

Regional Map



Location Map

BRADFIELD -----HALL

Bradfield Hall G12 Growth **Chamber Installation**

100% Construction Documents November 22, 2023

306 Tower Road Ithaca, NY 14850

Project Number # 23179.00

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3
FLOOK
S-
CS &
TRICAL

Mechanical, Electrical, **Plumbing & Fire Protection** Engineer

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1 GROUND FLOOR - CODE COMPLIANCE PLAN

DESCRIPTION STRUCTURAL FRAME INCL COLUMNS, GIRDERS AND INTERIOR AND EXTERIOR WALLS FLOOR CONSTRUCTION I SUPPORTING BEAMS AND ROOF CONSTRUCTION INC SUPPORTING BEAMS AND

FIRE RESISTANCE RATING SCHEDULE FOR BUILDING ELEMENTS

CONSTRUCTION CLASSIFICATION TYPE 1B.			
DESCRIPTION	FIRE RESISTANCE RATING	TEST REFERENCE	COMMENTS
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS AND TRUSSES	2, EXISTING	-	EXISTING ASSEMBLY, CONCRETE ENCASED STRUCTURAL STEEL
INTERIOR AND EXTERIOR BEARING WALLS	2, N/A	-	N/A
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2, EXISTING	-	EXISTING ASSEMBLY, CAST-IN PLACE CONCRETE FLOOR SLAB
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1, EXISTING	-	EXISTING ASSEMBLY
	·	<u>. </u>	

BUILDING DATA AND CODE COMPLIANCE

CLASSIFICATIONS OF BUILDING, AS SPECIFIED IN THE 2020 EDITION OF THE BUILDING CODE OF NEW YORK STATE ARE AS FOLLOWS:

BUILDING DATA:

CONSTRUCTION CLASSIFICATION: IB (PER RECORD DRAWINGS PROVIDED BY CORNELL) BUILDING OCCUPANCY CLASSIFICATION: **B - BUSINESS** FIRE PROTECTION SYSTEM:

LEVEL 2 ALTERATION AREA: EXISTING FLOOR ASSEMBLY:

SPRINKLERED 611 SF 2 HR FIRE-RATED

ALTERATION CLASSIFICATIONS OF WORK, AS SPECIFIED IN THE 2020 EDITION OF THE BUILDING CODE OF THE NEW YORK STATE ARE AS FOLLOWS: **ALTERATION - LEVEL 2**

LEVEL 2 ALTERATIONS INCLUDE THE RECONFIGURATION OF SPACE, THE ADDITION OR ELIMINATION OF DOORS AND WINDOWS, THE RECONFIGURATION OR THE EXTENSION OF ANY SYSTEM, OR THE INSTALLATION OF ANY ADDITIONAL SYSTEM. LEVEL 2 ALTERATIONS SHALL ALSO COMPLY WITH THE REQUIREMENTS OF A LEVEL 1 ALTERATIONS.

LEVEL 1 ALTERATIONS INCLUDE THE REMOVAL AND REPLACEMENT OR THE COVERING OF EXISTING MATERIALS, ELEMENTS, EQUIPMENT, OR FIXTURES USING NEW MATERIALS, ELEMENTS, EQUIPMENT, OR FIXTURES THAT SERVE THE SAME PURPOSE.

CODE COMPLIANCE PLAN LEGEND



INDICATES FIRE-RESISTANT WALL CONSTRUCTION OF VARIOUS TYPES AND HOURLY RATINGS. SEE FIRE-RESISTANT CONSTRUCTION WALL LEGEND.

COMMON PATH OF EGRESS TRAVEL CPET = X'-X" OCCUPANCY B - WITH SPRINKLERS 100' MAX EGRESS ACCESS TRAVEL DISTANCE EATD = X'-X" OCCUPANCY B - WITH SPRINKLERS 300' MAX

EMERGENCY SHOWER

EXIT. MAINTAIN OPERATIONAL AT ALL TIMES DURING CONSTRUCTION EXIT DISCHARGE EMERGENCY EYEWASH

EXIT SIGN

ACCESSIBLE ENTRANCE, EXIT OR TOILET ROOM

SPECIFIC CODE INFORMATION NOTE

CODE COMPLIANCE GENERAL NOTES

CODE COMPLIANCE DRAWINGS ARE INTENDED TO ASSIST IN THE PERMIT PROCESS AND TO PROVIDE GENERAL INFORMATION TO THE CONTRACTORS WITH RESPECT TO LIFE-SAFETY PROVISIONS OF THE PROJECT. THESE DRAWINGS SHOULD NOT BE USED TO DETERMINE THE SCOPE OF OTHER WORK SPECIFICALLY INDICATED ELSEWHERE IN THE DOCUMENTS. THESE DRAWINGS SHALL BE USED FOR THE LOCATIONS OF FIRE-RESISTANT RATED WALL CONSTRUCTION.

INTERIOR LOAD-BEARING PARTITIONS (NOT INDICATED BELOW) SHOULD BE BUILT WITH MATERIALS AND CONSTRUCTION IDENTICAL TO THOSE ASSEMBLIES WITH A 1-HR FIRE RESISTIVE RATING (I.E., BOARD TYPE AND FASTENER SPACING). OPENING PROTECTION (FIRE DOORS AND FIRE DAMPERS) AND THROUGH PENETRATION FIRE STOP SYSTEMS ARE NOT REQUIRED UNLESS SPECIFICALLY INDICATED OTHERWISE.

FIRE-RESISTANT CONSTRUCTION LEGEND								
DESCRIPTION	PLAN DESIGNATION							
FIRE WALL	2FW 2FW 3FW 3FW							
FIRE BARRIER (HORIZONTAL EXIT, INCIDENTAL USE/HAZARD, OCCUPANCY SEPARATION)	1FB							
SHAFT ENCLOSURE (FIRE BARRIER AT ELEVATOR, STAIR OR MECHANICAL SHAFT)	1SE 1SE 1SE 2SE 2SE							
FIRE PARTITION (ELEV LOBBY & CORRIDOR WALL)	— 1FP — 1FP —							
PRESUMED EXISTING FIRE-RATED ASSEMBLIES	PREFIX E. SEE NOTE 1							

NOTES:

- 1. WHEN THE PREFIX "E" IS INDICATED ON THE CODE COMPLIANCE FLOOR PLAN, IT DENOTES EXISTING WALL CONSTRUCTION WITH A PRESUMED FIRE-RESISTANCE RATING OF THE TYPE INDICATED AS INDICATED ON RECORD DRAWINGS PROVIDED BY THE OWNER. THE ACTUAL CONDITIONS IN THE FIELD HAVE NOT BEEN VERIFIED TO CONFIRM COMPLIANCE. NEW PENETRATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UL LISTED THROUGH-PENETRATION FIRE STOP SYSTEMS FOR THE RATING INDICATED. NEW OPENINGS TO BE PROTECTED WITH OPENING PROTECTIVES FOR RATING INDICATED.
- 2. PENETRATIONS THROUGH FIRE-RESISTANT CONSTRUCTION SHALL BE BUILT IN ACCORDANCE WITH U.L. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE CODE COMPLIANCE PLAN FOR FIRE-RATED PARTITIONS LOCATIONS.



GENERAL NOTES:

- 2. GENERAL CONTRACTOR TO PROVIDE ALL LOOSE LINTELS AT ALL MASONRY OPENINGS EXCEEDING 16" WIDE INCLUDING, BUT NOT LIMITED TO: DOORS, WINDOWS, F.E.C.S., DUCTS, ETC. SEE STRUCTURAL DRAWINGS FOR LINTEL SCHEDULE. LINTEL LOCATIONS FOR PLUMBING, ELECTRICAL AND MECHANICAL WORK ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE DRAWINGS.
- 3. WHERE DIFFERENT FLOORING MATERIALS MEET, AND A SPECIFIC TRANSITION DETAIL IS NOT INDICATED, PREPARE SUBSTRATE WITH A TRANSITION HEIGHT BUILD UP USING TROWELABLE LEVELING AND PATCHING COMPOUND TO PRODUCE A FLUSH SMOOTH CONDITION. TROWEL MATERIAL FOR A MINIMUM DISTANCE OF 2 FEET FROM A FEATHER EDGE CONDITION UP TO A MAXIMUM SINGLE LAYER APPLICATION THICKNESS OF 1/2". FOR APPLICATIONS THICKER THAN 1/2", PLACE MATERIAL IN SUCCESSIVE LAYERS, SCORING PREVIOUS LAYER, UP TO A MAXIMUM THICKNESS OF 1".
- 4. FLOOR FINISH TRANSITIONS/CHANGES SHALL OCCUR BELOW THE DOOR. 5. ALL EXISTING DIMENSIONS ARE APPROXIMATE AND FOR CONTRACTORS VERIFICATIONS. IF DISCREPANCIES ARISE, NOTIFY THE ARCHITECT (AND/OR CONSTRUCTION MANAGER) PRIOR
- 6. EVERY ATTEMPT HAS BEEN MADE TO INDICATE PERTINENT EXISTING UTILITIES AND CONDITIONS AS ACCURATELY AS POSSIBLE FROM EXISTING SURVEYS, DRAWINGS AND OTHER DATA. PRIOR TO THE BID OPENING, CONTRACTORS SHALL WALK THE JOB SITE AND SATISFY THEMSELVES TO EXISTING CONDITIONS. THE ARCHITECT SHALL BE CONSULTED WHEN ANY QUESTION ARISES RELATIVE TO MATERIALS NOT SPECIFICALLY SHOWN OR SPECIFIED.
- 7. ALL EXISTING WORK (CEILINGS, FLOORS, WALLS, PARTITIONS, FINISHES, ETC.) DISTURBED BY NEW CONSTRUCTION, INCLUDING MECHANICAL, PLUMBING, AND ELECTRICAL, SHALL BE PATCHED AND REPAIRED TO RESTORE SURFACES TO THE ORIGINAL CONDITION AFTER INSTALLATION OF OTHER WORK.
- WITH U.L. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE CODE COMPLIANCE PLAN FOR PARTITION LOCATIONS. PENETRATIONS THROUGH NON FIRE-RESISTANT RATED HORIZONTAL ASSEMBLIES, NOT PROTECTED BY A SHAFT ENCLOSURE, SHALL HAVE ITS ANNULAR SPACE FILLED WITH NON-COMBUSTIBLE MATERIAL TO PREVENT THE PASSAGE OF FLAME, SMOKE FUMES, AND HOT GASES. NON-COMBUSTIBLE PENETRATING ITEMS SHALL NOT PENETRATE MORE THAN 3 FLOOR ASSEMBLIES. COMBUSTIBLE PENETRATING ITEMS SHALL NOT PENETRATE MORE THAN 1 FLOOR ASSEMBLY.
- 9. PARTITIONS TO BE SEALED AT ALL PENETRATIONS WITH EACH LAYER OF BOARD TO RECEIVE A BEAD OF NON-HARDENING SEALANT.

1. ALL GENERAL NOTES PERTAIN TO ALL ARCHITECTURAL (A-SERIES) DRAWINGS IN THIS SET.

TO PROCEEDING WITH THE WORK THAT MAY BE EFFECTED BY THE DIMENSION CHANGE.

8. PENETRATIONS THROUGH FIRE-RESISTANT CONSTRUCTION SHALL BE BUILT IN ACCORDANCE

Drawing symbols

Drawing Symbols					
View title		Exterior elevation	1	001) OR (100 A	Door numbers
Title		Elevation no.	2 (A-XXX) 4	001	Window type
SCALE: X"=1'-0"		Drawing no.	3	101	Room number
Building / wall section cut		Interior elevations	1	Λ	Revision
Detail no.	Viewing direction	Elevation no.—	2 (A-XXX) 4	C12 OR	C12 A Partition type
A-XXX Drawing no.		Drawing no.	3	$\langle 1 \rangle$	Plan key note
Detail section cut	. <i>.</i> .	Structural grid) 2	1	Demolition key note
Detail no.	Viewing direction		A	8'-0" AFF	Ceiling type and height
A-XXX DRAWING NO.			(B)		
Detail - blow up		Accessibility	V/HAU		
Detail no.		Î	Visual / hearing accommodation unit		
 Drawing no. 	$\mathbf{)}$	Accessible unit			

Material symbols

· j · · · · · · · ·				
Undisturbed earth		Steel - large scale (Other metals as noted)		Batt insulation
Gravel or crushed stone	\vdash	Steel - small scale (Other metals as noted)		Rigid insulation
Stone	X	Wood framing (continuous)		Wood blocking (intermittent)
Concrete		Finish wood		
Concrete masonry unit		Plywood		
Brick		Gypsum, sand, mortar		
	Undisturbed earth Gravel or crushed stone Stone Concrete Concrete masonry unit Brick	Undisturbed earth Gravel or crushed stone Stone Concrete Concrete masonry unit Brick	Undisturbed earth Steel - large scale (Other metals as noted) Gravel or crushed stone Image: Steel - small scale (Other metals as noted) Stone Image: Steel - small scale (Other metals as noted) Stone Image: Steel - small scale (Other metals as noted) Concrete Image: Steel - small scale (Other metals as noted) Concrete Image: Steel - small scale (Other metals as noted) Concrete Image: Steel - small scale (Other metals as noted) Brick Image: Steel - small scale (Other metals as noted) Brick Image: Steel - small scale (Other metals as noted)	Undisturbed earth Image: Steel - large scale (Other metals as noted) Gravel or crushed stone Image: Steel - small scale (Other metals as noted) Stone Image: Steel - small scale (Other metals as noted) Stone Image: Steel - small scale (Other metals as noted) Concrete Image: Steel - small scale (Other metals as noted) Concrete Image: Steel - small scale (Other metals as noted) Concrete Image: Steel - small scale (Other metals as noted) Brick Image: Steel - small scale (Other metals as noted)

Architectural / Structural abbreviations

AB A/C	Anchor bolt	DWV	Drainage waste & vent	LH	Left hand, Latent heat	RF RFG	Resilient flooring
ACC	Accessible	DWL	Dowel	LKR	Locker	RH	Right hand, Roof hatch
ACCU	Air cooled condensing unit	E	East		Live load	RM	Room Baugh anaming
ACI	American Concrete Institute Acoustical ceiling tile	EA	Each Existing Building Code of New York State		Long leg horizontal	ROW	Rough opening Right of way
ACM	Asbestos containing material	EC	Electrical contractor	LOC	Location	RTU	Roof top unit
ACOUS PNI	Access panel	EF	Each face	LRFD	Load & resistance factor design	RV RW/B	Roof vent
ACS PNL ADDL	Access panel Additional	EIFS	Exterior insulation and linish system Expansion joint	LTG	Lighting	S	South
ADJ	Adjustable, adjacent	ELAS	Elastomeric	LWC	Light-weight concrete	SAB	Sound attenuation batts
ADH	Adhesive	EL	Elevation	MACH	Machine	SAN	Sanitary
AGGR	Addregate		Elevator	MAINT	Masonry	SCHED	Solid core, Shading coefficient
AHU	Air handling unit	EM	Entry mat, Expanded metal	MATL	Material	SEAL	Sealer on floor (finish)
AISC	American Institute of Steel Construction	EMER	Emergency	MAX	Maximum Machanical contractor	SECT	Section
ALT	Alternate	ENGR	Engineer	MCB	Metal corner bead	SFRM	Sprayed fire-resistive
ALUM	Aluminum	EOS	Edge of slab	MDO	Medium density overlay		Material
	Anodized Approximate	EP FO	Electric panel	MDF	Medium density fiberboard Mechanical	SGI	Structural glazed tile
ARCH	Architect(ural)	EQUIP	Equipment	MEP	Mechanical, electrical, plumbing and fire protection	SHR	Shower
ARD	Auxillary roof drain	ES	Emergency shower	MEZZ	Mezzanine	SIM	Similar
ASD	Allowable stress design American Society for Testing and Materials	FTR	Et cetera Existing to remain		Manufacturer Manhole	SOG	Standpipe Sump pit
AWP	Acoustical wall panel	EW	Each way	MM	Millimeter	SPA	Spaces
AWS	American Welding Society	EWC	Electric water cooler	MIFRC	Mastic/intumescent fire-resistive coating	SPKR	Speaker
B/B	Batten Back to back	EXIST	Existing Excavation, Excavate	MIN	Minimum Miscellaneous	SPEC	Specification
BBD	Base board	EXP	Expand, Expansion	MLWK	Millwork	SRD	Secondary roof drain
BCNYS	Building Code of New York State	EXT	Exterior, External, Extinguisher	MO	Masonry opening Marker board	SS	Service sink
BD	Board	FAAP	Fire alarm annunciator panel	MTD	Mounted	SSP	Stainless steel pipe
BLDG	Building	FACP	Fire alarm control panel	MTL	Metal	SST	Stainless steel
BLKG	Blocking Beam Benchmark	FD EDTN	Floor drain	MULL	Mullion	ST STA	Stain
BOT	Bottom	FE	Fire extinguisher	NAT	Natural	STC	Sound transmission class
BR	Bedroom	FEC	Fire extinguisher cabinet	NCOMBL	Noncombustible	STD	Standard
BRG BR7	Bearing Bronze		Fire hose cabinet		Not in contract	STIFF	Stiffener Steel
BSMT	Basement	FIXT	Fixture	NOM	Nominal	STOR	Storage
BTWN	Between	FLASH	Flashing	NORM	Normal	STR	Straight, Stringers
BW	Built up rooting Both ways		riexible Fluorescent	NRC NTS	Noise reduction coefficient	SIRUCT	Structural Suspended
CCTV	Closed circuit television	FLG	Flooring, flange	NWC	Normal weight concrete	SV	Sheet vinyl
CAB	Cabinet	FO	Finished opening	0/0	Out to out	SY	Square yard
CH BD	Catch basin, Corner bead Chalkboard	FP FRTW	Fire protection, Fireproof Fire retardant treated wood		Overall, Outside air On center	Т/	I read Top of
CEM	Cement	FT	Foot, Feet	OD	Outside diameter	T&B	Top and bottom
CF	Contractor furnished	FTG	Footing	OF/CI	Owner furnished, Contactor installed	T&G	Tongue and groove
CFMF CF/CI	Contractor furnished/ Contractor installed	FURN	Funned tube radiation Furnace, Furniture, Furnish	OF/OI OFD	Overflow drain	THRES	Theshold
CF/OI	Contractor furnished/ Owner installed	FUT	Future	OFF	Office	TEMP	Temporary
CG	Corner guard	FWC	Fabric wall covering		Opposite hand	TER	Terrazzo Thiak(pasa)
CI	Coat nook Cast iron	GAL	Gallon	OPNG	Opening	TK BD	Tack board
CIP	Cast in place, Cast iron pipe	GALV	Galvanized	OPP	Opposite	TMPD	Tempered
CJ	Control joint	GB	Grab bar	OPT	Optional, Optimum	TOC	Top of concrete
CLG	Ceiling	GFRC	Glass fiber reinforced concrete	PA	Public address	TOPO	Topography, Topographic
CLO	Closet	GFRG	Glass fiber reinforced gypsum	PBD	Particleboard	TOS	Top of steel
	Clear, Color Ceramic mosaic tile	GLBLK	Glass, Ground level	PC PCC	Plumbing contractor, Portland cement Precast concrete	TOW TPD	Top of wall Toilet paper dispenser
CMU	Concrete masonry unit	GLU LAM	Glued laminated beam	PCT	Porcelain ceramic tile	TSTAT	Thermostat
CNTR	Counter	GR	Grade, Gross	PED	Pedestal	TV	Television
	Cleanout, Cased opening, Company Column	GYP	Glazed wall tile	PEND	Pendant Period		l ypical Heat transfer coefficient
CONC	Concrete	GYP BD	Gypsum board	PERF	Perforated	ŬC	Undercut
CONF	Conference	GYP PLAS	Gypsum plaster	PGBD	Peg board	UCL	Under cabinet lighting
CONN	Connection)	HC HC	Hollow core, Hose cabinet		Priate, Property line Ponds per linear foot	UGND	Underground Unit heater
CONT	Continue(ous)	HCP	Handicapped	PLAM	Plastic laminate	UL	Underwriter's laboratories
CONTR	Contract(or)	HDW	Hardware	PLAS	Plaster		Unexcavated
CPT	Carpet	HM	Hollow metal	PLYWD	Plywood	UON	Unless otherwise noted
CSJ	Construction joint	HO	Hold open	PNL	Panel	UTIL	Utility
CSK	Counter sunk	HORIZ	Horizontal High point Horsepower	PORC	Polished Porcelain		Unit ventilator Varnish(ed)
CTR	Center	HR	Hour	POS	Positive, Position	VB	Vinyl base
CW	Cold water piping, Casement window	HSS	Hollow structural section	PPT	Pressure-preservative treated	VCT	Vinyl composition tile
CUH	Cupic Cabinet unit heater	HTG	neigni Heating	PREFAR	⊢a॥ Prefabricate		venulauon Vertical
CU YD	Cubic yard	HTR	Heater	PREFIN	Prefinish	VEST	Vestibule
D	Deep, Depth	HVAC	Heating, ventilating and air conditioning	PREP	Preparation Project		Verify in field
db	renny (na⊪) Bar diameter		not water Hvdrant	PROJ SCF	Projection screen	VIN	Vinyi Volume
DBL	Double	ID	Inside diameter	PSF	Pounds per square foot	VR	Vapor retarder
DEFS	Direct-applied exterior finish system		Inches	PSI PT	Pounds per square inch	VT V CLIT	Vinyl tile
DEMO	Demolition	INCAND	Incandescent	PTN	Partition	VWC	Vinyl wall covering
DEPT	Department	INFO	Information	PVC	Polyvinyl chloride (plastic)	W	West
	Detall Drinking fountain	INSUL	Insulation Intermediate	DVG OT	Paving Quarry tile	WC	with Water closet Wall covering
DIA OR ø	Diameter	INT	Interior	QTR	Quarter	W/O	Without
DIAG	Diagonal, Diagram	JAN	Janitor	QTY	Quantity	WD	Wood
DIM	Dimension Diffuser	JSI	Joist Joint	RB RB	KISER, Kadius, Thermal resistance Rubber base. Resilient base	WDW WF	vvindow Wide flange
DIR	Direction	KIP	1000 Pounds	RCP	Reinforced concrete pipe, Reflected ceiling plan	WD GD	Wood guard
DISP	Dispenser	KIT	Kitchen	RD	Roof drain, Road	WH	Water heater
DMPF	Damp proofing	KPL	Kick plate	REF	Refrigerator	WM	Wire mesh
DL	Dead load	L	Liter, Angle	REFL	Reflect	WP	Waterproofing, Working point
	Down Ditto		Laminate(d)		Register, Regulation	WR WRECDT	water repellent, weather resistant
DR	Door, Drive	LAV	Lavatory	REQD	Required	WSCT	Wainscot
DS	Downspout	LB	Pound	RESIL	Resilient	WT	Weight, Watertight, Water table
	UISNWASHER		Lapel Load	REV	Revision	X	vvelaea wire fabric Bv
1		LF	Linear feet (foot)			YD	Yard



	GYPSUM BOARD SOFFIT	CR	CEILING MOUNTED CORD REEL	
	CEILING GRID	SD	SMOKE DETECTOR	
	DIFFUSER OR GRILLE, (REFER TO MECHANICAL DRAWINGS)	(\bullet)	SPRINKLER	
OS	OCCUPANCY SENSOR	WAP	WIRELESS	
CEILING	<u>TYPES</u>			-
	EXISTING ACT CEILING			
RCP GEN	IERAL NOTES			
A. ALL C B. ALL G C. REFE	EILINGS ARE AT 9'-1" AFF UNLES SYP BD SOFFITS ARE AT 7'-4 1/2" R TO AND COORDINATE WITH E	SS NOTED OTH AFF UNLESS N LECTRICAL DR	IERWISE IOTED OTHERWISE AWINGS AND	
D. ALL G STRU	FICATIONS FOR SPECIFIC LIGHT GYP. BD. SOFFITS TO HAVE GYP. CTURE ABOVE	BD. VERTICAL	RETURNS UP TO THE	
E. REFE AND S INFOR GRILL	R TO AND COORDINATE WITH M PECIFICATIONS FOR SPECIFIC (MATION AND LOCATIONS, INCLUS, S, ALARMS, EXIT SIGNS AND SEI	IECHANICAL AI CEILING-MOUN JDING BUT NO NSORS.	ND PLUMBING DRAWINGS TED FIXTURE T LIMITED TO DIFFUSERS,	
F. PAINT INCLU	EXPOSED STRUCTURE AS INDI DING STEEL DECK, BEAMS, AND	CATED ON REI TRUSSES.	FLECTED CEILING PLAN	
G. PAIN EXPO INDIC/ MATC	T ALL MISCELLANEOUS HVAC, P SED ON WALLS AND HARD CEILI ATED TO BE PRE-FINISHED OR A H THE ADJACENT OR BACKGRO	LUMBING AND NGS THAT ARE SPECIFIC COI UND SURFACE	ELECTRICAL ITEMS E NOT OTHERWISE LOR. THE COLOR SHALL	GO
H. PAIN LINER OCCU	F PORTIONS OF INTERNAL SURF S, BEHIND AIR INLETS AND OUTI PIED SPACES. COLOR SHALL BE	ACES OF META LETS THAT ARI E "FLAT BLACK	AL DUCTS, WITHOUT E VISIBLE FROM "	430
I. DO NO SPRIN COMP UNLES	DT PAINT OPERATIONAL COMPO KLER HEADS, FIRE, SMOKE, OR ONENTS ARE TO BE SELECTED SS OTHERWISE NOTED.	NENTS OF SYS HEAT DETECT TO MATCH BA	STEMS SUCH AS ORS. COLORS OF THESE CKGROUND SURFACES,	
J. ALL P. FINISH	AINTED CEILINGS AND EXPOSED I, UNLESS OTHERWISE INDICATI	D CEILING ELEN ED.	MENTS TO HAVE A "FLAT"	
K. THE F BOTH INDICA	PAINT COLOR INDICATED ON GY THE HORIZONTAL AND VERTICA ATED.	PSUM BOARD AL SURFACES (SOFFITS SHALL APPLY TO JNLESS OTHERWISE	
	RCP KEY	NOTES		
NO.	DI	ESCRIPTIO	SHOWN AS: 🐼	
1	REINSTALL CEILING GRID AND A INSTALLED.	CT TILES AFTE	R NEW PIPING HAS BEEN	

RECESSED LIGHT

FIXTURE

RCP LEGEND

PT-X- PAINT COLOR

X'-X"- CEILING HEIGHT A.F.F

LETTER	QTY	EQUIPMENT NAME	MANUFACTURER	MODEL NO.	L
	-				
А	3	PERCIVAL CHAMBER	PERCIVAL SCIENTIFIC	LT-105	
В	2	CU CHAMBER	CORNELL		
С	3	CU CHAMBER	CORNELL		

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LAB EQUIPMENT SCHEDULE

		DIME	NSIONS			ELE	ECTRICAL					HOUSE LABOR	ATORY PL	UMBING SYSTEMS			OPE	RATING ENVIRONMENT						
		WIDTH	WEIGH					FM		PLUG		LAB	LAB	GAS	CA 85 CA	CYLINDER	TEMP	VIBRATION	HEAT GENERATION	EXHAUST	OWNER	OWNER CONTRACTOR	CONTRACTOR	
OCATION	HEIGHT (IN	I) (IN)	DEPTH (IN) (LBS)	VOLTAGE (VAC) PHASE Hz	Z AMPS HP	kVA WATTS G		POWER	TYPE	DCW DH	HW PCW DRAIN	VENT RO	D/DI PROPANE VA	C PSI LP	GASES	(*F)	HUMIDITY % SENSITIVE	(BTUH)	(CFM)	FURNISHED	INSTALLED FURNISHED	INSTALLED	COMMENTS
G12	102 1/2	117	38 13/16							L21-30P											Х		X	
G12	80	66	36			20															Х	X		
G12	80	96	36			20															Х	X		

GENERAL NEW WORK NOTES:

- 1. ALL FLOORS, WALLS, CEILINGS, AND OTHER SURFACES THAT ARE TO REMAIN ARE TO BE PATCHED, REPAIRED, AND REFINISHED PRIOR TO FINISH INSTALLATION. ALL SURFACES ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR MATCH THE ADJACENT SURFACES. 2. FIRESTOP ALL FLOOR PENETRATIONS (USED/UNUSED/ABANDONED)
- WITH 2 HR UL LISTED PENETRATION FIRESTOPPING. 3. OF/CI: OWNER FURNISHED, CONTRACTOR INSTALLED
- OF/OI: OWNER FURNISHED, OWNER INSTALLED
- 4. DIMENSIONS WITH PARENTHESES, (X'-X"), HAVE BEEN PROVIDED FOR REFERENCE ONLY

	PLAN KEY NOTES									
		SHOWN AS: 🐼								
NO.	DESCRIPTION									
1	2'-0" D X 5'-0"L PAINTED STEEL ADJUSTABLE HEIGHT WORK T EPOXY TOP (OF/CI).	ABLE WITH								
2	DROP-IN EPOXY RESIN SINK, SK-A, 25"x15"x4.75".									
3	PAINTED STEEL BASE AND EPOXY COUNTERTOP. SEE INTER ELEVATIONS FOR DETAILS.	IOR								
4	PREPARE AND PROVIDE LACQUER FLOOR FINISH.									
5	AFTER GRINDING/POLISHING CONCRETE FLOOR AND PRIOR FINISH, NEATLY FLASH PATCH FLOOR MATCHING THE WIDTH FRAME, TO TRANSITION FROM CONCRETE LAB FLOOR TO BF FLOOR; REINSTALL SALVAGED INACTIVE LEAF FLOOR STRIK FINISHED FLOOR.	TO INSTALLING I OF DOOR RICK CORRIDOR E FLUSH WITH								
6	DECK-MOUNTED EMERGENCY EYEWASH, COORDINATE WITH DRAWINGS.	I PLUMBING								



GENERAL DEMOLITION NOTES:

- 1. EVERY ATTEMPT HAS BEEN MADE TO DOCUMENT PERTINENT EXISTING CONDITIONS FROM EXISTING SURVEYS, DRAWINGS AND LIMITED FIELD INSPECTION. PRIOR TO THE SUBMISSION OF BIDS, CONTRACTORS SHALL WALK THE SITE AND SATISFY THEMSELVES TO EXISTING VISUAL CONDITIONS. THE ARCHITECT SHALL BE CONSULTED WHEN ANY QUESTION ARISES RELATIVE TO MATERIALS AND CONDITIONS NOT SPECIFICALLY SHOWN OR SPECIFIED.
- 2. ALL EXISTING WORK (CEILING, FLOORS, WALLS, FINISHES, ETC.) DISTURBED BY NEW CONSTRUCTION SHALL BE PATCHED AND REFINISHED. PATCHING AND FINISH WORK IS THE REPAIR WORK REQUIRED TO RESTORE SURFACES TO THE ORIGINAL CONDITION AND/ OR MATCHING THE ADJACENT SURFACES. MISCELLANEOUS FINISH REQUIREMENTS TO WALL, FLOOR AND CEILING IN AREAS AFFECTED BY DEMOLITION HAVE NOT BEEN TOTALLY INCORPORATED INTO THE ROOM FINISH SCHEDULE. REFER TO THE DEMOLITION , FLOOR AND REFLECTED CEILING PLANS FOR ADDITIONAL CUTTING , PATCHING AND REFINISHING WORK SCOPE.
- 3. CONTRACTOR(S) SHALL COORDINATE ALL WORK WITH HAZARDOUS MATERIALS ABATEMENT WORK . (ABATEMENT PROVIDED BY OWNER).
- 4. THE EXISTING FIRE-RESISTANT CONSTRUCTION MUST BE MAINTAINED OR MADE TO COMPLY WITH THE REQUIREMENTS AS ESTABLISHED BY THIS CONTRACT. SEE THE CODE COMPLIANCE PLANS FOR THE FIRE RESISTANT RATINGS OF EXISTING AND NEW CONSTRUCTION.
- 5. CARE SHALL BE TAKEN TO LIMIT IMPACT OF CONSTRUCTION ON THE SURROUNDING OCCUPANTS AND OPERATIONS DURING THE PROJECT. SAFE LEGAL PASSAGES SHALL BE PROVIDED FOR ALL BUILDING OCCUPANTS DURING ALL THE PHASES OF THIS PROJECT.
- 6. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING THE COURSE OF CONSTRUCTION AS A RESULT OF CONTRACTOR'S WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO ARCHITECT'S APPROVAL AND WITHOUT COMPENSATION.
- 7. 'REMOVE' IS DEFINED AS DETACH FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF OFF-SITE UNLESS INDICATED TO BE SALVAGED OR REINSTALLED.
- 8. REMOVE AND SALVAGE ALL WALL-MOUNTED ITEMS AND ASSOCIATED COMPONENTS IN WORK AREA (I.E., WALL CLOCKS, COAT HOOKS/RODS, TACK BOARDS, MARKER BOARDS, WALL HANGINGS, WALL BRACKETS/STANDARDS) UNLESS NOTED OTHERWISE. PATCH AND REPAIR WALL TO MATCH ADJACENT SURFACE(S).
- 9. CONTACT CORNELL CIT AT 607-255-5500 TO DISCONNECT ACTIVE INFORMATION TECHNOLOGY SERVICES AND REMOVE HARDWARE PRIOR TO DEMOLITION.

DEMOLITION KEY NOTES NO. DESCRIPTION AFTER MASTIC HAS BEEN ABATED BY OWNER, GRIND/POLISH CONCRETE FLOOR REMOVING ALL LOOSE MATERIAL TO RESULT IN A SOUND 1 CONCRETE FLOOR PREPARED FOR FINISH. REMOVE EXISTING CONCRETE COUNTERTOP AND METAL BASE CABINET. COORDINATE REMOVALS WITH PLUMBING DRAWINGS. REMOVE RESILIENT TRANSITION STRIP AND REMOVE AND SALAVAGE INACTIVE DOOR LEAF FLOOR STRIKE. REMOVE AND SALVAGE CEILING TILE AND GRID TO ALLOW FOR NEW PIPING 4 (HATCHED AREA).











1 1

PERCIVAL CHAMBERS



3 G-12 SOUTH ELEVATION

- - - - - + - - - - - ₁ / - - - - -

2 G-12 EAST ELEVATION

FUTURE CU CHAMBERS (OF/OI)







INTERIOR FINISHES & MATERIALS LIST SECTION 07 92 00 - JOINT SEALANT JOINT SEALANT AT COUNTERTOP TO WALL TRANSITIONS, MATCH JOINT SEALANT TO COUNTERTOP <u>SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES</u> RUBBER BASE (RB) **RB-1** ROPPE, RUBBER BASE, 4" H, COVE TOE BASE, COLOR: AS SLECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE. SECTION 09 67 71 - LACQUER FLOORING SYSTEM ACRYLIC LACQUER SYSTEM LACQUER SYSTEM: ACRYLICON, PENETRATING PRIMER COAT WITH TOP COAT SEALER. SECTION 09 91 23 - INTERIOR PAINTING PAINT (PT) -ALL DOORS, FRAMES AND TRIM – SEMI-GLOSS -CEILINGS – FLAT -ALL PAINTED VERTICAL SURFACES (WALLS, SOFFITS, COLUMNS, ETC) TO BE AN EGGSHELL FINISH. -AT EXPOSED CEILING USE DRYFALL PAINT. PT-1 BENJAMIN MOORE, ACRYLIC EPOXY, COLOR: LINEN WHITE 912, FINISH: SATIN (GENERAL) PT-2 BENJAMIN MOORE, COLOR: LINEN WHITE, FINISH: SEMI-GLOSS (DOOR & FRAMES, WHERE INDICATED TO BE SPLIT FINISH USE AT DOORS AND FRAME ROOM SIDE) PT-3 BENJAMIN MOORE, COLOR: MATCH EXISTING, FINISH: SEMI-GLOSS (DOOR & FRAMES, CORRIDOR SIDE) PT-4 BENJAMIN MOORE, COLOR: COLOR: TBD, FINISH: SATIN (ACCENT) <u>SECTION 12 35 53.13 - LABORATORY CASEWORK</u> METAL CASEWORK MOTT MANUFACTURING, SCIENCE LABORATORY FURNITURE, COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE

EPOXY COUNTEROPS (EC) EC-1 DURCON, EPOXY RESIN WORKS, COLOR: BLACK

ROOM FINISH SCHEDULE ROOM FINISH TAG: WHERE AN "E." APPEARS PRIOR TO A FINISH DESIGNATION, "E." INDICATES EXISTING MATERIAL FLOOK - ROOM NAME FINISH F CPT-# # REFER TO FINISH PLAN KEYNOTE # AS INDICATED WALL BASE B RB-# BASE W PT-#* WALL W PT-#* FINISH ROOM # * = INDICATES ACCENT(S) WITHIN ROOM, REFER FINISH PLAN SYMBOL LEGEND PT-X ACCENT WALL TRANSITION POINT — ACCENT WALL MATERIAL DESIGNATION PATTERN DIRECTION SYMBOL - TRANSITION DESIGNATION TS-# FLOOR MATERIAL DESIGNATION TRANSITION LINE FINISH PLAN PATTERN LEGEND ACRYLIC LACQUER SYSTEM

- FLASH PATCH THRESHOLD
- FINISH PLAN GENERAL NOTES A. EXTEND FINISH FLOORING BENEATH APPLIANCES AND INTO KNEE SPACES BELOW COUNTERTOPS, WORK SURFACES, AND WHERE REMOVABLE SINK FRONTS ARE PROVIDED IN CASEWORK. B. PAINT ALL MISCELLANEOUS HVAC, PLUMBING AND ELECTRICAL ITEMS EXPOSED ON WALLS AND HARD CEILINGS THAT ARE NOT OTHERWISE INDICATED TO BE PRE-FINISHED OR A SPECIFIC COLOR. THE COLOR SHALL MATCH THE ADJACENT OR BACKGROUND SURFACE. C. PAINT PORTIONS OF INTERNAL SURFACES OF METAL DUCTS, WITHOUT LINERS, BEHIND AIR INLETS AND OUTLETS THAT ARE VISABLE FROM OCCUPIED SPACES. COLOR SHALL BE "FLAT BLACK." D. DO NOT PAINT OPERATIONAL COMPONENTS OF SYSTEMS SUCH AS SPRINKLER HEADS, FIRE, SMOKE, OR HEAT DETECTORS. COLORS OF THESE COMPONENTS ARE TO BE SELECTED TO MATCH BACKGROUND SURFACES, UNLESS OTHERWISE NOTED. E. REFER TO "ROOM FINISH SELECTION KEY", INTERIOR ELEVATIONS, AND REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION. F. PAINTING IS NOT REQUIRED BEHIND FIXED CABINETS G. PROVIDE TRANSITION STRIPS BETWEEN DIFFERENT FLOOR MATERIALS H. FLOOR FINISHES WHICH DIFFER BETWEEN ROOMS SHALL TRANSITION AT THE CENTERLINE OF A CLOSED DOOR, UNLESS OTHERWISE NOTED. I. PAINT HOLLOW METAL DOORS AND FRAMES THAT ARE NOT SPECIFIED TO BE PRE-FINISHED. THE PAINT COLOR SHALL BE THE SAME ON BOTH SIDES UNLESS OTHERWISE INDICATED TO BE A SPLISH FINISH. J. ALL PAINTED CEILINGS AND EXPOSED CEILING ELEMENTS TO HAVE A "FLAT" FINISH, UNLESS OTHERWISE INDICATED. K. PROVIDE RUBBER [VINYL] BASE TO THE TOE KICK SPACE OF ALL CASEWORK AND CABINETS UNLESS OTHERWISE INDICATED. FOR EXPOSED SIDES, AND CASEWORK WITH KNEE SPACES, APPLY BASE TO THE EXPOSED SIDE OF THE CASEWORK AND CABINETS. L. UNTAGGED SPACES AND ANCILLARY SPACES SUCH AS CLOSETS, NICHES, ETC. SHALL RECEIVE THE SAME FINISHES OF THE SPACE TO WHICH THEY ARE ADJACENT. M. MISCELLANEOUS FINISH REQUIREMENTS TO WALLS, FLOORS AND CEILINGS IN AREAS AFFECTED BY DEMOLITION WORK HAVE NOT BEEN TOTALLY INCORPORATED INTO THE ROOM FINISH PLANS. REFER TO DEMOLITION PLANS, FLOOR AND REFLECTED CEILING PLANS FOR EXTENT OF "CUTTING AND PATCHING". PATCHING SHALL BE THE REPAIR WORK REQUIRED TO RESTORE SURFACES TO THE ORIGINAL CONDITION AND/OR MATCHING THE ADJACENT SURFACES. N. FOR EXISTING SURFACES INDICATED TO BE "PAINTED," THE SURFACE SHALL BE PROPERLY PREPARED, INCLUDING ANY PRE-EXISTING DEFECTS, TO PROVIDE A "LIKE NEW" APPEARANCE. O. THE PAINT COLOR INDICATED ON GYPSUM BOARD SOFFITS SHALL APPLY TO BOTH THE HORIZONTAL AND VERTICAL SURFACES UNLESS OTHERWISE INDICATED. P. IN THE ROOM FINISH SCHEDULE - IN ANY ROW OR COLUMN "-" or "ETR" INDICATES THERE ARE NO CHANGES OR NEW FINISHES, EXISTING TO REMAIN FINISH PLAN KEY NOTES

1 PAINT HOLLOW METAL DOORS AND FRAMES TO MATCH EXISTING FINISH.

DESCRIPTION

NO.



l		

SHOWN AS: (#)



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Issue Date: 11/22/23 Registration Expires: 11/30/24

Drawn By: KEP SDF Checked By: Project Manager: KEP

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Revisions

_____ _____

Bradfield Hall G12 Growth Chamber Installation 306 Tower Road lthaca, NY 14850 SWBR Project Number 23179.00

Cornell University lthaca, NY







FLUSHING NOTES:

- FLUSHING FULL-PORT BALL VALVES SHALL STILL BE PROVIDED ON UNDERGROUND MAINS (INSIDE THE BUILDING) AND ABOVE-GROUND MAINS, CROSS-MAINS, BRANCH LINES AND RUN OUTS OF NEW SPRINKLER SYSTEMS (WET AND DRY). TO FACILITATE ANY FUTURE PERIODIC INTERNAL INSPECTIONS, OBSTRUCTION INVESTIGATIONS AND AS-NEEDED FLUSHING WORK.
- VALVES SHALL BE SIZED BY THE ENGINEER OF RECORD AND PER NFPA 25, IN ORDER TO OBTAIN THE NFPA REQUIRED MINIMUM VELOCITY OF 10 FT/S FOR ANY GIVEN PIPE SIZE. AS AN ALTERNATIVE TO THE HYDRAULIC CALCULATION VALVE SIZING METHOD, THE FOLLOWING SIZING RULES CAN BE APPLIED:
- 1-INCH THRU 2•-INCH PIPE: LINE-SIZE FULL-PORT BALL VALVE - 3-INCH PIPE: ONE (1) 2-INCH BALL VALVE - 4-INCH PIPE: TWO (2) 2•-INCH BALL VALVES
- 6-INCH PIPE: THREE (3) 2• INCH BALL VALVES - 8-INCH PIPE: FOUR (4) 2• INCH BALL VALVES

PRESSURE NOTE:

A. THIS COMPLETE SYSTEM INCLUDING HEADS IS RATED FOR 300 PSI.



GENERAL NOTES: FIRE PROTECTION SYMBOL LIST DESCRIPTION SYMBOL EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR Α. ---OR ////// EXISTING WORK TO BE REMOVED CONSTRUCTION DOCUMENTS WHEN AVAILABLE. THE LOCATIONS SHOWN MUST BE CONSIDERED APPROXIMATE. OTHER SUCH WORK MAY EXIST, HOWEVER, LOCATION AND POINT OF CONNECTION SIZE ARE NOT PRESENTLY KNOWN. VISIT SITE PRIOR TO BID TO REVIEW EXISTING CONDITIONS AND DETERMINE SCOPE OF WORK. POINT OF DISCONNECTION WHEN EXISTING CONSTRUCTION IS DAMAGED DURING WORK BY THIS CONTRACTOR, NTS NOT TO SCALE REPAIR AND/OR REPLACE WITH SIMILAR OR LIKE MATERIALS AS MUCH AS POSSIBLE, EXISTING SUBJECT TO ARCHITECTS APPROVAL. (ETR) EXISTING TO REMAIN DISPOSE OF ALL DEMOLITION AND/OR OTHER WASTE MATERIALS CAUSED BY WORK OF C. AFF ABOVE FINISHED FLOOR THIS CONTRACTOR. LEGALLY DISPOSE ALL MATERIALS TO A LOCATION OFF SITE. GC GENERAL CONTRACTOR MECHANICAL CONTRACTOR MC COORDINATE AND SCHEDULE WORK AND SHUTDOWNS WITH THE OWNER AND OTHER D. PC PLUMBING CONTRACTOR TRADES PRIOR TO DEMOLITION. ELECTRICAL CONTRACTOR EC E. ALL EXISTING PIPING TO REMAIN SHALL BE RECONNECTED TO ACTIVE SERVICE PIPING. FC FLUSHING CONNECTION — (E) — EXISTING PIPING ALL PIPING TO BE REMOVED, SHALL BE REMOVED BACK TO ACTIVE PIPING AND CAPPED. F NEW PIPING VALVE AND CAP ALL WATER PIPING. REMOVE ALL INACTIVE PIPING UNLESS NOTED. FP — FRE PROTECTION SERVICE (FP) G. ALL PIPING TO BE REMOVED AND LOCATED WITHIN A WALL TO REMAIN MAY BE SPRINKLER MAIN/BRANCH PIPING (S) ABANDONED IN PLACE UNLESS NOTED. REMOVE PIPING BACK TO BEHIND THE FINISHED D SPRINKLER DRAIN PIPING (D) WALL SURFACE AND CAP. ELBOW DOWN ______ H. PLUG HOLES IN EXISTING CONSTRUCTION LEFT BY THE REMOVAL OF PIPING OR ______ 45°OFFSET EQUIPMENT. MAINTAIN FIRE/SMOKE RATING. ELBOW UP BOTTOM/TEE CONNECTION ____ DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: PIPING, VALVES, FIXTURES, 1 ____U____ TOP TEE CONNECTION EQUIPMENT, HANGERS, SUPPORTS, AND INSULATION EXCEPT ASBESTOS. PIPE CONTINUATION ______ ~ ALL SECURING AND ATTACHMENT POINTS TO EXISTING BUILDING STRUCTURE FLUSHING CONNECTION _____] INCLUDING WALLS, CEILINGS, FLOORS, SLABS, DECKS, ETC. SHALL BE REVIEWED WITH PENDENT SPRINKLER ۲ CORNELL UNIVERSITY AND THE PROJECT ENVIRONMENTAL CONSULTANT PRIOR TO DRY PENDENT SPRINKLER SECURING AND ATTACHING DEVICES AND EQUIPMENT. SOME BUILDING ELEMENTS MAY . CONTAIN ASBESTOS AND ABATEMENT MAY BE REQUIRED. ABATEMENT SHALL BE QUICK RESPONSE PENDENT SPRINKLER ۲ PERFORMED BY SEPARATE CONTRACTOR WITH THE ASSISTANCE OF THIS CONTRACTOR UPRIGHT SPRINKLER 0 FOR IDENTIFYING ATTACHMENT POINT LOCATIONS. QUICK RESPONSE UPRIGHT SPRINKLER Ø QUICK RESPONSE UPRIGHT SPRINKLER UNDER DUCT ⊠ UD K. ABANDONING EXISTING SYSTEMS, EQUIPMENT AND APPURTENANCES IN PLACE IS NOT ALLOWED. ALL SYSTEMS, EQUIPMENT AND APPURTENANCES DEEMED FOR REMOVAL SIDEWALL SPRINKLER SHALL BE REMOVED. THE CONTRACTOR SHALL NOTIFY CORNELL UNIVERSITY IF DRY SIDEWALL SPRINKLER EXISTING SYSTEMS, EQUIPMENT AND APPURTENANCES ARE FOUND THAT HAD NOT ___**ē**____ DRAIN VALVE BEEN INDICATED ON THE PROJECT PLANS TO EITHER BE REMOVED OR TO REMAIN IN CHECK VALVE

X

PRESSURE REDUCING VALVE

FIRE DEPARTMENT VALVE (FDV)

DEMOLITION/REMOVAL KEYNOTE

SHUT-OFF VALVE WITH TAMPER SWITCH (TS)

RELIEF VALVE

FLOW SWITCH (FS)

DRAWING KEYNOTE

PRESSURE SWITCH (PS)

PIPE ROUTING DOES NOT SHOW PIPE FITTINGS THAT WILL BE REQUIRED. MOST LOCATIONS WILL REQUIRE PIPING TO RISE INTO STRUCTURAL CAVITY AND THEN BACK DOWN. (TYPICAL ALL LOCATIONS).

PLACE.

M. PROVIDE TEMPORARY HEAT DETECTORS IN AREAS WHERE SPRINKLERS ARE REMOVED FROM SERVICE DURING CONSTRUCTION FOR MORE THAN 8 HOURS. COORDINATE WITH ELECTRICAL CONTRACTOR. TEMPORARY HEAT NEED TO BE TESTED WITH EHS BEFORE REMOVAL OF SPRINKLER SYSTEM.







F. SEE SPECIFICATION FOR OTHER REQUIREMENTS AND LIST OF PIPE FUNCTIONS. **PIPING IDENTIFICATION LABEL DETAIL** / NOT TO SCALE

- D. LABELS TO BE LOCATED IN AN EASILY VISIBLE LOCATION AS THEY WOULD NORMALLY BE SEEN. IE. ON THE BOTTOM HALF OF PIPES IN THE AIR AND ON THE TOP HALF OR SIDES OF PIPES MOUNTED LOW. E. LABELS SHALL BE, COLOR CODED, PRE-PRINTED, SELF ADHESIVE VINYL.

- EVERY PIPE UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS.

- C. PROVIDE LABELS IN LARGE SPACES ON MAXIMUM 20' CENTERS FOR

- PIPE PASSES THROUGH.

DETAIL NOTES:

-PIPE FUNCTION LABEL

DOMESTIC COLD WATER

AND MATCHING THE FLOW DIRECTION

ENDS OF THE PIPE FUNCTION LABEL

OF THE PIPE CONTENTS.

◄── 11" ──►

6"

- 4" R= 13" ──►/

I ≤ 22" MIN _____

SO THAT THEY MAINTAIN OPERABLE CLEARANCES

2. DIMENSIONS ARE SUGGESTED

SINK WITH EYEWASH DETAIL

1. ENSURE THAT ALL FAUCETS AND EYEWASH ARE LOCATED

NOTES:

/ NOT TO SCALE

⊢ 4"

4" ─►

B. PROVIDE AT LEAST ONE LABEL ON EACH PIPE FOR EVERY ROOM THE

A. PROVIDE A PIPE LABEL FOR EACH PIPE FUNCTION.

TEBINE	_
	ì.
<u> </u>	۱ <u>,</u>

FIXTURE AND EQUIPMENT CONNECTION SC

DESIGNATION DESCRIPTION

EEW-A EYEWASH

SK-A

COLD WATER HOT WATER PURE WASTE OR WATER SANITARY

 SINK - ADA
 1/2"
 1/2"
 1/2"

1/2" TEPID

ENT	REMARKS
1/2"	-
-	_

GENERAL NOTES:

- A. THESE NOTES ARE APPLICABLE TO THE FULL SET OF CONTRACT DOCUMENTS.
- B. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS WHEN AVAILABLE. THE LOCATIONS SHOWN MUST BE CONSIDERED APPROXIMATE. OTHER SUCH WORK MAY EXIST, HOWEVER, LOCATION AND SIZE ARE NOT PRESENTLY KNOWN. IT IS STRONGLY ENCOURAGED TO VISIT SITE PRIOR TO BID TO REVIEW EXISTING CONDITIONS AND CONFIRM SCOPE OF WORK.
- C. WHEN EXISTING CONSTRUCTION IS DAMAGED DURING WORK BY THIS CONTRACTOR, REPAIR AND/OR REPLACE WITH SIMILAR MATERIALS AS MUCH AS POSSIBLE, SUBJECT TO ARCHITECTS APPROVAL. D. DISPOSE OF ALL DEMOLITION AND/OR OTHER WASTE MATERIALS
- CAUSED BY WORK OF THIS CONTRACTOR. LEGALLY DISPOSE ALL MATERIALS TO A LOCATION OFF SITE. E. COORDINATE AND SCHEDULE WORK AND SHUTDOWNS WITH THE
- OWNER AND OTHER TRADES PRIOR TO DEMOLITION. F. ALL EXISTING PIPING TO REMAIN SHALL BE RECONNECTED TO ACTIVE
- SERVICE PIPING. G. ALL PIPING TO BE REMOVED, SHALL BE REMOVED BACK TO ACTIVE PIPING AND CAPPED. VALVE AND CAP ALL WATER PIPING. REMOVE ALL INACTIVE PIPING UNLESS NOTED.
- H. ALL PIPING TO BE REMOVED AND LOCATED WITHIN A WALL TO REMAIN MAY BE ABANDONED IN PLACE UNLESS NOTED. REMOVE PIPING BACK TO BEHIND THE FINISHED WALL SURFACE AND CAP.
- I. PATCH HOLES IN EXISTING CONSTRUCTION LEFT BY THE REMOVAL OF PIPING OR EQUIPMENT WITH MATERIALS TO MATCH EXISTING CONSTRUCTION. MAINTAIN FIRE/SMOKE RATING.
- J. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: PIPING, VALVES, FIXTURES, EQUIPMENT, HANGERS, SUPPORTS, AND INSULATION EXCEPT ASBESTOS.
- K. REMOVE EXISTING CONSTRUCTION IN THE WAY OF NEW WORK. PROTECT BUILDING AND FURNISHINGS FROM DAMAGE.
- L. WHERE NEW WORK IS TO BE INSTALLED ABOVE AN EXISTING CEILING, PROVIDE FOR THE REMOVAL OF THE CEILING. UPON COMPLETION OF WORK, REPAIR ALL DAMAGED CEILING SURFACES, REPLACE ALL DAMAGED TILES.
- M. SLEEVE AND SEAL ALL WALL AND FLOOR PENETRATIONS. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS.
- N. MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT. ADVISE OTHER TRADES OF THE REQUIRED SERVICE CLEARANCES.
- 0. PROVIDE FOR THE DRAINING AND REFILLING OF PIPING SYSTEMS, INCLUDING AIR REMOVAL, RESETTING OF FLUSH VALVES, FLUSHING SYSTEMS OF DIRT AND SCALE CAUSED BY SHUTDOWNS AND STARTUPS.
- P. REFER TO EQUIPMENT/ FIXTURE SCHEDULE FOR FINAL CONNECTION SIZES.

PLUMBING SYMBOL LIST											
SYMBOL	DESCRIPTION										
	WORK TO BE REMOVED										
(R)	REMOVE										
	POINT OF CONNECTION										
	POINT OF DISCONNECTION										
NTS	NOT TO SCALE										
(E)	EXISTING										
(ETR)	EXISTING TO REMAIN										
AFF	ABOVE FINISHED FLOOR										
BFF	BELOW FINISHED FLOOR										
VTR	VENT THRU ROOF										
GC	GENERAL CONTRACTOR										
MC											
EC											
(E)											
··											
TW	TEMPERED HOT WATER PIPING (TW)										
	TEMPERED HOT WATER RETURN PIPING (TW										
PW	PURE WATER PIPING (PW)										
SAN	SANITARY SEWER PIPING										
LW	LAB WASTE PIPING (LW)										
IW	INDIRECT WASTE PIPING (IW)										
— — V— —	VENT PIPING (V)										
— — LV — —	LAB VENT PIPING (LV)										
	ELBOW DOWN										
	45°OFFSET										
O	ELBOW UP										
	BOTTOM/TEE CONNECTION										
U	TOP TEE CONNECTION										
	"P" TRAP										
{	PIPE CONTINUATION										
]											
φφ											
 	WALL HYDRANT (WH) / HOSE BIBB (HB)										
	STRAINER										
× M	WATER METER										
	SHUT OFF VALVE										
	BALANCING VALVE										
	CHECK VALVE										
	PRESSURE REDUCING VALVE										
	RELIEF VALVE										
	PIPE GUIDE										
	UNION										
	BACKFLOW PREVENTER (BFP)										
	SHOCK ABSORBER (SA)										
	IHERMOMETER										
→ (>)	PRESSURE GAUGE										
<u>(X)</u>											
X	DEMOLITION/REMOVAL KEYNOTE										



TO SEE IF INDIVIDUAL VENT

IS REQUIRED.

3

/ NOT TO SCALE

- EMERGENCY EYEWASH. REFER TO PLANS FOR LEFT OR RIGHT HAND MODEL.



TMV. REFER TO ASSOCIATED EYEWASH SPECIFICATION FOR TYPE.

NOTE: IF IN ADA CABINET, ALL PIPING SHALL MEET ANSI & ADA REQUIREMENTS SINK WITH EYEWASH DETAIL

— AIR CONDITIONING UNIT (BY MECHANICAL CONTRACTOR). -UNION (TYPICAL) -REFER TO PLANS FOR ROUTING

CONDENSATE DRAIN DETAIL / NOT TO SCALE

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	Drawn By: CMD
	Checked By: THK Project Manager: GDD
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	Revisions
	Bradfield Hall G12 Crowth
	Chamber Installation 306 Tower Road
	Ithaca, NY 14850 SWBR Project Number 23179.00
	Cornell University
	Ithaca, NY
	P-000
	GENERAL NOTES,
	DETAILS &
	PLUMBING
	November 22, 2023 100% Construction
	Documents



23179.00





DRAWING NOTES

- 1 CONNECT 1/2" CW, 1/2" HW AND 1 1/2" AW TO EXISTING PIPING STUBS IN WALL. ROUTE PIPING TIGHT TO WALL AND CONNECT TO NEW SINK AS REQUIRED.
- 2 VERIFY FLOOR DRAIN IS NOT LOCATED ABOVE EXISTING STRUCTURE. PROVIDE LABEL AT WALL BY DRAIN "INDIRECT WASTE DRAIN ONLY". 3 CONNECT PURE WATER TUBING TO EQUIPMENT AS REQUIRED. TUBING SHALL BE ROUTED
- TIGHT TO WALL FROM PURE WATER MANIFOLD. PROVIDE AN EXTRA 3'-0" OF TUBING TO ALLOW THE EQUIPMENT TO BE ROLLED OUT. 4 CONNECT IW TO EQUIPMENT AS REQUIRED. CONNECT FLEXABLE TUBING TO ALLOW THE
- EQUIPMENT TO BE ROLLED OUT. COORDINATE WITH G.C. TO MOUNT BRAKETS ON UNDERSIDE OF THE UNIT FOR TUBING TO BE ROUTED. 5 CONNECT 3/4" IW TO HVAC EQUIPMENT AS REQUIRED. REFER TO DETAIL 5 ON P-000.
- 6 CONNECT 1/2" HWR TO (E)HWR RISER 7 SET BALANCE VALVE TO 1GPM.
- 8 EXACT ROUTING AND CONNECTION POINTS DETERMINED IN FIELD FOR INDIRECT WASTE PIPING. VERIFY CONDITIONS IN FIELD BEFORE BIDDING.







	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING WORK TO BE REMOVED	A	COMPRESSED AIR
	POINT OF CONNECTION	V	
		BBD	CONDENSER WATER SUPPLY
	POINT OF DISCONNECTION	CR	CONDENSER WATER RETURN
X	DRAWING KEYNOTE	CWS	CHILLED WATER SUPPLY
		CWR	CHILLED WATER RETURN
X	DEMOLITION KEYNOTE	D	PROCESS CHILLED WATER SUPPLY
MBH	THOUSAND BTU/HOUR	PCWR	PROCESS CHILLED WATER RETURN
NTS	NOT TO SCALE	PHWS	PROCESS HOT WATER SUPPLY
(E)	EXISTING	PHWR	PROCESS HOT WATER RETURN
(L)	ACOUSTIC THERMAL LINING - 1-1/2" THICK	FOV	FUEL OIL TANK VENT
(2L)	ACOUSTIC THERMAL LINING - 2" THICK	G	
		G8	
		HPWS	HEAT PUMP WATER SUPPLY
AFF	ABOVE FINISHED FLOOR	HPWR	HEAT PUMP WATER RETURN
AD	ACCESS DOOR	——HWS——	HOT WATER SUPPLY
W/W	WALL TO WALL	——HWR——	HOT WATER RETURN
G.C.	GENERAL CONTRACTOR	LPS	LOW PRESSURE STEAM
M.C.			LOW PRESSURE CONDENSATE
E.C.	ELECTRICAL CONTRACTOR	C	LOW PRESSURE - CLEAN STEAM CONDENSATE
N.O.	NORMALLY OPEN	HPS	HIGH PRESSURE STEAM
N.C.	NORMALLY CLOSED	—— HPC ——	HIGH PRESSURE CONDENSATE
+++++++++++++++++++++++++++++++++++++++	FLEXIBLE DUCTWORK	PC	PUMPED CONDENSATE
AxB	DUCT SECTION - FLAT OVAL (FO)	RD	REFRIGERANT DISCHARGE
F 0		RL	
9 12"	ROUND DUCT - IN INCHES	<u> </u>	
			VACUUM
	DUCT SECTION - SUPPLY	CW	DOMESTIC COLD WATER
		TD	TRIPLE DUTY VALVE
	DUCI SECTION - KETUKN		GLOBE VALVE
A ¬¬¬	WIDTH A X DEPTH B	↓	BALL VALVE
	TRANSITION SQUARE TO ROUND		JUNITUL VALVE
		│ ───────── │	THREE WAY CONTROL VALVE
	RISE IN DUCT - IN DIRECTION OF AIRFLOW		CHECK VALVE
D			BALANCING VALVE
<u> </u>		│	BUTTERFLY VALVE
24x12 UP	SUPPLY DUCT TURNING UP OR DOWN		
		PRV	PRESSURE REDUCING VALVE
24x12 UP	RETURN DUCT TURNING UP OR DOWN		PRESSURE/TEMPERATURE TEST PLUG
6" BOOT		·	SINGLE LINE PIPE CONTINUED
/ TAP	SUPPLY/RETURN		DOUBLE LINE PIPE OR
14x8	RECTANGULAR BRANCH	••	ROUND DUCT CONTINUED
	SUPPLY/RETURN		
, 1/")	RECTANGULAR MAIN		PIPE ANCHOR
⊥' ' _ ●			PIPE GUIDE
			EXPANSION COMPENSATOR WITH GUIDES
, TEE	SUPPLY/RETURN		PRE-FAB EXPANSION LOOP
14"	ROUND BRANCH		
			STRAINER
	SUPPLY/RETURN		THERMOMETER
<u></u>	ROUND MAIN		
<14"		† V	AIR VENT
		TT	THERMOSTATIC TRAP
		■ FT	FLOAT & THERMOSTATIC TRAP
	WITENED ELDOW WITH TURNING VANES	TD	THERMODYNAMIC TRAP
×		■BT	
$\left \right\rangle$	SUPPLY DIFFUSER, REGISTER OR GRILLE		
			CAP OR PLUG
	RETURN REGISTER		ELBOW DOWN
		o	ELBOW UP
			BOTTOM TAP
	FIN TUBE RADIATION	AAD	
	VALANCE	FD	
		SD	
			FLEX CONNECTOR - DUCTWORK
A	REGISTER, GRILLE OR DIFFUSER TAG		MOTORIZED DAMPER
B	B = NECK SIZE	— BG	BLAST GATE
	C = CFM		VOLUME DAMPER
FT-A	FIN TUBE RADIATION TAG		
B	FI-A = TYPE B = FIN TUBE LENGTH		FLEXIBLE CONNECTOR - PIPING
_C	C = ENCLOSURE LENGTH	- + -	DRAIN VALVE WITH HOSE CONNECTION,
	D = GPM	(H)	
A	RADIANT CEILING PANEL TAG	(S)	TEMPERATURE SENSOR
B	B = LENGTH	N N	NITROGEN DIOXIDE SENSOR
	C = GPM		CARBON DIOXIDE SENSOR
A			CARBON MONOXIDE SENSOR
B	A = IYPE B = COIL SIZE	<u> </u>	GAS SENSOR
	C = COOLING GPM		
	D = HEATING GPM		
	AIR TERMINAL UNIT AND TAG (OPTION 1)		THENWOSTAT/SENSOR WITH GUARD
🗄 VAV-X-XX			AIR TERMINAL UNIT TAG (OPTION 2)
□ VAV-X-XX			
• VAV-X-XX	AIR TERMINAL UNIT WITH FACTORY	AB	A = UNIT NO. B = MAXIMUM CFM
VAV-X-XX	AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)	A C	A = UNIT NO. B = MAXIMUM CFM C = MINIMUM CFM
VAV-X-XX	AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1)	A C	A = UNIT NO. B = MAXIMUM CFM C = MINIMUM CFM
VAV-X-XX	AIR TERMINAL UNIT WITH FACTORY ATTENUATOR (OPTION 1) LAB AIR VALVE	A C DSD	A = UNIT NO. B = MAXIMUM CFM C = MINIMUM CFM DUCT SMOKE DETECTOR

SYMBOL

CONTROLS SCHEMA	ATIC SY	MBOL LIST
	SYMBOL	DESCRIPTION
		SINGLE POINT SENSOR
	СТ	CURRENT TRANSDUCER
ANALOG INPUT (GENERAL)		ELECTRIC/PNEUMATIC TRANSDUCER
		ELECTRONIC/ELECTRIC
BINARY VALUE	S S	
BINARY INPUT BINARY OUTPUT		STARI/STOP
ANALOG VALUE ANALOG INPUT		OPEN/CLOSE
ANALOG OUTPUT	Ē	ENABLE/DISABLE
THERMOWELL		HARD WIRE INTERFACE
ALARM	Ŕ	PNEUMATIC CONTROL VALVE (3-WAY)
ELECTRIC ACTUATOR	Ŕ	PNEUMATIC CONTROL VALVE (2-WAY)
FREEZE-STAT	E	
HUMIDIFIER		
HUMIDIFIER DISPERSION GRID		CONTROL VALVE (2-WAY)
RELAY		SOLENOID VALVE
		VALVE
514105	++++++	AUTOMATIC AIR DAMPER (PARALLEL BLADE)
FLOW METER	. ~/~/	AUTOMATIC AIR DAMPER (OPPOSED BLADE)
MOTOR	<u> </u>	BUTTERFLY CONTROL DAMPER
BTU ENERGY METER	 	PNEUMATIC ACTUATOR
AIR FLOW MEASURING		MAIN TEMPERATURE
	EA	CONTROL AIR SOURCE EXHAUST AIR
	OA RA	OUTSIDE AIR
(DUCT MOUNTED)	SA	SUPPLY AIR
TEMPERATURE SENSOR (DUCT OR PIPE MOUNTED)	F.L. F.O.	FAIL LAST FAIL OPEN
CARBON DIOXIDE SENSOR	SF	SUPPLY FAN
	SC	SMOKE CONTROL FAN
CARBON MONOXIDE SENSOR (DUCT MOUNTED)	RF	RETURN AIR FAN
SPACE SENSOR WITH SETPOINT	EF	EXHAUST AIR FAN
SPACE SENSOR WITH OCCUPANCY		FILTER BANK
SPACE SENSOR WITH VISUAL		
SPACE SENSOR WITH FAN ON/OFF		
SWITCH ROOM TEMPERATURE SENSOR WITH	ASD	
SETPOINT ADJUSTMENT 	VED	VARIABLE ERECUENCY DRIVE
OCCUPANCY OVERRIDE		
ROOM TEMPERATURE SENSOR WITH VISUAL DISPLAY		
ROOM TEMPERATURE SENSOR WITH FAN ON/OFF SWITCH		HEATING COIL
OCCUPANCY SENSOR		HEAT RECOVERY COIL
MOISTURE SENSOR	GB	GAS BURNER
	R134a→	REFRIGERANT R134a SENSOR (WALL MOUNTED)
ELOW SWITCH	HI	HIGH LEVEL SWITCH
	LOW	LOW LEVEL SWITCH
MANUAL SWITCH		VENTURI AIRFLOW CONTROL VALVE
PRESSURE SWITCH	BE	TRANSFORMER
	MS	MOTOR STARTER
	RD	ROTATION DETECTOR
PRESSURE TRANSMITTER		SMOKE DETECTOR
ELECTRIC/PNEUMATIC SWITCH OR RELAY		
PNEUMATIC/ELECTRIC SWITCH OR RELAY		CURRENT SENSOR
FLOW TRANSMITTER	MOD	MODULATING
PRESSURE TRANSMITTER	ŚC	SPEED COMMAND
	AOM	ADDRESSABLE OUTPUT MODULE (FIRE ALARM INTERFACE)
	СОМ	NETWORK COMMUNICATION INTERFACE POINT
STATIC PRESSURE SENSOR (DUCT MOUNTED)		LIQUID IMMERSION TEMPERATURE SENSOR
CONDENSATE SENSOR	RH	RELATIVE HUMIDITY SENSOR
ELECTRIC TO PNEUMATIC TRANSDUCER	FZ /	
ELECTRIC TO PNEUMATIC SWITCH		SWITCH
	I	

GENERAL NOTES:

- A. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF ALL DEMOLITION DEBRIS AND MATERIALS OFF SITE IN A PROPER LEGAL MANNER.
- B. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL SHUTDOWNS OF AIR HANDLING, CHILLED WATER, HOT WATER, STEAM, ETC. SYSTEMS WITH CORNELL UNIVERSITY FACILITY PERSONNEL FOR TIE-IN CONNECTIONS. THE CONTRACTOR SHALL ASSIST THE UNIVERSITY PERSONNEL IN SHUTTING DOWN, DRAINING, VENTING, ETC. OF SYSTEM TO FACILITATE THE INTENDED WORK.
- C. DAMAGE TO EXISTING SYSTEMS (EQUIPMENT, PIPING, DUCTWORK, CONTROLS AND ACCESSORIES) SHOWN TO REMAIN AS A RESULT OF THE CONTRACTORS WORK IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REPLACE WITH SIMILAR OR LIKE MATERIALS AT NO ADDITIONAL COST TO THE OWNER.
- D. THE DEMOLITION DRAWINGS SHOWN IN GENERAL MAJOR EQUIPMENT, PIPING AND DUCTWORK REMOVALS. THE INTENT IS NOT TO IDENTIFY ALL MISCELLANEOUS PIPING, PIPING ACCESSORIES, DUCTWORK, DUCTWORK ACCESSORIES, SUPPORTS, CONTROLS, CONTROL ACCESSORIES, CONTROLWIRING, CONDUIT, AND CONTROL PNEUMATIC TUBING AND ACCESORIES TO BE DISCONNECTED AND REMOVED BUT IS THE REQUIREMENTS UNDER THIS CONTRACT. NO EQUIPMENT, PIPING OR DUCTWORK SHALL BE ABANDONED IN PLACE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- E. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. NO ALLOWANCE WILL BE MADE FOR ADDITIONAL COSTS DUE TO CONTRACTORS FAILURE TO VERIFY EXISTING CONDITIONS AND DIMENSIONS.
- F. THE OWNER OCCUPIED AREAS INCLUDE SENSITIVE EQUIPMENT AND RESEARCH WHICH MUST NOT BE INTERRUPTED OR OTHERWISE DISTRUPTED WITHOUT PRIOR NOTICE AND APPROPRIATE PLANNING.
- G. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- H. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND ALL DIMENSIONS BEFORE FABRICATION.
- I. ALL MATERIAL AND EQUIPMENT SHALL BE NEW. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTION AND LOCAL, STATE,
- AND NATIONAL CODES. K. MECHANICAL CONTRACTOR SHALL PROVIDE ALL PENETRATIONS THROUGH WALLS, FLOORS AND ROOFS NECESSARY FOR INSTALLATION OF MECHANICAL SYSTEMS. DO NOT DRILL, CORE OR CUT ANY PORTION OF COLUMNS, BEAMS, JOISTS OR BRIDGING RIBS.
- L. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL AIR VENTS OR DRAINS FOR THE INSTALLATION OF THE PIPING SYSTEMS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AIR VENTS AT ALL SYSTEM HIGH POINTS AND AT AREAS WITHIN THE PIPING SYSTEMS THAT COULD ACCUMULATE OR TRAP AIR PREVENTING PROPER OPERATION OF THE SYSTEMS. DRAINS SHALL BE PROVIDED AT ALL LOW POINTS WITHIN THE PIPING SYSTEMS TO FACILITATE DRAINING OF THE SYSTEM COMPLETELY.
- M. THE DUCTWORK SIZES AND TYPES (ROUND, FLAT OVAL AND RECTANGULAR) WERE SELECTED FOR WITHIN THE BUILDING. IN ADDITION, THE DUCTWORK SIZES AND TYPES WERE CHOSEN TO ALLOW SPACE ABOVE THE CEILINGS FOR FUTURE DUCTWORK, PIPING AND/OR CONDUIT. IT IS NOT ACCEPTABLE FOR THE CONTRACTOR TO CHANGE THE SIZE OR TYPE OF DUCTWORK FOR BIDDING OR INSTALLATION UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
- N. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE LOCATIONS OF ALL ROOM TEMPERATURE SENSORS WITH THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL SCHEDULE A WALK THROUGH WITH THE ARCHITECT/ENGINEER TO LOCATE SENSOR LOCATIONS PRIOR TO INSTALLATION THE TEMPERATURE SENSORS SHALL BE INSTALLED IN ALIGNMENT WITH ELECTRICAL, FIRE, AND OTHER DEVICES WHEN LOCATED ON COMMON WALLS, THE MOUNTING HEIGHT FOR ALL TEMPERATURE SENSORS SHALL BE 48 IN. TO TOP OF THE COVER.
- O. ALL PENETRATIONS THROUGH WALLS, FLOORS AND ROOFS SHALL BE PROVIDED FOR INSTALLATION OF MECHANICAL SYSTEMS INCLUDING, BUT NOT LIMITED TO, EQUIPMENT, DUCTWORK, PIPING, ETC. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE FIRE/SMOKE STOPPED. ALL PENETRATIONS THROUGH NON RATED WALLS SHALL BE SEALED WITH A NON-HARDENING SEALANT ON BOTH SIDES OF WALL PENETRATION TO REDUCE NOISE TRANSMISSION.
- P. THE CONTRACTOR SHALL PROVIDE MINIMUM 16x16 ACCESS DOORS WITHIN GYPSUM CEILINGS, GYPSUM WALLS AND MASONRY WALLS AT FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS TO ALLOW FULL ACCESS TO DUCTWORK MOUNTED ACCESS DOORS FOR SERVICING THE DAMPERS. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR CEILING AND WALL CONSTRUCTION TYPES AND RATING REQUIREMENTS FOR SELECTION OF ACCESS DOOR TYPES. REFER TO SPECIFICATIONS FOR ACCESS DOOR REQUIREMENTS. AT SMOKE DAMPER AND COMBINATION FIRE/SMOKE DAMPER INSTALLATIONS, THE CONTRACTOR SHALL PROVIDE A MINIMUM 16x16 ACCESS DOOR AT THE DUCT MOUNTED SMOKE DETECTORS.
- Q. PROVIDE A VOLUME DAMPER AT EACH DIFFUSER AND GRILLE FOR PROPER BALANCING REGARDLESS IF SHOWN ON DRAWINGS. ALL VOLUME DAMPERS SHALL BE INSTALLED AT THE MAIN BRANCH TAKEOFF WITH A MINIMUM OF 6'-0" FROM DIFFUSER OR GRILLE CONNECTION. IF FLEXIBLE DUCTWORK IS UTILIZED FOR FINAL CONNECTION AT GRILLES, THE CROSS SECTIONAL AREA OF THE FLEXIBLE DUCTWORK SHALL NOT BE LESS THAN THE CROSS SECTIONAL AREA OF THE GRILLE NECK. REFER TO DRAWING DETAILS FOR FURTHER REQUIREMENTS.
- R. PROVIDE A MINIMUM OF THREE DUCTWORK DIAMETERS OF STRAIGHT DUCT UPSTREAM OF ALL AIR TERMINAL UNITS FOR PROPER FLOW MEASURING AT FLOW SENSOR. A MINIMUM OF 1'-6" SHALL BE PROVIDED IN FRONT OF CONTROL ACCESS ENCLOSURES AT ALL TERMINAL UNITS. NO PIPING OR CONDUIT SHALL BE DIRECTLY INSTALLED BELOW AIR TERMINAL UNIT ACCESS ENCLOSURES THAT WILL PROHIBIT ACCESS UP TO THE CONTROL ENCLOSURE. COORDINATE THESE REQUIREMENTS WITH ALL OTHER TRADES ON THE PROJECT. IF PROPER SERVICE ACCESS IS NOT MAINTAINED BECAUSE OF POOR COORDINATION, THE CONTRACTOR SHALL RELOCATE OBSTRUCTIONS AT NO ADDITIONAL COST.







GENERAL NOTES:

A. WORK IN MECHANICAL SPACE: THIS IS A TWO-STORY SPACE WITH LIMITED AVAILABLE SPACE AND CONGESTED WITH DUCTWORK AND PIPING. WORK WILL BE HIGH IN THE SPACE AND REQUIRE TIES OFF AND RELATED OSHA REQUIREMENTS. BIDDERS TO VERIFY IN FIELD CONDITIONS AND ROUTING PRIOR TO BIDDING

DRAWING NOTES

- TIE PIPING INTO EXISTING. PROVIDING ALL PIPING MODIFICATIONS AS REQUIRED TO MAKE THE CONNECTION.
 REVISE SEQUENCE OF OPERATION FOR EXISTING HX-5 AND P-5 & P-6, REFER TO CONTROL SCHEMATIC AND SYSTEM SUMMARY FOR FURTHER REQUIREMENTS. THE SYSTEM SHALL OPERATE 24/7.
- 3 LOCATE EQUIPMENT ON EXISTING CONCRETE PAD.







Bradfield Hall G12 Growth Chamber Installation 306 Tower Road Ithaca, NY 14850 23179.00 SWBR Project Number

Cornell University Ithaca, NY

M-110 BASEMENT FLOOR PLAN - PIPING





DEMOLITION NOTES

- 1 DISCONNECT AND REMOVE PIPING AND ACCESSORIES. CAP AND SEAL
- WATER TIGHT. 2 DISCONNECT AND REMOVE PIPING AND ACCESSORIES. PREP FOR CONNECTION TO NEW.
- 3 DISCONNECT AND REMOVE FAN COIL UNIT AND ALL ASSOCIATED
- CONTROLS. REMOVE PIPING AS NOTED. 4 DISCONNECT AND REMOVE EXISTING THERMOSTAT AND ALL
- ASSOCIATED CONTROL WIRING / PNEUMATIC TUBING BACK TO SOURCE.
- 5 DISCONNECT AND REMOVE EXISTING FAN SPEED CONTROLLER AND ALL ASSOCIATED CONTROL WIRING / PNEUMATIC TUBING BACK TO
- SOURCE. 6 DISCONNECT AND REMOVE EXISTING TEMPERATURE SENSOR AND ALL
- ASSOCIATED CONTROL WIRING BACK TO SOURCE. 7 DISCONNECT AND REMOVE THE EXISTING DIFFUSER. REMOVE
- DUCTWORK BACK TO THE MAIN. PREP FOR CONNECTION TO NEW. 8 DISCONNECT AND REMOVE THE EXISTING DIFFUSER. REMOVE
- DUCTWORK BACK TO THE MAIN AND CAP.

DRAWING NOTES

- 1 MOUNT FAN COIL UNIT TIGHT TO THE BEAMS ABOVE. 2 TIE PIPING INTO EXISTING. PROVIDING ALL PIPING MODIFICATIONS AS
- REQUIRED TO MAKE THE CONNECTION. 3 TIE 3/4" PCWS/R PIPING INTO PERCIVAL GROWTH CHAMBER. CHILLED WATER PIPING CONNECTIONS WILL BE ON THE REAR OF THE UNIT IN THE LEFT SIDE, APPROXIMATELY 22" AFF. REFER TO UNIT SHOP DRAWING FOR EXACT LOCATION. PROVIDE BRANCH PIPING PER THE ASSOCIATED DETAIL. BALANCE TO UNIT TO 0.92 GPM AND PROVIDE FINAL CONNECTION TO UNIT.
- 4 ROUTE PCWS/R PIPING ABOVE THE CEILING IN THE BEAM POCKET. 5 ROUTE CWS/R PIPING ABOVE THE CEILING IN THE BEAM POCKET. 6 ROUTE PHWS/R AND PCWS/R PIPING TIGHT TO THE BEAM. LOCATE TIGHT TO THE EXISTING SOFFIT, COORDINATE WITH THE EXISTING UTILTIES.
- 7 TIE 1" PHWS/R PIPING FUTURE CORNELL GROWTH CHAMBER. UNIT WILL BE 80" AFF. CHILLED WATER PIPING CONNECTIONS WILL BE ON THE TOP OF THE UNIT IN THE FRONT RIGHT CORNER. PROVIDE BRANCH PIPING PER THE ASSOCIATED DETAIL. FINAL CONNECTION AND BALANCING OF THE SYSTEM WILL BE BY OWNER. SYSTEM IS DESIGNED FOR FLOW RATE OF 6 GPM.
- 8 TIE 1" PCWS/R PIPING FOR FUTURE CORNELL GROWTH CHAMBER. UNIT WILL BE 80" AFF. CHILLED WATER PIPING CONNECTIONS WILL BE ON THE TOP OF THE UNIT IN THE FRONT LEFT CORNER. PROVIDE BRANCH PIPING PER THE ASSOCIATED DETAIL. FINAL CONNECTION AND BALANCING OF THE SYSTEM WILL BE BY OWNER. SYSTEM IS DESIGNED FOR FLOW RATE OF 6 GPM.
- 9 PIPING SHALL BE STACKED AND WALL MOUNTED. 10 PROVIDE DANFOSS AVDO, OR EQUAL, AUTOMATIC BYPASS CONTROL VALVE. BALANCE TO 5PM. REFER TO PIPING SCHEMATIC FOR FURTHER
- DETAILS. 11 AUTOMATIC BYPASS CONTROL VALVE IS REQUIRED UNTIL CORNELL CHAMBERS ARE INSTALLED. AFTER CORNELL CHAMBERS ARE
- INSTALLED, ISOLATION VALVES ON THE AUTOMATIC BYPASS CONTROL VALVE CAN BE LOCKED CLOSED. 12 REBALANCE EXISTING GRILLE TO AIRFLOW INDICATED. 13 TIE DUCTWORK INTO NEW DIFFUSER. TRANSITION AS REQUIRED TO

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ATC NMT GDD

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Revisions

Bradfield Hall G12 Growth Chamber Installation 306 Tower Road lthaca, NY 14850 23179.00 SWBR Project Number

Cornell University lthaca, NY

2 PROCESS HOT WATER SYSTEM PIPING SCHEMATIC

3 CHILLED WATER LOAD SHED MATRIX NOT TO SCALE

		STEAM LOA	D SHED MATRIX	_						
CONTROL POINT	LOAD SHED-1 STEAM	LOAD SHED-1 STEAM LOAD SHED-2 STEAM LOAD SHED-3 STEAM LOAD SHED-4 STEAM								
		ZONE	CONTROL							
RESEARCH SPACES INDEX SPACE TO UNOCCUPIED MODE, RESETTABLE TO OCCUPIED MODE										
		HYDRONIC S	SYSTEM CONTROL							
REHEAT LOOP SYSTEM - NON CRITICAL	UNDER	CONTROL	INDEX LOOP TEMPERATURE TO 140 DEG F OR MAINTAIN RESET SCHEDULE, WHICHEVER IS LOWER		CLOSE STEAM VALVE, PUM					
REHEAT LOOP SYSTEMS - CRITICAL (2)			UNDER (CONTROL						
PROCESS HOT WATER LOOP SYSTEM - NON CRITICAL	UNDER	CONTROL	INDEX LOOP TEMPERATURE TO 140 DEG F OR MAINTAIN RESET SCHEDULE, WHICHEVER IS LOWER	CLOSE STEAM VALVE, P						
PROCESS HOT WATER LOOP SYSTEMS - CRITICAL (2)			UNDER (CONTROL						
NOTES: (1) CU TO DETERMINE IF GROWTH CHAMBER PROCES	S WATER IS CRITICAL.									

POINT SCHEDULE													
EQUIPMENT		HARDWA	RE POINTS	6									
	DI			40	۸\/	D\/	SCH	TDEND			ALARM	SHOWN ON GRAPHIC	NOTES
	DI	ВО	AI	AU	AV	AV BV	300	IREND	BACS	EMCS	DESCRIPTION		
STEAM LOAD SHED						X (6)							BINARY NETWORK INPUTS FROM EMCS
CHILLED WATER LOAD SHED						X (4)							BINARY NETWORK INPUTS FROM EMCS
FCU FAN MOTOR SPEED CONTROL				X				X				Х	
FCU FAN STATUS	Х							X	X		FAILURE	X	VIA CURRENT SENSOR
FCU COOLING COIL CONTROL VALVE POSITION COMMAND (%)				X				X				Х	FAIL LAST
FCU LEAVING AIR TEMPERATURE			X					X	X		LOW LIMIT	X	SINGLE POINT SENSOR
FCU CONDENSATE OVERFLOW SWITCH	Х							X	X		CONDENSATE OVERFLOW	X	VIA FLOAT SWITCH
SPACE TEMPERATURE			X					X				X	REFER TO PLANS
SPACE TEMPERATURE SETPOINT ADJUSTMENT					Х							Х	REFER TO PLANS
SPACE OCCUPANCY	Х						X	X				X	REFER TO PLANS

LAB AIRFLOW SCHE	DULE																
ROOM NUMBER	DESCRIPTION	ROOM DIM	IENSIONS	CODE	E MINIMUN	M VENTILA	TION	EXHAUST AIR					SUP		XFER	-	
	(NOTE 1)	AREA	HEIGHT	N	′S	N	/S	EXHAUST	OCCL	JPIED	UNOCC	UPIED	SUPPLY	000	UNOCC	ALL	
				OUTE	OOR	EXHAUST		POINT					POINT			MODES	
				AIRFLOW AIRFLOW													
		(SF)	(FT)	(CFM)	(ACH)	(CFM)	(ACH)		(CFM)	(ACH)	(CFM)	(ACH)		(CFM)	(CFM)	(CFM)	
G12	AC/HR	610	12.0	120	1.0	610	5.0	(E)GEX-G12	730	6.0	365	3.0	(E)VAV-G12	580	215	-150	
NOTES																	

1. THIS REPRESENTS A LABORATORY WHERE EXHAUST AIRFLOW IS DRIVEN BY THE MINIMUM REQUIRED AIR CHANGE RATES ESTABLISHED FOR THE LABORATORY.

LAB G12 CONTROL SCHEMATIC AND SYSTEM SUMMARY / NOT TO SCALE

	CHILLED WAT	FER LOAD SHED MATRIX		
CONTROL POINT	LOAD SHED 1 - CHILLED WATER DAYTIME (DEFCON 3)	LOAD SHED 2 - CHILLED WATER NIGHT (DEFCON 2)	LOAD SHED 3 - CHILLED WATER EMERGENCY (DEFCON 1)	LOAD SHED 4 - CHILLED WATER EMERGENCY (DEFCON)
	ZO	NE CONTROL		
ES	INDEX CHILLED WATER CONTROL CLOSED			
	HYDRONI	C SYSTEM CONTROL		
ULATION LOOP - CRITICAL (2)		UNDER C	ONTROL	
D WATER COOLING LOOP		UNDER C	ONTROL	

CU TO DETERMINE IF GROWTH CHAMBER PROCESS WATER IS CRITICAL.

CHANGE RATE TO MIN UNPCCUPIED AC/PH AND EMPERATURE SET POINT TO 60 DEG F E, PUMPS "ON" , PUMPS "ON"

LOAD SHED-6 STEAM

WATER CONTROL VALVI CLOSED

- CHILLED WATER LCS

SEQUENCE OF OPERATION:

SYSTEM DESCRIPTION GENERAL EXHAUST AIR VALVE (GEV)

SUPPLY AIR VALVE (SAV) COOLING FAN COIL UNIT

<u>GENERAL</u>

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK.

THE BACS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING AND TIME SETTING

DURING A LOSS OF POWER FOR AT LEAST TEN HOURS. THE SPACE SHALL BE CONTROLLED TO AN AIR CHANGE RATE. THE BACS SHALL

CALCULATE THE REQUIRED CFM USING THE ROOM GROSS VOLUME (AREA X CEILING HEIGHT).

IF THE ZONE BECOMES OCCUPIED DURING THE SCHEDULED UNOCCUPIED PERIOD, THE SPACE SHALL INDEX TO OCCUPIED MODE FOR THE DURATION OF OCCUPANCY. WHEN THE SPACE BECOMES UNOCCUPIED AGAIN DURING THE SCHEDULED UNOCCUPIED PERIOD, THE SPACE SHALL INDEX BACK TO UNOCCUPIED MODE.

<u>SETPOINTS</u>

SPACE COOLING TEMPERATURE SETPOINTS:

OCCUPIED: 75°F UNOCCUPIED SETBACK: 75°F UNOCCUPIED: 75°F

SPACE HEATING TEMPERATURE SETPOINTS:

OCCUPIED: 70°F UNOCCUPIED SETBACK: 70°F UNOCCUPIED: 70°F

TOTAL EXHAUST AIR CHANGE RATE (ACPH):

REFER TO LAB AIRFLOW SCHEDULES ACPH = TOTAL EXHAUST CFM X 60 / ROOM VOLUME

TOTAL EXHAUST AIRFLOW RATE (CFM): REFER TO LAB AIRFLOW SCHEDULE

SUPPLY AIRFLOW RATE (CFM): REFER TO LAB AIRFLOW SCHEDULE TYPICALLY = TOTAL EXHAUST AIRFLOW RATE + OFFSET

SPACE AIR DIFFERENTIAL OFFSET (CFM): REFER TO LAB AIRFLOW SCHEDULE

MINIMUM LABORATORY OCCUPANCY INDEX TIME: **30 MINUTES**

ZONE OCCUPANCY SCHEDULE: COORDINATE WITH OWNER

LABORATORY AIRFLOW CONTROL AIR VALVE POSITIONS SHALL BE BASED ON MODE. UNDER NORMAL CONTROL, ROOM OCCUPANCY SHALL BE DETERMINED VIA ROOM OCCUPANCY SENSORS.

TO MAINTAIN THE SPECIFIED AIRFLOW DIFFERENTIAL.

NEEDED TO MAINTAIN THE TEMPERATURE SETPOINTS.

PROGRAMMED SCHEDULED AND ZONE OCCUPANCY.

FAN COIL START/STOP

ZONE TEMPERATURE CONTROL

MAINTAIN THE SETPOINT.

MODULATE BETWEEN MINIMUM AND MAXIMUM POSITIONS TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. OCCUPIED SETBACK: IF THE SPACE IS UNOCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD, THE ABOVE OCCUPIED HEATING/COOLING SEQUENCES SHALL APPLY. THE SPACE SHALL BE MAINTAINED AT THE OCCUPIED SETBACK TEMPERATURE SETPOINTS. UNOCCUPIED COOLING: IF THE SPACE IS UNOCCUPIED DURING THE SCHEDULED

UNOCCUPIED PERIOD AND THE ZONE TEMPERATURE RISES ABOVE THE UNOCCUPIED COOLING TEMPERATURE SETPOINT, THE FAN COIL UNIT FAN SHALL INDEX TO MINIMUM

POSITION AND THE COOLING COIL VALVE SHALL FIRST MODULATE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT. IF THE FAN COIL UNIT CANNOT MAINTAIN SPACE TEMPERATURE SET POINT WITH THE COOLING COIL CONTROL VALVE AT 100% OPEN, THE FAN COIL SPEED SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM

POSITIONS TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

THE COOLING CONTROL VALVE SHALL BE CLOSED WHEN THE FAN COIL UNIT IS OFF.

WHEN THE ROOM IS OCCUPIED, THE GENERAL EXHAUST AIR VALVE SHALL MODULATE AS NEEDED TO MAINTAIN THE OCCUPIED AIR CHANGE RATE AS CALCULATED BY THE ROOMS TOTAL EXHAUST AIRFLOW RATE. THE SUPPLY AIR VALVE SHALL MODULATE AS NEEDED

WHEN THE ROOM IS UNOCCUPIED, THE GENERAL EXHAUST AIR VALVE SHALL MODULATE AS NEEDED TO MAINTAIN THE UNOCCUPIED AIR CHANGE RATE. THE SUPPLY AIR VALVE SHALL MODULATE AS NEEDED TO MAINTAIN THE SPECIFIED AIRFLOW DIFFERENTIAL.

THE FAN COIL SHALL BE ENERGIZED BASED ON SPACE TEMPERATURE EXCEEDING THE SPACE TEMPERATURE SETPOINT AS SENSED BY THE SPACE TEMPERATURE SENSOR. THE FAN COIL SHALL ALSO START AND OPERATE DURING UNOCCUPIED MODE WHEN IT IS

TEMPERATURE SETPOINTS SHALL BE DETERMINED BASED ON A COMBINATION OF

OCCUPIED HEATING: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD AND THE ZONE TEMPERATURE DROPS BELOW THE OCCUPIED HEATING TEMPERATURE SETPOINT, THE DUAL DUCT AIR TERMINAL UNIT SHALL MODULATE TO

OCCUPIED COOLING: IF THE SPACE IS OCCUPIED DURING THE SCHEDULED OCCUPIED PERIOD AND THE ZONE TEMPERATURE RISES ABOVE THE OCCUPIED COOLING TEMPERATURE SETPOINT, THE DUAL DUCT AIR TERMINAL UNIT SHALL MODULATE TO MAINTAIN THE SETPOINT. THE TEMPERATURE CONTINUES TO EXCEED THE SETPOINT, THE FAN COIL UNIT FAN SHALL INDEX TO MINIMUM POSITION AND THE COOLING COIL VALVE SHALL FIRST MODULATE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT. IF THE FAN COIL UNIT CANNOT MAINTAIN SPACE TEMPERATURE SET POINT WITH THE COOLING COIL CONTROL VALVE AT 100% OPEN, THE FAN COIL SPEED SHALL

POINT SCHEDULE													
EQUIPMENT		HARDWARE POINTS											
	Ы	DO		40	۸\/	D\/	0011				ALARM	SHOWN ON GRAPHIC	NOTES
	ы	вО	AI	AU	AV	DV	3CH	IREND	BACS	EMCS	DESCRIPTION		
STEAM LOAD SHED						X (6)							BINARY NETWORK INPU
HOT WATER LOOP SUPPLY WATER TEMPERATURE			X					X	X	X		Х	
HOT WATER LOOP RETURN WATER TEMPERATURE			X					X	X	X		Х	
HOT WATER CONTROL VALVE POSITION COMMAND (%)				X				X				Х	FAIL OPEN
PROCESS HOT WATER LOOP SUPPLY WATER TEMPERATURE			X					X	X	X	+ / - 4 DEG F FROM SETPOINT	Х	
PROCESS HOT WATER LOOP SUPPLY WATER TEMPERATURE SETPOINT					Х			X				Х	
PROCESS HOT WATER LOOP RETURN WATER TEMPERATURE			X					X	X	X		Х	
PROCESS HOT WATER LOOP SYSTEM PRESSURE	Х				Х				X	X	LOW PRESSURE	Х	
PROCESS HOT WATER PUMP START/STOP		X						X				Х	
PROCESS HOT WATER PUMP STATUS	Х							X	X	X	FAILURE	Х	VIA CONTACT ON
PROCESS HOT WATER PUMP SPEED COMMAND				X				X				Х	
PROCESS HOT WATER PUMP POWER (KW)					Х			X				Х	BACnet MSTP NETWO
PROCESS HOT WATER PUMP SPEED (RPM)					Х			X				Х	BACnet MSTP NETW

1 PROCESS HOT WATER SYSTEM CONTROL SCHEMATIC AND SYSTEM SUMMARY / NOT TO SCALE

POINT SCHEDULE													
EQUIPMENT													
	Ы	D O	A 1	10	A) (0011	TDEND			ALARM	SHOWN ON	NOTES
	ВІ	BO	AI	AU	AV	BV	SCH	IREND	BACS	EMCS	DESCRIPTION	GIVAFILIC	
CHILLED WATER LOAD SHED						X (4)							BINARY NETWORK INPUTS FROM
CHILLED WATER LOOP SUPPLY WATER TEMPERATURE			X					X	X	X		Х	
CHILLED WATER LOOP RETURN WATER TEMPERATURE			X					X	X	X		Х	
CHILLED WATER CONTROL VALVE POSITION COMMAND (%)				X				X				Х	FAIL OPEN
PROCESS CHILLED WATER LOOP SUPPLY WATER TEMPERATURE			X					X	X	X	+ / - 4 DEG F FROM SETPOINT	Х	
PROCESS CHILLED WATER LOOP SUPPLY WATER TEMPERATURE SETPOINT					Х			X				Х	
PROCESS CHILLED WATER LOOP RETURN WATER TEMPERATURE			X					X	X	X		Х	
PROCESS CHILLED WATER LOOP DIFFERENTIAL PRESSURE			X					X	X	X	10% DEVIATION FROM SETPOINT	Х	
PROCESS CHILLED WATER LOOP DIFFERENTIAL PRESSURE SETPOINT					Х			X				Х	
PROCESS CHILLED WATER LOOP SYSTEM PRESSURE	Х				Х				X	X	LOW PRESSURE	Х	
PROCESS CHILLED WATER PUMP START/STOP		X						X				Х	
PROCESS CHILLED WATER PUMP STATUS	Х							X	X	X	FAILURE	Х	VIA CONTACT ON DRIVE
PROCESS CHILLED WATER PUMP SPEED COMMAND				X				X				X	
PROCESS CHILLED WATER PUMP POWER (KW)					Х			X				Х	BACnet MSTP NETWORK POIN
PROCESS CHILLED WATER PUMP SPEED (RPM)					Х			X				Х	BACnet MSTP NETWORK POIN

PROCESS CHILLED WATER SYSTEM CONTROL SCHEMATIC AND SYSTEM SUMMARY 2 PROCESS NOT TO SCALE

SEQUENCE OF OPERATION:

SYSTEM DESCRIPTION

PLATE AND FRAME HEAT EXCHANGER PROCESS HOT WATER LOOP CONTROL VALVE PROCESS HOT WATER LOOP PUMP

ALL SETPOINTS SHALL BE ADJUSTABLE.

<u>GENERAL</u> SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

THE BACS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST TEN HOURS.

<u>SETPOINTS</u>

PROCESS HOT WATER LOOP SUPPLY TEMPERATURE: 118°F

START/STOP SYSTEM SHALL BE ENABLED AT ALL TIMES.

SPEED CONTROL:

THE PUMP SHALL BE CONSTANT VOLUME TO MAINTAIN A CONSTRANT FLOW RATE.

PROCESS HOT WATER LOOP CONTROL THE HEAT EXCHANGER CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE PROCESS HOT LOOP SUPPLY WATER TEMPERATURE SETPOINT.

TS FROM EMCS **I** DRIVE **VORK POINT** ORK POINT

SEQUENCE OF OPERATION:

SYSTEM DESCRIPTION PLATE AND FRAME HEAT EXCHANGER

PROCESS CHILLED WATER LOOP CONTROL VALVE PROCESS CHILLED WATER LOOP PUMP

<u>GENERAL</u>

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

ALL SETPOINTS SHALL BE ADJUSTABLE.

THE BACS SHALL BE CAPABLE OF RETAINING ITS PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST TEN HOURS.

<u>SETPOINTS</u>

PROCESS CHILLED WATER LOOP SUPPLY TEMPERATURE: 48°F

START/STOP

SYSTEM SHALL BE ENABLED AT ALL TIMES.

SPEED CONTROL:

THE PUMP SHALL MODULATE VIA VARIABLE FREQUENCY DRIVE AS REQUIRED TO MAINTAIN THE LOOP DIFFERENTIAL PRESSURE SETPOINT.

PROCESS CHILLED WATER LOOP CONTROL THE HEAT EXCHANGER CONTROL VALVE SHALL MODULATE AS

REQUIRED TO MAINTAIN THE PROCESS HOT LOOP SUPPLY WATER TEMPERATURE SETPOINT.

SEQUENCE OF OPERATION:

SYSTEM DESCRIPTION

SHELL AND TUBE HEAT EXCHANGER PERIMETER HOT WATER LOOP PUMP

<u>GENERAL</u>

SYSTEM SHALL BE CONTROLLED THROUGH THE BUILDING AUTOMATION AND CONTROL SYSTEM (BACS).

DESIGN INTENT: THE PERIMETER HOT WATER LOOP SHALL SUPPLY HOT WATER TO THE NEW PROCESS HOT WATER SYSTEM FOR THE GROWTH CHAMBERS. THE HEAT EXCHANGER ASSOCIATED THE GROWTH CHAMBERS REQUIRE 120°F HOT WATER, 24/7. THE SEQUENCE OF OPERATION FOR THE PERIMETER HOT WATER SYSTEM SHALL BE MODIFIED AS FOLLOWS TO ACCOMMODATE THE REQUIREMENTS:

<u>SETPOINTS</u>

PREHEAT LOOP SUPPLY TEMPERATURE: SEE RESET SCHEDULE

START/STOP

SYSTEM SHALL BE ENABLED AT ALL TIMES.

PREHEAT HOT WATER LOOP CONTROL

THE HEAT EXCHANGER STEAM CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE GLYCOL PREHEAT LOOP SUPPLY WATER TEMPERATURE SETPOINT. THE SUPPLY WATER TEMPERATURE SHALL BE RESET ON THE FOLLOWING SCHEDULE: OAT = 30°F & BELOW --- SWT = 180°F OAT = 55°F --- SWT = 120°F

DETAIL NOTES: A. DUCT AND DIFFUSER SIZE AND TYPE AS SHOWN ON DRAWINGS.

CORNELL GROWTH CHAMBER UNIT PIPING DETAIL

DETAIL NOTES: A. UNIT REQUIRES CONSTANT FLOW. ALL CONTROL VALVES ARE INTEGRAL TO UNIT.

PUMF	SCHEDULE														
PUMP N	IO. LOCATION	SERVICE	UNIT TYPE	PUMP CA	PACITY	MOTOF	R CHA	RACTERIS	STICS		FLUID	MIN.	MAX.	MANUFACTURER & MODEL NO.	REMAR
			& DESCRIPTION	FLOW	TOTAL HEAD	RPM	HP	VOLTS	PHASE	STARTER	TEMP.	PUMP	BHP		
				(GPM)	IN FEET						(DEG. F)	EFF.			
												(%)			
CWP-	1 MECH ROOM	PROCESS CHILLED WATER LOOP	INLINE	32.76	38	2148	2	208	3	INTEGRAL ASD	47	44.8	0.43	BELL & GOSSETT ECOCIRC XL 95-160	
HWP-	1 MECH ROOM	PROCESS HOT WATER LOOP	INLINE	30	38.8	2433	2	208	3	INTEGRAL ASD	117	40.2	.724	BELL & GOSSETT ECOCIRC XL 95-160	

							_					
l	JNIT NO.	LOCATION	TYPE	AIR SIDE	COOLING CC	JIL						
				AIR	CAPACITY		Т					
				FLOW	TOTAL	SENSIBLE	T					
				(CFM)	(MBH)	(MBH)						
	FCU-1	G12	HORIZ. EXPOSED	650	13.3	12.67						
RE 1. 2. 3. 4.	REMARKS: 1. SPECIFIED COOLING AND AIR FLOW CHARACTERISTICS ARE BASED UPON MEDIUM 2. PROVIDE UNIT WITH VARIABLE SPEED (2-10 VDC) EC MOTOR. 3. PROVIDE UNIT WITH A MINIMUM OF MERV 11 FILTERS. 4. PROVIDE UNIT CONDENSATE OVERFLOW SWITCH.											

FAN COIL UNIT SCHEDULE - CHILLED WATER

HEAT E	EAT EXCHANGER SCHEDULE - WATER TO WATER																		
UNIT NO.	LOCATION	SERVICE	TYPE	CAPACITY	HIGH TE	MP. SIDE					LOW TEMP. SI	DE					HEAT TRANSFER	MANUFACTURER & MODEL NO.	REMAR
				(MBH)	FLOW	WATER TE	MP.	PRESS.	NO. OF	CHANNELS	FLOW RATE	WATER TEN	MP.	PRESS.	NO. OF	CHANNELS	SURFACE AREA	1	
					RATE	ENT.	LVG.	DROP	PASSES		(GPM)	ENT.	LVG.	DROP	PASSES		(Sq. Ft.)	1	
					(GPM)	(DEG. F)	(DEG. F)	(Ft. HD)				(DEG. F)	(DEG. F)	(Ft. HD)				1	
HX-1	MECH ROOM	PROCESS HOT WATER LOOP	PLATE AND FRAME	30	30.3	120	118	21.7	1	14	30	117	119	21.3	1	14	23.3	BELL AND GOSSETT-P8	
HX-2	MECH ROOM	PROCESS CHILLED WATER LOOP	PLATE AND FRAME	57.6	28.7	47	51	9.7	1	11	32.76	51.5	48	13.2	1	11	33.9	BELL AND GOSSETT GPX-P14	

									FAN M	OTOR			MANUFACTURER & MODEL No.	REMAR
EAT (DEC	G. F)	LAT (DEC	G. F)	WATER	WATER ENT. WATER LVG. WATER ROWS RPM HP VOLTS PHASE									
DB	WB	DB	WB	FLOW	P.D.	TEMP.	TEMP.							
				(GPM)	(Ft. HD)	(DEG. F)	(DEG. F)							
75	57.3	57.1	56.09	2.21	2.21	47	59	4	1033	152W	115	1	TRANE FCDB080	1

UM FAN SPEED.

REGIS	REGISTER GRILLE AND DIFFUSER SCHEDULE											
TYPE	APPLICATION	MATERIAL	FINISH	MANUFACTURER & MODEL NO.	REMA							
1	SUPPLY	STEEL	WHITE	TITUS TMS								

DETAIL NOTES:

A. UNIT HAS INTEGRAL CONTROL VALVE.

B. PIPING SHALL BE ROUTED DOWN THE WALL BEHIND THE UNIT.

4 PERCIVAL GROWTH CHAMBER UNIT PIPING DETAIL NOT TO SCALE

	BASIC MATERIALS AND METHODS		COMMUNICATIONS	F	OWER DISTRIBUTION AND CONTROL
	HOME RUN TO PANELBOARD. LETTERS/NUMBERS	DIDF	DATA INTERMEDIATE DISTRIBUTION FRAME	Т	TRANSFORMER
/ LP-404	NUMBER OF ARROWS EQUALS NUMBER OF CIRCUITS. CIRCUIT SHALL BE 20 AMP, 120 VOLT, 2 #12, 1 #12	DMDF	DATA MAIN DISTRIBUTION FRAME		208Y/120 VOLT PANELBOARD.
	CIRCUIT WIRING SIZE AND NUMBER TO MATCH HOMERUN. REFER TO SPEC'S FOR RACEWAY TYPE.	∇	EXISTING COMMUNICATIONS OUTLET		480Y/277 VOLT PANELBOARD.
	SOLID HALF ARROW(S) INDICATES 120 VOLT CIRCUIT TO SINGLE POLE CIRCUIT BREAKER(S), UNLESS NOTED	•	TEL/DATA DROP:		DISTRIBUTION PANELBOARD.
	OTHERWISE. SOLID FULL ARROW(S) INDICATES 208 VOLT CIRCUIT	Ť	4"x4"x2.50" BOX WITH A 1-GANG MUD RING & FACEPLATE WITH DUPLEX DESIGN. 1" CONDUIT EXTENDED TO NEAREST CABLE TRAY IN CORRIDOR	Ľ	DISCONNECT SWITCH
	TO MULTI-POLE CIRCUIT BREAKER, UNLESS NOTED OTHERWISE.		(UNLESS OTHERWISE NOTED) FOR DATA/VOICE. TERMINATE CONDUIT AT J HOOK IN CORRIDOR WITH CONDUIT BUSHING. PULL (4) CAT 6A CABLES, TERMINATE AT PATCH PANEL IN TRINDICATED ON	Ŋ	FUSED DISCONNECT SWITCH
	TO SINGLE POLE CIRCUIT BREAKER(S), UNLESS NOTED OTHERWISE.		PLANS.	Ř	COMBINATION FUSED DISCONNECT SWITCH AND MAGNETIC STARTER
	OPEN FULL ARROW(S) INDICATES 480 VOLT CIRCUIT TO MULTI-POLE CIRCUIT BREAKER, UNLESS NOTED OTHERWISE.	WAP	WAP - WIRELESS ACCESS POINT PENDANT MOUNT FROM CEILING 4"x4"x2.25" BOX WITH DOUBLE GANG PLASTER RING. 1" EMT CONDUIT EXTENDED TO NEAREST PULL BOX IN SERVICE CORRIDOR (UNLESS		MOTOR CONNECTION. REFER TO ELECTRICAL EQUIPMENT AND CONTROL SCHEDULE FOR SIZE
(E)	EXISTING TO REMAIN - INDICATES EXISTING ITEM SHALL REMAIN. MAINTAIN EXISTING ELECTRICAL CONNECTIONS UNLESS OTHERWISE NOTED.		OTHERWISE NOTED). PROVIDE TWO (2) CAT 6A CABLES. TERMINATE IN TR INDICATED ON PLANS AND 6-8" PIGTAIL WITHOUT FACEPLATE.		COMPLETE ELECTRICAL CONNECTION TO EQUIPMENT
(ER)	EXISTING TO BE RELOCATED - INDICATES EXISTING ITEM SHALL BE RELOCATED. DISCONNECT AND	P	POWER SURFACE RACEWAY WITH DEVICES AS INDICATED. WIREMOLD G3000. RACEWAY SHALL BE MOUNTED "OVER COUNTER" UNLESS OTHERWISE		LUMINAIRES
	REMOVE, REINSTALL AT NEW LOCATION AND RECONNECT ITEM AS REQUIRED. EXISTING ELECTRICAL WIRING, EQUIPMENT OR	EM	NOTED. TYPICAL EMERGENCY PHONE OUTLET LOCATION. PROVIDE 4"x4" BACKBOX WITH A SINGLE GANG	A d O	CEILING MOUNTED LUMINARIE. UPPERCASE LETTERS INDICATE FIXTURE TYPE ON LUMINAIRE SCHEDULE, LOWER CASE LETTER INDICATE LIGHTING ZONE
, ⁽¹¹)	OR RELOCATED		MUD RING AND (1) 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE. PROVIDE (1) CAT 6 CABLE TO BDF. COORDINATE FINAL LOCATION WITH THE OWNER PRIOR TO INSTALLATION.	₽ A [™] d ₽ ₽	WALL MOUNTED LUMINARIE. UPPERCASE LETTERS INDICATE FIXTURE TYPE ON LUMINAIRE SCHEDULE, LOWER CASE LETTER INDICATE LIGHTING ZONE
, ¥ , P	DEVICE, SOLID LIGHT IS EXISTING TO REMAIN HEAVY SOLID IS NEW	CR	CARD READER, REFER TO DETAIL		LUMINAIRE CONNECTED TO LIFE SAFETY EMERGENCY POWER
3	REFERENCE TO DRAWING NOTE		PROJECTOR - (1) DUPLEX AND (1) TEL/DATA DROP.	 	STRIP LUMINAIRE
3	REFERENCE TO DEMOLITION NOTE		ENCLOSED CABLE TRAY SIZE PER QUANTITY OF		WALL MOUNTED EMERGENCY LUMINAIRE WITH BATTERY PACK
J J	JUNCTION BOX		CABLES AND 50% FUTURE CAPACITY AT A MINIMUM.	i⊗	CEILING MOUNTED EXIT LUMINAIRE
	SPECIAL PURPOSE RECEPTACLE. PROVIDE PROPER VOLTAGE, CLASS, CURRENT RATING AND NEMA		FIRE ALARM	₩ Ø	WALL MOUNTED EXIT LUMINAIRE
•	CONFIGURATION AS REQUIRED BY BRANCH CIRCUIT AND/OR MATCH CAP ON EQUIPMENT BEING FURNISHED BY OTHERS. PROVIDE CORD AND CAP. SUBSCRIPTS	S	SMOKE DETECTOR		
	DUPLEX RECEPTACLE, 20 AMP, 125 VOLT	F	MANUAL PULL STATION		
ዋ	SUBSCRIPTS INDICATE TYPE: G - GROUND FAULT INTERUPT OC - OVER COUNTER	F	ALARM SIGNAL, SPEAKER AND STROBE, SHALL BE WHITE DEVICE		
	UC - UNDER THE COUNTER WP - WEATHER PROOF TP - TAMPER PROOF P - CEILING PROJECTOR MOUNT IN PROJECTOR	F	ALARM SIGNAL, STROBE, SHALL BE WHITE DEVICE		
	MOUNTING PLATE USB - INTEGRAL USB CHARGER RM - RADIATION MONITORING	Н	RATE-OF-RISE HEAT DETECTOR		
Ŷ	GFCI DUPLEX RECEPTACLE 20 AMP, 125 VOLT	RTS	REMOTE DUCT SMOKE DETECTOR TEST INDICATOR		
P	DUPLEX RECEPTACLE, CONNECT TO AN EMERGENCY CIRCUIT	(SD)	SMOKE DAMPER CONNECTION		
\$	QUAD RECEPTACLE 20 AMP, 125 VOLT	TS	TAMPER SWITCH CONNECTION		
	TOGGLE SWITCH, VOLTAGE AS INDICATED ON FIXTURE	FS	FLOW SWITCH CONNECTION		
S ³ _{a,b,c}	2 - TWO POLE SWITCH 3 - THREE WAY SWITCH 4 - FOUR WAY SWITCH	FACP	FIRE ALARM CONTROL PANEL		
	M - MONENTARY CONTACT K - KEY OPERATED a,b,c - SWITCHING DESIGNATIONS NUMBER OF	FAAP	FIRE ALARM ANNUNCIATION PANEL		
	LETTERS EQUALS NO. OF GANGED SWITCHES V - VACANCY SENSOR VD - VACANCY SENSOR, DIMMER SWITCH VDS - VACANCY SENSOR, DUAL SWITCHED WP - WEATHERPROOF				
	DIMMER - SHALL BE COMPATIBLE WITH FIXTURES PROVIDED.				
OS	CEILING MOUNTED OCCUPANCY SENSOR				
CR	CORD REEL. REFER TO DETAIL 4 ON SHEET E-300.				
CD	CORD DROP				

GENERAL NOTES: (APPLY TO ALL DRAWINGS): A. SLEEVE AND SEAL ALL WALL AND FLOOR PENETRATIONS. PROVIDE FIRESTOPPING FOR ALL FIRE-RATED PENETRATIONS. UTILIZE REMOVABLE FIRESTOPPING MATERIAL AT CABLE TRAY PENETRATIONS. PROVIDE ACOUSTICAL SEALANT FOR ALL NON RATED PENETRATIONS. ALL FIRE RATINGS SHALL BE MAINTAINED. B. MAINTAIN SERVICE CLEARANCES OF ALL EQUIPMENT. C. COORDINATE EXACT LOCATION OF ALL CONDUIT ROUTES, EQUIPMENT AND DEVICES WITH EXISTING CONDITIONS PRIOR TO CONSTRUCTION. D. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR POWER CIRCUITS UOI. E. PROVIDE NYLON PULLSTRING IN ALL EMPTY CONDUITS. F. FIRE ALARM SIGNALING APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80 INCHES AND NOT GREATER THAN 96 INCHES ABOVE THE FINISHED FLOOR. G. CIRCUITING TO DEVICES/EQUIPMENT SHALL BE 2-#12AWG & 1-#12EG (MULTIPLE HOME RUNS IN SAME CONDUIT MAY SHARE SAME EQUIPMENT GROUND) FOR EACH 20 AMPERE CIRCUIT UNLESS OTHERWISE NOTED. ALL CIRCUITS SHALL HAVE SEPARATE NEUTRALS (CIRCUITS SHALL NOT SHARE NEUTRALS). H. PROVIDE CONDUIT/WIRING (CIRCUITING) AND REQUIRED EQUIPMENT CONNECTIONS TO ALL DEVICES/EQUIPMENT. CONNECT TO CIRCUIT(S) AS INDICATED. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REFERENCE STANDARD EDITION OF NFPA CODES. AS CITED BY THE FIRE CODE OF NEW YORK STATE. BUILDING CODE OF NEW YORK STATE AND CORNELL UNIVERSITY DESIGN STANDARDS. J. ALL CONDUITS AND SUPPORTS SHALL BE AS TIGHT TO DECK AS POSSIBLE. K. PROVIDE PULLBOX FOR EVERY 180 DEGREE OF BENDS FOR TEL/DATA AND 360 DEGREES OF BENDS FOR POWER CONDUITS. ALL ELECTRICAL DEVICES (RECEPTACLES, SWITCHES, FIRE ALARM, ETC.) SHALL BE ALIGNED HORIZONTALLY AND VERTICALLY. CONTRACTOR TO SCHEDULE AND COORDINATE PROJECT WALKTHROUGH WITH ARCHITECT AND ENGINEER PRIOR TO COMMENCEMENT OF ANY DEVICE ROUGH-IN FOR FINALIZATION OF ALIGNMENTS. M. ALL EXISTING DEVICES CIRCUITED TO PANELS BEING RENAMED SHALL BE PROVIDED WITH UPDATED LABELS. N. PROVIDE ALL PATHWAYS AND BACK BOXES AS CALLED FOR ON AV DRAWINGS PROVIDED BY

- ANOTHER CONSULTANT.
- (607)255-5500. P. ALL OUTLETS WITHIN 6' OF SINK EDGE SHALL BE GFCI RATED.
- R. ALL DATA WORK MUST BE COORDINATED WITH CORNELL CIT.

GENERAL DEMOLITION NOTES: (APPLY TO ALL DRAWINGS):

- DEMOLITION AS A RESULT OF THE CONTRACTOR'S WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, AS MUCH AS POSSIBLE, SUBJECT TO THE OWNERS APPROVAL.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF EXISTING
- COORDINATE PHASING OF WORK WITH OWNER'S REPRESENTATIVE.
- NOTICE BEFORE WORK IS TO BE STARTED.
- EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS WHEN AVAILABLE AND ARE NOT GARAUNTEED, PRIOR TO SUBMITTING BID, VISIT DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
- DE-ENERGIZATION, REMOVAL AND BLANK-OFF BY THE CONTRACTOR.
- EXISTING FIRE ALARM SYSTEM SHALL BE KEPT OPERATIONAL DURING THE CONSTRUCTION PERIOD IN WRITING.
- PRIOR TO DEMOLITION.
- OR NOT SHOWN).
- OR REQUIRED TO BE REUSED, SHALL BE CUT OFF FLUSH WITH SLAB LEVEL WITH CONCRETE.
- RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA.
- BRANCH CIRCUIT WIRING TO DEVICES IN AREAS OF DEMOLITION SHALL BE DISCONNECTED, MADE SAFE OR NEW CONSTRUCTION.
- DISCONNECT AND REMOVE PANEL, FEEDERS AND BRANCH CIRCUITS BACK TO POINT OF SOURCE MAINTAIN THOSE CIRCUITS THAT EXTEND OUTSIDE OF THE SCOPE OF WORK.
- AFTER RENOVATING EXISTING ELECTRICAL WORK, THE CONTRACTOR SHALL INSURE THAT ALL REMAINING AND NEW EQUIPMENT WILL OPERATE PROPERLY.
- DURING CONSTRUCTION. COORDINATE WITH FIRE PROTECTION CONTRACTOR.
- REFER TO HVAC CONTRACT DRAWINGS AND SPECIFICATIONS FOR EXACT QUANTITIES AND LOCATIONS OF ALL HVAC EQUIPMENT BEING ABANDONED OR REMOVED, WHICH WILL REQUIRE DE-ENERGIZATION, REMOVAL AND BLANK-OFF BY THE CONTRACTOR.

0. COORDINATE IT SERVICE CHANGES OR DISRUPTIONS IN SERVICE WITH CIT OPERATIONS AT

Q. FLEX CONDUIT IS PROHIBITED FOR USE IN DATA APPLICATIONS WITHOUT WRITTEN PERMISSION FROM CORNELL CIT INFRASTRUCTURE ENGINEERS.

WHEN EXISTING CONSTRUCTION, WHICH IS TO REMAIN, IS DAMAGED DURING THE COURSE OF

CONSTRUCTION IN THE WAY OF NEW WORK. PROTECT BUILDING AND FURNISHINGS FROM DAMAGE.

COORDINATE ALL SHUTDOWNS WITH UNIVERSITY PRIOR TO DEMOLITION. ALL FIRE ALARM SHUTDOWNS SHALL BE SCHEDULED THROUGH CUSTOMER SERVICE WITH AT LEAST 24 HOURS

SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE DEMOLITION WORK. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS. THIS CONTRACTOR SHALL PARTICIPATE IN SURVEY OF THE EXISTING ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL DISCONNECT AND CAP ALL SERVICE LINES TO BE DISCONNECTED FOR THOSE SERVICES WHICH NORMALLY ARE INCLUDED IN HIS FIELD OF WORK. PARTICULAR CARE SHALL BE TAKEN TO AVOID CREATING HAZARD OR CAUSING DISRUPTION IN ADJOINING AREAS. NOT ALL

REFER TO PLUMBING CONTRACT DRAWINGS AND SPECIFICATIONS FOR EXACT QUANTITIES AND LOCATIONS OF ALL PLUMBING EQUIPMENT BEING ABANDONED OR REMOVED, WHICH WILL REQUIRE

THE BUILDING UNDER RENOVATION MAY BE DISCONNECTED FROM SERVICE DURING THE HOURS THE CONTRACTOR IS WORKING, AT THE DISCRETION OF THE FIRE DEPARTMENT AND THE OWNER'S REPRESENTATIVE, BUT MUST BE PLACED BACK ON LINE DURING OTHER PERIODS. APPROVAL TO BE

THE EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITHIN DEMOLITION AREA SHALL BE DEMOLISHED ALONG WITH ALL FEEDERS AND CONDUITS BACK TO POINT OF SOURCE UNLESS OTHERWISE NOTED. ALL ITEMS SHOWN ON THE DEMOLITION DRAWINGS SHALL BE DISCONNECTED AND REMOVED UNLESS NOTED OTHERWISE. WALLBOXES, BACKBOXES AND CONDUIT SHALL BE REUSED AS DETERMINED BY CONTRACTOR. ALL UNUSED CONDUITS SHALL BE REMOVED. DISCONNECT AND MAKE SAFE ANY EQUIPMENT TO BE REMOVED BY OTHERS. COORDINATE REMOVAL OF EQUIPMENT WITH OTHER TRADES

MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN

ALL EXISTING CONDUITS STUBBED THROUGH FLOOR SERVING ITEMS TO BE REMOVED AND NOT SHOWN IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND

DISCONNECT, MAKE SAFE AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE SPACE.

AND REMOVED COMPLETELY BACK TO THE PANELBOARD. THE CONTRATOR SHALL NOT ABANDON BRANCH CIRCUIT WIRING TO ANY AREAS WICH ARE TO REMAIN BUT ARE AFFECTED BY THE DEMOLITION

PRIOR TO THE START OF DEMOLITION, CONTRACTOR SHALL FIELD VERIFY ALL BRANCH CIRCUITS AND

PROVIDE TEMPORARY HEAT DETECTORS IN AREAS WHERE SPRINKLERS ARE REMOVED FROM SERVICE

ABBREV.DESCRIPTIONABBREV.DESCRIPTIONA.F.F.ABOVE FINISHED FLOORKW.KILOWATTA.F.G.ABOVE FINISHED GRADELTG.LIGHTINGA.AMPEREM.C.B.MAIN CIRCUIT BREAKERAUTO.AUTOMATICMI.O.MAIN LUG ONLYBSMT.BASEMENTMICROMICROWAVEBKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORP.C.PLUMBING CONTRACTOR		ABBREVIATIONS	A	BBREVIATIONS
A.F.F.ABOVE FINISHED FLOORKW.KILOWATTA.F.G.ABOVE FINISHED GRADELTG.LIGHTINGA.AMPEREM.C.B.MAIN CIRCUIT BREAKERAUTO.AUTOMATICM.L.O.MAIN LUG ONLYBSMT.BASEMENTMICROMICROWAVEBKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
A.F.G.ABOVE FINISHED GRADELTG.LIGHTINGA.AMPEREM.C.B.MAIN CIRCUIT BREAKERAUTO.AUTOMATICML.O.MAIN LUG ONLYBSMT.BASEMENTMICROMICROWAVEBKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	A.F.F.	ABOVE FINISHED FLOOR	KW.	KILOWATT
A.AMPEREM.C.B.MAIN CIRCUIT BREAKERAUTO.AUTOMATICM.L.O.MAIN LUG ONLYBSMT.BASEMENTMICROMICROWAVEBKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	A.F.G.	ABOVE FINISHED GRADE	LTG.	LIGHTING
AUTO.AUTOMATICM.L.O.MAIN LUG ONLYBSMT.BASEMENTMICROMICROWAVEBKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	A.	AMPERE	M.C.B.	MAIN CIRCUIT BREAKER
BSMT.BASEMENTMICROMICROWAVEBKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	AUTO.	AUTOMATIC	M.L.O.	MAIN LUG ONLY
BKR.BREAKERNLNIGHT LIGHTCLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	BSMT.	BASEMENT	MICRO	MICROWAVE
CLG.CEILINGPNL.PANELCONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	BKR.	BREAKER	NL	NIGHT LIGHT
CONTR.CONTRACTORPH.PHASECONT.CONTACTORP.C.PLUMBING CONTRACTOR	CLG.	CEILING	PNL.	PANEL
CONT.CONTACTORP.C.PLUMBING CONTRACTOR	CONTR.	CONTRACTOR	PH.	PHASE
	CONT.	CONTACTOR	P.C.	PLUMBING CONTRACTOR
C CAMERA, CONDUIT PV POWER VENTILATOR	С	CAMERA, CONDUIT	PV	POWER VENTILATOR
DP DISTRIBUTION PANEL P. POLE	DP	DISTRIBUTION PANEL	P.	POLE
DN. DOWN REFRIG. REFRIGERATOR	DN.	DOWN	REFRIG.	REFRIGERATOR
EA. EACH SP. SPACE	EA.	EACH	SP.	SPACE
E.C. ELECTRICAL CONTRACTOR SPEC. SPECIFICATION	E.C.	ELECTRICAL CONTRACTOR	SPEC.	SPECIFICATION
ELEC. ELECTRIC SW. SWITCH	ELEC.	ELECTRIC	SW.	SWITCH
EMERG. EMERGENCY TV TELEVISION	EMERG.	EMERGENCY	ΤV	TELEVISION
EM. EMERGENCY T.B.B. TELEPHONE BACKBOARD	EM.	EMERGENCY	T.B.B.	TELEPHONE BACKBOARD
EWC ELECTRIC WATER COOLER T.T.C. TELEPHONE TERMINAL CABINET	EWC	ELECTRIC WATER COOLER	T.T.C.	TELEPHONE TERMINAL CABINET
EXIST. EXISTING TYP. TYPICAL	EXIST.	EXISTING	TYP.	TYPICAL
F.A. FIRE ALARM TR TELECOM ROOM	F.A.	FIRE ALARM	TR	TELECOM ROOM
F.A.C.P. FIRE ALARM CONTROL PANEL U.L. UNDERWRITER'S LABORATORY	F.A.C.P.	FIRE ALARM CONTROL PANEL	U.L.	UNDERWRITER'S LABORATORY
F.A.T.C. FIRE ALARM TERMINAL CABINET V. VOLT	F.A.T.C.	FIRE ALARM TERMINAL CABINET	V.	VOLT
FCU FAN COIL UNIT WP WEATHERPROOF	FCU	FAN COIL UNIT	WP	WEATHERPROOF
FZ (3) FIRE ZONE (3) 4 W. WIRE	FZ (3)	FIRE ZONE (3)	4 W.	WIRE
GRS. GALVANIZED RIGID STEEL 3P.15A. P = POLE A = AMPERE	GRS.	GALVANIZED RIGID STEEL	3P.15A.	P = POLE A = AMPERE
GND. GROUND OC MOUNTED OVER COUNTER HEIGHT	GND.	GROUND	OC	MOUNTED OVER COUNTER HEIGHT
G.C. GENERAL CONTRACTOR UC MOUNTED UNDER COUNTER HEIGH	G.C.	GENERAL CONTRACTOR	UC	MOUNTED UNDER COUNTER HEIGHT
GEN. GENERATOR UV UNIT VENTILATOR	GEN.	GENERATOR	UV	UNIT VENTILATOR
G.F.C.I. GROUND FAULT CIRCUIT INTERRUPTER WG WIRE GUARD	G.F.C.I.	GROUND FAULT CIRCUIT INTERRUPTER	WG	WIRE GUARD
H.V.A.C. HEATING, VENTILATING AND AIR CONDITIONING EHP FRACTIONAL HORSEPOWER	H.V.A.C.	HEATING, VENTILATING AND AIR CONDITIONING	EHP	FRACTIONAL HORSEPOWER
HP. HORSEPOWER	HP	HORSEPOWER	EF	EXHAUST FAN
CUH CABINET UNIT HEATER	• • •		CUH	CABINET UNIT HEATER

2 SUB-BASEMENT FLOOR NEW WORK PLAN - POWER & SPECIAL SYSTEMS

GENERAL NOTES:

A. WORK IN MECHANICAL SPACE: THIS IS A TWO-STORY SPACE WITH LIMITED AVAILABLE SPACE AND CONGESTED WITH DUCTWORK AND PIPING. BIDDERS TO VERIFY IN-FIELD CONDITIONS AND ROUTING PRIOR TO BIDDING.

DRAWING NOTES:

1. PANELBOARD FEEDING NEW PUMPS. COORDINATE WITH OTHER TRADES FOR CONDUIT ROUTING TO PUMPS

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Drawn By: Checked By: Project Manager:

IJC ECS GDD

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Bradfield Hall G12 Growth Chamber Installation 306 Tower Road Ithaca, NY 14850 SWBR Project Number 23179.00

Cornell University Ithaca, NY

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E-100 BASEMENT AND SUB-BASEMENT FLOOR PLANS -ELECTRICAL

GENERAL NOTES:

- A. ALL NEW COMPONENTS TO BE CIRCUITED TO NEW PANELBOARD AP-GD, UNLESS OTHERWISE NOTED.
- B. ALL NEW DEVICES TO BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
- C. ALL NEW DATA DROPS TO BE RUN BACK TO MTR-GA VIA EXISTING 4" CONDUITS.

DRAWING NOTES:

- 1. SPECIAL RECEPTACLE FOR PERCIVAL GROWTH CHAMBER. PROVIDE (4) #10 AWG & (1) #10 EG IN 3/4" CONDUIT TO DEDICATED 30A, 3-POLE CIRCUIT BREAKER. PROVIDE L21-30R RECEPTACLE IN SURFACE-MOUNT BOX. PROVIDE 10-5 SOOW CORD, STRAIN RELIEF CORD GRIP, AND L21-30P FOR OWNER-FURNISHED GROWTH CHAMBER. COORDINATE FINAL CORD LENGTHS WITH OWNER.
- NEW PANELBOARD AP-GD TO BE INSTALLED IN SAME LOCATION AS EXISTING-TO-BE-REMOVED PANEL.
- 3. NEW 4-PORT DATA DROP. MOUNT ABOVE SURFACE RACEWAY.
- 4. REUSE EXISTING BACK BOX FOR NEW LIGHTING CONTROLS. IF THE EXISTING BACK BOX IS NOT SALVAGABLE, PROVIDE NEW SURFACE MOUNT INSTALLATION OF DEVICES.
- 5. NEW HORN STROBE LOCATION. REWORK AND EXTEND EXISTING CIRCUITRY TO NEW SURFACE-MOUNT LOCATION ABOVE DOOR. 6. LEAVE 1'-0" SPACE BETWEEN LIGHT FIXTURES FOR ELECTRICAL, MECHANICAL,
- PLUMBING, AND OTHER DEVICES. 7. DUPLEX RECEPTACLE FOR CORNELL GROWTH CHAMBER. PROVIDE (2) #12 AWG &
- (1) #12 EG IN 3/4" CONDUIT TO DEDICATED 20A, 1-POLE CIRCUIT BREAKER. PROVIDE DUPLEX RECEPTACLE IN SURFACE-MOUNT BOX. REWORK AND EXTEND EXISTING LIGHTING CIRCUIT(S) SALVAGED FROM 8
- DEMOLITION PHASE FOR NEW LIGHT FIXTURES AND LIGHTING CONTROLS. PROVIDE AN EQUIPMENT GROUND CONDUCTOR FROM THE FEEDER PANEL IF NO EQUIPMENT GROUND CONDUCTOR IS PRESENT IN THE EXISTING CIRCUITRY.
- 9. MOUNT NEW EMERGENCY LIGHT FIXTURE ON FACE OF CONCRETE BEAM. COORDINATE FINAL LOCATION WITH OTHER SERVICES. CIRCUIT TO LIGHTING CIRCUIT SALVAGED FROM DEMOLITION PHASE AHEAD OF ALL CONTROLS. 10. WIRELESS ACCESS POINT TO BE PENDANT-MOUNTED AT PLANE OF LIGHT FIXTURES.
- 11. OCCUPANCY SENSOR TO BE PENDANT MOUNTED AT PLANE OF LIGHT FIXTURES. COORDINATE SENSOR LOCATION WITH OTHER SERVICES IN-BETWEEN CEILING BEAMS.

GENERAL DEMOLITION NOTES:

- A. ALL EXISTING IN-WALL RECESSED RECEPTACLES IN ROOM G12 TO BE DEMOLISHED. ALL EXISTING RECEPTACLES IN SURFACE RACEWAY IN ROOM G12 TO BE DEMOLISHED. EXISTING WIREMOLD 3000-SERIES RACEWAY TO REMAIN FOR REUSE IN NEW WORK UNLESS OTHERWISE NOTED. PROVIDE NEW COVERS ON EXISTING RACEWAY.
- C. ALL DATA LOCATIONS IN ROOM G12 TO BE DEMOLISHED BACK TO SOURCE TR. REFER TO E-200 DETAIL 3 FOR TR LOCATION. EXISTING PATHWAYS TO ROOM TO BE SALVAGED FOR NEW DATA DROPS.
- D. ALL EXISTING LIGHT FIXTURES AND LIGHTING CONTROLS TO BE DEMOLISHED.

DEMOLITION NOTES:

- 1. EXISTING PANELBOARD TO BE DEMOLISHED AND REPLACED IN NEW WORK PHASE. EXISTING FEEDER TO BE DEMOLISHED TO SOURCE DP-GA. ANY EXISTING TO REMAIN CIRCUITS ARE TO BE REFED FROM NEW PANELBOARD.
- 2. DEMOLISH CEILING-AREA SUSPENDED RECEPTACLES.
- 3. HORN STROBE TO BE RELOCATED. REFER TO NEW WORK PLANS.
- 4. REMOVE SECTION OF SURFACE RACEWAY. REWORK RACEWAY FEED AS NEEDED. 5. SALVAGE EXISTING LIGHTING CIRCUIT(S) FOR REUSE IN NEW WORK PHASE. REFER TO NEW WORK DRAWING FOR GROUNDING REQUIREMENTS.

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Drawn By: Checked By: Project Manager:

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			FA	4(
<u>FI</u>	RE ALARM NOTES:			
А. В.	ALL WIRING SHALL BE CLASS A FOR INITIATING CIRCUIT AND CLASS A FOR NOTIFICATION CIRCUITS. REFER TO SECTION 283102 OF THE SPECIFICATION FOR ADDITIONAL FIRE ALARM SYSTEM REQUIREMENTS.			
C.	ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUITRY REQUIREMENTS SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND ALL CODES THAT MAY APPLY.		F	FCI F3
D.	CABLING MUST BE UNIQUELY IDENTIFIED AND LABELED, AND A PERMANENT, ACCURATE RECORD OF THE IDENTIFICATION AND USE OF EACH ABLE MUST BE MADE AT THE TIME OF INSTALLATION. LABELING IS TO BE DONE WITH PERMANENT MARKERS ON CLEAR MYLAR TAPE. THE TAPE SHALL BE LONG ENOUGH SO WHEN WRAPPED ROUND THE CABLE IT WILL WRAP OVER ITSELF, PROTECTING THE WRITING.	<u>}_₽</u>		LU
E.	FACP AND OTHER PANELS SHALL BE MOUNTED WITH CLEARANCES FOR OBSERVATION AND TESTING. ALL OTHER FIRE ALARM JUNCTION BOXES SHALL BE MARKED FOR IDENTIFICATION.	1" C.	BATT	ΓEF
F.	PROVIDE 120V, 20A DEDICATED BRANCH CIRCUITS FROM THE LOCAL AREA PANELBOARD TO CONTROL PANELS, TERMINAL CABINETS, ETC. AS REQUIRED. THE CIRCUIT BREAKER SHALL BE CLEARLY MARKED "FIRE ALARM CIRCUIT CONTROL" IN THE PANELBOARD DIRECTORY. PROVIDE CIRCUIT BREAKER LOCKS ON ALL BREAKERS ASSOCIATED WITH FIRE ALARM EQUIPMENT.	IO BDF	B00UG	
G.	SPACE DETECTORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED DISTANCE. PROVIDE ADDITIONAL DETECTORS WHERE REQUIRED.			
H.	ALL LOW VOLTAGE FIRE ALARM CIRCUITS MAY OCCUPY A COMMON CONDUIT. RUN AC POWER AND CONTROL WIRING (FAN SHUTDOWN, ETC.) IN SEPARATE CONDUIT. DO NOT RUN WITH ANY OTHER FIRE ALARM SYSTEM WIRING IN A COMMON CONDUIT.			
I.	ALL CONDUIT, MOUNTING BOXES AND PANELS SHALL BE HUNG AND FASTENED WITH FITTINGS TO ENSURE POSITIVE GROUNDING THROUGHOUT THE ENTIRE SYSTEM.			
J.	TRANSPOSING OR CHANGING COLOR CODING OF WIRES IS NOT PERMITTED. ALL CONDUCTORS IN CONDUIT CONTAINING MORE THAN ONE WIRE SHALL BE LABELED ON EACH END WITH "E-Z MARKERS".			
K.	CONDUCTORS IN CABINETS SHALL BE FORMED AND HARNESSED SO THAT EACH DROPS OFF DIRECTLY OPPOSITE ITS TERMINAL.			
L.	ALL WIRING SHALL BE CHECKED AND TESTED TO ENSURE THAT THERE ARE NO GROUNDS, OPENS, OR SHORTS.			
M.	WIRING COLOR CODES SHALL BE CONSISTENT THROUGHOUT THE SYSTEM AND SHALL ALLOW FOR EASY IDENTIFICATION OF INITIATING, INDICATING AND AUXILIARY CONTROL CIRCUITS.	4 FIRE	E ALARM ONE LI	Ν
N.	THE FIRE ALARM RISER DENOTES THE GENERAL ARRANGEMENT OF THE SYSTEM WITH TYPICAL DEVICES AND MINIMUM QUANTITIES OF TERMINAL CABINETS & POWER BOOSTERS. PROVIDE ADDITIONAL TERMINAL CABINETS, BOOSTERS, ETC. AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.	NI3		
Ο.	ALL FIRE ALARM SYSTEM JUNCTION BOXES SHALL BE PAINTED RED WITH STENCIL LETTERING INDICATING "FIRE ALARM SYSTEM".			
P.	WIRING INDICATED ON THE RISER DIAGRAM IS DIAGRAMMATIC ONLY. IT IS NOT INTENDED TO INDICATE ROUTING OR QUANTITY OF WIRES REQUIRED. PROVIDE WIRING FOR A COMPLETE SYSTEM AS REQUIRED BY SYSTEM MANUFACTURER.			
Q.	REFER TO FLOOR PLANS FOR EQUIPMENT LOCATIONS.			
R.	FIRE PUMP FAULT AND FIRE PUMP POWER LOSS.			
S.	ALL FIRE ALARM WIRING SHALL BE INSTALLED IN RED 3/4" EMT CONDUIT.			
1.	283100.		LEP-LS-SB01 CIR #12	
U. V.	PROVIDE CO DETECTION AND ASSOCIATED NOTIFICATION AS PER NYS BUILDING CODE. BATTERIES SHALL BE FOR 60 HOURS OF USAGE.			
<u>FI</u> 1.	RE ALARM NOTES: MANUAL FIRE ALARM BOXES: MOUNTING HEIGHT 42-48 INCHES TO HANDLE. LOCATE NO MORE THAN 5 FEET FROM THE ENTRANCE TO AN EXIT. LOCATE ON THE LATCH SIDE OF DOOR, IF POSSIBLE. BOXES			
2.	ARE TO BE CONSPICUOUS, UNOBSTRUCTED, AND ACCESSIBLE. SPOT TYPE HEAT AND SMOKE DETECTORS: FOR SMOOTH CEILINGS, ALL POINTS ON THE CEILING SHALL HAVE A DETECTOR WITHIN 0.7 TIMES THE DETECTOR SPACING. SPACING IS 30 FEET FOR SMOKE DETECTORS AND 50 FEET FOR HEAT DETECTORS. PROVIDE A SPACING OF 3 FEET OR MORE FROM SUPPLY AND RETURN DIFFUSERS. COORDINATE TRADES BY MEANS OF THE REFLECTED CEILING PLAN. (IF DESIGN CONDITIONS OTHER THAN SMOOTH CEILINGS OR CEILING HEIGHTS OVER 12 FEET ARE ENCOUNTERED, SHOW CONDITIONS AND GIVE REASONS FOR COVERAGE DESIGN.)	۲. ۹		
3.	DOOR RELEASE: SMOKE DETECTION PROVIDING AREA COVERAGE ON EITHER SIDE OF THE DOORS MAY BE USED FOR DOOR RELEASE. SMOKE DETECTORS, WHICH ARE PROVIDED FOR DOOR RELEASE ONLY, SHALL BE ON THE CENTERLINE OF DOORWAY AND NOT MORE THAN 5 FEET FROM DOOR.	└── 1 T	" C. "O BDF B00UG	
4.	VISUAL AND COMBINATION AUDIBLE/VISUAL NOTIFICATION APPLIANCES: THE ENTIRE LENS SHALL BE WITHIN 80 INCHES-96 INCHES ABOVE THE FLOOR. DEPENDING ON CEILING HEIGHT, HIGHER MOUNTING IS PREFERRED. VISIBLE APPLIANCES SHALL BE LOCATED NOT MORE THAN 15 FEET FROM END OF THE CORRIDOR, WITH A SEPARATION NOT GREATER THAN 100 FEET BETWEEN APPLIANCES IN CORRIDORS. LOCATE AN APPLIANCE OPPOSITE EACH ACCESS DOOR TO AN EXIT STAIR SO THAT IT WILL BE VISIBLE TO PERSONS ENTERING THE FLOOR FROM THE EXIT STAIR.			
5.	AUDIBLE NOTIFICATION APPLIANCES: TOP OF DEVICE NOT LESS THAN 90 INCHES ABOVE FLOOR OR NOT LESS THAN 6 INCHES BELOW CEILING.			
6.	FIRE ALARM CONTROL PANELS, ANNUNCIATOR PANELS, WARDEN STATIONS, ETC.: MOUNT IN ACCESSIBLE LOCATION APPROXIMATELY 5 FEET IN HEIGHT TO PANEL DISPLAY READOUT. ALL PANELS SHALL HAVE 36 INCHES OF WORKING CLEARANCE IN FRONT OF PANEL.			
7.	REMOTE TEST STATIONS FOR DUCT DETECTORS AND BEAM DETECTORS: MOUNT APPROXIMATELY 5 FEET HIGH IN AN ACCESSIBLE AND CONSPICUOUS LOCATION.			
8.	ADDRESSABLE CONTROL DEVICES SHALL BE LOCATED WITHIN 3 FEET OF THE CONTROLLED DEVICE, SUCH AS VENTILATION FAN OR ELEVATOR CONTROLLER. ADDRESSABLE MONITOR DEVICES SHALL BE LOCATED ADJACENT TO MONITORED DEVICE.			
		3 FIRE NTS	E ALARM ONE LI	<u>N</u>

CIR #12

GENERAL NOTES:

- A. REFER TO SHEET E-101 FOR ROOM AND PANELBOARD LOCATIONS.
- B. REFER TO SHEET E-300 DETAIL 3 FOR COPPER FEEDER SCHEDULES. C. COORDINATE ALL SHUTDOWNS WITH OWNER.

DEMOLITION NOTES:

- 1. EXISTING PANELBOARD TO BE DEMOLISHED.
- 2. DEMOLISH FEEDER BACK TO EXISTING DISTRIBUTION PANELBOARD AP-GA.
- 3. DEMOLISH SECTION OF FEEDER FROM AP-GD TO AP-GE REQUIRED TO REWORK AND EXTEND TO NEW PANELBOARD SUBFEED LUGS.

DRAWING NOTES:

- 1. INSTALL NEW PANELBOARD IN PLACE OF DEMOLISHED PANEL.
- PROVIDE NEW GROUND BAR (IF NONE EXISTING) IN EXISTING DISTRIBUTION PANELBOARD. PROVIDE SPLIT GROUNDING BUSHING WITH LUG ON EXISTING FEEDER CONDUIT AND (1) #2 CU TO NEW 15-SPACE MINIMUM GROUND BAR. MATCH EXISTING PANELBOARD MANUFACTURER IF AVAILABLE. IF NO EXISTING GROUND BAR MOUNTING POINTS ARE AVAILABLE, PROVIDE MINIMUM (2) #10-24 TAPS IN EXISTING ENCLOSURE TO SECURE GROUND BAR. SELF-TAPPING SCREWS ARE NOT ACCEPTABLE.
- PROVIDE NEW GROUND BAR (IF NONE EXISTING) IN EXISTING LIGHTING PANELBOARD. PROVIDE SPLIT GROUNDING BUSHING WITH LUG ON EXISTING FEEDER CONDUIT AND (1) #6 CU TO NEW 12-SPACE MINIMUM GROUND BAR. MATCH EXISTING PANELBOARD MANUFACTURER IF AVAILABLE. IF NO EXISTING GROUND BAR MOUNTING POINTS ARE AVAILABLE, PROVIDE MINIMUM (2) #10-24 TAPS IN EXISTING ENCLOSURE TO SECURE GROUND BAR. SELF-TAPPING SCREWS ÀRE NOT ACCEPTABLE.
- 4. REWORK AND EXTEND FEEDER FROM SUB FEED LUGS IN NEW PANELBOARD TO FEED EXISTING PANELBOARD AP-GE.
- 5. ENSURE REWORK AND CONDUIT EXTENSION PROVIDES A CONTINUOUS GROUND PATH FOR EXISTING FEEDER.

Documents

GENERAL NOTES:

A. COORDINATE ALL SHUTDOWNS WITH OWNER.

DEMOLITION NOTES:

1. DEMOLISH EXISTING DATA DROPS TO SOURCE BDF. SALVAGE PATHWAYS INTO ROOM AS FEASIBLE FOR EXTENSION TO NEW DATA LOCATIONS.

DRAWING NOTES:

1. NEW DATA LOCATION. USE EXISTING PATHWAYS TO PULLBOX IN SERVICE CORRIDOR G00UA AS FEASIBLE. REFER TO FLOOR PLANS FOR DROP LOCATIONS.

COPPER FEEDER SCHEDULE

B. MINIMUM EMT CONDUIT SIZE IS BASED ON 40% FILL. C. A 3-WIRE FEEDER IS (3) PHASE CONDUCTORS WHEN PROTECTED BY A 3-POLE OCPD. A 3-WIRE FEEDER IS (2) PHASE CONDUCTORS AND (1) NEUTRAL CONDUCTOR WHEN PROTECTED BY A 2-POLE OCPD. A 4-WIRE FEEDER IS (3) PHASE CONDUCTORS & (1) NEUTRAL CONDUCTOR. A 5-WIRE FEEDER IS (3) PHASE CONDUCTORS & (2) NEUTRAL CONDUCTORS.

A. WHERE MULTIPLE SETS ARE SPECIFIED, PROVIDE PHASE, NEUTRAL (IF REQUIRED), AND EGC OF WIRE SIZE INDICATED IN EACH CONDUIT. CONDUCTORS AND CONDUITS SHALL BE EQUAL IN LENGTH AND EACH BE OF SAME MANUFACTURER.

IF	3-WI MENT GRC	RE FEEDE OUNDING C	R AND ONDUCTO	DR (EGC)	EQUIF	4-WI PMENT GRC	RE FEEDE OUNDING C	R AND ONDUCTO	OR (EGC)
	NUMBER OF SETS	WIRE SIZE	EGC	EMT CONDUIT	IDENT.	NUMBER OF SETS	WIRE SIZE	EGC	EMT CONDUIT
	1	12	12	3/4"	А	1	12	12	3/4"
	1	10	10	3/4"	В	1	10	10	3/4"
	1	8	10	3/4"	С	1	8	10	3/4"
	1	6	10	3/4"	D	1	8	10	3/4"
	1	6	10	3/4"	Е	1	6	10	1"
	1	4	8	1"	F	1	4	8	1 1/4"
	1	3	8	1"	G	1	3	8	1 1/4"
	1	2	8	1 1/4"	Н	1	3	8	1 1/4"
	1	2	6	1 1/4"	Ι	1	2	6	1 1/4"
	1	2	6	1 1/4"	J	1	1	6	1 1/2"
	1	1/0	6	1 1/2"	К	1	1/0	6	1 1/2"
	1	2/0	6	1 1/2"	L	1	2/0	6	2"
	1	3/0	6	2"	М	1	3/0	6	2"
	1	4/0	4	2"	Ν	1	4/0	4	2 1/2"
	1	4/0	4	2"	0	1	250	4	2 1/2"
	1	300	4	2 1/2"	Р	1	350	4	2 1/2"
	1	400	3	2 1/2"	Q	1	500	3	3"
	1	500	3	2 1/2"	R	1	600	3	3 1/2"
	1	600	2	3"	S	2	4/0	2	2 1/2"
	2	4/0	2	2"	Т	2	250	2	2 1/2"
	2	300	1	2 1/2"	U	2	350	1	2 1/2"
	2	400	1/0	2 1/2"	V	2	400	1/0	3"
	2	600	1/0	2 1/2"	W	2	600	1/0	4"
	3	400	2/0	2 1/2"	Х	3	500	2/0	3"
	3	600	3/0	3"	Y	4	400	3/0	3"
	4	600	4/0	3"	Z	5	500	4/0	3"
	5	600	250	3"	AA	6	500	250	3"
	6	600	350	3"	BB	7	600	350	4"
	8	500	400	3"	CC	8	600	400	4"
	10	600	500	3"	DD	11	600	500	4"
	12	600	700	4"	EE	14	600	700	4"
1	15	15 600 800			FF	16	600	800	4"

COPPER FEEDER SIZE SCHEDULE (600V)

POWER SOURCE: "INSERT SOURCE" TYPE SUPPLY: INSERT-NORMAL, OR CRITICAL OPERATION POWER, OR OPTIONAL STANDBY, OR LEGALLY REQUIRED, OR LIFE SAFETY EMERGENCY AS APPLICABLE" VOLTAGE: "INSERT APPLICABLE VOLTAGE-208/120V OR 480/277V, ETC." CONDUCTOR COLOR CODING: PHASE A - "BLACK OR BROWN" PHASE B - "RED OR ORANGE" PHASE C - "BLUE OR YELLOW" NEUTRAL - "WHITE OR GRAY" GROUND - GREEN AVAILABLE SHORT CIRCUIT CURRENT: "INSERT AMPS RMS" SERVICE OCPD CLEARING TIME: XX SECONDS "INFORMATION DATE: XX" DETAIL NOTES: 1. PROVIDE CUSTOM NAMEPLATE AS INDICATED FOR ALL PANELBOARDS, MCC'S, SWITCHBOARDS, SWITCHGEAR, TRANSFER SWITCHES, GENERATORS ETC. NAMEPLATE SHALL BE ENGRAVED (WHITE LETTERING, BLACK BACKGROUND) AND 2 ATTACHED TO THE EQUIPMENT WITH SCREWS. LETTERING SHALL BE 1/4" HIGH WITH SPACE BETWEEN LINES 1/8" MINIMUM. MINIMUM SHALL BE 8"H x 8"W.

THE SERVICE ENTRANCE IF GREATER THAN OR EQUAL TO 1200A.

3. PROVIDE SAMPLE NAMEPLATE FOR REVIEW.

2 EQUIPMENT NAMEPLATE DETAIL

4.

EQUIPMENT: "INSERT DESIGNATION"

6 PATHWAY GROUNDING / NTS

PATHWAY CONDUITS

GROUNDING BUSHINGS (TYP.) - #6AWG CU UNLESS OTHERWISE NOTED

IT OUTLET LABEL (TYPE I)

ASSIGNING OUTLET NUMBERS

5

/ NTS

													AU B ECB F HOA	AT UNIT ASD WIT ENCLOS FUSED HAND-O	H BYPASS ED CIRCU FF-AUTO V	S IT BREAK VITH REL	I FR N I AY F	ABBRE	VIATIONS EGRAL WIT ILTIPLE MO N-FUSED D WITH REE MOTE	H UNIT FOR ASD DUNDANT	ASD				A. B. C.	REFER REQUIR PROVID LOCATI DETECT	GE TO SPEC REMENTS DE CONTI ONS/QUA TORS AR	ENERAL N CIFICATIO S ROLLER S ANTITIES E SHOWN	IOTES NS FOR E SIZED PER OF FIRE A I ON PLAN	QUIPMENT HP/AMPS. LARM DUCT IS
	EQUIPMENT POWER SOURCE, PROTECTION & WIRING										G			мотс	OR CONTR	ROLLER				DISCO		G MEAN	IS		CONNE	CTIONS		E	QUIPMENT	
ITEM ID	NAME	ROOM LOCATION	HP	ĸw	AMPERAGE	PHASE	VOLTAGE	SOURCE	OCPD RATING	WIRING EC DISCO PHASE	FROM SOL QUIPMENT ONTROLLE NNECTING	JRCE TO VIA R / MEANS CONDUIT	MANUAL MOTOR STARTER WITH RELAY	MAGNETIC MOTOR STARTER	COMBINATION MAGNETIC STARTER AND SAFETY SWITCH	ADJUSTABLE SPEED DRIVE DACKAGED CONTDOI		NEMA ENCLOSURE TYPE	NEMA STARTER SIZE LOCATION	SAFETY SWITCH	SAFETY SWITCH AMPERE RATING	FUSE/CB AMPERE RATING	NEMA ENCLOSURE TYPE	LOCATION	FIRE ALARM SHUTDOWN	FIRE ALARM DUCT DETECTOR(S)	MOTORIZED DAMPER	LINE VOLTAGE TEMPERATURE CONTROL	REFERENCE NOTES	ITEM ID
FCU-1	FAN COIL UNIT	G12		0.152	1.3	1	120	AP-GD	20/1	2#12	1#12	3/4"C	Х					1	AU	Y	30	NF	1	AU						FCU-1
CWP-1	CHILLED WATER PUMP	B00UG	2		7.5	3	208	LNP-SB01	20/3	3#12	1#12	3/4"C					X		IU	Y	30	NF	1	AU					1	CWP-1
HWP-1	HOT WATER PUMP	B00UG	2		7.5	3	208	LNP-SB01	20/3	3#12	1#12	3/4"C					X		IU	Y	30	NF	1	AU					1	HWP-1
												F																		

REFERENCE NOTES

1 PROVIDE CIRCUIT BREAKER TO MATCH EXISTING PANELBOARD MANUFACTURER AND RATING. TURN OVER ANY SPARE BREAKERS REMOVED TO OWNER.

								PAN	ELB	OAR	D SC	HED	ULE	Ξ								
		Ϋ́	YPE	<u> </u>			<u> </u>	1	MAIN AM	PERE RAT	ING	j					BRANCH	CIRCUIT DEVI	CES			
PANEL INFO	RMATION		RRANCU	VO	TAGE RAT	ΓING	BUS			THRU	SUB	KAIC	МО	UNT							TOTAL NO.	
NAME R	ROOM LOCATION	DIST.	CIR.				RATING	MLO	МСВ	FEED LUGS	FEED LUGS	SYM)				QUANTIT		SWITCH SIZE	SIZE-FU	POLES	CIRCUITS	
				VOLT	PHASE	WIRE							F	S	ACTIVE	SPARE	SPACE					
															17	31			20A	1		
															3	1			30A	3		
AP-GD	G00UA		X	208/120	3	4			100A		X	22k		X							60	1
										END OF S	CHEDULE											

REFERENCE NOTES 1 REFER TO ONE-LINE DIAGRAM FOR SUB FEED LUG WIRING.

TYPE	ſ									
L1	NARROW LINI									
EM1	EMERGENCY									

1. FINISH PER ARCHITECT.

LUMINAIRE SCHEDULE

DESCRIPTION	MFR. & CATALOG No.	OUTPUT LUMENS	COLOR	VOLTAGE	MOUNTING	UNIT WATTS	REMARKS				
NARROW LINEAR PENDANT LIGHT	DESIGN MAKE: FINELITE HPX HP-X-P-D-X-H-935-F-120-SC-FC-10%	3120	3500K	120V	PENDANT	26W	1,2				
EMERGENCY WALL PACK	BARRON EXITRONIX: LED-52 SERIES	-	-	120V	WALL	3W	1				
END OF SCHEDULE											

REFERENCE NOTES

2. LENGTHS PER DRAWINGS.

CABLE SCHEDULE												
MLC	RLC	PORT	TR	RACK/ CABINET	PATCH PANEL	PORT	CIT LABEL	NOTE				
G12	А	1	MTR-GA	RACK B	С	35	G12-A1	1				
G12	А	2	MTR-GA	RACK B	С	36	G12-A2	1				
G12	A	3	MTR-GA	RACK B	С	37	G12-A3	1				
G12	A	4	MTR-GA	RACK B	С	38	G12-A4	1				
G12	В	1	MTR-GA	RACK B	С	39	G12-B1	1				
G12	В	2	MTR-GA	RACK B	С	40	G12-B2	1				
G12	В	3	MTR-GA	RACK B	С	41	G12-B3	1				
G12	В	4	MTR-GA	RACK B	С	42	G12-B4	1				
G12	С	1	MTR-GA	RACK B	С	43	G12-C1	2, 3				
G12	С	2	MTR-GA	RACK B	С	44	G12-C2	2, 3				
	END OF SCHEDULE											

REFERENCE NOTES

A. ALL NEW DATA DROPS TO BE RUN BACK TO MTR-GA VIA EXISTING 4" CONDUITS.

1. USE PATCH PANEL PORT MADE SPARE DURING DEMOLITION. PROVIDE NEW CONNECTOR. RELABEL PATCH PANEL AS NEEDED.

2. USE OPEN PATCH PANEL PORT IN THE EXISTING PATCH PANEL. PROVIDE NEW CONNECTOR. RELABEL PATCH PANEL AS NEEDED.

3. WIRELESS ACCESS POINT.

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