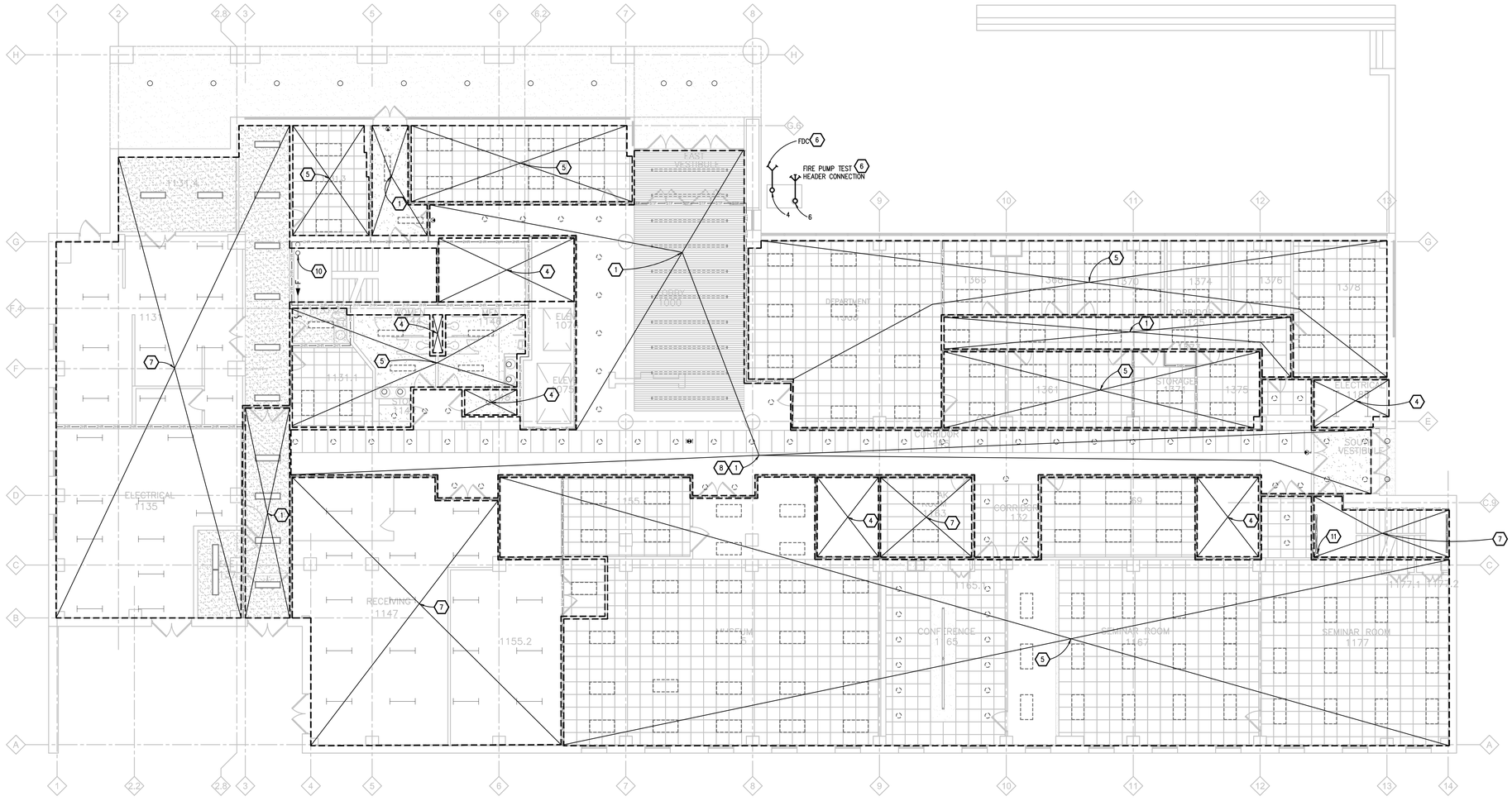
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ISSUE
BIDS/PERMITS

SHEET No.
FP1.0

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3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
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FIRST FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

REVISION

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Tel: 248-879-5666
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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
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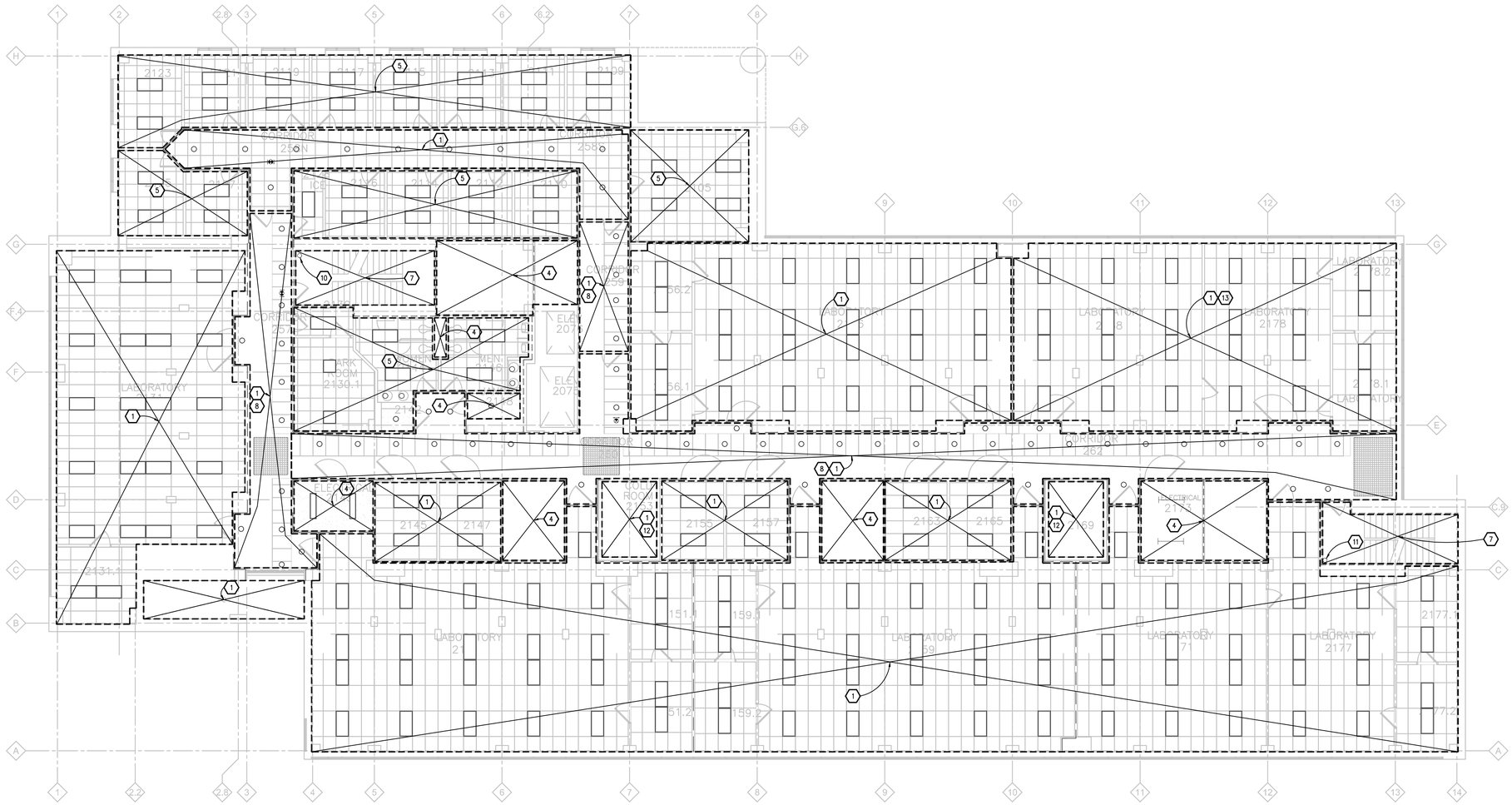
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ISSUE
BIDS/PERMITS

SHEET No.
FP1.1

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

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CONSULTING ENGINEERS

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DETROIT, MICHIGAN

SHEET TITLE
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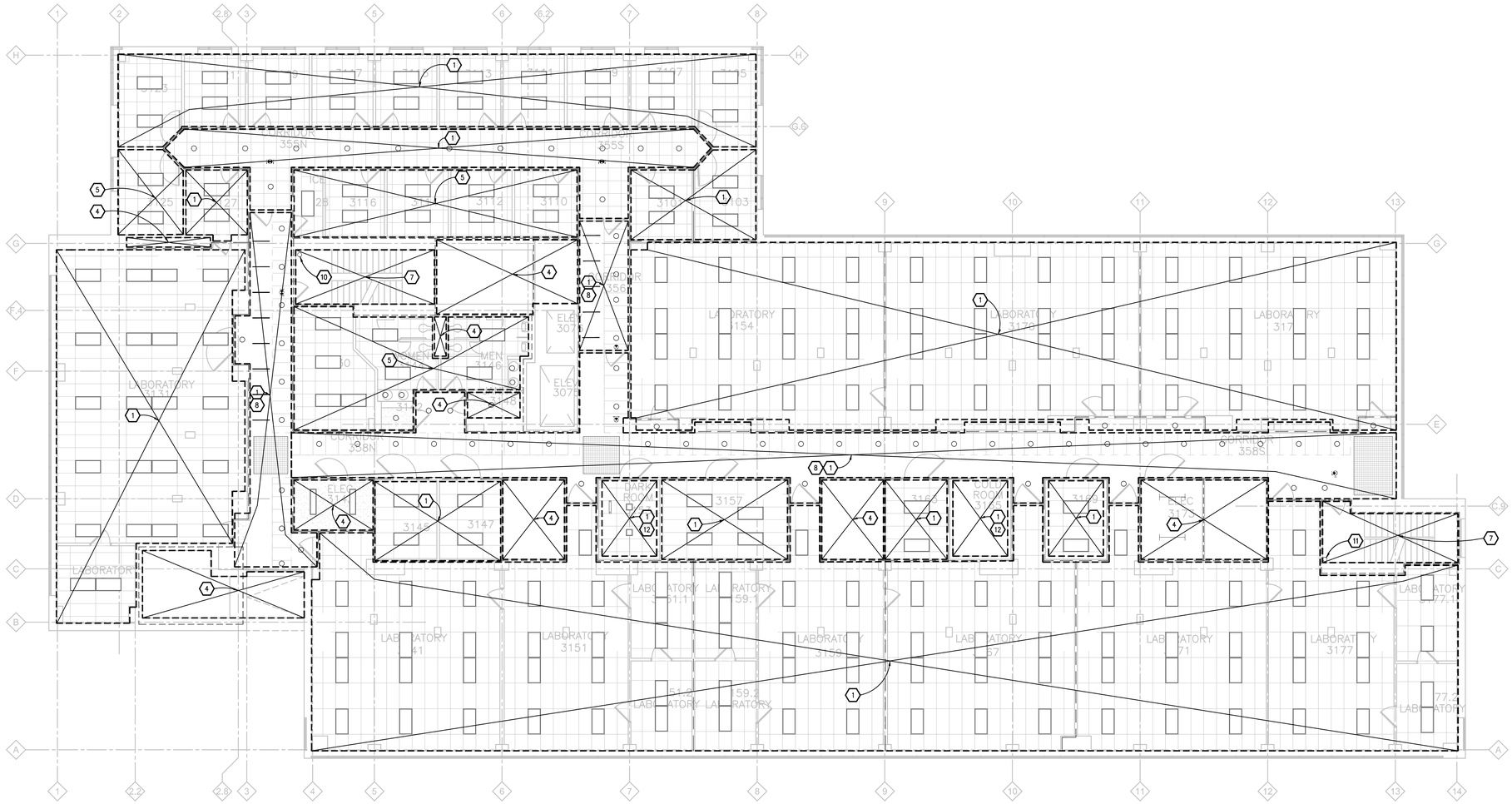
DATE
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ISSUE
BIDS/PERMITS

SHEET No.
FP1.2

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP2.dwg, FP1.2, 5/29/2026 9:06:11 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



THIRD FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025,

(#) CONSTRUCTION KEY NOTES:

1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
2. PHASE 1 – BASE BID – REPLACE FIRE PUMP, CONTROLLER, AND ASSOCIATED COMPONENTS.
3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
4. OUTLINED AREA REPRESENTS PHASE 2 – ALTERNATE 1 (THESE AREAS INCLUDE: MECHANICAL SPACES, MECHANICAL SHAFTS, JANITORS CLOSETS). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
5. OUTLINED AREA REPRESENTS PHASE 3 – ALTERNATE 2 (THESE AREAS INCLUDE: ADMINISTRATION, OFFICE SPACES, TOILET ROOMS, STORAGE ROOMS, AND ALL OTHER REMAINING SPACES). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
6. ALTERNATE 3 – PROVIDE 8 INCH CONCRETE PAD FOR SECURE AND STABLE CONNECTION FOR REINSTALLATION OF THE EXISTING FREESTANDING FIRE DEPARTMENT CONNECTION AND THE EXISTING FIRE PUMP TEST HEADER CONNECTION.
7. EXISTING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM TO THE REMAINDER OF GROUND FLOOR AND FIRST FLOOR AND MEET CURRENT CODE REQUIREMENTS.
8. PROVIDE SPRINKLER HEADS ABOVE AND BELOW OPEN CEILING IN OUTLINED AREA INDICATED
9. PROVIDE HIGH TEMPERATURE SPRINKLER HEADS RATED FOR 212 DEGREES F. IN GREENHOUSE ROOMS
10. EXISTING 6 COMBINATION STANDPIPE SPRINKLER RISER. REFER TO FIRE PROTECTION RISER DIAGRAM ON DRAWING FP6.2 FOR FLOOR CONTROL ASSEMBLY REQUIREMENTS.
11. EXISTING 4 STANDPIPE RISER.
12. PROVIDE DRY SPRINKLER AT COLD ROOM.
13. FIRE PROTECTION BRANCH LINE IS PROVIDED FOR OUTLINED AREA. FIRE PROTECTION CONTRACTOR TO VERIFY BRANCH FEED IS PROPERLY SIZED FOR THIS AREA..

EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

REVISION

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Tel: 248-879-3666
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PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM
UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
THIRD FLOOR FIRE
PROTECTION NEW WORK
COMPOSITE PLAN

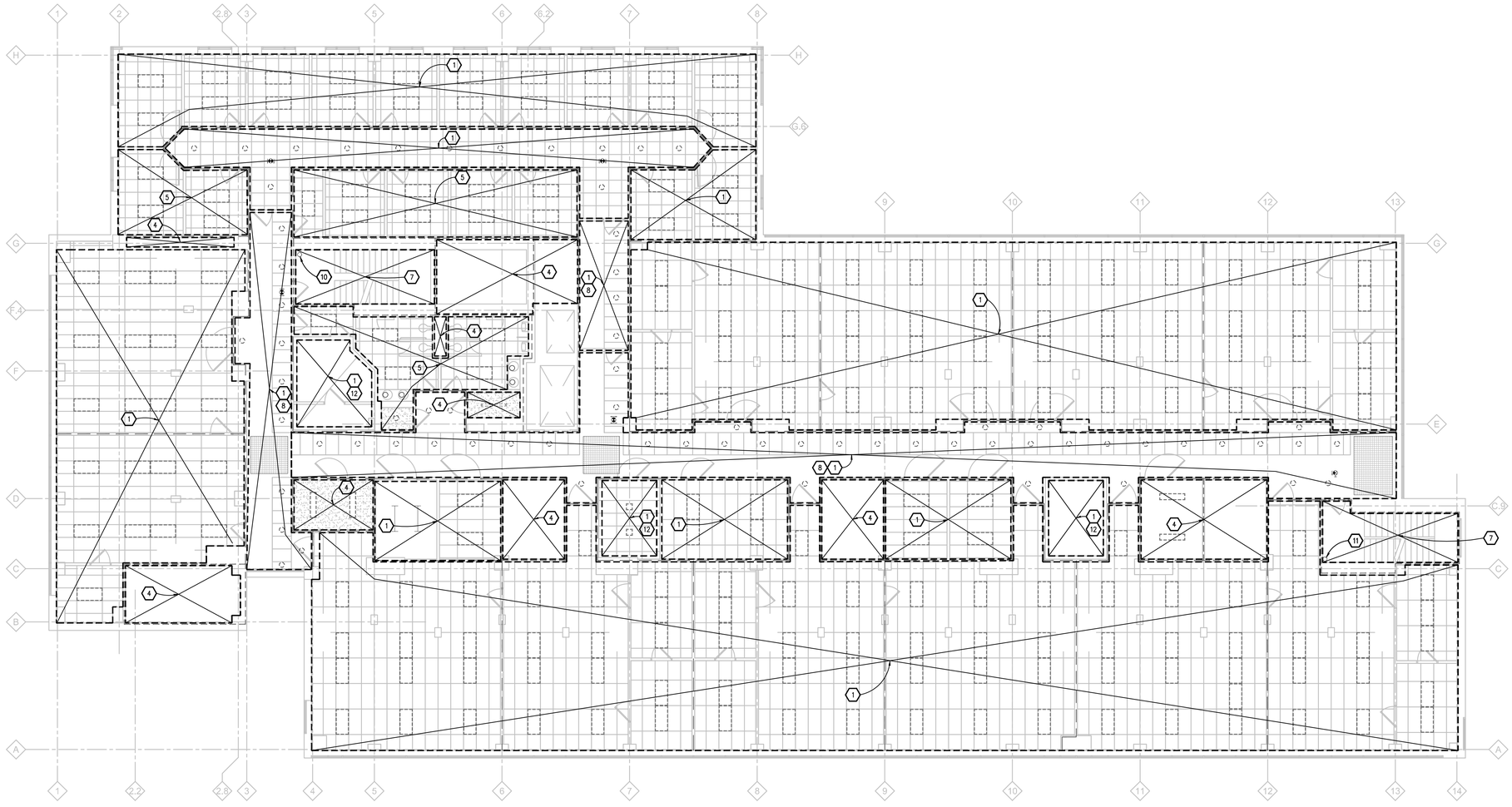
DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FP1.3

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP3.dwg, FP1.3, 5/29/2026 9:06:19 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN
SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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CONSTRUCTION KEY NOTES:

1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
4. OUTLINED AREA REPRESENTS PHASE 2 – ALTERNATE 1 (THESE AREAS INCLUDE: MECHANICAL SPACES, MECHANICAL SHAFTS, JANITORS CLOSETS). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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8. PROVIDE SPRINKLER HEADS ABOVE AND BELOW OPEN CEILING IN OUTLINED AREA INDICATED
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EXISTING WALL LEGEND
- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

REVISION

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Tel: 248-813-2666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FOURTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

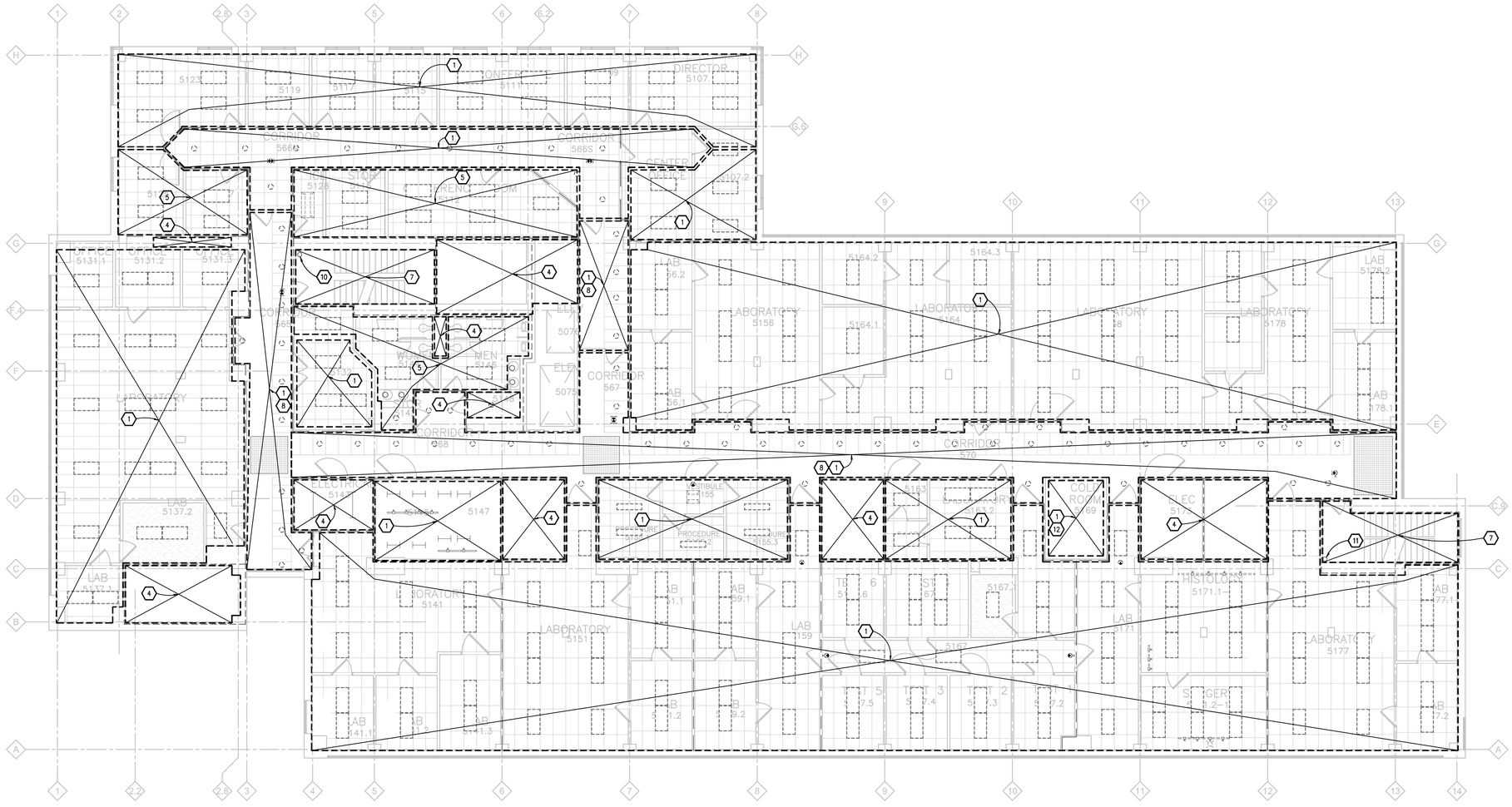
DATE
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ISSUE
BIDS/PERMITS

SHEET No.
FP1.4

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP4.dwg, FP1.4, 5/29/2026 9:06:27 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

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8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
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10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
4. OUTLINED AREA REPRESENTS PHASE 2 – ALTERNATE 1 (THESE AREAS INCLUDE: MECHANICAL SPACES, MECHANICAL SHAFTS, JANITORS CLOSETS). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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8. PROVIDE SPRINKLER HEADS ABOVE AND BELOW OPEN CEILING IN OUTLINED AREA INDICATED
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EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

REVISION

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Tel: 248-879-5666
www.PeterBassoAssociates.com
PBA Project No: 2024.0403

Peter Basso Associates CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
FIFTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

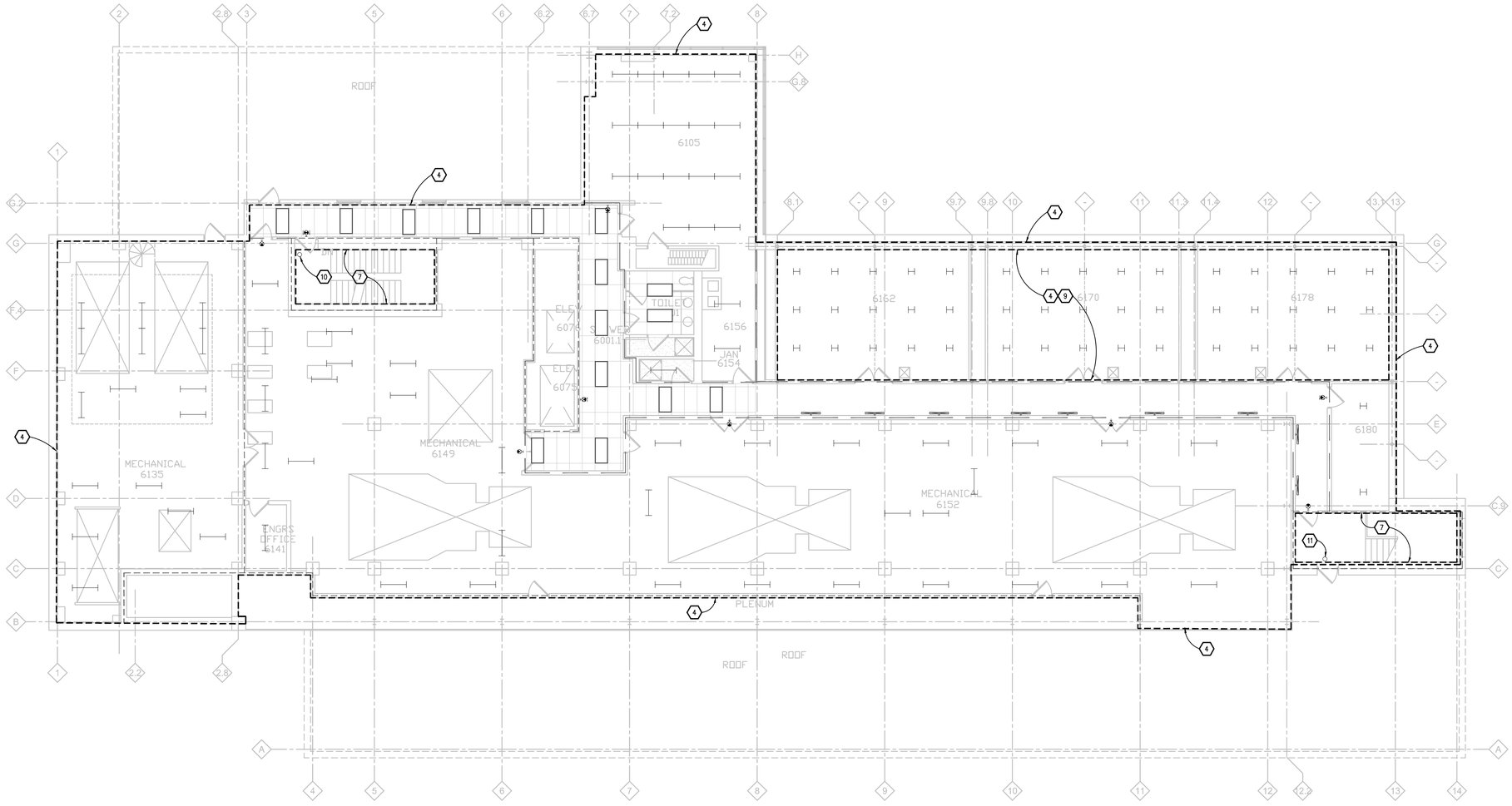
DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FP1.5

g:\2024\2024-0403-00\CAD\2024-0403-M1-CMP5.dwg, FP1.5, 5/29/2026 9:06:36 AM, Robert W. MacKinnon, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
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4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
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CONSTRUCTION KEY NOTES:

1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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3. PHASE 1 – BASE BID – REPLACE EXISTING NORTH STAIRWELL 2 STANDPIPE EXTENSION AT THE FIRST FLOOR, 4 CORRIDOR MAIN, 4 FDC FEED, AND 3 FIRE PROTECTION PIPE AT MECHANICAL ROOM BASED ON PIPE TESTING ALERT THICKNESS RESULTS.
4. OUTLINED AREA REPRESENTS PHASE 2 – ALTERNATE 1 (THESE AREAS INCLUDE: MECHANICAL SPACES, MECHANICAL SHAFTS, JANITORS CLOSETS). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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6. ALTERNATE 3 – PROVIDE 8 INCH CONCRETE PAD FOR SECURE AND STABLE CONNECTION FOR REINSTALLATION OF THE EXISTING FREESTANDING FIRE DEPARTMENT CONNECTION AND THE EXISTING FIRE PUMP TEST HEADER CONNECTION.
7. EXISTING SPRINKLERS TO REMAIN. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO EXTEND THE EXISTING FIRE PROTECTION SYSTEM TO THE REMAINDER OF GROUND FLOOR AND FIRST FLOOR AND MEET CURRENT CODE REQUIREMENTS.
8. PROVIDE SPRINKLER HEADS ABOVE AND BELOW OPEN CEILING IN OUTLINED AREA INDICATED
9. PROVIDE HIGH TEMPERATURE SPRINKLER HEADS RATED FOR 212 DEGREES F. IN GREENHOUSE ROOMS
10. EXISTING 6 COMBINATION STANDPIPE SPRINKLER RISER. REFER TO FIRE PROTECTION RISER DIAGRAM ON DRAWING FP6.2 FOR FLOOR CONTROL ASSEMBLY REQUIREMENTS.
11. EXISTING 4 STANDPIPE RISER.
12. PROVIDE DRY SPRINKLER AT COLD ROOM.
13. FIRE PROTECTION BRANCH LINE IS PROVIDED FOR OUTLINED AREA. FIRE PROTECTION CONTRACTOR TO VERIFY BRANCH FEED IS PROPERLY SIZED FOR THIS AREA..

EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

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Peter Basso Associates
CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
SIXTH FLOOR FIRE PROTECTION NEW WORK COMPOSITE PLAN

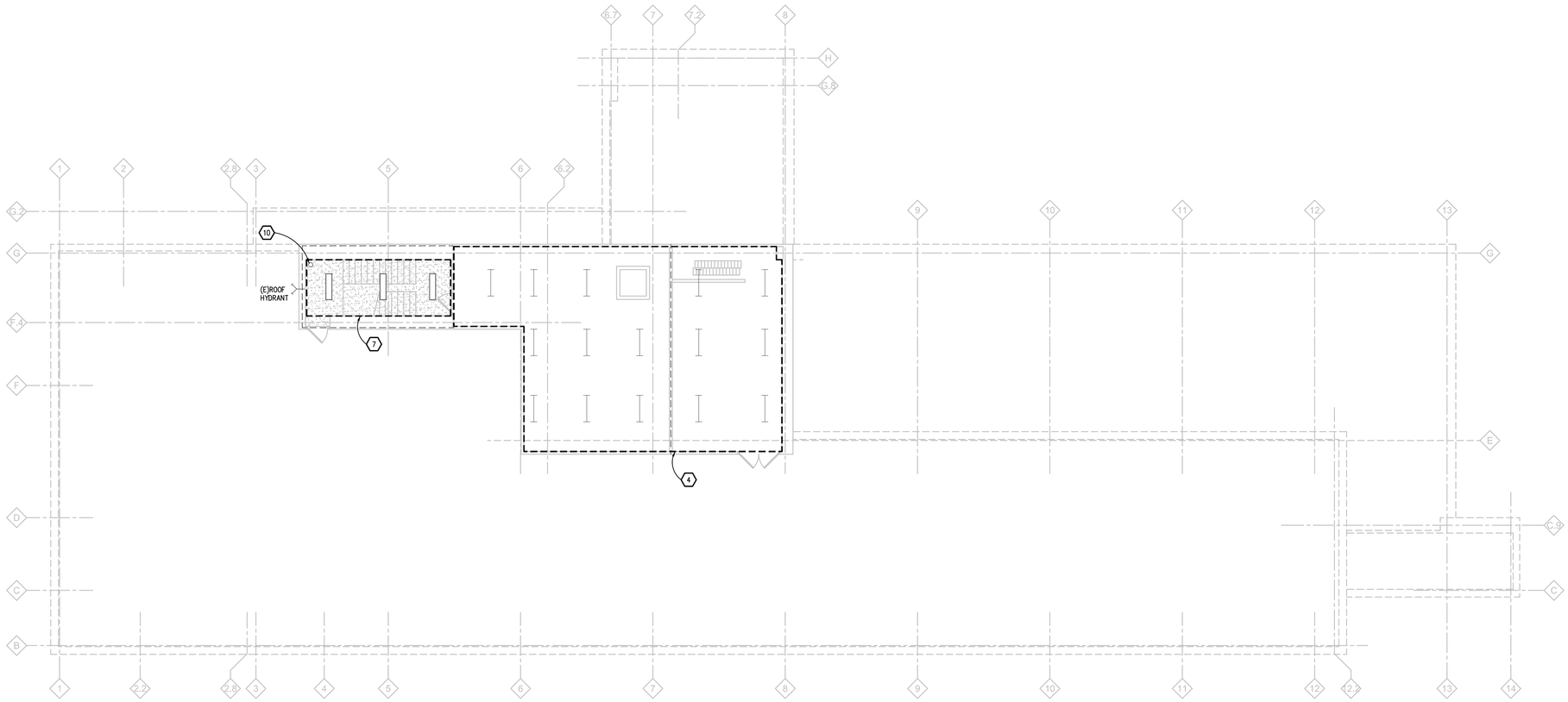
DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FP1.6

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN

SCALE: 1/8" = 1' - 0"

FIRE PROTECTION GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. NO SPRINKLER PIPING SHALL BE ROUTED THROUGH ELECTRICAL EQUIPMENT ROOMS, TELECOMMUNICATION EQUIPMENT ROOMS, ELEVATOR EQUIPMENT ROOMS OR SIMILAR ROOMS. ONLY SPRINKLER PIPING SERVING SPRINKLERS HEADS IN THOSE ROOMS SHALL BE ALLOWED.
4. NO SPRINKLER PIPING SHALL BE ROUTED OVER LIGHTS.
5. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
6. MINIMUM RUN-OUT PIPE SIZE TO SPRINKLER HEADS SHALL BE 1".
7. ACCORDING TO THE MOST RECENT FLOW TEST INFORMATION, THE STATIC PRESSURE AVAILABLE AT THE CITY WATER MAIN AT THE STREET IS 56 PSIG. RESIDUAL PRESSURE WITH 2454 GPM FLOWING IS 38 PSIG. CONTRACTOR SHALL MAKE THEIR OWN PRESSURE AND FLOW TEST PRIOR TO SYSTEM DESIGN.
8. FIRE PROTECTION CONTRACTOR TO VISIT THE SITE PRIOR TO BIDDING TO OBSERVE THE EXISTING CONDITIONS FOR OTHER TRADES TO AVOID POSSIBLE INTERFERENCES.
9. FIRE PROTECTION CONTRACTOR TO COORDINATE WITH WSU FOR A PROPER SECURE STAGING AREA. REFER TO STAGING AREA MAP ON THE COVER SHEET FOR LOCATION.
10. REMOVE AND SALVAGE DIFFUSERS, GRILLES AND OTHER CEILING DEVICES AS NECESSARY TO FACILITATE THE REQUIRED ABOVE CEILING WORK FOR THE NEW FIRE PROTECTION PIPING AND SPRINKLER HEADS AS NEEDED. COORDINATE FINAL ROUTING OF FIRE PROTECTION PIPING AND OVERHEAD CEILING WORK WITH FIRE PROTECTION CONTRACTOR AND DRAWINGS. REFER TO ATTACHED EXISTING DRAWINGS FOR DISCIPLINE COORDINATION.
11. THE BIOLOGICAL SCIENCES BUILDING PASSENGER ELEVATOR WILL BE OUT OF COMMISSION FROM MAY 2025 THRU SEPTEMBER 1, 2025. THE FREIGHT ELEVATOR WILL BE OUT OF COMMISSION FROM SEPTEMBER 2025 THRU DECEMBER 2025.

CONSTRUCTION KEY NOTES:

1. OUTLINED AREA REPRESENTS PHASE 1 – BASE BID (THESE AREAS INCLUDE: LABS, CORRIDORS, STAIRWELLS, LOBBY, VESTIBULE AND FIRE PUMP ROOM). PROVIDE A FULLY FUNCTIONING FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 13, NFPA 14, FM GLOBAL AND THE AUTHORITY HAVING JURISDICTION. ALL PHASES WILL BE PERFORMED INDEPENDENTLY FROM EACH OTHER. COORDINATE FIRE PROTECTION MAINS, BRANCHES AND SPRINKLER HEAD LOCATIONS WITH EXISTING CONDITIONS (LIGHTING, PIPING, DUCTWORK, ETC.).
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EXISTING WALL LEGEND

- 1/2 HOUR (SMOKE TIGHT)
- 1 HOUR
- 2 HOUR

REVISION

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PBA Project No: 2024.0403

Peter Basso Associates CONSULTING ENGINEERS

PROJECT TITLE
WAYNE STATE UNIVERSITY
BIOLOGICAL SCIENCES BUILDING
FIRE PROTECTION AND FIRE ALARM UPGRADES
DETROIT, MICHIGAN

SHEET TITLE
PENTHOUSE & ROOF FIRE PROTECTION NEW WORK COMPOSITE PLAN

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FP1.7

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FIRE PUMP SCHEDULE (ALTERNATE #2)

UNIT IDENTIFICATION	SYSTEM SERVED	LOCATION	TYPE	COUPLING TYPE	WATERFLOW GPM	FLUID TYPE	COLDEST SYSTEM OPERATING TEMP. °F FOR PUMP SELECTION	PUMP HEAD PSI	OVERLOAD GPM	MINIMUM EFFICIENCY %	MOTOR			MODULATION/ CONTROL TYPE	ELECTRICAL			MFG/MODEL NUMBER	GENERAL NOTES
											BHP	HP	RPM		VOLTS	PHASE	OPTIONS/ ACCESSORIES		
FP-1	FIRE PROTECTION	FIRE PUMP ROOM	HORIZONTAL SPLIT CASE	CLOSE	750	WATER	40	110	NON-OVERLOADING	68	76	75	3600	AUTO	480	3	NOTES 1 & 2 BELOW	AC FIRE PUMP SERIES 8100 6X6X9F	1, 2

GENERAL NOTES:
1. INCLUDE TORNATECH GPS SOFT START FULL SERVICE CONTROL PANEL.
2. INCLUDE WITH 3 1/2 INCH DRY PRESSURE GAUGES, 3/4 INCH NPT AUTOMATIC AIR RELEASE VALVE, 3/4 INCH NPT UL LISTED CLAVAL MODEL 55L60 RELIEF VALVE.

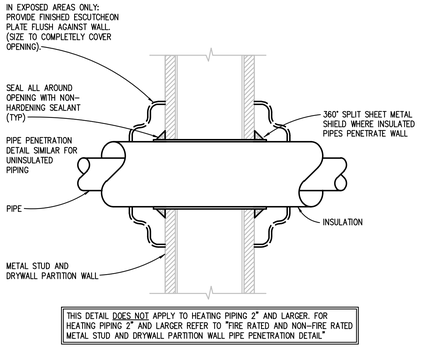
FLOW TEST DATA

STATIC	56 PSI
RESIDUAL	38 PSI
FLOW	750 GPM
ESTIMATED FLOW @ 20 PSI	2454 GPM
TEST DATE	06-19-2020
FLOW TEST BY	ESCO MARTIN HILL

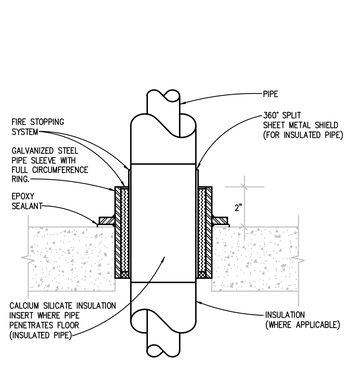
SPRINKLER DETAILS (FM GLOBAL) SCHEDULE

SPRINKLERED AREA	HYDRAULIC DESIGN	SYSTEM TYPE
LABORATORIES	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET
OFFICES	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET
MAINTENANCE (UTILITY) ROOM	0.2 GPM/SQFT OVER 2500 SQFT (HC-2)	WET
GREENHOUSE	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET
FREEZERS	0.1 GPM/SQFT OVER 1500 SQFT (HC-1)	WET

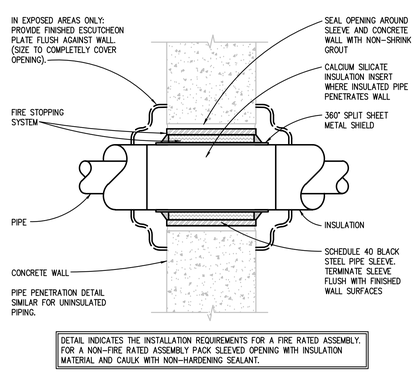
NOTES:
1) HC-1 DESIGNS PER THIS TABLE ARE ACCEPTABLE UP TO A MAXIMUM CEILING HEIGHT OF 9 METERS (30 FEET) PER FM GLOBAL DATA SHEET 3-26, TABLE 2.3.1.10. IF THIS HEIGHT IS EXCEEDED, THE DEMAND AREA SHOULD BE INCREASED.



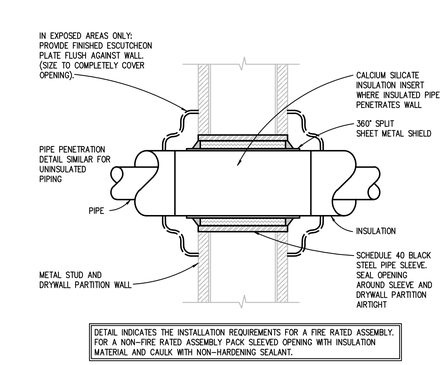
NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL
NO SCALE



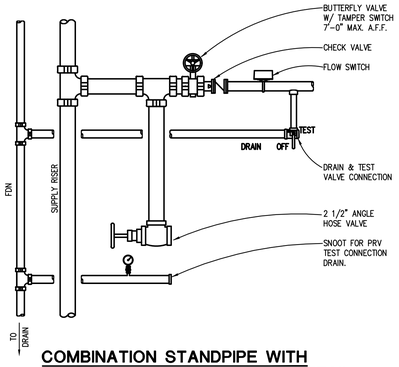
EXISTING FLOOR PIPE PENETRATION DETAIL
NO SCALE



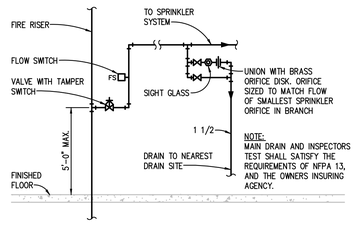
FIRE RATED AND NON-FIRE RATED POURED CONCRETE OR BLOCK WALL PIPE PENETRATION DETAIL
NO SCALE



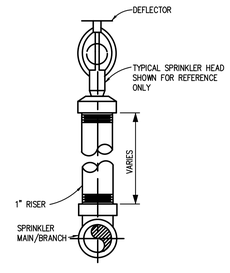
FIRE RATED AND NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL
NO SCALE



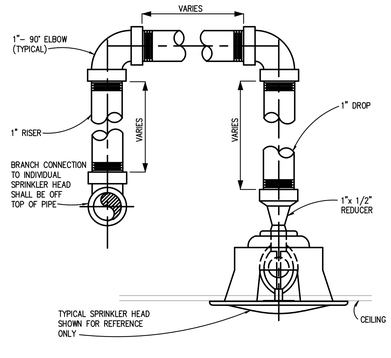
COMBINATION STANDPIPE WITH PRESSURE REDUCING VALVE DETAIL
NO SCALE



DRAIN/INSPECTORS TEST DETAIL
NO SCALE



TYPICAL UPRIGHT SPRINKLER PIPING DETAIL
NO SCALE



TYPICAL SPRINKLER PIPING DETAIL
NO SCALE

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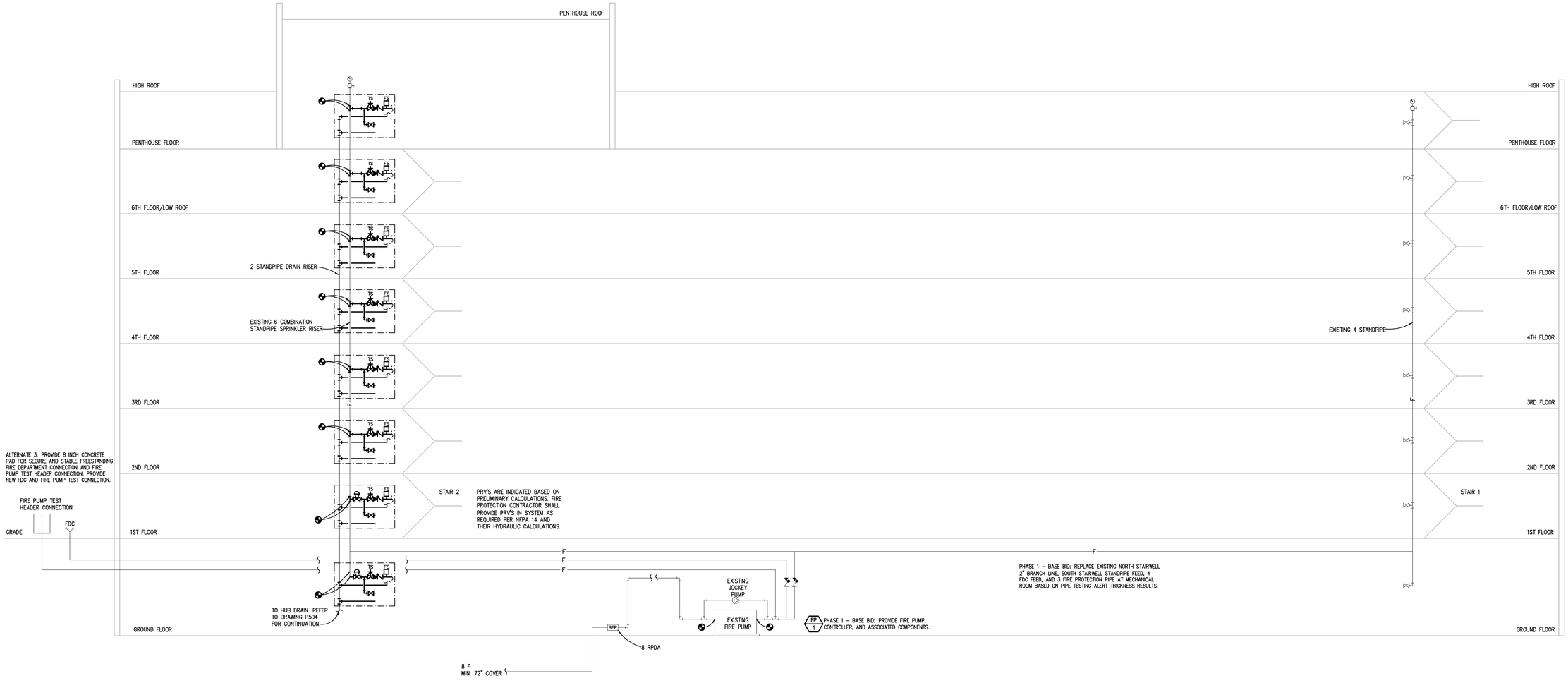
SHEET TITLE
FIRE PROTECTION DETAILS AND SCHEDULES

DATE
05-29-2026

ISSUE
BIDS/PERMITS

SHEET No.
FP6.1

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FIRE PROTECTION RISER DIAGRAM

NO SCALE

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FIRE PROTECTION RISER DIAGRAM

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ISSUE
BIDS/PERMITS

SHEET No.
FP6.2

g:\2024\2024-0403-00\CAD\2024-0403-FP6-D0.dwg, FP6.2, 5/29/2026 9:07:00 AM, Robert W. MacKinnon, Peter Basso Associates Inc.