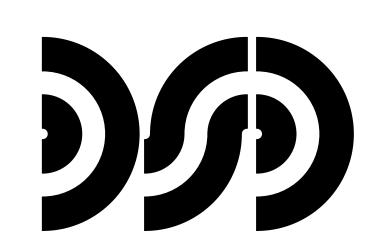
WAYNE STATE UNIVERSITY

SCIENCE HALL CONDENSATE RETURN PIPING REVISIONS

5045 CASS AVENUE

DETROIT, MICHIGAN 48201

WSU PROJECT# 005-304613



DICLEMENTE SIEGEL DESIGN INC.

28105 GREENFIELD ROAD SOUTHFIELD, MICHIGAN 48076-3046 DSD PROJECT No. 19-4801

G-1 COVER SHEET

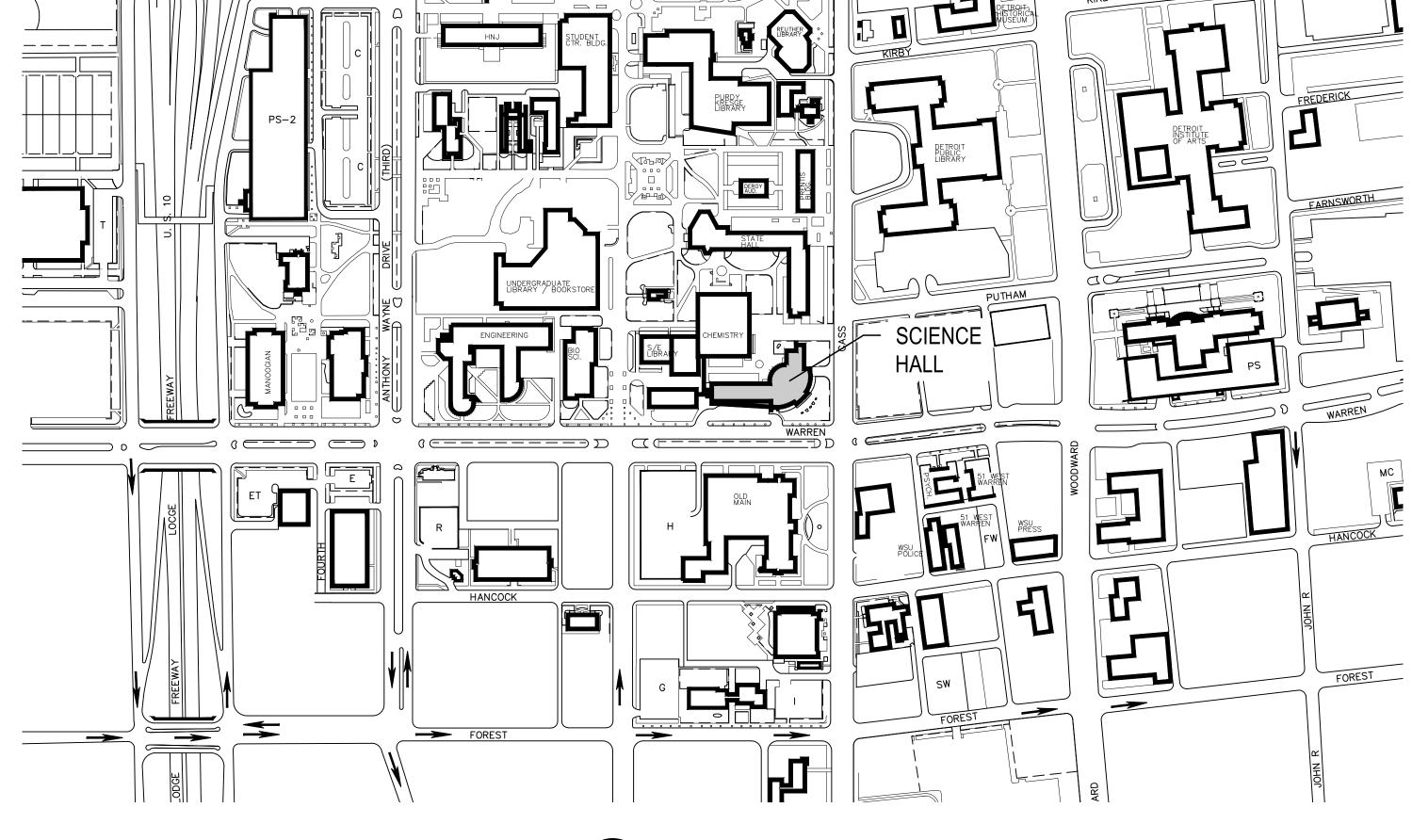
MECHANICAL SHEET INDEX

SHEET DESCRIPTION

M-1 MECHANICAL GENERAL INFORMATION
M-2 PARTIAL SUB-BASEMENT DEMOLITION PLAN
M-3 PARTIAL BASEMENT DEMOLITION PLAN
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M-6 MECHANICAL DETAILS

EXISTING COIL SCHEDULE

ENGINEERING AND ARCHITECTURE





ACADFILE: ISSUED FOR: DATE:

SYMBOL LEGEND			
TWO LINE SYMBOLS	SCHEMATIC SYMBOLS	DESCRIPTION	
		EXISTING TO REMAIN	
	/////////////////////////////////////	EXISTING TO BE REMOVED	
		NEW WORK	
•	•	NEW CONNECTION TO EXISTING	
		PIPING ELBOW	
		PIPING ELBOW UP	
		PIPING ELBOW DOWN	
	1	PIPING TEE	
		PIPING TEE UP	
		PIPING TEE DOWN	
\		DIELECTRIC UNION OR FLANGE CONNECTION	
<u> </u>		ISOLATION VALVE	
	——————————————————————————————————————	GATE VALVE	
		CHECK VALVE	
		BUTTERFLY VALVE	
	<u> </u>	SOLENOID VALVE	
—	—Б—	BALL VALVE	
	——×———————————————————————————————————	GLOBE VALVE	
—	— № — —	LUBRICATED PLUG VALVE	
		BALANCE VALVE	
_*		CONTROL VALVE - 2 WAY	
	-\$- -\$-	CONTROL VALVE - 3 WAY	
——————————————————————————————————————	——————————————————————————————————————	BACKWATER VALVE	
	++	STRAINER	
<u> </u>		THERMOMETER	
•	— <u>+</u> —	PRESSURE GAUGE WITH BALL VALVE	
		CIRCUIT SETTER	
		FLOW METER	
	₹ 	PIPE EXPANSION LOOP	
		PIPE ANCHOR	
		PIPE GUIDE	
•	•	CONCRETE THRUST BLOCK	
	——	FLOW ARROW	
		FIRE DAMPER HORIZONTAL POSITION	
		COMBINATION FIRE/SMOKE DAMPER HORIZONTAL POSITION	
		FIRE DAMPER VERTICAL POSITION	
		COMBINATION FIRE/SMOKE DAMPER VERTICAL POSITION	
FS—	FS-	FIRE PROTECTION FLOW SWITCH	
TS—	TS	FIRE PROTECTION TAMPER SWITCH	
M —	M—	MOTORIZED DEVICE	
\boxtimes		SUPPLY AIR CEILING DIFFUSER	
		RETURN AIR REGISTER OR GRILLE	
		EXHAUST AIR REGISTER OR GRILLE	
ANNHHHHHA —		FLEXIBLE DUCT	
<u> </u>	_	SPIN-IN FITTING WITH VOLUME DAMPER (TO BOTTOM OF DUCT)	
<u> </u>		SPIN-IN FITTING WITH VOLUME DAMPER (TO SIDE OF DUCT)	
		CONCENTRIC REDUCER (PIPE OR DUCT)	
		ECCENTRIC REDUCER (PIPE OR DUCT)	
•	••••••••••••••••••••••••••••••••••••••	THERMOSTAT	
Θ	Θ	HUMIDISTAT	
©	S	TEMPERATURE CONTROL SENSOR	

CVAADOL	DECODINE
SYMBOL	DESCRIPTION
A.A.V.	ADDV/E
ABV	ABOVE SIMICUED SLOOP
A.F.F.	ABOVE FINISHED FLOOR
A.H.U.	AIR HANDLING UNIT
A.S.R.	AUTOMATIC SPRINKLER RISER
B.O.D.	BOTTOM OF DUCT
B.O.P.	BOTTOM OF PIPE
B.W.V.	BACK WATER VALVE
C.A.	COMPRESSED AIR
CHWP	CHILLED WATER PUMP
C.I.	CAST IRON
C.O.	CLEAN OUT
CONN.	CONNECTION
C.W.	COLD WATER
C.W.P.	CONDENSER WATER PUMP
C.V.	CONTROL VALVE
D.C.W.	DOMESTIC COLD WATER
DN	DOWN
D&T	DRIP AND TRAP
E.W.C.	ELECTRIC WATER COOLER
E.W.H.	ELECTRIC WATER HEATER
EXH.	EXHAUST
E.R.	EXHAUST REGISTER
F.D.	FLOOR DRAIN
FLR.	FLOOR
F.H.	FIRE HYDRANT
F.U.	FIXTURE UNITS (DRAINAGE)
G.D.	GARBAGE DISPOSAL
G.V.	GATE VALVE
GL.V.	GLOBE VALVE
H.B.	HOSE BIBB
H.C.	HOSE CABINET
H.W.	HOT WATER
HYD.	HYDRANT
H.O.	HUB OUTLET
I.E.	INVERT ELEVATION
LAV.	LAVATORY
M.B.H.	THOUSAND BTU/HR (BRITISH THERMAL UNITS PER HOUR)
M.H.	MANHOLE
N.I.C.	NOT IN CONTRACT
NK.	NECK
O.A.	OUTSIDE AIR
PCHWS	PRIMARY CHILLED WATER SUPPLY
PCHWR	PRIMARY CHILLED WATER RETURN
P.H.	PHYSICALLY HANDICAPPED
P.R.V.	PRESSURE REDUCING VALVE
P.T.	PLUGGED TEE
R.A.	RETURN AIR
R.A.F.	RETURN AIR FAN
*	

SYMBOL	DESCRIPTION
R.S.	ROOF SUMP
S.A.	SUPPLY AIR
SAN	SANITARY PIPE
SCHWS	SECONDARY CHILLED WATER SUPPLY
SCHWR	SECONDARY CHILLED WATER RETURN
S.S.	SERVICE SINK
T.A.D.	TRANSFER AIR DUCT
T.D.C.	TILE DRAIN CONNECTION
TYP.	TYPICAL
UR.	URINAL
V	VENT
VAV	VARIABLE AIR VOLUME BOX
VAVR	VARIABLE AIR VOLUME BOX WITH HOT WATER REHEAT
VAVRE	VARIABLE AIR VOLUME BOX WITH ELECTRIC REHEAT
V.T.R.	VENT THROUGH ROOF
V.D.	VOLUME DAMPER
V.O.	VALVED OUTLET
W	WASTE
W.C.	WATER CLOSET
W.C.O.	WALL CLEAN OUT
W.H.	WALL HYDRANT

SYMBOL	DESCRIPTION
CD	CONDENSATE DRAIN (GRAVITY)
CHWR —	CHILLED WATER RETURN
CHWS —	CHILLED WATER SUPPLY
COMB	COMBINATION SEWER
CR	CONDENSATE RETURN
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
F	FIRE PROTECTION
NG	NATURAL GAS
—— HHWR ———	HEATING HOT WATER RETURN
—— HHWS ———	HEATING HOT WATER SUPPLY
——————————————————————————————————————	HIGH PRESSURE CONDENSATE
——————————————————————————————————————	HIGH PRESSURE STEAM
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
0	OIL
———— PC ———	PUMPED CONDENSATE
SAN	SANITARY
ST	STORM
V ———	VENT
	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATING

U-1		
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OVEDVIEW OF MECHANICAL SCORE		

OVERVIEW OF MECHANICAL SCOPE

THIS OVERVIEW OF SCOPE IS INCLUDED TO GIVE THE CONTRACTOR A GENERAL OVERVIEW OF THE PROJECT REQUIREMENTS. THE OVERVIEW IS NOT ALL INCLUSIVE AND IS NOT INTENDED TO, AND SHOULD NOT BE USED TO, ESTABLISH CONTRACT LIMITS OR PRICING INCLUSIONS. THE CONTRACT DOCUMENTS SHALL BE USED TO ESTABLISH CONSTRUCTION CONTRACT SCOPE.

THIS OVERVIEW OF SCOPE INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

- 1. DEMOLISH AND REMOVE EXISTING CONDENSATE RETURN PIPING, STEAM TRAPS, AND FITTINGS
- PROVIDE NEW/MODIFIED NEW STEAM TRAPS, FITTINGS, AND CONDENSATE RETURN PIPING AS INDICATED AND EXTEND/CONNECT TO EXISTING CONDENSATE RETURN SYSTEM.

PROJECT REQUIREMENTS

PROVIDE ALL NECESSARY PERMITS. ALL WORK SHALL BE INSTALLED TO COMPLY WITH THE OWNER'S STANDARDS, STATE AND LOCAL CODES INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING CODES AND THEIR RELATED REFERENCES.

- 2015 MICHIGAN MECHANICAL CODE
- 2015 MICHIGAN PLUMBING CODE
- 2015 INTERNATIONAL FIRE CODE (AS REFERENCED)
- 2015 INTERNATIONAL FUEL GAS CODE
- NFPA 101 LIFE SAFETY CODE 1997 AND 2012 (AS REFERENCED) 2015 MICHIGAN ENERGY CODE
- 2017 NATIONAL ELECTRICAL CODE AS AMENDED BY THE MICHIGAN CONSTRUCTION CODE PART 8, ELECTRICAL CODE RULES.
- 2015 MICHIGAN BUILDING CODE

MANUFACTURER AND MODEL NUMBER LISTED REPRESENTS THE BASIS OF DESIGN FOR THIS PROJECT. THE MECHANICAL CONTRACTOR SHALL BEAR ALL ADDITIONAL COST ASSOCIATED WITH USING EQUIPMENT BY OTHER APPROVED MANUFACTURERS INCLUDING ADDITIONAL COSTS BY OTHER

ALL EQUIPMENT INSTALLED SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE FIELD OR PROJECT CONDITIONS DO NOT ALLOW ALL MANUFACTURER'S RECOMMENDATIONS TO BE MET, THE INSTALLING CONTRACTOR SHALL SUBMIT IN WRITING TO THE ENGINEER THE PROPOSED DEVIATION, IN A SKETCH FORM, ACCOMPANIED BY THE MANUFACTURER'S CONCURRENCE.

GENERAL START UP, CONTROL AND BALANCE NOTES

- 1. START UP EACH NEW AND MODIFIED PIECE OF MECHANICAL EQUIPMENT SHALL RECEIVE A START UP. PACKAGED EQUIPMENT WITH MOTORS SHALL INCLUDE A FACTORY REPRESENTATIVE START UP. OTHER EQUIPMENT SHALL RECEIVE A MECHANICAL CONTRACTOR OR PLUMBING CONTRACTOR START UP (BASED ON WHO PURCHASED THE EQUIPMENT OR WHO IT WAS ASSIGNED TO), START UP REPORTS SHALL INCLUDE A FUNCTIONAL TEST OF ALL MODES OF OPERATION AND A WITNESSED REPORT OF THE VALIDATION (BY THE CONTRACTOR, WHERE PERFORMED BY THE SUPPLIER OR THE OWNER'S REPRESENTATIVE WHERE PERFORMED BY THE CONTRACTOR).
- 2. TEMPERATURE CONTROL CONTRACTOR (TCC) OR TEMPERATURE CONTROL WIRING CONTRACTOR SHALL PERFORM A DOCUMENTED STARTUP ON THE MECHANICAL CONTROLS. THIS SHALL VALIDATE THE START UP REPORT.
- 3. EACH SYSTEM SHALL BE TESTED IN EACH MODE OF OPERATION.

HANDBOOK.

- 4. DISCHARGE AIR TEMPERATURE, PRESSURE AND OTHER SYSTEM PARAMETERS ARE TO BE RECORDED DURING TESTING.
- 5. TEST IS TO SIMULATE VARYING SPACE DEMAND TO PROVE THE SYSTEM CONTROLS ARE AUTOMATICALLY FUNCTIONING.
- 6. SYSTEM SAFETY FEATURES (FREEZE THERMOSTATS, HIGH PRESSURE, ETC.) ARE TO BE TESTED TO PROVE OPERATION.
- 7. TCC SHALL PROVIDE A WRITTEN REPORT FOR EACH CONTROLLED COMPONENT SHOWING TESTING AND PROPER OPERATION.
- 8. TEST AND BALANCE EACH NEW OR MODIFIED SYSTEM SHALL RECEIVE A HYDRONIC AND/OR AIR TEST AND BALANCE AT THE CONCLUSION OF THE INSTALLATION (AND AS DESIGNATED OTHERWISE). THE MINIMUM BALANCE SHALL INCLUDE THE SYSTEM TOTALS OF THE MAIN EQUIPMENT DELIVERING THE AIR OR WATER (INCLUDING THE HP, BHP, MOTOR AMPS, RPM AND FLOW RATES) AS WELL AS INDIVIDUAL BALANCES OF EACH ITEM MODIFIED AS A PART OF THE PROJECT, (EACH DIFFUSER, COIL, ETC.). WHERE NEW SYSTEMS ARE PROVIDED, A FULL TEST AND BALANCE SHALL BE PROVIDED IN ACCORDANCE WITH ASHRAE HVAC APPLICATIONS



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MARK	ISSUE	DATE
	50% PROGRESS REVIEW	03/19/19
	BIDS	06/07/19

DESIGNER	DCM
DRAWN	TCJ/DMN
CHECKED	DCM
DEPT MGR	DCM
PROJECT MGR	DCM

CONDENSATE RETURN PIPING **REVISIONS**

WSU SCIENCE 5045 CASS AVENUE

DETROIT, MI 48201

MECHANICAL GENERAL **INFORMATION**

WSU PROJECT #: 005-304613
WSU BLDG NAME: SCIENCE HALL
WSU BLDG #: 005

A/E PROJECT NO.

TITLE:

19-4801.00

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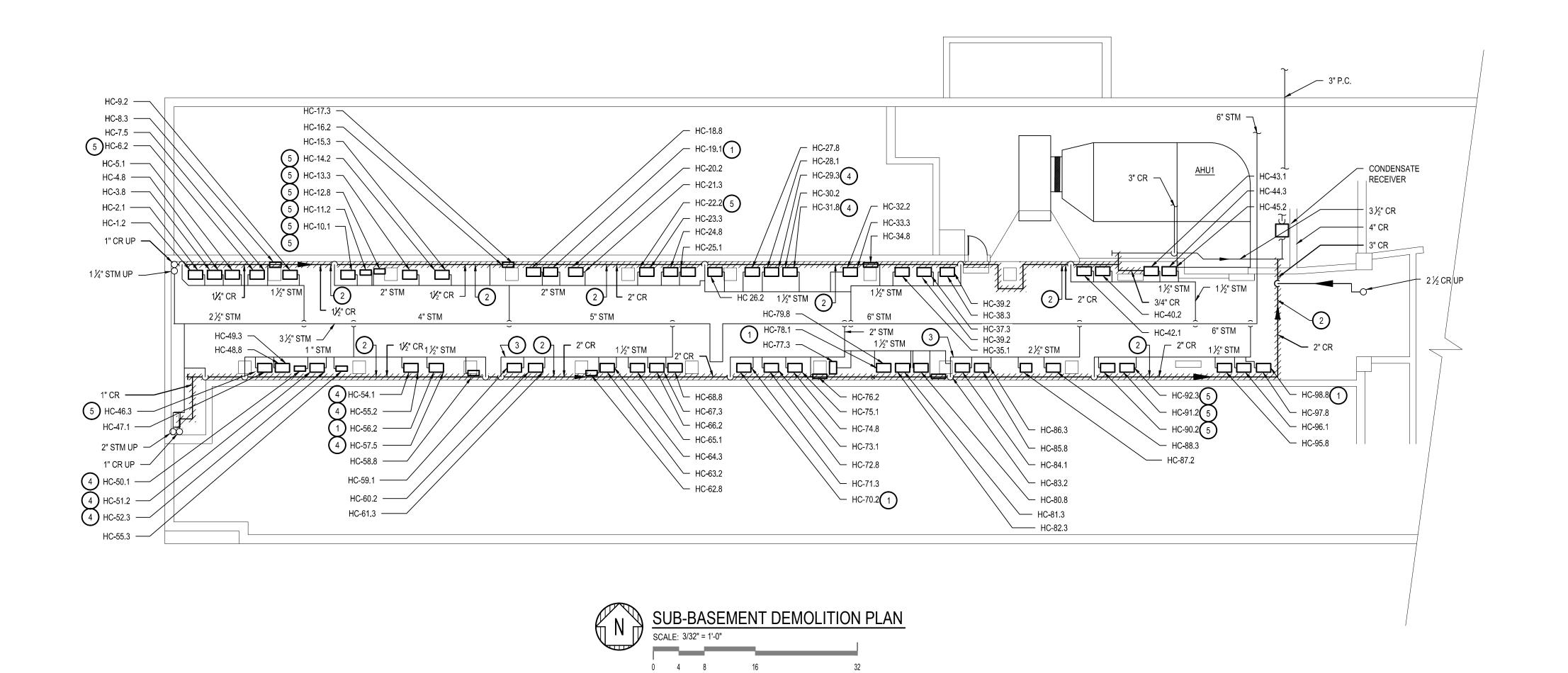
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SHEET NOTES:

- 1. ANY INTERRUPTIONS OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE SO AS NOT TO INTERFERE WITH THE PRESENT BUILDING'S OPERATION.
- 2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK TO BE PERFORMED. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
- 3. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE WITH ALL RELATED ITEMS INCLUDING HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.
- 4. ALL DEMOLITION OF THE EXISTING MECHANICAL SYSTEMS INCLUDING BUT NOT LIMITED TO PIPING, DUCTWORK, CONTROLS, SUPPORTS, HANGERS, AND EQUIPMENT SHALL BE UNDER SCOPE OF DIVISION 02 OF THE SPECIFICATIONS.
- 5. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED.

DEMOLITION KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

- 1 REMOVE STEAM TRAP.
- 2 REMOVE HORIZONTAL CONDENSATE RETURN MAIN PIPING AS INDICATED. PIPING FROM CONDENSATE RETURN MAIN BACK TO TRAP TO REMAIN FOR FUTURE CONNECTION TO NEW CONDENSATE RETURN MAIN, UNLESS NOTED OTHERWISE.
- 3 REMOVE END OF LINE DRIP LEG TRAP.
- 4 REMOVE CONDENSATE RETURN PIPING BACK TO TRAP.
- 5 REMOVE TRAP AND CONDENSATE RETURN PIPING BACK



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DATE

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DESIGNER	DCM
DRAWN	TCJ/DMN
CHECKED	DCM
DEPT MGR	DCM
PROJECT MGR	DCM

MARK ISSUE

TITLE: CONDENSATE RETURN PIPING **REVISIONS**

> WSU SCIENCE HALL

> > DETROIT, MI 48201



DEMOLITION PLAN

WSU PROJECT #: 005-304613
WSU BLDG NAME: SCIENCE HALL
WSU BLDG #: 005

A/E PROJECT NO.

19-4801.00

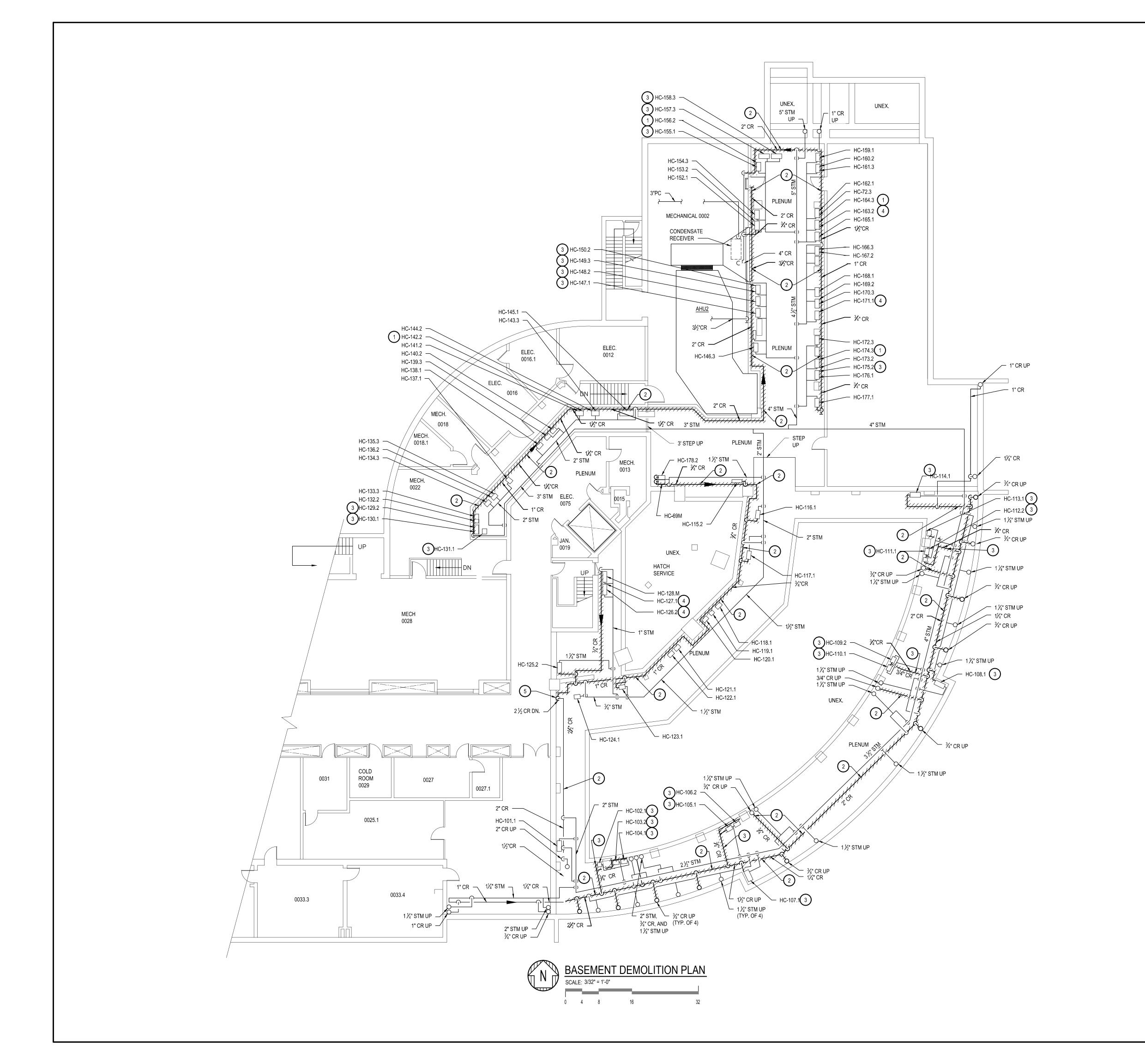
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DSD FILE NAME 19-4801-M-2

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coordination is the contractor's responsibilit



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- 5. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED.

DEMOLITION KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

- 1 REMOVE STEAM TRAP.
- 2 REMOVE HORIZONTAL CONDENSATE RETURN MAIN PIPING AS INDICATED. PIPING FROM CONDENSATE RETURN MAIN BACK TO TRAP TO REMAIN FOR FUTURE CONNECTION TO NEW CONDENSATE RETURN MAIN, UNLESS NOTED
- REMOVE THE CONDENSATE RETURN FROM MAIN BACK TO HEATING COIL.
- 4) REMOVE CONDENSATE RETURN PIPING BACK TO TRAP.
- 5 EXISTING CONDENSATE RETURN RISER RISER TO REMAIN.

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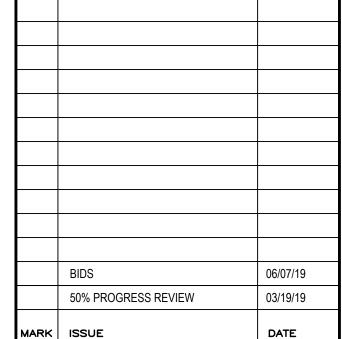


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DEPT MGR	DCM
PROJECT MGR	DCM

TITLE: CONDENSATE

RETURN PIPING **REVISIONS**

WSU SCIENCE HALL 5045 CASS AVENUE

DETROIT, MI 48201

PARTIAL BASEMENT **DEMOLITION PLAN**

WSU PROJECT #: 005-304613
WSU BLDG NAME: SCIENCE HALL
WSU BLDG #: 005

A/E PROJECT NO.

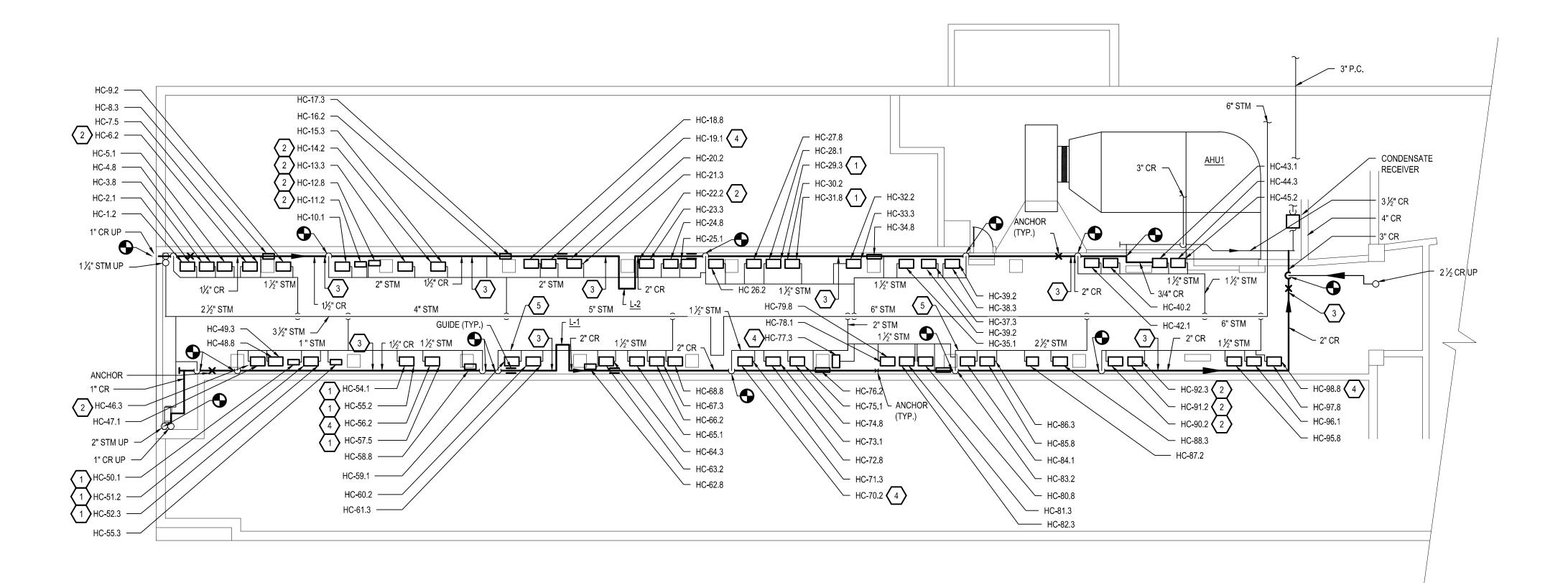
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M-3

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SUB-BASEMENT NEW WORK PLAN

SHEET NOTES:

- 1. THESE DRAWINGS ARE DIAGRAMMATIC & INDICATE THE GENERAL EXTENT OF THE WORK. PROVIDE PIPING SYSTEMS COMPLETE AND PER SPECIFICATIONS, AND PER APPLICABLE CODES INCLUDING ALL NECESSARY OFFSETS, AND FITTINGS WHICH ARE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS.
- 2. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. VERIFY ALL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK.
- 3. PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
- 4. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION
- 5. COORDINATE FLOOR AND WALL PENETRATIONS WITH ARCHITECTURAL TRADES.

OF ALL MECHANICAL SYSTEMS.

- 6. FOR EQUIPMENT VALVING, COMPONENT, AND PIPING ARRANGEMENT, REFER TO PIPING DIAGRAMS AND DETAILS.
- 7. INSTALL ALL CONDENSATE RETURN PIPING WITH A CONSISTENT DOWNWARD SLOPE OF 0.4 PERCENT. USE ECCENTRIC FITTINGS FOR FOR CHANGES IN PIPE SIZE.
- 8. RECONNECT ALL CONDENSATE BRANCH PIPING TO NEW CONDENSATE RETURN MAIN. RECONNECT ALL DRIP LEG TRAPS TO NEW CONDENSATE RETURN MAIN.

NEW WORK KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

- 1) INSTALL NEW CONDENSATE RETURN PIPING FROM TRAP. CONNECT TO NEW CONDENSATE RETURN MAIN SEPARATELY FROM OTHER RETURN BRANCHES.
- 2 INSTALL NEW STEAM TRAP AND CONDENSATE RETURN PIPING. CONNECT TO NEW CONDENSATE RETURN MAIN.
- 3 INSTALL NEW CONDENSATE RETURN MAIN PIPING. INSULATE ALL CONDENSATE RETURN PIPING. SUPPORT
- 4 INSTALL ALL NEW STEAM TRAP.
- 5 INSTALL NEW DRIP LEG TRAP.

UNIT PRICING

PROVIDE UNIT PRICING FOR THE FOLLOWING ITEMS:

- 1. REMOVE AND REPLACE STEAM TRAP.
- 2. REMOVE STEAM TRAP AND CONDENSATE RETURN PIPING BACK TO THE HEATING COIL. INSTALL NEW STEAM TRAPS AND CONDENSATE RETURN PIPING, FITTINGS AND ACCESSORIES PER DETAIL ON SHEET M-6.
- 3. REMOVE CONDENSATE RETURN PIPING BACK TO STEAM TRAP. INSTALL NEW CONDENSATE RETURN PIPING, FITTINGS AND ACCESSORIES PER DETAIL ON SHEET M-6. CONNECT TO CONDENSATE MAIN SEPARATELY FROM OTHER CONDENSATE RETURN BRANCH PIPING.



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CONDENSATE TITLE: RETURN PIPING **REVISIONS**

> WSU SCIENCE HALL

DETROIT, MI 48201

PARTIAL SUB-BASEMENT **NEW WORK PLAN**

WSU PROJECT #: 005-304613
WSU BLDG NAME: SCIENCE HALL
WSU BLDG #: 005

A/E PROJECT NO.

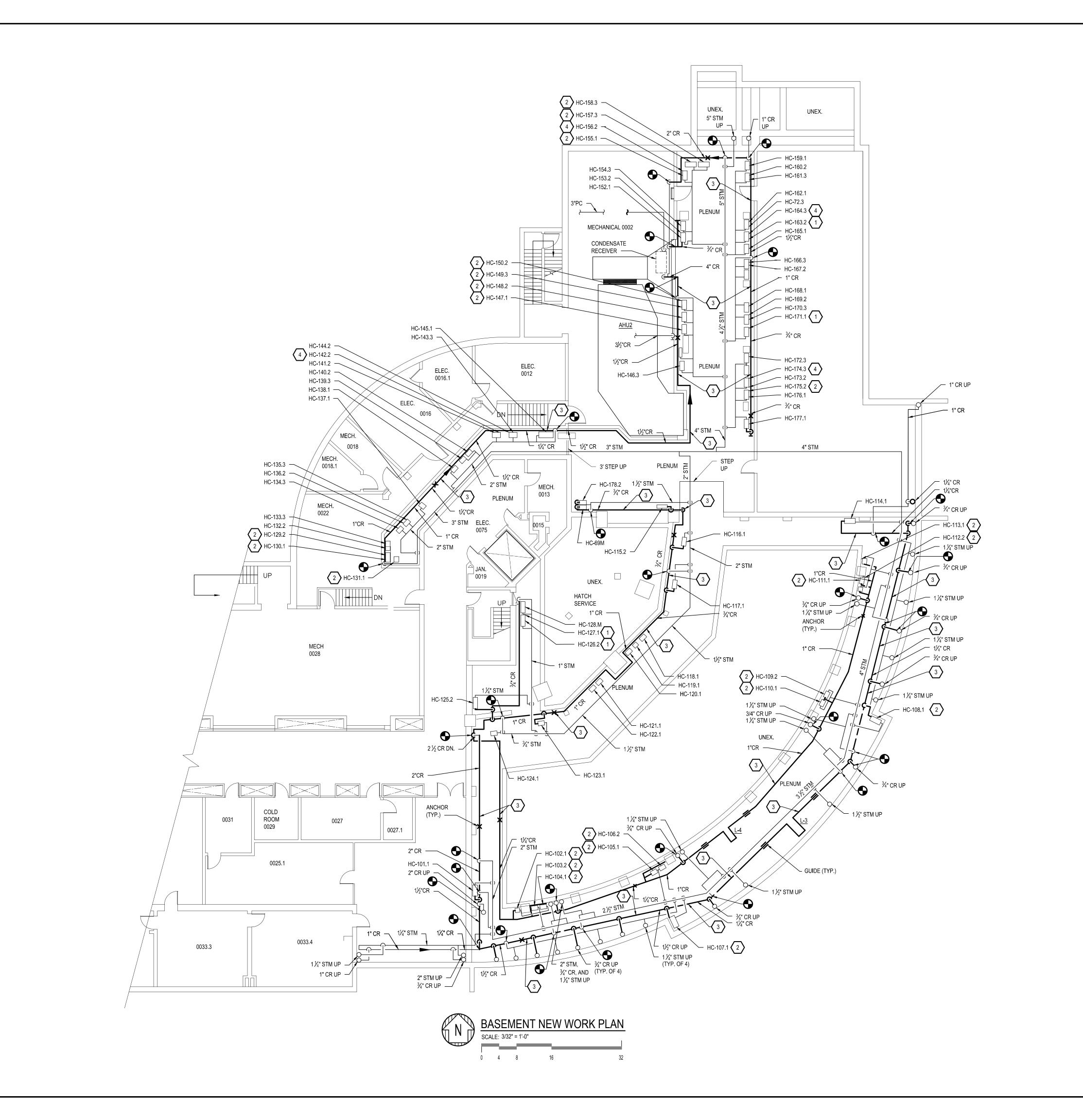
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M-4

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- 3. PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
- THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
- COORDINATE FLOOR AND WALL PENETRATIONS WITH ARCHITECTURAL TRADES.
- 6. FOR EQUIPMENT VALVING, COMPONENT, AND PIPING ARRANGEMENT, REFER TO PIPING DIAGRAMS AND DETAILS.
- 7. INSTALL ALL CONDENSATE RETURN PIPING WITH A CONSISTENT DOWNWARD SLOPE OF 0.4 PERCENT. USE ECCENTRIC FITTINGS FOR FOR CHANGES IN PIPE SIZE.
- 8. RECONNECT ALL CONDENSATE BRANCH PIPING TO NEW CONDENSATE RETURN MAIN. RECONNECT ALL DRIP LEG TRAPS TO NEW CONDENSATE RETURN MAIN.

NEW WORK KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

- INSTALL NEW CONDENSATE RETURN PIPING FROM TRAP.
 CONNECT TO NEW CONDENSATE RETURN MAIN
 SEPARATELY FROM OTHER RETURN BRANCHES.
- 2 INSTALL NEW STEAM TRAP AND CONDENSATE RETURN PIPING. CONNECT TO NEW CONDENSATE RETURN MAIN.
- NEW CONDENSATE RETURN MAIN PIPING. INSULATE ALL CONDENSATE RETURN PIPING. SUPPORT FROM WALL.
- 4 INSTALL NEW STEAM TRAP.

<u>UNIT PRICING</u>

PROVIDE UNIT PRICING FOR THE FOLLOWING ITEMS:

- 1. REMOVE AND REPLACE STEAM TRAP.
- 2. REMOVE STEAM TRAP AND CONDENSATE RETURN PIPING BACK TO THE HEATING COIL. INSTALL NEW STEAM TRAPS AND CONDENSATE RETURN PIPING, FITTINGS AND ACCESSORIES PER DETAIL ON SHEET M-6.
- 3. REMOVE CONDENSATE RETURN PIPING BACK TO STEAM TRAP. INSTALL NEW CONDENSATE RETURN PIPING, FITTINGS AND ACCESSORIES PER DETAIL ON SHEET M-6. CONNECT TO CONDENSATE MAIN SEPARATELY FROM OTHER CONDENSATE RETURN BRANCH PIPING.



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



DiClemente Siegel Design

Engineering and Architecture

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BIDS	06/07/19
50% PROGRESS REVIEW	03/19/19

DESIGNER	DCM
DRAWN	TCJ/DMN
CHECKED	DCM
DEPT MGR	DCM
PROJECT MGR	DCM

MARK ISSUE

TITLE: CONDENSATE RETURN PIPING

WSU SCIENCE

HALL 5045 CASS AVENUE DETROIT, MI 48201

REVISIONS

DATE

PARTIAL BASEMENT NEW WORK PLAN

WSU PROJECT #: 005-304613
WSU BLDG NAME: SCIENCE HALL
WSU BLDG #: 005

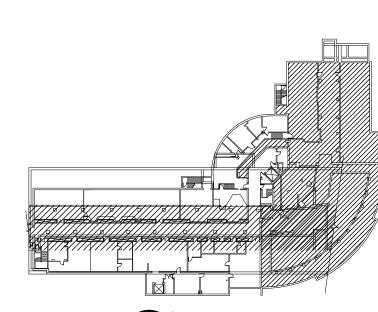
A/E PROJECT NO.

19-4801.00

SHEET NO.

M-5

19-4801-M-5

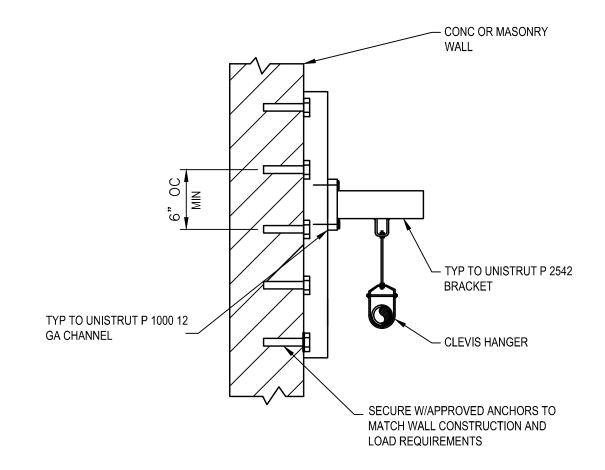


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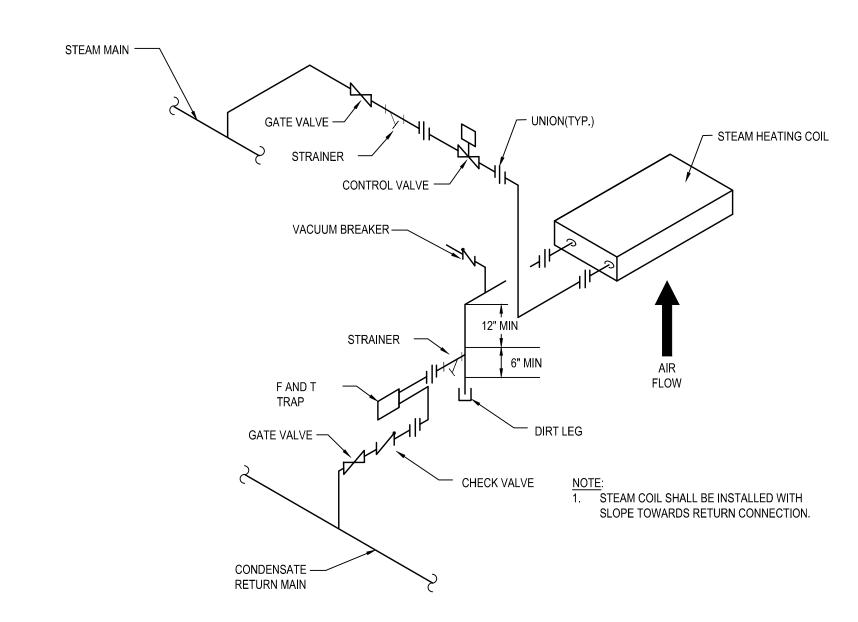
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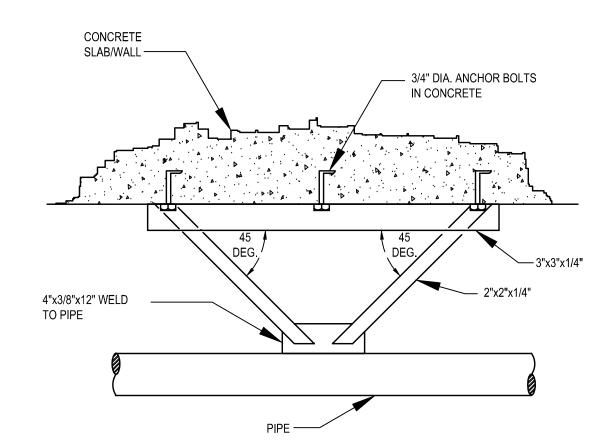
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WALL SUPPORTED PIPE RACK

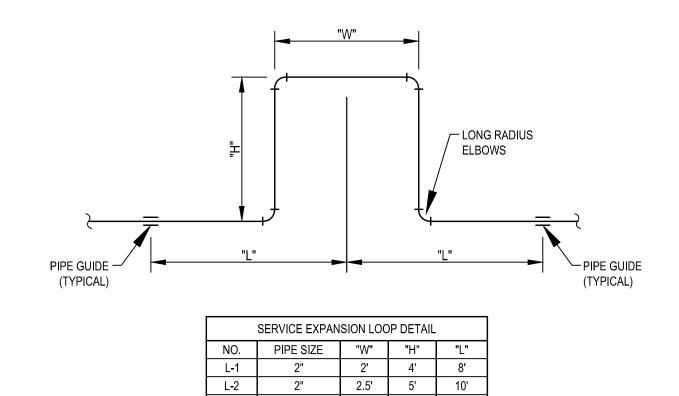


HORIZONTAL STEAM COIL PIPING DIAGRAM
NO SCALE

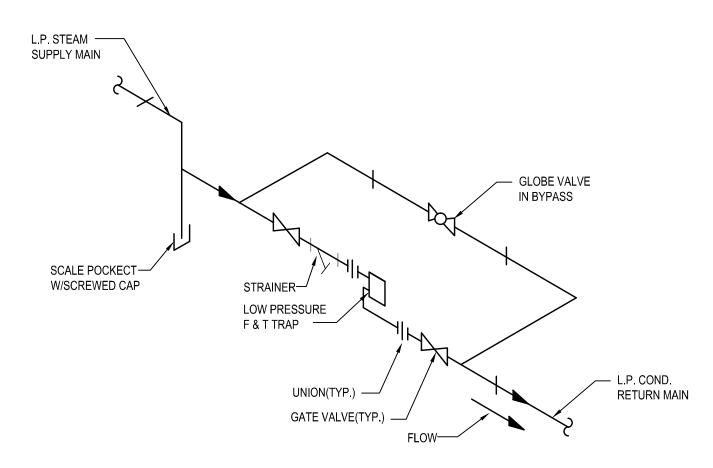


PIPE ANCHOR TO CONCRETE DETAIL

NO SCALE



EXPANSION LOOP DETAIL NOT TO SCALE



TYPICAL LOW PRESSURE DRIP TRAP ASSEMBLY SCHEMATIC

WAYNE STATE UNIVERSITY

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



DiClemente Siegel Design

Engineering and Architecture

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	BIDS	06/07/19
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MARK	ISSUE	DATE

DESIGNER	DCM
DRAWN	TCJ/DMN
CHECKED	DCM
DEPT MGR	DCM
PROJECT MGR	DCM

TITLE: CONDENSATE RETURN PIPING **REVISIONS**

> WSU SCIENCE HALL 5045 CASS AVENUE DETROIT, MI 48201

> MECHANICAL DETAILS

19-4801.00

WSU PROJECT #: 005-304613
WSU BLDG NAME: SCIENCE HALL
WSU BLDG #: 005

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Final dimensions, equipment pages as well-as

purposes of constructing, using an maintaining this project These documents are traditional plan and Final dimensions, equipment access, routing miscellaneous fittings, final installation an

coordination is the contractor's responsibility

M-6

19-4801-M-6

		1	0 0	9	STE	АМ	HE	HEATING		COII	_ S(ÇHE	DUL	E	BASED ON 2 PSIG STEAM @ COIL		
MARK	CFM	MIN. F.A. SQ. FT.	COIL DIM. IN.	ROWS	FINS PER FT.	TYPE		TEMP F	мвн	AIR LB./HR. RESIST. STEAM P.D. IN.W.G.		PIPE	N OUT E SIZE IN.	MFGR. & MODEL No.	REMARKS		
HC-1.2	805	1.5	12 ¹¹ × 18 ¹¹		42	SF	57	75	15.7	16,3	.08	3/4 ¹¹			CORRIDOR *C-200		
HC-2.I	370	1.0	$12^{11} \times 24^{11}$ $12^{11} \times 12^{11}$		 		++	75 75	19,4	20.7 7.5	.07				STAIR 1		
HC-4.B	745	1.5	12 × 12					75	14.6	15,1	.07				ORY CHEM. STOR, 23 CORRIDOR C-001		
HC-5.1	760 380	1.5	12 ¹¹ × 18 ¹¹					83	21.3	22.0	.07				GEN. CHEM. LAB 19 & PREPARATION ROOM 123.3		
HC-7.3	560	1.0						83.I 8I.3	10.7	15.2	.04			° °	BIO, PREP, 223		
HC-8.3	430	1.0	12 ¹¹ × 12 ¹¹					82	11.6	12.0	.05			7	ORGANIC CHEM. LAB *311		
HC-9.2 HC-10.1	780	I.0	12" × 12"		P 0			83,1	10.7	'II,I	.04				COMPARATIVE ANAT. 1219		
HC-II.2	380	- 1.0			9	++	++	82.9 83.I	21.8	22.6 II.I	.08	b	9		GEN. CHEM. LAB 119 COMPARATIVE ANAT. 219		
HC-12.B	375	1.0	12 ¹¹ × 12 ¹¹					75	7.3	7.6	.04				DRY CHEM. STOR. 123		
HC-13.3	430 380	1.0	12 ¹¹ × 12 ¹¹			-	++	82 83.I	10.7	12.0	.05				ORGANIC CHEM, LAB 311		
HC-15.3	430	1.0	12 × 12 11 12 11 12 11				++	82	11.6	12.0	.04				COMPARATIVE ANAT. 219 ORGANIC CHEM. 311		
HC-16.2	380	1.0	12 ¹¹ × 12 ¹¹					83.1	10.7	11.1	.04				COMPARATIVE ANAT. 1215		
HC-17.3 HC-18.B	430 330	1.0					+	82 75	6.4	12.0 6.6	.05				ORGANIC CHEM. LAB 311		
HC-19.1	780	1,5	12 × 18 11					82.9	21.8	22.6	08			20 0	SCIENCE STOR, RM. 19 GEN. CHEM. LAB. 119		
HC-20.2 HC-21.3	380	1.0						83.1	10.7	11.1	.04				COMPARATIVE ANAT. 215		
HC-22.2	435 380	1.0	12 ¹¹ × 12 ¹¹					82	10.7	12.1	.05			0	ORGANIC CHEM, LAB 311 COMPARATIVE ANAT. 215		
HC-23.3	435	1.0	12 ¹¹ × 12 ¹¹	-				82	11.7	12.1	.05				ORGANIC CHEM, LAB 1311		
HC-24.B HC-25.I	330	1.0	12 ¹¹ × 12 ¹¹	q				75	6.4	6.6	.03				SCIENCE STOR. RM. 19		
HC-26.2	720 380	1.5					9	83.5	20.6	21,3 , II.I	.06	A	++	0 0	GEN. CHEM. LAB 111 & 119 PREPARATION ROOM 115 BIO. PREP. 211.1		
HC-27.B	330	1.0	12 ¹¹ × 12 ¹¹					75	6,4	6.6	.03				SCIENCE STOR. RM. 19		
HC-28.I HC-29.3	390 435	1.0	12 ¹¹ × 12 ¹¹				+-	82.9 82	10.9	11.3	.04				GEN. CHEM. LAB 'III		
HC-30.2	380	1.0	$12^{11} \times 12^{11}$ $12^{11} \times 12^{11}$				_	83,1	10.7	12.1	.05		+		ORGANIC CHEM. LAB 311 BIO. TECH. LAB 211		
HC-31.3	435	1.0	12 ¹¹ × 12 ¹¹					82	11.7	12.1	.05				ORGANIC CHEM. LAB 1311		
HC-32.2 HC-33.3	380 435	1.0	$ 2^{11} \times 2^{11}$ $ 2^{11} \times 2^{11}$		0		++	83.1	10.7 11.7	II.I I2.I	.04				BIO. TECH. LAB 211		
HC-34.B	330	1.0	12 × 12 11 12 11				+	75	6.4	6.6	.03		++-		ORGANIC CHEM, LAB 311 SCIENCE STOR, RM. 19		
HC-35.I	780	1.5	12 × 18					82.7	21.7	22.4	.08				GEN. CHEM. LAB III		
HC-36.2 HC-37.3	380 430	1.0 1.0	$ 12^{II} \times 2^{II} $ $ 12^{II} \times 12^{II} $				++	83.1	I0.7	II.I I2.0	.04		<u> </u>		BIO. TECH. LAB 211		
HC-38.3	430	1.0	12 × 12 11					82	11.6	12.0	.05				ORGANIC CHEM. LAB *311 ORGANIC CHEM. LAB *311		
HC-39.2	380	. 1.0	12 ¹¹ × 12 ¹¹					83.1	10.7	[1,]	.04				BIO: TECH, LAB 1211		
HC-40.2 HC-41.3	380 430	1.0		0				83.1	10.7 ·	II.I I2.0	.04				BIO, TECH. LAB 211		
HC-42.1	780	1.5	12 × 18 11					82.7	21.7	22.4	.08				ORGANIC CHEM, LAB *311 GEN. CHEM, LAB *111		
HC-43.1 HC-44.3	665 665	1.5 1.5	12 ¹¹ × 18 ¹¹					75.1	13.0	13.5	.05			0 0	CORRIDOR C-100		
HC-45.2	805	1.5	12 ¹¹ × 18 ¹¹		8.00			75.I 75	13.0 15.7	13.5	.05		8.		CORRIDOR C-300		
HC-46.3	665	ļ.5 <u>_</u>	12 × 18					75.1	13.0	13.5	.05		18 o 18 og		CORRIDOR C-300		
HC-47.1	660 250	1.5	12 ¹¹ × 18 ¹¹		0 a	0		75.1	12.9	13.4	.05	0 000			CORRIDOR C-100		
HC-49.B	230	1.0						75 75	4.9 4.5	5.I 4.7	.02		0		SCIENCE STOR, OFF. 21		
HC-50.I	570	1.5	12 ¹¹ × 18 ¹¹	8	8 0			77.3	12.5	12.9	.04				AUDIO VISUAL ROOM 121		
HC-51.2 HC-52.3	635 700	1.5 1.5	12 ¹¹ × 18 ¹¹		- T		900	77.3	13.9 _. .	14.4	.05		4	0.00	GLASS BLOWER ROOM 221		
HC-53,3	700	1,5	12 × 18 11					77	. 15.1	15.6 15.6	.06 .06				BIOLOGY LAB 329 BIOLOGY LAB 329		
HC-54.I	560	1.5	12 ¹¹ × 18 ¹¹					77.5	12.4	12.8	.04				GEN. CHEM, LAB 117		
HC-55.2 HC-56.2	550 550	I,5 I.5	12 ¹¹ × 18 ¹¹				++	77.2	12.1	12.4	.04				GEN. CHEM. LAB 1217		
HC-57.3	600	1.5	12 ¹¹ × 18 ¹¹					77.2	13,1	13.6	.04			0	GEN. CHEM. LAB *217 BIOLOGY LAB *329 PREPARATION ROOM *325		
HC-58.B HC-59.1	240	3.0	2 × 2					75	4.7	4.8	.02				SCIENCE STOR. 17		
HC-60.2	550	1.5	$18^{II} \times 24^{II}$ $12^{II} \times 18^{II}$				\vdash	77.5	24.6 12.1	25.5 12.4	.04				GEN. CHEM. LAB 117 GEN. CHEM. LAB 217		
HC-61.3	565	1.5	12 ¹¹ × 18 ¹¹					77.3	12.4	12.8	.04				PREP. RM. 325 & BIO. LAB 32		
HC-62.B HC-63.2	240 550	I.0 I.5	2 × 2 2 × 8				-	75.1	4.7	4.8	.02				SCIENCE STOR, 17		
HC-64.3	630	1.5	12" × 18"				\vdash	77.2	12.1	12,4 14.1	.04			,	GEN. CHEM. LAB *217 BIOLOGY LAB *321		
HC-65.1	IIIO	3.0	18 ¹¹ × 24 ¹¹					77.5	24.6	25.5	.04			0	GEN. CHEM. LAB 117		
HC-66.2 HC-67.3	550 630	1.5	12 ¹¹ × 18 ¹¹					77.2	12.1	12.4	.04				GEN. CHEM. LAB *217		
1C-68.B	170	1.0	12 × 18					75	13.6 3.3	3.4	.04				BIOLOGY LAB *321 ACID STOR. *17.1 & STOR. *17.2		
HC-69.M	355	1.0	12 ¹¹ × 12 ¹¹	0				75	6.9	7,1	.03	0			SCIENCE STORES ST. 105.1		
HC-70.2 HC-71.3	510 -610	I.5 I.5	2 × 8					77.7	13.4	11.8	.03	0	۰		GEN. CHEM. LAB 217 CHEM. PREP. 213		
HC-72.3	190	1.0	12 ¹¹ × 12 ¹¹		,			75	3.7	5.5	.02				BIOLOGY LABS 321 & 317 UNASSIGNED LAB 316		
HC-73.1	510	1,5	12 ¹¹ × 18 ¹¹					78.2	II,7	12.1	.05	٥		0	GEN. CHEM, LAB 117 PREPARATION RM, 113		
HC-74.B	405 520	1,0	2 × 2 2 × 8		53		\vdash	75	7.9 II.6	8.2	.05				RECEIVING ROOM *13 GEN. CHEM. LAB *109		
HC-76,2	600	1,5	12 ¹¹ × 18 ¹¹		66			77.5	13.3	13.8	.04			233	PREPARATION ROOM 113 GEN. CHEM. LAB 1209 CHEM. PREP. ROOM 213		
HC-77.3	590	1.5	12" × 18"		42		8	77.2	12.9	13.4	.04			8	BIOLOGY LAB 1317		
HC-78.1 HC-79.2	725	1.5	12 ¹¹ × 18 ¹¹					77.5	12.4	12.8	.04				GEN CHEM LAB 109		
1C-80.B	405	1.0	12 ¹¹ × 12 ¹¹					75.1	7.9	8.2	.05				GEN. CHEM. LAB *209 RECEIVING RM. *13		
HC-81.3	590 590	I.5 I.5	12 ^{1f} × 18 ^{fl}	-				77.2	12.9	13.4	.04			0	BIOLOGY LAB *317		
1C-82.3	725		$\frac{ 2^{II} \times 8^{II} }{ 2^{II} \times 8^{II} }$					77.2 76.9	12.9	13.4	.04				BIOLOGY LAB 1317 GEN. CHEM. LAB 1209		
HC-84.I	1120	3.0	18 × 24 11		0			77.5	24.8	25.7	.04				GEN. CHEM. LAB 109		
1C-85.B	165 595	1.0	2 × 2		0	0		75	3.2	3,3	.02		9	0	OFFICE 1		
1C-86.3 1C-87.2	725	I.5 I.5	12 ¹¹ × 18 ¹¹		\dashv			77.4	13.I 15.6	13.6	.04			© 9H	BIOLOGY LABS 317 & 309		
HC-88.3	605	1.5	12 × 18 11					77.4	13.3	13,8	.05				GEN. CHEM. LAB 209 BIOLOGY LAB 309		
HC-89 HC-90.2	725	1.5		, e.e.	42		 6-7	74.0	16.6			11					
HC-91.2	725	1.5	$ 2^{11} \times 8^{11} $ $ 2^{11} \times 8^{11} $		42	5F	57	76,9 76.9	15.6 15.6	6. 6.	.07	3/4	3/411	TRANE NS	GEN, CHEM, LAB 209		
	605	1.5	12 × 18 11		42			77.4	13.3	13.8	.05				GEN. CHEM. LAB 209 BIOLOGY LAB 309		
			# P	e.e		موعو		**				**	**				
HC-93						-					9						
HC-92.3 HC-93 HC-94 HC-95.B	275	1.0	2 × 2	 	42	5F	57	80.6	7.0	7.2	02	3/4!!	2/4	TRANE NS	SOLUTION STORAGE PM P		
HC-93 HC-94		1.0	$ 2^{11} \times 2^{11} $ $ 8^{11} \times 2^{11} $ $ 2^{11} \times 2^{11} $				57	80.6 77.5	7.0	7.2		3/411	3/4"	TRANE NS	SOLUTION STORAGE RM. 3 NEUTRALIZING TANK RM. 5 GEN. CHEM. LAB 109		

	<i>©</i>	8-1 6580	0	a.	85 95 938		a a	o 9	18 10			No.			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	o 0%	iba O		0 0 0 (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Po a	a (o	85 829		o e	99 9			o 05	0 0 0 9 0000
	© 300 Market		0	0	STE	EAM	HE	ATIN	G (COIL	. SCH	HEDUL	E	BASED ON 2 PSIG STEAM @ COIL		:: :::::::::::::::::::::::::::::::::::	8		© 0		STE	AM	HEA	ING	COIL	SC	HED	ULE		BASED ON 2 PSIG STEAM @ COIL
MARK	CFM	MIN. F.A. SQ. FT	COIL DIM. IN.	ROWS	FINS PER FT.		AIR T	F M	BH S	STEAM	RESIST. F P.D. IN.W.G.	RUN OUT PIPE SIZE IN.	MFGR. & MODEL No.	REMARKS		MARK	CFM	MIN. F.A. SQ. FT.	COIL DIM. IN.	ROWS	FINS PER FT.	TYPE	AIR TEMP	МВН		AIR RESIST.	RUN O PIPE S IN.	IZE MO	MFGR. & ODEL No.	REMARKS
HC-1.2 HC-2.1	805 1000	1.5 2.0	12 ¹¹ × 18 ¹¹		42	SF	57		5.7 9,4	16.3	.08 3	3/4 3/4	TRANE NS	CORRIDOR *C-200 STAIR *I		HC-101.1	1500		24 ¹¹ × 24 ¹¹		47	SF.	57 91.9	56.5	58.5				RANE NS	VESTIBULE V2
HC-3.B HC-4.B	370 745	1.0	12 ¹¹ × 12 ¹¹	5					7.2	7.5	.04			DRY CHEM. STOR, 123		HC-103.2	750		$12^{11} \times 12^{11}$ $12^{11} \times 18^{11}$		42		75.	9.8	10.1	.07	3/4			LECTURE HALL 103 LECTURE HALL 203
HC-5.1	760	1.5	12 ¹¹ × 18 ¹¹						4.6 1.3	15.1	.07			CORRIDOR C-001 GEN. CHEM. LAB 119 & PREPARATION ROOM 123.3	۰	HC-104.1	800		12 ¹¹ × 12 ¹¹				75.	9.8	10.1	.07				LECTURE HALL 103
HC-6.2 HC-7.3	380	1.0				0 300			0.7	.11.1	.04	0		BIO, PREP, 1223	E	HC-106.2	750		12" × 18" 12 ¹¹ × 18 ¹¹				75.	15.6	16.1	.08	 		0	LECTURE HALL *101
HC-8.3	560 430	1.0					+			15.2	.04		2	PREP. RM. *331 ORGANIC CHEM. LAB *311		HC-107.1	298		24 × 36			}	79.	71.2	73,7	.07	11/411		0 8	CORRRIDOR C-101 & C-102
HC-9.2	380	1.0	12" × 12"		P 0				0.7	11.1	.04	0	0	COMPARATIVE ANAT. 219	•	HC-109.2	700		24 ¹¹ × 36 ¹¹ . 12 ¹¹ × 18 ¹¹				79.	13.7	68.4	.06	3/4"		0	CORRIDOR C-102 & C-103
HC-10.1 ·	780	1.5	2 × 8		· e				0.7	22.6	.08	G	D 01	GEN. CHEM. LAB *119 COMPARATIVE ANAT. *219		HC-110.1	800		12 ¹¹ × 18 ¹¹	9			75	15.6	16.1	.08				LECTURE HALL 101
HC-12.B	375	1.0	12 ¹¹ × 12 ¹¹						7.3	7.6	.04			DRY CHEM. STOR. 23		HC-111.1	700		12" × 12"				75 75.	9.7	10.0	.07				LECTURE HALL 102 LECTURE HALL 202
HC-13.3 HC-14.2	430 380	1.0				0		82 II. 83.I IO	1.6	12.0	.05			ORGANIC CHEM. LAB *311 COMPARATIVE ANAT. *219		HC-113,1	500		12 ¹¹ × 12 ¹¹				75	9.7	10.0	.07	T T			LECTURE HALL 102
HC-15.3	430	1.0	12 ¹¹ × 12 ¹¹					82 11.	1.6	12.0	.05			ORGANIC CHEM. "311	6	HC-114.1 HC-115.2	2130		$24^{11} \times 24^{11}$ $30^{11} \times 24^{11}$	9	40 42		78.9	50.4 46.5	52.2 48.I	.08	11/4"			VESTIBULE V4 LECTURE HALL 202 WOMENS 106, 206, 306
HC-16.2 HC-17.3	380 430	1.0						83.I 10 82 II.	0.7	11.1	.04			COMPARATIVE ANAT. 215 ORGANIC CHEM. LAB 311		HC-116.1	500		12 ¹¹ × 12 ¹¹				75	9.7	10.0	.07	3/4 ^H			LECTURE HALL 102
HC-18.B	330	1.0	12 ¹¹ × 12 ¹¹					75 6.		6.6	.03			SCIENCE STOR, RM. 19	0	HC-117.1	500		12 ¹¹ × 12 ¹¹				75 75	9.7	10.0 II.2	.07				LECTURE HALL 102 LECTURE HALL 101
HC-19.1 HC-20.2	780 380	1.5						82.9 21 83.1 10		22.6	.08		2 0	GEN. CHEM. LAB 119	0	HC-119.1	365		12 × 12				79.3	7.2	7.5	.04		0 0		PREPARATION AREA 104
HC-21.3		1.0	12 ¹¹ × 12 ¹¹					82 II.	.7	12.1	.05		0	ORGANIC CHEM, LAB 311		HC-120.1	555 555		12 ¹¹ × 18 ¹¹				75 75	10.8	II,2	.04			,	LECTURE HALL 101
HC-22.2 HC-23.3	38 <i>0</i> 435	I.0			B		+	83.I IO		11.1	.04	D	0	COMPARATIVE ANAT. 215 ORGANIC CHEM. LAB 311	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	HC-122.1	555	1.5	12 ¹¹ × 18 ¹¹ -				- 75	10.8	11.2	.04				LECTURE HALL 101
IC-24.B	330	1.0	12 ¹¹ × 12 ¹¹	۰				75 6.	.4	6.6	.03			SCIENCE STOR. RM. 19		HC-123,1	500 500		$ 2^{II} \times 2^{II} $ $ 2^{II} \times 2^{II} $	0	0		75. 75.	9.8	10.1	.07	0		0	LECTURE HALL 103
HC-25.1 HC-26.2	720 ·	1.0	$ 2^{II} \times 8^{II} $		•		-	83.5 2 <i>0</i>		21.3 II.I	.06		0	GEN. CHEM. LAB 111 & 119 PREPARATION ROOM 115	·	HC-125.2	2830	6.0	24 × 36				. 75	55.0	57.0	ء06	11/411			LECTURE HALL 203. LECTURE HALL 203. MENS 107, 207
1C-27.B	330	1.0	12 × 12					75 6,	,4	6.6	.03		Voin	BIO. PREP. 1211.1 SCIENCE STOR. RM. 19	_	HC-126.2 HC-127.1	380 470						75 75.	7.4 9.2	7.7 9.5	.04	3/4"			PREPARATION ROOM 201 AUDIO VISUAL 105
HC-28.1 HC-29.3	390 435	1.0	12" × 12"				+++	82.9 10 82 II.		12.1	.04		0	GEN. CHEM. LAB III ORGANIC CHEM. LAB III		HC-128.M	350	1.0	12 ¹¹ × 12 ¹¹			0 8	75.3	6.9	7.1	.03			a	SERVICE STORES STORAGE 105.1
16-30.2	380	1.0	12 ¹¹ × 12 ¹¹					83.1 10	0.7	ILI	.04			BIO. TECH. LAB 211	Ⅎ.	HC-129.2 HC-130.3	835 770		12 ¹¹ × 24 ¹¹			8	79.0	19.6	20.3 I8.9	.05 .07	\dashv			LAB PREPARATION ROOM 205 BIOLOGY PREPARATION ROOM 3ILL
HC-31.3 HC-32.2	435 380	1.0	12 ¹¹ × 12 ¹¹	h	0		+	82 II. 83.I IO.		12.1	.05			ORGANIC CHEM, LAB 311 BIO, TECH, LAB 211	0	HC-131.1	2605		24 × 30			0	78.6		62.8	.08	11/4			STUDENT LOUNGE 100
16-33.3	435	1.0	12 ¹¹ × 12 ¹¹					82 II.	.7	12.1	.05			ORGANIC CHEM, LAB 311		HC-133.3	520 1160	_	12" × 18"				85.3 79	15.9 27.5	16,5 28,5	.03	3/4"			UNASSIGNED LAB 200 UNASSIGNED LAB 300.1
HC-34.B	330 780	1.0	12 ¹¹ × 12 ¹¹					75 6. 82.7 21.		6.6 22.4	.03			SCIENCE STOR, RM. 19 GEN. CHEM. LAB 1111		HC-134.3 HC-135.3	325		12 ¹¹ × 18 ¹¹				84.4	 	9.9	.03				UNASSIGNED PREP. RM \$300.2
16-36.2	380	1.0	12 ¹¹ × 12 ¹¹	•				83.1 10.	.7	11.1	.04			BIO. TECH. LAB 211		HC-136.2	1160 520		18 ¹¹ × 18 ¹¹				85.3	27.5 15.9	28.5 l6.5	.07				UNASSIGNED LAB \$300.1 UNASSIGNED LAB \$200
HC-37.3	430	1.0	$12^{11} \times 12^{11}$ $12^{11} \times 12^{11}$					82 II.		12.0	.05			ORGANIC CHEM. LAB *311 ORGANIC CHEM. LAB *311		HC-137.1	100		$ 2^{11} \times 2^{11} $ $ 2^{11} \times 2^{11} $				75	1,9	2.0	.01				VESTIBULE V3
1C-39.2 1C-40.2	38 <i>0</i> 38 <i>0</i>	I.O						83.1 10.		[1,1	.04			BIO: TECH, LAB *211		HC-139.3	380		$ 2 \times 2 $ $ 2^{11} \times 2^{11} $		0		87	12.3	12.7	.01				VESTIBULE *V3 UNASSIGNED LAB *300.3
HC-41.3	430	1.0	12" × 12"	0			+++	83.I 10. 82 II.		12.0	.04			ORGANIC CHEM. LAB *311		HC-140.2 HC-141.2	520 520		12 ¹¹ × 18 ¹¹				85.3 85.3	-	16.5	.03				UNASSIGNED LAB \$200
HC-42.1 HC-43.1	780 665	1.5 1.5	12 ¹¹ × 18 ¹¹					32.7 21.		22.4	.08			GEN. CHEM. LAB III		HC-142.3	380		12 × 18				87	15.9	16.5	.03				UNASSIGNED LAB \$200 UNASSIGNED LAB \$300.3
IC-44.3	665	1.5	12 × 18 11 × 18 11				0 9	75.l 13. 75.l 13.		13.5	.05	0 0 0		CORRIDOR *C-100 CORRIDOR *C-300		HC-143.3 HC-144.2	320		$12^{11} \times 12^{11}$ $12^{11} \times 12^{11}$				84.5		9.8 9.8	.03				UNASSIGNED PREP. RM 304
C-45.2 C-46.3	805 ⁷ 665	I.5	12 ¹¹ × 18 ¹¹		8.		- 	75 15. 75.1' 13.		16.3	.08			CORRIDOR C-200		HC-145.I	1030	2.0	12 ¹¹ × 24 ¹¹		0 3		83.9		31.0	.07		6	0 0	STUDENT LOUNGE 100.1
HC-47.1	660	1,5	12 × 18 11	0 0			+++	75.I 12.		13.4	.05 °			CORRIDOR C-300		HC-146.3 HC-147.J	420 800		$\frac{ 2^{11} \times 2^{11} }{ 2^{11} \times 8^{11} }$		o a		77.9	9.5 18.2	9.8	.05	3/411			UNASSIGNED LAB 100
C-48.B	250	I.O			D D			75 4. 75 4.		5.I 4.7	.02	9 9	0	SCIENCE STOR. OFF. 121		HC-148.2	1005		12 ¹¹ × 24 ¹¹				78.1	22,9	23.7	.07		N	0 0	UNASSIGNED LAB 210
HC-50.I	570	1.5	12 ¹¹ × 18 ¹¹	0	9 ° 0			77.3 12.		12.9	.04			SCIENCE STOR, OFF. 21 AUDIO VISUAL ROOM 121		HC-149.3 HC-150.2	845 1005		12" × 24"				79.6 78.1	19.1	19.8	.05			0 0	UNASSIGNED LAB *310 UNASSIGNED LAB *210
1C-51.2 1C-52.3	635 700	1.5 1.5	12" × 18"				90	77.3 13. 77 15.		14.4 15.6	.05	9	000 0	GLASS BLOWER ROOM \$221 BIOLOGY LAB \$329	0 09	HC-151.3	845	2.0	12 ¹¹ × 24 ¹¹		19		79.6		19.8	.05		700		UNASSIGNED LAB 1310
IC-53,3	700	1,5	12 ¹¹ × 18 ¹¹					77 .15		15.6	.06			BIOLOGY LAB *329		HC-152.1 HC-153.2	1600		18" × 24"				78	36.3 22.9	37.6 23.7	.08	3/4		-	UNASSIGNED LAB 110 UNASSIGNED LAB 1210
1C-54.1 1C-55.2	560 550	I.5 I.5	12" × 18"				+++	77.5 12.6 77.2 12.		12.8	.04			GEN. CHEM. LAB 117 GEN. CHEM. LAB 1217		HC-154.3	845		12 × 24				79.6	19.1	19.8	.05				UNASSIGNED LAB *310
C-56.2	550	1.5	12 ¹¹ × 18 ¹¹					77.2 12.	2.1	12.4	.04			GEN. CHEM. LAB 217	_	HC-155.1 HC-156.2	700 580	1.5	12 ¹¹ × 18 ¹¹				78.0	15,9 11.3	16.5	.06				UNASSIGNED LAB 110 CORRIDOR 1C-200
C-57.3 C-58.B	240	I.0	12". × 18"		_	0	+	77.2 13. 75 4.°		4.8	.04		•	PREPARATION ROOM 325 SCIENCE STOR. 17		HC-157,3 HC-158.3	450 210	· I.0	12 ¹¹ × 12 ¹¹				75	8.7	9.0	.06				CORRIDOR *C-300
C-60.2	1110	3.0	18 ¹¹ × 24 ¹¹				7	77.5 24		25.5	.04			GEN. CHEM. LAB 117		HC-159.1	905	2.0	$12^{11} \times 12^{11}$ $12^{11} \times 24^{11}$				77.7	20.9	4.9 21.6	.06			0	UNASSIGNED LAB 1310 PREPARATION ROOM 108.5 & UNASSIGNED LAB 108
1C-61.3	550 565	I.5 I.5	12 ¹¹ × 18 ¹¹				1 7	77.2 12. 77.3 12.		12.4	.04			GEN. CHEM. LAB 217 PREP. RM. 325 & BIO. LAB 32	<u>, </u>	HC-160.2 HC-161,3	860 850		12 ¹¹ × 24 ¹¹			0	78.5	20.0	20.7	.05				BIOLOGY LAB 1208
C-62.B	240 550	I,0 I,5	2 × 2		۰		+	75.1 4.		4.8	.02			SCIENCE STOR, 17	0	HC-162.1	330		$\frac{12^{11} \times 24^{11}}{12^{11} \times 12^{11}}$				78.3 75.2	19.8 6.5	20.5	.05				UNASSIGNED LAB *314 CORRIDOR *C-100
C-64.3	630	1.5	12" × 18"					77.2 12. 77 13.1		2,4 4.	.04			GEN. CHEM. LAB 217 BIOLOGY LAB 321		HC-163.2 HC-164.3	860 850	2.0	12 × 24	0			78.5	20.0	20.7	.05				BIOLOGY LAB 208
1C-65.1 .	III0 550	3.0 I.5	18 × 24 11				. 7	77.5 24.		25.5	.04			GEN. CHEM, LAB 117		HC-165.1	940		$12^{11} \times 24^{11}$ $12^{11} \times 24^{11}$			3	78.3 78.3	19.8 21.6	20.5	.06				UNASSIGNED LAB 1314 UNASSIGNED LAB 108
C-67.3	630	1.5	12 × 18 11 12 11 × 18 11					77.2 12. 77 13.4		14.1	.04			GEN. CHEM. LAB *217 BIOLOGY LAB *321	-	HC-166.3 HC-167.2	1120 860	2.25	18 ¹¹ × 18 ¹¹				77.8 78.5	25.I 20.0	26.0	.07				COMPUTER SCIENCE RESEARCH LAB 308
C-68.B C-69.M	170 .355	1.0	2 × 2 2 × 2				+	75 3.3 75 6.9		3.4 7.I	.02			ACID STOR. 17.1 & STOR. 17.2] '	HC-168.1	. 330	1.0	12 ¹¹ × 12 ¹¹				75.2	6.5	6.7	.03			0	BIOLOGY LAB *208 CORRIDOR *C-100
C-70.2	510	1.5	12 × 12					77.7 11.4		11.8	.03	٥		SCIENCE STORES ST. 105.1 GEN. CHEM. LAB 217 CHEM. PREP. 213	•	HC-169.2 HC-170.3	860 450	1.0	12 ¹¹ × 24 ¹¹				78.5	20.0	20.7	.05				BIOLOGY LAB 208
C-71.3	610 190	1.5 1.0	2 × 8 2 × 2		ь		+ + + - :	77.3 13.4 75 3.7		13.9 5.5	.05		0	BIOLOGY LABS 321 & 317		HC-171,1°	1880	4.0	24 ¹¹ × 24 ¹¹				78.3	43.3	44.8	.06	lii l			CORRIDOR *C-300 UNASSIGNED LAB *108
IC-73.I	510	1,5	12 ¹¹ × 18 ¹¹				+	8.2 11.7		12.1	.05	0	-	UNASSIGNED LAB 316 GEN. CHEM, LAB 117 PREPARATION RM, 113		HC-172.3 HC-173.2	780	2.25 l.5	18" × 18"				77.8	25.I I8.5	26.0 19.2	.07	3/411			COMPUTER SCIENCE RESEARCH LAB 308 PREPARATION ROOM \$208.1
C-74.B	405 520	1.0	12 ¹¹ × 12 ¹¹	-	53		+	75 7.9 7.7 11.6		8.2	.05			RECEIVING ROOM 13		HC-174.3	660	1.5	12 ¹¹ × 18 ¹¹				79.6	16.1	16.7	.05				PREPARATION ROOM \$308.2
C-76,2	600	1.5	12 ¹¹ × 18 ¹¹		66		7	7.5 3.1		13.8	.04			GEN. CHEM. LAB 109 PREPARATION ROOM 113 GEN. CHEM. LAB 209 CHEM. PREP. ROOM 213	· ·	HC-175.2 HC-176.1	580 700	1.5	$ 2^{11} \times 8^{11} $ $ 2^{11} \times 8^{11} $				75.1	II.3 I3.7	14.2	.04				CORRIDOR C-200
C-77.3 C-78.1	590 560	I.5 I.5	12 ¹¹ × 18 ¹¹		42		+	7.2 12.9 7.5 12.4		13.4	.04.		9	BIOLOGY LAB 1317 GEN. CHEM, LAB 109] [HC-177.1	640	1.5	12 ¹¹ × 18 ¹¹				79.9	15.8	16.4	.05				PREPARATION ROOM 108.4
C-79.2	725	1.5	12 ^[] × 18 ^[]				7	6.9 15.6	6	16.1	.07			GEN. CHEM. LAB 109	<u> </u>	HC-178.2 HC-179.3	380 1640	3.0	12" × 12"				75.2	7.4 32,2	7.9 33.3	.04	111			PREPARATION ROOM 201 UNASSIGNED LAB 301, MENS 307 UNASSIGNED OFFICE 305.1
C-80.B	405 590	1.0 1.5	$12^{11} \times 12^{11}$ $12^{11} \times 18^{11}$				+++-	75.1 7.9 7.2 12.9		8.2	.05			RECEIVING RM. 13 BIOLOGY LAB 1317	•	HC-180.3	20-	0						0			1			0
C-82.3	590	1.5	12 ¹¹ × 18 ¹¹				+++	7.2 12.9	9 1	13.4	.04			BIOLOGY LAB *317	<u> </u>	HC-181.3 HC-182.3	305 1870	4.0	$\frac{12^{11} \times 12^{11}}{24^{11} \times 24^{11}}$		42		75	5.9 44.7	6.I 46.3	.03	3/4			UNASSIGNED OFFICES 1303.L 1305.2 & 305.4 UNASSIGNED OFFICES 1303.2 & 1303.3
C-83.2 C-84.I	725 II20	3.0	2" × 8" 8" × 24"				7	6.9 15.6 7.5 24.		16.1 25.7	.07			GEN, CHEM, LAB 109	-	HC-183.3 HC-184.3	2960	6.0	24 × 36		42		78.1		70.0	.07	11/411		А.	UNASSIGNED LAB 303
C-85.B	165	1.0	12 ¹¹ × 12 ¹¹		0		+	75 3.2	2	3,3	.02	9	• •	OFFICE 1	<u> </u>	HC-184.3 HC-185.3	600 2225		$12^{11} \times 18^{11}$ $24^{11} \times 30^{11}$	a	42		75	53.2	12.0 55,1	.04	3/4 ^{II}		0	UNASSIGNED OFFICES 305.5, 305.6, 305.9, 305.3, 305.8, 305.11 & 302.3 UNASSIGNED LAB 302.1 UNASSIGNED OFFICE 302.2
C-86.3 C-87.2	595 725	I.5 I.5	12 ¹¹ × 18 ¹¹					7.4 13.1 6.9 15.6			.04			BIOLOGY LABS 317 & 309 GEN. CHEM. LAB 209	· [HC-186.3 HC-187.3	3040		24" × 36"	1	42	1	78.6	70.8	73.3	.07	11/411			UNASSIGNED LAB \$302
C-88.3 IC-89	605	1.5	12 ¹¹ × 18 ¹¹		1		7	7.4 13.5	3 I	13.8	.05			BIOLOGY LAB 309	1	1101.3	170					*	75	3.3	3.4	.02	3/4"	1	Į.	UNASSIGNED OFFICES 305.12 & 305.14
C-90.2	725	1.5	12 ¹¹ × 18 ¹¹	1	42	5F	57 7	6.9 15.6		16.1	.07 3/	4 ^{II} 3/4 ^{II}	TRANE NS	GEN. CHEM. LAB \$209	-	HC-I	14,173	17.88	3311 - 311		02		-10 -	10300	1047	20		1	Alimba	A1811
C-91.2 C-92.3	725	1,5 1,5	12 ¹¹ × 18 ¹¹	1	42		7	6.9 15.6	6	16.1	.07			GEN. CHEM. LAB 209	1 1	HC-2	15,098		33"×78" 30"×90"	ı l	92 94		-10 57 -10 57		1067.2	.32	3 1/2" 2 3 1/2 ¹¹ 2		ANE NS	AHU-I, TYP. FOR 4 AHU-2, TYP. FOR 5
16-93	605	1,5	12" × 18"	2.0	42	تونو		7.4 13.3			.05			BIOLOGY LAB 309	-{ F	HC-3	2340	3.0	18 ¹¹ ×24 ¹¹		42		55 78	57.9	59.9	,17 I	1/4 3/		ANE NS	AHU-3, LETHAL CHAMBER
1C-94 C-95.B	275	1.0	2 × 2		42	 5F		0.6 7.0		72			TOANE NG	SOLUTION STOPAGE DU L] [22.0													
IC-96.I	1120	3.0	18 ¹¹ × 24 ¹¹		42			7.5 24.8			.02 3/	4" 3/4"	TRANE NS	SOLUTION STORAGE RM. 5 NEUTRALIZING TANK RM. 5 GEN. CHEM, LAB 109	j															
C-97.B	750	1.0 1.5	$ 2^{II} \times 2^{II} $ $ 2^{II} \times 8^{II} $	+	42		 	75 9.0 75 14.6			.06			SOLUTIONS & PREP. RM. 1] [



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WSU BLDG NAME: SCIENCE HALL
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