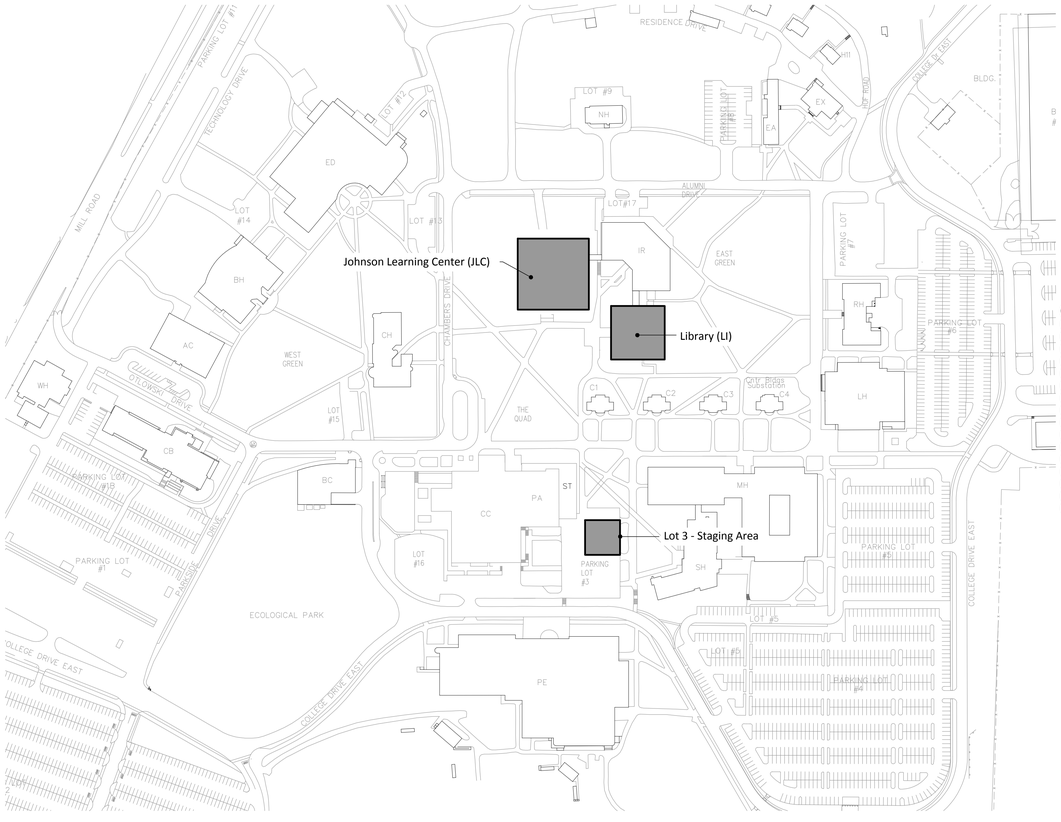
Middlesex County College

Sprinkler Upgrade

Middlesex County College
2600 Woodbridge Avenue
Edison, NJ 08818

CAMPUS OVERVIEW (SCALE: 0'-1" = 150'-0")



APPLICABLE CODES AND STANDARDS

The Entire Installation Shall Comply With All Local And State Codes, Including Amendments To Said Codes, And Other Authorities Having Jurisdiction.

1. International Building Code 2015, NJ Edition
2. International Fire Code 2015
3. National Electrical Code (NFPA 70) 2014 Edition
4. National Fire Protection Association (NFPA) 13-2013

PROJECT OVERVIEW

1. Project Mission Statement:
   A. Retrofit Automatic Sprinkler Systems Into Three Existing Buildings On Campus With Minimal Disruption To Middlesex County College Personnel And The Events Scheduled At Each Facility. The Work Should Be Performed In A Safe Manner While Meeting All MCC Requirements. Upon Completion, All Upgrades Will Function Properly And Safely As Designed.
2. Project Description:
   A. The Project Consists Of Installing Automatic Sprinkler Systems Throughout Three Buildings To Satisfy The Requirements Of Violations Received By The College And Provide Life Safety Provisions For The Campus Occupants.
3. Scope:
   A. The Following Is A Brief Scope Of The Work For This Project (Not Intended To Be All Inclusive):
      1) Systems To Be Modified And / Or Extended:
         Fire Alarm Systems
         Electrical Power
         Incoming Fire Service
         HVAC (Library Only)
         Lighting (Library Only)
      2) New Systems To Be Constructed:
         New Sprinkler Systems For 3 Buildings.
      3) Provide Code Required Backflow Prevention For Each Site Shall Be Provided Under This Phase.
      4) Ceiling Upgrades Will Be Required In All Buildings.
         Johnson Learning Center - New Drop Ceiling In Clerestory And Replacement Of Existing Tiles That Are Worn Out As Specified On Plans.
         Library - Replace Existing Ceiling With New As Specified In Plan.
      5) Lighting Upgrades Will Be Performed In The Library Where Ceiling Replacement Is Specified To Match The New Ceiling Grid And Meet The Current Energy Code.
      6) HVAC Upgrades Will Be Performed In The Library Where Ceiling Replacement Is Specified To Match The New Ceiling Grid.
4. Objectives:
   A. To Provide A Sprinkler System And Update Fire Alarm In The Following Buildings:
      Library
      Johnson Learning Center
   B. Provide HVAC And Lighting Updates In The Library To Match The New Drop Ceiling Grid.
   C. The Intent To Keep These Building As Operational As Practical During The Construction. As A Result Timing And Phasing Of The Construction Will Be High Priority During Construction Planning And Contractor Selection.
   D. The Project Must Be Completed On Time.
   E. The Work Must Be Scheduled & Adjusted As Needed To Accommodate The Operation Of Middlesex County College.
   F. Complete The Project As Fast As Possible While Maintaining Quality And Minimizing Disruption.

BID NOTES AND REQUIREMENTS

1. Due To Unique Field Conditions All Contractors Are Strongly Recommended To Attend The Pre-Bid Walkthrough.
2. A Mandatory Walkthrough With The Owner Is Required Prior Or During Shop Drawing Phase.
3. All Listed Manufacturers Shall Be Bid As Basis Of Design Or Equal.

SUMMARY OF ADDENDUM 1 REQUIREMENTS

1. Due To Schedule Concerns, Middlesex County College Has Elected To Close The Library From The Published Start Of Construction Date Through The Duration Of Construction. This Will Enable The Contractor To Seamlessly Work Through The Building Without Delays Due To Phasing Or Tenants In The Building.
2. The College Must Restrict The Construction Timeframe To The Summer Schedule Published In The Bid Documents. Therefore, Middlesex County College Has Elected To Remove The College Center Building From The Scope Of Work.
3. Middlesex County College Will Permit Two Shifts Of Construction Monday Through Friday As Well As One Shift On Saturday In An Effort To Adhere To The Schedule Of This Project.

No.	Drawing Title	Issued For 100% CD 10/21/2016	Issued For Addendum #1 1/25/2017						
GENERAL INFORMATION FOR ALL TRADES									
G-001	GENERAL PROJECT INFORMATION	X	X						
G-002	LIBRARY - ARCHITECTURAL CEILING UPGRADES	X	X						
G-003	JOHNSON LEARNING CENTER - ARCHITECTURAL CEILING UPGRADES	X	X						
JOHNSON LEARNING CENTER									
FIRE PROTECTION									
FP-001	JOHNSON LEARNING CENTER - PROJECT INTRODUCTION & FIRE PROTECTION NOTES	X	X						
FP-002	JOHNSON LEARNING CENTER - SPRINKLER ZONING PLANS	X	X						
FP-101	JOHNSON LEARNING CENTER - SPRINKLER & FIRE ALARM FLOOR PLANS	X	X						
FP-501	JOHNSON LEARNING CENTER - SCHEDULES & DETAILS	X	X						
FIRE ALARM									
FA-001	JOHNSON LEARNING CENTER - FIRE ALARM GENERAL INFORMATION	X	X						
FA-101	JOHNSON LEARNING CENTER - FIRE ALARM FLOOR PLANS	X	X						
FA-201	JOHNSON LEARNING CENTER - FIRE ALARM PART PLANS	X	X						
FA-501	JOHNSON LEARNING CENTER - SCHEDULES & DETAILS	X	X						
LIBRARY									
FIRE PROTECTION									
FP-001	LIBRARY - PROJECT INTRODUCTION & FIRE PROTECTION NOTES	X	X						
FP-002	LIBRARY - SPRINKLER ZONING PLANS	X	X						
FP-101	LIBRARY - SPRINKLER & FIRE ALARM LOWER FLOOR PLAN	X	X						
FP-102	LIBRARY - SPRINKLER & FIRE ALARM UPPER FLOOR PLAN	X	X						
FP-501	LIBRARY - SCHEDULES & DETAILS	X	X						
MECHANICAL									
MD-101	LIBRARY - MECHANICAL DEMOLITION PLAN LOWER FLOOR	X	X						
M-101	LIBRARY - MECHANICAL LOWER FLOOR PLAN	X	X						
MD-102	LIBRARY - MECHANICAL DEMOLITION PLAN UPPER FLOOR	X	X						
M-102	LIBRARY - MECHANICAL UPPER FLOOR PLAN	X	X						
M-501	LIBRARY - SCHEDULES & DETAILS	X	X						
ELECTRICAL									
E-001	LIBRARY - ZONING PLANS	X	X						
ED-101	LIBRARY - ELECTRICAL DEMOLITION PLAN LOWER FLOOR	X	X						
E-101	LIBRARY - ELECTRICAL PLAN LOWER FLOOR	X	X						
ED-102	LIBRARY - ELECTRICAL DEMOLITION PLAN UPPER FLOOR	X	X						
E-102	LIBRARY - ELECTRICAL PLAN UPPER FLOOR	X	X						
E-501	LIBRARY - DETAILS & SCHEDULES	X	X						

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Grieshaber
DLB Project ID: 11953 Phone: (732)927-5041

seal

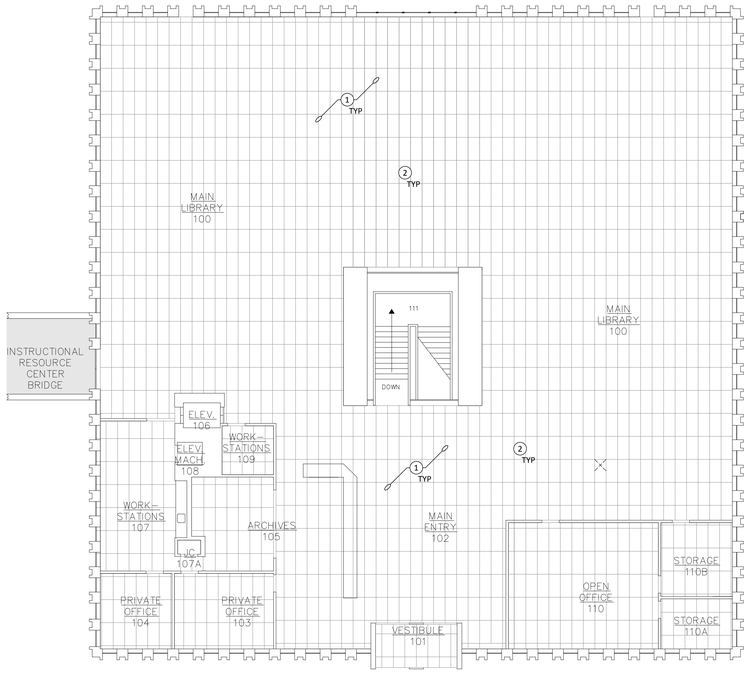
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 G-001	

title
GENERAL PROJECT INFORMATION

dwg. no.
G-001

30x42



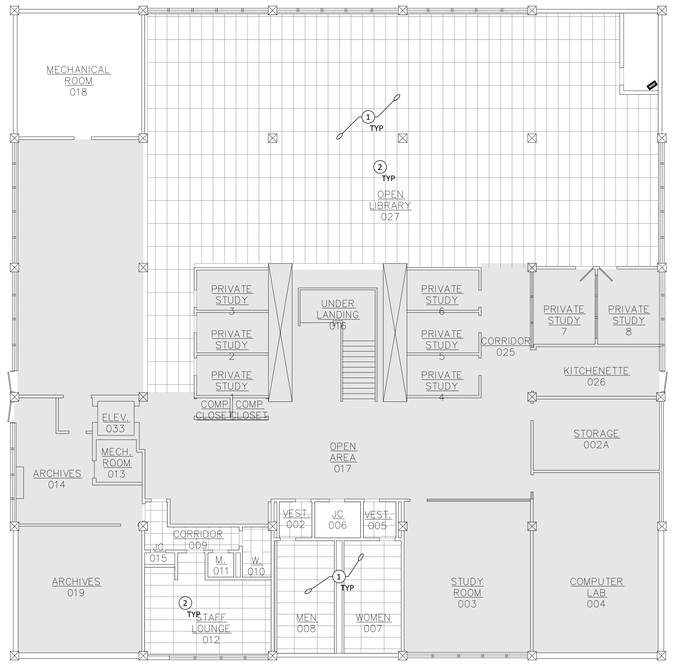
UPPER LEVEL CEILING PLAN

Scale: 3/32"=1'-0"

2' 4' 8' 12' 20'

Drawing: G002 1

Detail: 01



LOWER LEVEL CEILING PLAN

Scale: 3/32"=1'-0"

2' 4' 8' 12' 20'

Drawing: G002 1

Detail: 02

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
NIC	Not In Contract

KEY NOTES (SYMBOLS 1, 2, ETC.)

1. New Armstrong Prelude Ceiling Grid. Standard Formed Steel, Double-Web Tee, 15/16 Inch Wide, White Finish.
2. Acoustical Tile Shall Be Armstrong 684 Mesa, 24 Inch. x 48 Inch. x 3/4 Inch. Lay-In Ceiling System.

GENERAL NOTES

1. The Contractor Shall Provide Middlesex County College With Attic Stock Of 325 Additional Ceiling Tiles For The Library. The Additional Attic Stock Must Be Included In Bid Price.

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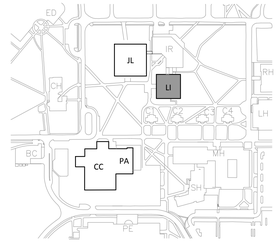
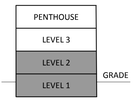


Campus Keyplan



Vertical Plan

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

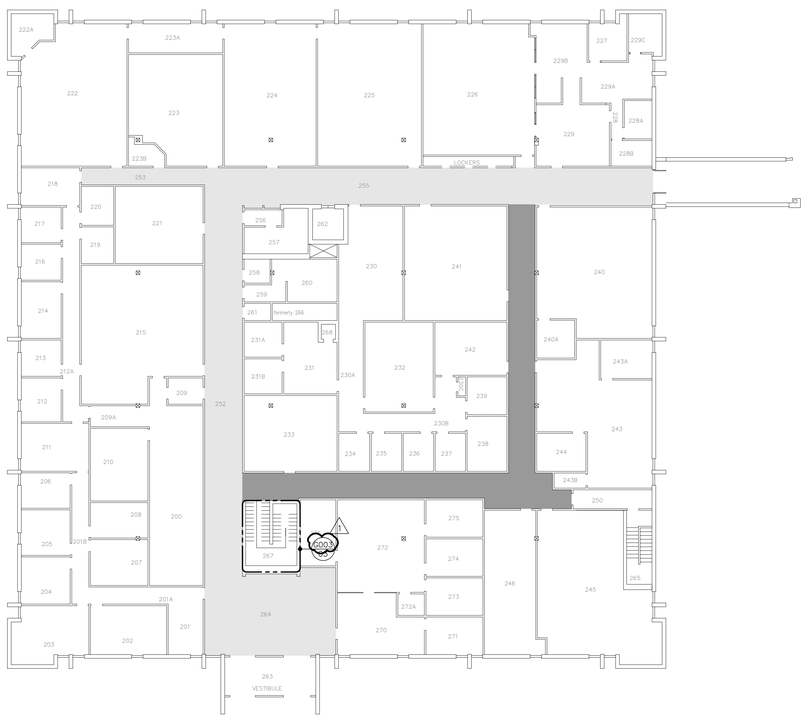
drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 G-002	

title
LIBRARY - ARCHITECTURAL CEILING UPGRADES

dwg. no.
G-002 1

30x42

LOWER LEVEL PLAN Scale: 1/16"=1'-0" (4' 8' 16' 32') Drawing: G-003 Detail: 01



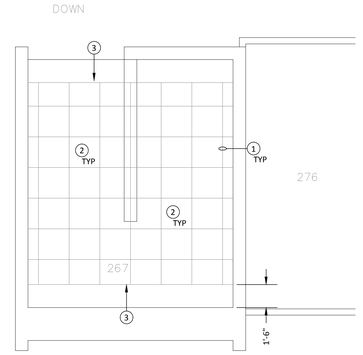
UPPER LEVELPLAN Scale: 1/16"=1'-0" (4' 8' 16' 32') Drawing: G-003 Detail: 02

PARTIAL SYMBOLS & ABBREVIATIONS

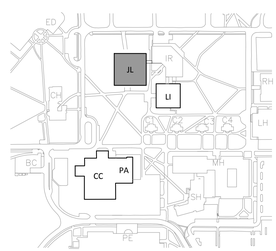
Identifier	Description
	Ceiling Grid To Remain. Install New 2x4 Armstrong Fine Fissured Tile, Model #1729.
	Ceiling Grid To Remain. Install New 2x2 Armstrong Fine Fissured Tile, Model #1728.

KEY NOTES (SYMBOLS 1, 2, ETC.)

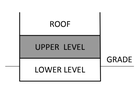
1. New Armstrong Prelude Ceiling Grid. Standard Formed Steel, Double-Web Tee, 15/16 Inch Wide, White Finish.
2. Acoustical Tile Shall Be Armstrong Fine Fissured Model #1728, 24 Inch. x 24 Inch. x 5/8 Inch. Lay-In Ceiling System. Drop Ceiling Elevation Shall Be Installed Such That There Is 12 Inches Clear Between The Existing Ceiling And New Drop Ceiling.
3. Install Armstrong Vertical White Aluminum Trim To Enclose The Drop Ceiling Before The Window. Maintain 18 Inches Clear Between The Vertical Ceiling Trim And Window.
4. Tiles And Lights That Must Be Removed For Sprinkler Installation And Replaced With A Flat Tile Shall Be Replaced With 60"x30" Armstrong Georgian 791 Ceiling Tiles.



UPPER LEVEL PART PLAN Scale: 1/4"=1'-0" (1' 2' 4' 8') Drawing: G-003 Detail: 03



Campus Keyplan



Vertical Plan

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MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 G-003	

title
JOHNSON LEARNING CENTER
ARCHITECTURAL
CEILING UPGRADES

dwg. no.
G-003 1

30x42

Johnson Learning Center

Sprinkler Design

Middlesex County College
2600 Woodbridge Avenue
Edison, NJ 08818

APPLICABLE CODES AND STANDARDS

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1. International Building Code 2015, NJ Edition
2. International Fire Code 2015
3. National Electrical Code (NFPA 70) 2014 Edition
4. National Fire Protection Association (NFPA) 13-2013

PROJECT OVERVIEW

1. Project Mission Statement:
   A. To Implement A Full Automatic Sprinkler System Retrofit Installation On Time And With Minimal Disruption To Middlesex County College Personnel And The Events Scheduled At Each Facility. The Work Should Be Performed In A Safe Manner While Meeting All MCC Requirements. Upon Completion, All Upgrades Will Function Properly And Safely As Designed.
2. Project Description:
   A. The Project Consists Of Retrofitting An Automatic Sprinkler System Into The Facilities To Satisfy The Requirements Of The Violations Received By The College And To Provide Life Safety Provisions For The Campus Occupants.
3. Scope:
   A. The Following Is A Brief Scope Of The Work For This Project (Not Intended To Be All Inclusive):
      1) Systems To Be Modified And / Or Extended:
         Fire Alarm
         Campus Fire Water Infrastructure
      2) New Systems To Be Constructed:
         A Multi-Zoned Automatic Sprinkler System
      3) Provide Full Sprinkler Coverage For All Floor Areas Throughout The 3 Buildings In Scope.
      4) Provide Code Required Backflow Prevention For Each Site.
      5) Provide A New Fire Protection Water Service To Each Building.
      6) Provide New Fire Alarm Systems And Components As Required To Integrate Alarms And Signals With The Existing Fire Alarm Systems.
4. Objectives:
   A. To Provide A Safe Code Compliant Upgrade To The Life Safety Systems In The Following Buildings:
      Library
      College Center
      Johnson Learning Center
   B. The Intent To Keep These Building As Operational As Practical During The Construction. As A Result Timing And Phasing Of The Construction Will Be High Priority During Construction Planning And Contractor Selection.
   C. The Project Must Be Completed On Time.
   D. The Work Must Be Scheduled & Adjusted As Needed To Accommodate The Operation Of Middlesex County College.
   E. Complete The Project As Fast As Possible While Maintaining Quality And Minimizing Disruption.

FIRE PROTECTION DESIGN CRITERIA

1. Wet Sprinkler System: Light Hazard Occupancies: Office, Public, Classrooms And Back Of House Spaces: Density 0.10 GPM/Sq. Ft. Over Most Hydraulically Remote 1500 Sq. Ft. Maximum Coverage Per Sprinkler Head 225 Sq. Ft.
2. Wet Sprinkler System: Ordinary Hazard Group I Occupancies: Mechanical And Electrical Rooms: Density 0.15 GPM/Sq. Ft. Over Most Hydraulically Remote 1500 Sq. Ft. Maximum Coverage Per Sprinkler Head 130 Sq. Ft.
3. Preaction Sprinkler System: Ordinary Hazard Group I Occupancies: Data Center And Designated IT Rooms: Density 0.15 GPM/Sq. Ft. Over Most Hydraulically Remote 1,950 Sq. Ft. Maximum Coverage Per Sprinkler Head 130 Sq. Ft.
4. Wet System Sprinkler Heads In Areas With Drop Ceilings Shall Be Concealed Pendant Type Sprinklers. Wet Or Dry Systems With No Ceilings Shall Utilize Upright Sprinkler Heads. Dry Or Preaction Systems Installed In Areas With Drop Ceilings Shall Use Dry Pendant Sprinklers Only. See Floor Plan For Sprinkler Head Specification.
5. Minimum Pressure At Sprinkler Head 7 PSI.
6. Whenever Roll Grooved Connections Are Used For Wet Systems Only, Allowance For Additional Pressure Loss At Grooves Shall Be Made As Follows:
   A. For Each Coupling On Straight Run Including Straight Flow Through Tee Or Cross: Add 1 Equivalent Feet Of Pipe.
   B. For Each Coupling At Elbow, Tee Or Cross Where Direction Of Flow Changes: Add 2 Equivalent Feet Of Pipe.
5. Equivalent Fitting Lengths Used In Hydraulic Calculations Shall Be In Accordance With NFPA Standard No.13.
6. Black Steel Schedule 10 And/Or Lightwall Pipe Are Permitted For 2-1/2" And Larger Pipe Sizes Only. Black Steel Schedule 40 Pipe Are Permitted For 2" And Smaller Pipe Sizes.
7. Preaction Piping Systems Shall Be Pitched Back To The Main Preaction Valve Drain. If This Is Not Practical, Auxiliary Drain Locations Must Be Added Such That All Piping Lengths Can Be Completely Drained.
8. Discharge From Each Sprinkler Head Shall Not Be Less Than Required For Area Covered By This Head. Area Coverage Per Head Shall Be Determined In Accordance With NFPA Standard No. 13.
9. Hydraulic Calculations Shall Be Brought Back To Connection To Water Supply.
10. Result Of Hydraulic Calculations Shall Indicate Minimum 10% Pressure Safety Margin. I.E. Excess Of Pressure Available Over Pressure Required.
11. MIC Testing Of The Water Supply Must Be Provided Before The System Is Installed And In Operation By An Independent Agency.
12. Contractor Shall Order Hydrant Flow Test And Base All Hydraulic Calculations On Results Of Test.
    A. Hydrants Tested Shall Be Located As Close As Possible To Point Of Fire Service Connection To Yard Main.
    B. Test Data Shall Indicate Static Pressure, Residual Pressure At Test Flow And Grade Elevation At Hydrant Tested.
    C. Hydrant Test Data Shall Be Submitted For Review Along With Shop Drawings And Hydraulic Calculations.

PROJECT CONSTRUCTION PHASING

General

1. Johnson Learning Center Will Be Almost Entirely Closed And Unoccupied During Construction. The Only Area That Will Remain Active And Occupied Is The Upper Level Data Center, Which Cannot Be Interrupted For Any Reason.
2. Protection Of Facilities And Temporary Construction Barriers Shall Be Included In All Contractor Bid Packages. Entrance And Egress Pathways Must Be Maintained For IT/ Data Center Occupants During The Entire Construction Timeline.
3. Dedicated Contractor Construction Pathways, Material Storage, Construction Schedule, And Parking Will Be Assigned Prior To Beginning Work.

SPECIAL EMPHASIS DESIGN CONDITIONS

1. Several Class Rooms At JLC Have A Trough Light Fixture/ Ceiling Tile System. Many Of These Rooms Have The Trough System Installed In The Majority Of The Tiles, Some Have Trough Lights In All Tile Locations. An Example Of This Condition Occurs In Room 111 (Photo Below).
2. In Areas Where This Condition Exists, Some Of The Ceiling Tiles And Lights Will Need To Be Removed Where Sprinklers Are To Be Installed. The Tiles Will Be Replaced With A New Flat Ceiling Tile To Complete The Sprinkler Installation.
3. The Existing Tile Grid Is An Oversized Grid That Requires 60"x30" Armstrong Georgian 791 Ceiling Tiles. The Specified Tile Is Abnormally Costly. This Additional Cost Must Be Included In The Bid Pricing.
4. Where Light Fixtures Are To Be Removed, The Electrical Conductors, Conduit, Etc. Must Be Removed Back To The Source Or Practical Termination Point.
5. The Contractors Are Strongly Encouraged To Attend The Bid Walk Through To Accurately Quantify And Price This Condition.
6. Relocations Will Be Considered On A Case By Case Basis And Are Subject To Approval By Middlesex County College.

JLC TROUGH LIGHT CEILING CONDITION

Scale: NTS

Drawing: **FP-001**
Detail: **01**

GENERAL NOTES

1. General:
   A. All General Notes Are To Be Read And Adhered To By Each Contractor. The Notes Are Loosely Categorized By Trade, But This Does Not Limit The Responsibility Of The Contractor To Any Single Category.
   B. All Work Shall Be Performed In A Neat Workmanlike Manner.
   C. "Furnish And Install" Or "Provide" Means To Supply, Erect, Install, And Connect Up To Complete For Readiness For Regular Operation, The Particular Work Referred To.
   D. All Temporary Construction Services (Electric, Water, Etc.) Shall Be Determined / Arranged By The Contractor And Included In The Bid Price.
2. Coordination:
   A. Contractors Shall Coordinate Their Work With The Work Of All Other Trades And The Existing Field Conditions.
   B. Contractor Shall Visit The Job Site And Verify Existing Field Conditions Prior To Submission Of Bid.
   C. Contractor Shall Secure And Pay For All Required Permits And Shall Arrange All Required Inspections.
   D. Contractor Shall Make Arrangements With Local Utility Companies To Provide Service. Contractor Shall Provide Service Equipment In Accordance With All Utility Company Requirements.
3. Installation / Demolition:
   A. Contractor Shall Provide All Necessary Miscellaneous Steel For The Support Of All Equipment Suspended From Slab, Steel, Wall, Or Trusswork.
   B. Proper Fire Protection Measures, Satisfactory To The Local Fire Department, Shall Be Taken When Welding Or Cutting With Torches Or Electric Arc.
   C. Each Contractor Shall Be Responsible For All Cutting And Patching Of Walls, Ceilings, Roofs, And Floors Required As A Result Of Their Work.
   D. All Penetrations Of Floors (Whether Or Not Fire Resistance Rated) And All Penetrations Of Fire Rated Walls Shall Be Firestopped. Refer To The Specification For Additional Requirements.
   E. Piping Layouts Are Schematic Diagrams And Are Intended To Show General Arrangement, Size And Capacity And Do Not Indicate Which Pipe Is Above Or Below The Other. All Offsets Are Not Necessarily Shown, Contractor Shall Arrange And Coordinate The Work, Furnish Necessary Offsets, Valves And Fittings To Avoid Conflict With Other Mechanical And Electrical Services And Structural And Architectural Elements Without Additional Cost To The Owner. If Areas Of Conflict Are Encountered, The Architect / Engineer Shall Be Notified And Contractors Recommendations Shall Be Submitted To The Architect / Engineer For Approval Before Work Has Begun.
   F. Owner Provided Equipment Shall Be Received, Stored And Installed By The Contractor. All Cost Associated With Rigging, Receiving And Storage Shall Be The Responsibility Of The Contractor.

FIRE PROTECTION NOTES

General

1. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13.
2. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
3. Numbers And Locations Of Sprinkler Heads, Shown On These Plans, Are For Illustration Purposes Only. Exact Number And Locations Shall Be Shown On Sprinkler Construction Shop Drawings Which Shall Be Provided By The Contractor.
4. All New Sprinkler Piping And Heads Shall Be Located Only As Indicated On Approved Shop Drawings. Shop Drawings Must Be Submitted And Approved Before Starting Work. Any Deviations Made To Approved Layout Must Be Submitted To Engineer As "As-Built" Drawings.
5. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
6. Coordinate Interlocks, Signaling And Alarm Contacts With Fire Alarm And Electrical Contractors. Coordinate Duct Smoke Detection With Mechanical Contractor.
7. Contractor To Design Per FM Global Standards Unless Otherwise Indicated.

Piping

1. All Piping And Equipment Shall Be Substantially Supported From The Building Structure. Hanger And Supports Shall Be Specifically Approved For Use In Sprinkler Systems.
   A. Where Overhead Construction Does Not Permit Fastening Of Hanger Rods In Required Locations, Provide Additional Steel Framing As Required And Approved.
   B. No Piping Shall Be Hung From The Piping Of Other Trades Or Ductwork. Hangers Shall Be Of Heavy Construction, Suitable For The Size Of Pipe To Be Supported.
2. Piping Penetrations Through Fire Rated Walls Shall Be Fire Stopped And Sealed To A Fire Rating Equal To The Wall It Penetrates.
3. All Sprinkler Piping 2" And Below Shall Be Schedule 40 Steel. Schedule 10 Piping Shall Be Allowable For Pipe Sizes 2-1/2" And Above.
4. All Sprinkler Piping In Critical Areas Must Be Schedule 40 Steel With Threaded Fittings Or Victaulic-Type Fittings Where Permitted.
5. Fire Protection Piping Layout Is Schematic In Nature And Does Not Indicate All Required Fittings, Drain Valves, Etc.
6. All Sprinkler Piping Shall Be Installed So That The System Can Be Drained. Provide Drains For Trapped Piping In Accordance With NFPA 13.
7. All Pipes Passing Through Foundation Walls To Be Protected.

Sprinklers

1. In Areas Without Suspended Ceilings, Locate Sprinkler Heads Above And Below All Ducts Over 48"' In Width.
2. In Areas With Suspended Ceilings, Sprinkler Heads Shall Be Installed Centered In Both Directions Of The Ceiling Tile. Concealed Sprinkler Heads Shall Be Used For All Finished Ceiling Areas.
3. Upright Sprinklers Shall Be Installed In Areas Without Suspended Ceilings. Provide Protective Cage On All Heads In Areas Under Ducts Or Subject To Accidental Damage.
4. Stock Of Extra Sprinklers Shall Be Furnished As Required For Each Temperature Rating.
5. Distance Of Sprinklers From Heat Sources Shall Be In Accordance With NFPA 13.
6. Coordinate Sprinkler Head Locations With Architectural Reflected Ceiling Plans. Changes Are Subject To Approval By Architect And Shall Be Made At No Additional Cost To The Owner.

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seal

project
CAMPUS SPRINKLER UPGRADES
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2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale: AS SHOWN	filename: 11953 JLC FP-001	

title
JOHNSON LEARNING CENTER
PROJECT INTRODUCTION &
FIRE PROTECTION NOTES

dwg. no.
FP-001

30x42

LOWER FLOOR PLAN Scale: 1/16"=1'-0" (4' 8' 16' 32') Drawing: **FP-002** Detail: **01**

UPPER FLOOR PLAN Scale: 1/16"=1'-0" (4' 8' 16' 32') Drawing: **FP-002** Detail: **02**

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

KEY NOTES (SYMBOLS ①, ②, ETC.)

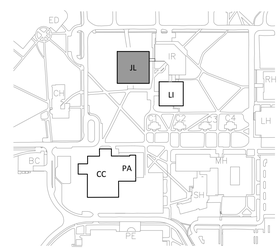
1. A FM-200 Clean Agent System Is Currently In Place In The Data Center And Will Remain Active As A Primary Means Of Fire Suppression. The Double Interlock Pre-Action System Will Serve As Secondary System To Meet The Fully Sprinkler Building Requirements Of The Township Citation.
2. Hatch At The Corner Of The Room Leads To A Recessed Elevator Machine Room Under Alcove 159. The Elevator Machine Room Shall Be Fully Sprinklered And Designed For Hazard Classification Ordinary Hazard Group 1.

GENERAL NOTES

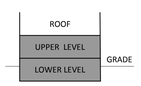
1. Adjust Any Sprinkler Mains Or Branch Piping To Coordinate With Any Obstructions. Sprinklers Shall Be Installed Under Ductwork And All Other Fixed Obstructions 48" And Larger Per NFPA 13.
2. See Drawing FP-001 For Fire Protection Notes And Design Criteria.
3. Sprinkler Contractor Shall Provide Hydraulic Calculation In Accordance With Design Criteria.
4. Hydrostatic Test Shall Be Conducted On New Sprinkler System As Per NFPA-13. Hydrostatic Test Report Shall Be Delivered To Engineer And College.
5. Sprinkler Work Shall Comply With Base Building Rules And Regulations.
6. No Sprinkler Work Shall Commence Without Edison Township Approved Drawings And Permit.
7. Sprinkler Contractor Shall Submit As-Built Drawings To The College At The Completion Of The Project.
8. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13 And 72.
9. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
10. Numbers And Locations Of Sprinkler Heads, Shown On These Plans, Are For Illustration Purposes Only. Exact Number And Locations Shall Be Shown On Sprinkler Construction Shop Drawings Which Shall Be Provided By The Contractor.
11. All New Sprinkler Piping And Heads Shall Be Located Only As Indicated On Approved Shop Drawings. Shop Drawings Must Be Submitted And Approved Before Starting Work. Any Deviations Made To Approved Layout Must Be Submitted To Engineer As "As-Built" Drawings.
12. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
13. All Sprinklers Shall Be Centered In Ceiling Tiles Where Possible.
14. Coordinate Interlocks, Signaling And Alarm Contacts With Fire Alarm And Electrical Contractors. Coordinate Duct Smoke Detection With Mechanical Contractor.

LEGEND

Symbol	Description
	Light Hazard - Wet System
	Ordinary Hazard Group 1 - Wet System
	Ordinary Hazard Group 1 - Double Interlock Preaction System



Campus Keyplan



Vertical Plan

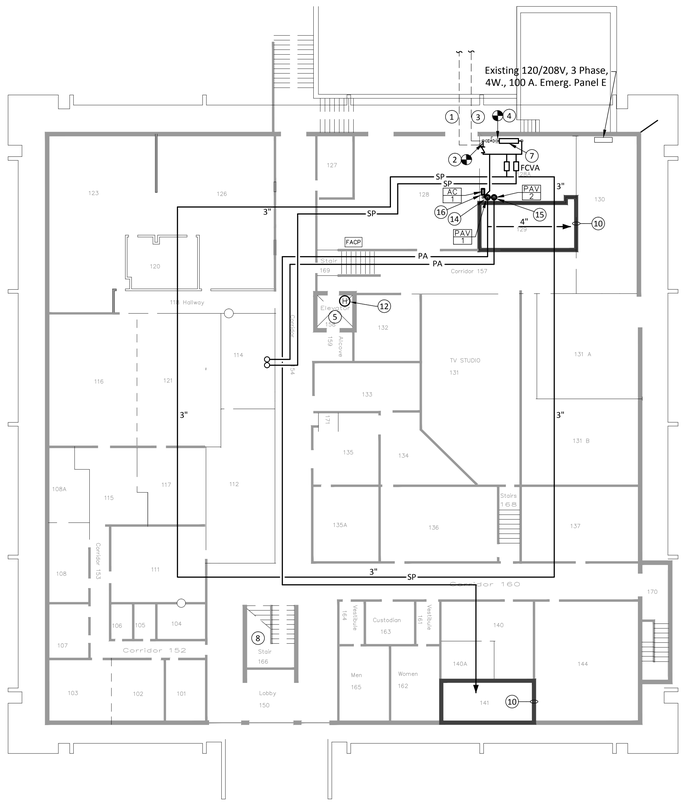
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 JLC FP-002	

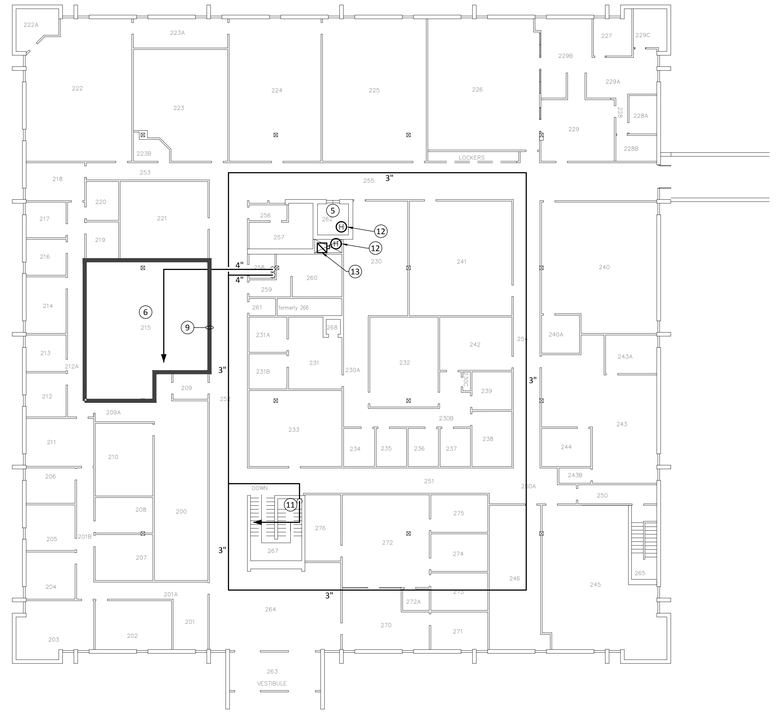
title
JOHNSON LEARNING CENTER
SPRINKLER ZONING PLANS

dwg. no.
FP-002

30x42



LOWER FLOOR PLAN — Scale: 1/16"=1'-0" (4' 8' 16' 32') — Drawing: FP-101 — Detail: 01



UPPER FLOOR PLAN — Scale: 1/16"=1'-0" (4' 8' 16' 32') — Drawing: FP-101 — Detail: 02

KEY NOTES (SYMBOLS ①, ②, ETC.)

1. Existing 4" Connection To 5" Storz Fire Department Connection (FDC), Installed During Civil Phase.
2. Tie In To Existing 4" Capped Connection For Fire Department Connection. Install Check Valve And Automatic Ball Drip For Drainage And Freeze Protection.
3. Existing Connection To 6" Fire Service, Installed During Civil Phase.
4. Incoming Service Location With A House Control Valve. Coordinate Exact Tie In Location With Existing Conditions.
5. Install A Sidewall Sprinkler Head In All Hydraulic Elevator Pits And An Upright Sprinkler Head At The Top Of All Hydraulic Elevator Shafts.
6. The Data Center Is Protected By A FM-200 Clean Agent System. This System Will Not Be Adequate As A Standalone System After The Building Is Fully Sprinklered. A Double Interlock Preaction System Shall Be Installed Under This Phase Of And The Spot Detection For The FM-200 Shall Be Replaced With A VESDA Early Detection System.
7. 6" Double Detector Check Valve Assembly. Watts Model LF757DCDA-OSY.
8. The Area Under The Stair Is Not An Enclosed Space And Has Combustible Plywood Construction On The Display Case Side Of The Stair As A Result Sprinkler Protection Must Be Included In This Space.
9. Primary Coverage In This Area To Be FM 200 Clean Agent With A Secondary Preaction System. Install Dry Type Pendant Sprinklers In All Preaction System Locations.
10. Coverage In This Area Shall Be Provided By A Double Interlock Preaction System. Install Dry Type Pendant Sprinklers In All Preaction System Locations.
11. Sprinkler Branch Line Shall Rise Into New Drop Ceiling Above The Stair In The Clerestory.Paint Branch Piping To Match Adjacent Conditions.
12. Furnish And Install 135 Degree Fixed Temperature Heat Detector In Elevator Machine Room, Elevator Pit And Top Of Elevator Shaft And Tie Into Existing Fire Alarm Signal Line Circuit.
13. Remove Existing 3P-200 Amp Enclosed Circuit Breaker Feeding Elevator In Elevator Machine Room And Replace With New Fusible Shut Trip Switch (Mersen Cat. No. ES 2 T20 R2 G A) and 150A Fuses. Furnish And Install Fire Alarm Monitor Module And Tie Into Existing Signal Live Circuit To Shut Trip Switch When Heat Detectors In Elevator Machine Room, Top Of Elevator Shaft Or Elevator Pit Are Activated. Control Power For Shunt Trip Shall Be 24VDC From The Fire Alarm Control Panel.
14. Provide Power For New Preaction Valve (2#12, #12G, 3/4"C.) Furnish And Install New Disconnect Switch, Conduit And Wiring And Run To New 1P-20 Circuit Breaker To Be Installed In Space #25 In panel E.
15. Provide Power For New Preaction Valve (2#12, #12G, 3/4"C.) Furnish And Install New Disconnect Switch, Conduit And Wiring And Run To New 1P-20 Circuit Breaker To Be Installed In Space #27 In panel E.
16. Provide Power For New Air Compressor (2#12, #12G, 3/4"C.) Furnish And Install New Disconnect Switch, Conduit And Wiring And Run To New 1P-20 Circuit Breaker To Be Installed In Space #29 In panel E.

GENERAL NOTES

1. Adjust Any Sprinkler Mains Or Branch Piping To Coordinate With Any Obstructions. Sprinklers Shall Be Installed Under Ductwork And All Other Fixed Obstructions 48" And Larger Per NFPA 13.
2. See Drawing FP-001 For Fire Protection Notes And Design Criteria.
3. Sprinkler Contractor Shall Provide Hydraulic Calculation In Accordance With Design Criteria.
4. Hydrostatic Test Shall Be Conducted On New Sprinkler System As Per NFPA-13. Hydrostatic Test Report Shall Be Delivered To Engineer And College.
5. Sprinkler Work Shall Comply With Base Building Rules And Regulations.
6. No Sprinkler Work Shall Commence Without Local A.H.J. Approved Drawings And Permit.
7. Sprinkler Contractor Shall Submit As-Built Drawings To The College At The Completion Of The Project.
8. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13 And 72.
9. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
10. Numbers And Locations Of Sprinkler Heads, Shown On These Plans, Are For Illustration Purposes Only. Exact Number And Locations Shall Be Shown On Sprinkler Construction Shop Drawings Which Shall Be Provided By The Contractor.
11. All New Sprinkler Piping And Heads Shall Be Located Only As Indicated On Approved Shop Drawings. Shop Drawings Must Be Submitted And Approved Before Starting Work. Any Deviations Made To Approved Layout Must Be Submitted To Engineer As "As-Built" Drawings.
12. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
13. All Sprinklers Shall Be Centered In Ceiling Tiles Where Possible.
14. Contractor Shall Furnish And Install Fire Alarm Monitor Modules To Monitor All New Water Flow, Pressure Switches, Tamper Switches, Preaction Valves, Clean Agent Releasing Panels And Tie Into The Signal Line Circuit From The Existing Simplex 4100U Fire Alarm Control Panel.
15. Contractor Shall Include In Their Bid All Costs For Reprogramming The Fire Alarm System And Reacceptance Testing By MCC's Fire Alarm Service Contractor.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
○	Upright Sprinkler Head
●	Concealed Pendant Sprinkler Head
⊛	Pendant Sprinkler Head
◁	Sidewall Sprinkler Head
	New Sprinkler Piping
	Existing Sprinkler Piping
(H)	Heat Detector, Fixed Temp.
	Fusible Shunt Trip Switch
FACP	Fire Alarm Control Panel (Existing)

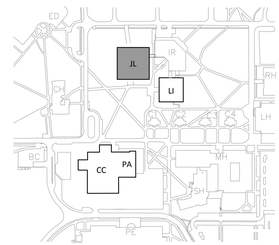
Identifier	Description
FCVA	Floor Control Valve Assembly
FCVA	Flow Control Valve Assembly
FS	Flow Switch
GPM	Gallons Per Minute
PA	Preaction
SP	Sprinkler
TS	Tamper Switch

SPRINKLER SCHEDULE

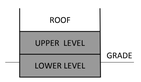
	Type	Description
●	Wet-type, Automatic Ordinary Temp. 5.6K-Factor And QR Concealed Pendent Sprinkler.	Reliable Model G5-56 Or Equal: With White Ceiling Plates; UL Listed, FM Approved.
○	Wet-type, Automatic Ordinary Temp. 5.6K-Factor And QR Upright Sprinkler.	Reliable Model F1FR56 Or Equal: Rough Brass Finish; UL Listed, FM Approved.
⊛	Dry-type, Automatic Ordinary Temp. 5.6K-Factor, Standard Spray And QR Pendant Sprinkler.	Reliable Model F3QR Or Equal: Recessed F1 Pendant, Chrome Finish; UL Listed, FM Approved.

FIRE PROTECTION EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	MANUFACTURER	MODEL	REMARKS
PAV-1	Pre-Action Valve Assembly For Lower Level IT	Victaulic Or Equal	NXT Series 769	Pre-Action, Double Interock. Include Low Pressure Alarm, Tamper Switch, And Addressable Releasing Module.
PAV-2	Pre-Action Valve Assembly For Upper Level Data Center	Victaulic Or Equal	NXT Series 769	Pre-Action, Double Interock. Include Low Pressure Alarm, Tamper Switch, And Addressable Releasing Module.
AC-1	Air Compressor	Gast Or Equal	1LAA-46-M100GX	1/6HP, 120V. Sized To Fill Largest Zone, Max Gallons 90 to 40PSI in 30 Min.



Campus Keyplan



Vertical Plan

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
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dlb associates
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DLB Project ID: 11953 Phone: (732)927-5041

seal

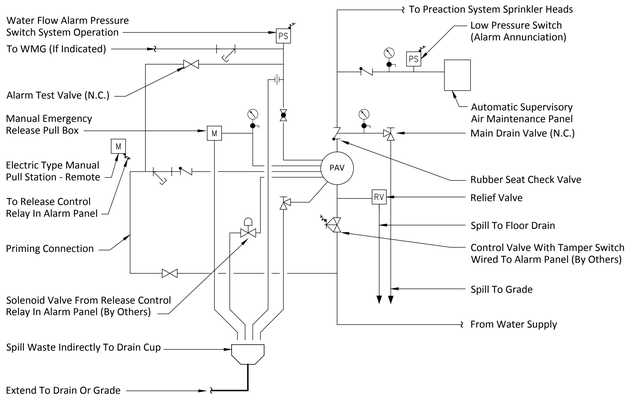
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 JLC FP-101	

title
JOHNSON LEARNING CENTER
SPRINKLER & FIRE ALARM
FLOOR PLANS

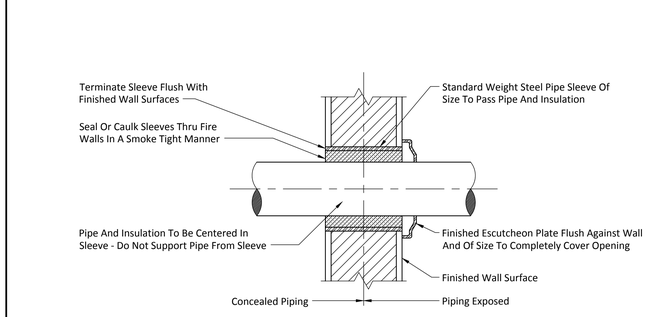
dwg. no.
FP-101

30x42



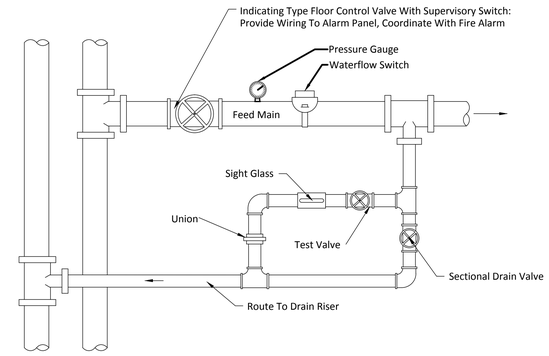
NOTES:
1. All Fire Alarm Interconnections, Monitoring, and Alarm Switches Shall Be Included.
2. This Is An Integrated Double Interlocked, Supervised Pre-Action System Using A Deluge Valve Controlled By An Electric-Pneumatic Release System Pre-action Valve Cabinet Detail.

SCHEMATIC DOUBLE INTERLOCK PREACTION SYSTEM DETAIL | Scale: NTS | Drawing: **FP-501** | Detail: **01**



NOTES:
1. All Fire-Stopping Shall Be Selected In Order To Maintain The Fire Rating Of The Barrier That Is Being Penetrated.

DETAIL OF PIPE SLEEVE THRU WALL | Scale: NTS | Drawing: **FP-501** | Detail: **02**



NOTES:
1. Size Drain At 1 1/4" For Pipe Sized 3" And Less. Fitting Sized at 2" For Pipe Sized 4" And More.

FLOOR CONTROL ASSEMBLY DETAILS | Scale: NTS | Drawing: **FP-501** | Detail: **03**

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
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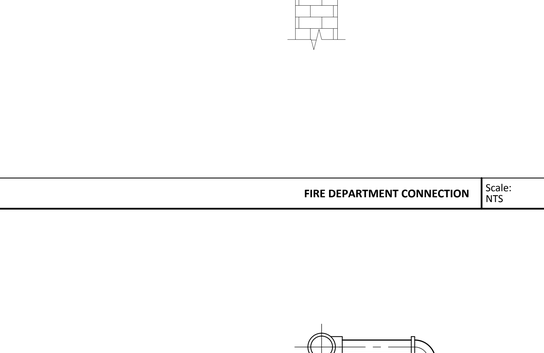
Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

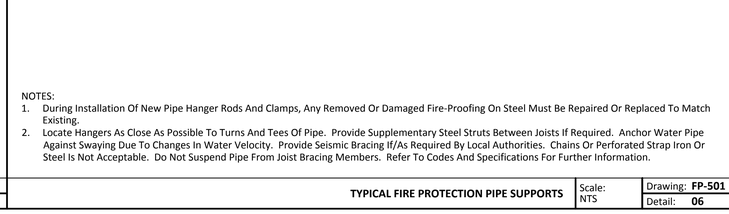
Capacity Of Trapped Sections Of Pipe Is More Than 5 Gal.

Capacity Of Trapped Sections Of Pipe Is No More Than 5 Gal.

AUXILIARY DRAIN CONNECTION | Scale: NTS | Drawing: **FP-501** | Detail: **04**



FIRE DEPARTMENT CONNECTION | Scale: NTS | Drawing: **FP-501** | Detail: **05**



NOTES:
1. During Installation Of New Pipe Hanger Rods And Clamps, Any Removed Or Damaged Fire-Proofing On Steel Must Be Repaired Or Replaced To Match Existing.
2. Locate Hangers As Close As Possible To Turns And Tees Of Pipe. Provide Supplementary Steel Struts Between Joists If Required. Anchor Water Pipe Against Swaying Due To Changes In Water Velocity. Provide Seismic Bracing If/As Required By Local Authorities. Chains Or Perforated Strap Iron Or Steel Is Not Acceptable. Do Not Suspend Pipe From Joist Bracing Members. Refer To Codes And Specifications For Further Information.

TYPICAL FIRE PROTECTION PIPE SUPPORTS | Scale: NTS | Drawing: **FP-501** | Detail: **06**

project
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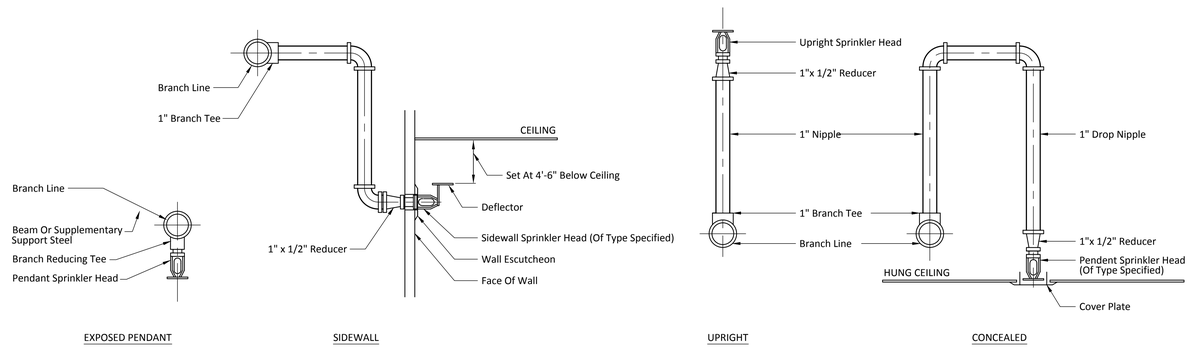

SPRINKLER CONNECTION | Scale: NTS | Drawing: **FP-501** | Detail: **07**

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 JLC FP-501	

title
JOHNSON LEARNING CENTER
SCHEDULES & DETAILS

dwg. no.
FP-501

30x42

AIR SAMPLING SMOKE DETECTION SYSTEMS NOTES AND PERFORMANCE REQUIREMENTS

General Requirements

1. General
   - A. This Section Includes the following:
     1) Air Sampling Smoke Detection (ASSD).
     2) 24Vdc power supply.
     3) Air sampling pipe distribution network.
   - B. Provide Air Sampling Detection (ASD) system(s) as indicated in this Specification and on the Drawings.
   - C. All fees and permits specifically required for the Air Sampling Detection system shall be applied for and paid for by Air Sampling Detection system Contractor.
   - D. The Contractor shall be responsible for obtaining and meeting the requirements as imposed by the AHJ. Any costs as a result of these requirements shall be the Air Sampling Detection system Contractor(s) responsibility.
   - E. This Specification outlines the requirements for furnishing, installation, connection, commissioning and testing of Air Sampling Detection system(s). The work described in this Specification includes all design, engineering, labor, materials, equipment and services necessary and
2. System Description
   - A. System shall consist of an ASSD assembly housing an integral aspiration fan, flow sensor(s), filter, laser based detection chamber, and control, output and supervision circuitry.
   - B. System shall consist of a regulated 24Vdc power source provided with backup rechargeable batteries.
   - C. System shall consist of an air sampling pipe distribution network which shall include piping, tubing, fittings and fasteners as specified herein. Piping shall originate from each ASSD apparatus to the protected area(s). Sampling points shall be placed along the air sampling pipe distribution network in accordance with this Specification and the Drawings. The air sampling pipe distribution network shall be supported by calculations from the Manufacturer's computer-based design modeling tool.
   - D. In operation, the aspiration fan in the ASSD apparatus draws air from the protected area(s) through sampling points in the air sampling pipe distribution network where it is analyzed for concentration of fire products.
   - E. ASSD apparatus shall include independent configurable alarm and trouble relay outputs for interface to other systems in accordance with this Specification and the Drawings.
   - F. ASSD apparatus shall communicate on an RS485 network with each device incorporating an integral repeater and loop isolator.
   - G. ASSD apparatus shall be capable of communicating to various manufacturers' FACP or SCP through a UL listed High Level Interface (HLI) or by relay connectivity where HLI integration is not available with a particular manufacturers' control panel.
3. Performance Requirements
   - A. System shall be complete in all ways. It shall include all engineering, and electrical installation, all detection and control equipment, auxiliary devices and controls, alarm interface, functional checkout and testing, training and all other operations necessary for a functional ASD system.
   - B. System design, installation, commissioning and testing shall be in accordance with this Specification, the Manufacturer's guidelines and per all applicable codes and requirements of the local Authorities Having Jurisdiction (AHJ).
   - C. All equipment and associated components shall be new, standard products or the Manufacturer's latest design and suitable to perform the functions intended.
   - D. All fire protection related wiring shall be in conduit - no exceptions. Refer to the drawings for additional requirements or use.
   - E. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances, switches and devices necessary for a sound, secure and complete installation in full compliance with all applicable codes and requirements of the local Authorities Having Jurisdiction.
   - F. For detection of smoke concentration within open areas, where indicated in the drawings:
     1) Provide appropriate number of ASSD apparatuses to efficiently and adequately cover designated area(s).
     2) Air sampling pipe distribution networks shall be constructed using rigid pipe mounted to the underside of the structural ceiling.
     3) Sampling points shall be drilled directly into the air sampling pipe distribution network, be oriented downward and be within 1 to 4 inches (25 to 101mm) below the underside of the structural ceiling.
     4) For structural ceilings that have beams, girders, solid joist or a waffle-like construction, etc., air sampling pipe distribution networks shall mount to the underside of structural beams with stanchions having sampling point extend up into each beam pocket at locations where sampling points are required.
     5) Where drop ceilings are present sampling points shall be remotely mounted to the underside of the drop ceiling, be oriented downward and be within 1 to 4 inches (25 to 101mm) below the underside of the drop ceiling. Remote sampling points shall interconnect with air sampling pipe distribution network located above the drop ceiling via use of flexible "capillary" tubing.
        a. For efficiency, air sampling pipe distribution networks located above the drop ceiling shall have "capillary" tubing running either side of each sampling pipe run to the corresponding remote sampling point.
     6) Maximum coverage per sampling point shall not exceed 200 sq ft (18.5 sq m), exception being where obstructions such as air supply diffusers would otherwise prevent this spacing objective from being met, in which case placement shall be just outside perimeter of obstruction.
     7) Sampling points shall be a minimum of 3ft (1m) away from air supply diffusers.
     8) Sampling points shall be installed in an area on the ceiling that is free from obstructions for a minimum of 18 inches (457mm) on all sides.
     9) Placement of sampling points nearest to walls shall be greater than 12 inches (304mm) and not exceed 10ft (3m).
     10) For clean agent release initiation sampling points from one ASSD zone serving open areas shall cross zone with one or more adjacent ASSD detection zones.
   - G. For detection of smoke concentration within floor void(s), where indicated in the drawings or where required to meet local jurisdictional requirements:
     1) Provide appropriate number of ASSD apparatuses to efficiently and adequately cover designated area(s).
     2) Air sampling pipe distribution networks shall be constructed using rigid pipe mounted and secured to raised floor support posts as close to the underside of floor tiles as possible.
     3) Sampling points shall be drilled directly into the air sampling pipe distribution network and be oriented downward towards the slab.
     4) Where the floor void is used as an air plenum, sampling points shall be oriented downward 33° to 45° towards the incoming airflow.
     5) Maximum coverage per sampling point shall not exceed 900 sq ft (83 sq m).
     6) Sampling points shall be free from obstructions for a minimum of 18 inches (457mm) on all sides.
     7) Placement of sampling points nearest to perimeter walls extending to the slab shall be greater than 12 inches (304mm) and not exceed 15ft (3m).

AIR SAMPLING SMOKE DETECTION SYSTEMS NOTES AND PERFORMANCE REQUIREMENTS (CONTINUED)

   - H. Manufacturer's specific software modeling tool which uses air sampling pipe distribution network parameters shall be used to predict performance of pipe network design(s). Each of the following performance requirements shall be met:
     1) Maximum sensitivity at each sample point for ASSD shall not exceed 1% obs/ft (3% obs/m).
     2) Smoke transport time shall not exceed 60 seconds measured from the furthest sampling point (excluding Benchmark Test Point) on each pipe run back to the ASSD apparatus. A minimum 5% buffer shall be maintained to account for field variations that may occur but in no case shall exceed the 60 second objective.
     3) For air sampling pipe distribution networks fitted with ASGD apparatuses balance between sampling points shall be a minimum of 90%.
   - I. Where local codes and standards dictate placement and spacing of sampling points that is more stringent than those specified herein, local codes and standards shall prevail.
   - J. All sampling points shall be marked with the Manufacturer's standard identification labels as specified herein.
   - K. ASSD apparatus shall be installed in an accessible location and at an accessible height not to exceed 6ft (1.82m) as indicated in this Specification and on the Drawings.
   - L. A Benchmark Test Point shall be provided at the furthest end of each pipe run, opposite end of the ASSD apparatus. Provisions shall be made so that this test point can be located maximum 6ft (1.82m) above finished floor. The test point shall be constructed using a normally closed industrial quick connect fitting with an orifice of nominal 1/8 inch (3.2mm) when open to facilitate benchmark performance verification as indicated in this Specification and on the Drawings. This remote test point is intended to benchmark system performance at time of initial commissioning and during routine test and inspection. The test point shall be labeled documenting benchmark system performance at time of commissioning using Manufacturer supplied labels intended for this purpose. Benchmark labels shall be placed just above test points and be positioned so that they are visible without obstruction.
   - M. Installation and materials shall be in accordance with Manufacturer's guidelines.
8. Warranty
   - A. All ASD system components furnished and installed under this contract, shall be guaranteed against defects in design, materials and workmanship for the full warranty period which is standard with the Manufacturer, but in no case less than one (1) years from the date of system acceptance.

Products

9. Manufacturers
   - A. Manufacturers - Basis of Design Bid: Subject to compliance with requirements, provide products by Global Fire Suppression. Base bid shall include the Basis of Design. Substitutions will be considered for products by other manufacturers, but are not required in advance of bid. When substitution requests are submitted, the Architect / Engineer will be the sole judge of equivalency.
   - B. Manufacturer's Approved Products:
     1) VESDA VLP (Laser Plus)
   - C. All devices and equipment shall be listed by a Nationally Recognized Testing Laboratory.
10. Materials And Equipment
    - A. Air Sampling Smoke Detection (ASSD) Apparatus shall:
      1) Be aspirated laser-based type.
      2) Be of the mass light scattering type and capable of detecting a wide range of smoke particle types of varying size. A particle counting method shall be employed for the purposes of:
         a. Preventing large particles from affecting the true smoke reading.
         b. Monitoring contamination of the filter (dust & dirt etc.) to automatically notify when maintenance is required. The particle counting method shall not be used for the purpose of smoke density measurement.
      3) Be equipped with an integral two-stage disposable filter cartridge. The first stage shall be capable of filtering particles in excess of 20 microns from the air sample. The second stage shall be ultra-fine, removing more than 99% of contaminant particles of 0.3 microns or larger, to provide a clean air barrier across critical detector optics to eliminate internal detector contamination.
      4) Be self monitoring for filter contamination and provide indication through system fault when replacement is necessary. Detectors which allow automatic reset of filter status upon removal and reinsertion are not permitted.
      5) Contain relays for alarm and fault conditions. The relays shall be software programmable to the required functions.
      6) Be network capable, each with its own integral bus isolator and repeater.
      7) Be equipped with a general purpose input to allow either: Remote Reset, Isolate or Standby.
      8) Be modular, with each detector monitored by an integral or externally mounted Display Unit featuring indicator LED's. For addressable detectors, indicators shall identify which pipe is carrying smoke. Remote Display units shall incorporate integral control buttons for Reset and Isolate.
      9) Permit configuration by Programmers that are either integral to the system, portable or PC based.
      10) Allow configuration of:
         a. Smoke threshold alarm levels.
         b. Time and date.
         c. Time delays.
         d. Faults, including airflow, detector, power, filter and network as well as an indication of the urgency of the fault.
         e. Relay outputs for remote indication of alarm and fault conditions.
         f. General purpose input functionality.
         g. Simulated electronic testing of relays.
      11) Provide a minimum of three alarm output levels corresponding to Pre-alarm, Fire 1 and Fire 2. Alarm levels shall be programmable and able to be set within listed limits at absolute sensitivities meeting sensitivity objectives specified herein. Setting and adjustment of sensitivities by means of adaptive algorithms is not permitted.
      12) Incorporate a flow sensor in each pipe inlet and provide staged airflow faults. Detector units which permit unsupervised disabling of flow sensors is not permitted.
      13) Incorporate facilities to transmit the following faults:
         a. Detector
         b. Airflow
         c. Filter
         d. System
         e. Zone
         f. Network
         g. Power
         h. Urgent and Minor faults
      14) Store internally a minimum of 12,000 events in its history buffer for future extraction and analysis of events and operational status.

AIR SAMPLING SMOKE DETECTION SYSTEMS NOTES AND PERFORMANCE REQUIREMENTS (CONTINUED)

      15) Addressable detectors shall have four pipe inlets fitted with an integral scanning valve mechanism to identify which sampling pipe is carrying smoke. The valve mechanism shall:
         a. Begin to sample each pipe individually upon detection of smoke.
         b. Be used to identify the level of smoke in each pipe.
         c. Be used to indicate in which pipe an alarm was first detected.
    - B. Power Supply and Batteries:
      1) System shall be powered by from a listed and approved regulated supply of nominally 24Vdc.
      2) Power supply shall be provided with appropriately sized/rated batteries to accommodate the system's power requirements for a duration of time required by the local AHJ in the event main AC power is interrupted.
    - C. Sampling Pipe, Capillary Tubing, Remote Sampling Points, Fittings and Mounting Hardware:
      1) Material for sampling pipe, capillary tubing, remote sampling points and associated fittings shall be in accordance with Manufacturer's guidelines, local codes and standards.
      2) Pipe and tubing inside diameter shall be in accordance with Manufacturer's guidelines and as specified in air sampling pipe distribution software modeling tool.
      3) Pipe and tubing interior shall be smooth bore.
      4) Pipe and tubing shall be marked with the listing information and marking requirements as per local codes and standards.
      5) All fittings shall be made with compatible pre-formed elbows, tees, couplings, end caps and unions.
      6) All joints in the sampling pipe must be air tight and made by using compatible solvent cement, except at entry to the detector.
      7) Mechanical pipe fasteners and hangers shall be approved for use with the pipe material in which it is supporting. Fasteners and hangars shall allow pipe to freely slide in and out to facilitate expansion and contraction of the material.
      8) It shall be the installing contractor's responsibility to confirm pipe and tubing material and mounting methods selected meets this Specification, requirements of the local AHJ and Manufacturer's guidelines.

VESDA QUALIFICATION REQUIREMENTS

1. Quality Assurance
   - A. It is imperative that the Manufacturer be included in the early stages of project work to ensure all designs are in compliance with regulatory code, and Manufacturer's criteria.
     1) Installing Contractor: Prior to submittal, ordering of equipment or commencement of any installation work, the ASD system Manufacturer shall review all designs for new ASD systems;
        a. A set of prints (AutoCAD) shall be sent to manufacturer complete with all ASD piping layouts, detector placement, ASPIRE2 calculations, and a copy of ASD project specifications. Upon receipt of this complete package, manufacturer will review and comment within 5-7 working days.
   - B. Manufacturer's Qualifications:
     1) Firms regularly engaged in manufacture of Air Sampling Smoke Detection systems of types, sizes, and electrical characteristics required, and whose products have been in satisfactory use in similar service for not less than fifteen years.
     2) The name of the manufacturer, part numbers and serial numbers shall appear on all major components.
   - C. Designers and Technicians Qualifications:
     1) A Professional Engineers (PE) license in Fire Protection Engineering, a PE license in Electrical Engineering, a PE who is regularly engaged in the design of fire detection and alarm systems, or a NICET Level III or equivalent certified fire alarm technician working under the direct supervision of a PE as qualified above. The PE shall have evidence of not less than 4 years experience in designing fire detection and alarm systems.
     2) Final construction drawings shall be signed and stamped/sealed and issued by a PE registered in the jurisdiction where the installation is to be made either by the System Designer or Engineer Consultant.
   - D. Contractor Qualifications:
     1) All contractors involved with the design and installation of ASD systems shall be very experienced with the systems that they are designing / installing per the occupancy use. A minimum of 5 years experience in the installation of ASD systems and a NICET level III fire alarm technician or equivalent on staff to supervise the design and installation is required.
     2) The installing contractor shall have successfully passed advanced certification training and be listed by the ASD system Manufacturer as an accredited VESDA Pro contractor, trained and certified to model, design, install, program, test and maintain the ASD system and shall be able to produce a certificate stating such upon request.
     3) The installing contractor shall maintain appropriate licensing and certifications from the jurisdiction in which the work occurs.
   - E. Testing Technicians Qualifications:
     1) Testing technicians of ASD systems shall be trained and qualified by the ASD system Manufacturer in the proper operation of the system per the occupancy use.
     2) System testing technicians or others conducting system programming, certification, power up, and system commissioning shall have had advanced certification training, be listed by the ASD system Manufacturer as an accredited VESDA Pro technician and shall be able to produce a certificate stating such upon request.
     3) Testing technicians shall be an accredited NICET Level II (or greater) or equivalent fire alarm technician to perform such work.
   - F. Materials and installation shall be in accordance with the latest revisions of the following codes, standards and specifications, except where more stringent requirements have been specified herein:
   - G.
     1) NFPA 70: National Electrical Code.
     2) NFPA 72: National Fire Alarm Code.
     3) NFPA 75: Standard for the Fire Protection of Information Technology Equipment.
     4) NRTL: Nationally Recognized Testing Laboratory
     5) Standards listed, as well as all other applicable codes and standards shall be used as "minimum" design standards. Also, to be considered are the requirements of the "Authority Having Jurisdiction" and good engineering practices.
2. Delivery, Storage, And Handling
   - A. It is the Contractor's responsibility to ensure on-time delivery of all materials and equipment required for the Project. All materials furnished or incorporated in the Work shall be new, unused, of best quality, and especially adapted for the service required; whenever the characteristics of any material are not particularly specified, such material shall be utilized as is customary in first class work of a nature for which the material is employed.
   - B. Contractor shall provide necessary means to properly stage and store all materials and equipment until time of use or installation on the Project. Contractor shall be solely responsible for materials and equipment stored on the Site; type and extent of security provided to be at Contractor's discretion. Coordinate all requirements with Owner.
   - C. Contractor shall be responsible for proper handling, rigging, and installing of all materials and equipment for the Project.
   - D. Owner reserves the right to reject any materials or equipment that are not properly stored in accordance with these specifications or the Manufacturers' requirements.

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dlb associates
CONSULTING ENGINEERS, P.C.
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Questions For DLB Call: Dan Grieshaber
DLB Project ID: 11953 Phone: (732)927-5041

seal

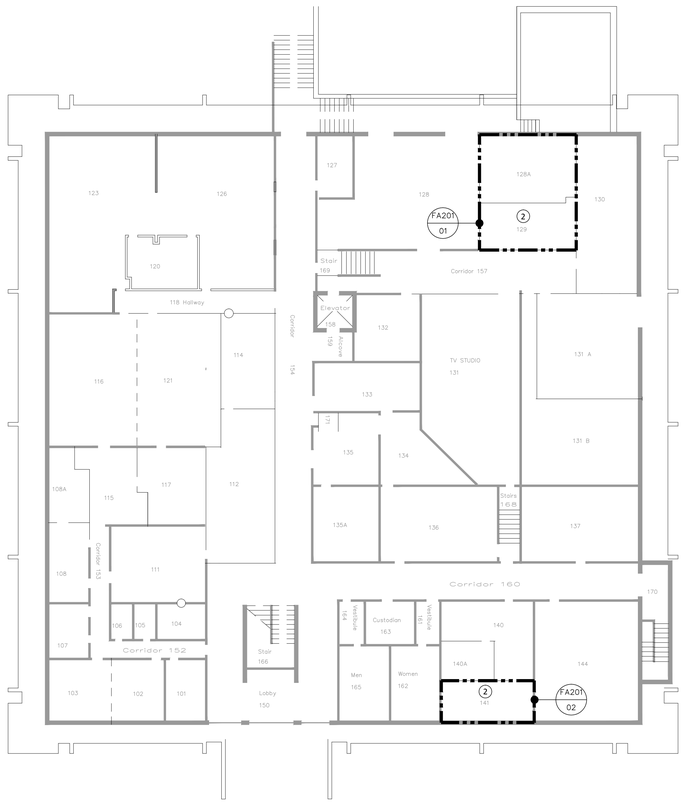
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

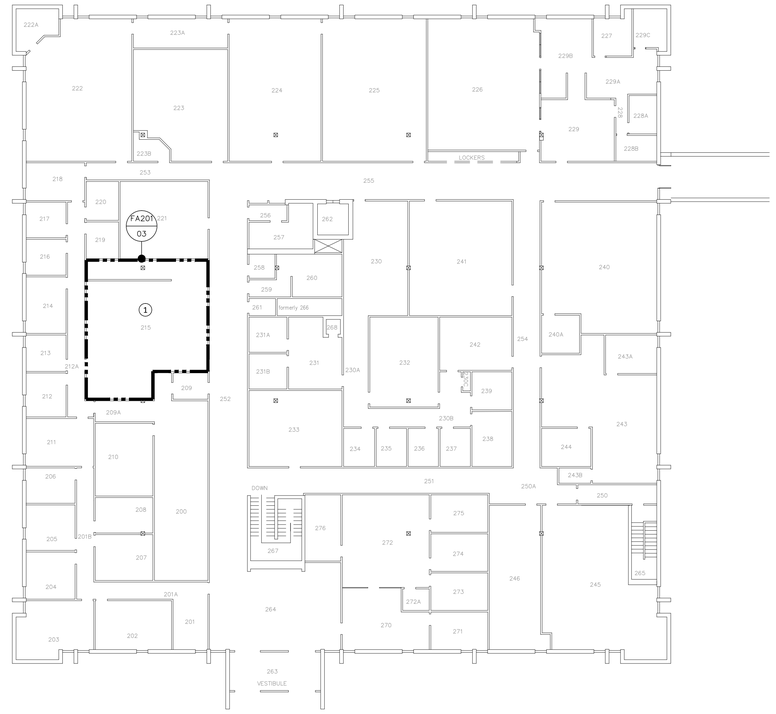
drawn by	checked by	date
LR	DG	01/09/2015
scale: AS SHOWN	filename: 11953 JLC FA-001	

title
JOHNSON LEARNING CENTER
FIRE ALARM GENERAL INFORMATION

dwg. no.
FA-001

30x42





LOWER FLOOR PLAN | Scale: 1/16"=1'-0" (4' 8' 16' 32') | Drawing: **FA-101** | Detail: **01**

UPPER FLOOR PLAN | Scale: 1/16"=1'-0" (4' 8' 16' 32') | Drawing: **FA-101** | Detail: **02**

KEY NOTES (SYMBOLS 1, 2, ETC.)

1. Existing Data Center. Under This Scope The Existing Spot Detection System Will Be Used To Release The New Preaction Sprinkler System And The New Early Warning Detection System (VESDA) System Will Be Used To Release The Existing FM200 System.
2. New Preaction System With Spot Detection For Lower Level IT And Telephone Rooms.

GENERAL NOTES

1. All Wiring Shall Be In Strict Compliance With The 2015 National Electrical Code, Authorities Having Jurisdiction, Local Codes, Electrical Specifications And Contract Documents.
2. Wire Sizes Shall Be As Follows:

AC power	Per N.E.C.
Detector Circuit, Supervisory Circuit, Manual Pull Station	#16 AWG MIN.
SLC Loop	#16 AWG MIN.
Horn / Strobes	#16 AWG MIN.

3. All Wiring Shall Be Installed Using Power Limited Fire Protective Signaling Circuit Cable. Installation Methods Shall Conform With Local Codes Or Contract Specifications.
4. Where Raceways Are Used, Conductors For Smoke Detectors, Monitor Modules, Test Stations, Manual Release Stations, Supervisory Devices And Indicating Circuits (Horn-Strobes) Can Be Installed In The Same Raceway But Must Be Installed In A Separate Raceway From All 120 VAC Circuits.
5. Detector Locations May Vary A Few Feet To Avoid Any Light Fixtures Or Obstructions. Do Not Install A Detector Within 3' Of A Supply Register. Review Reflected Ceiling Plans. The Operable Part Of Each Manual Fire Alarm Box Shall Be 48" Above The Finished Floor. Wall Mounted Audio/ Visual Appliances Shall Be Mounted Such That The Entire Lens Is Not Less Than 80" And Not Greater Than 96" Above The Finished Floor.
6. All Conductors Are To Be Properly Tagged Or Numbered In The Control Panel And Correspond With Control Panel Terminal Or Field Wire Numbers For Identification Purposes.
7. Wiring Circuits Must Go To And From Each Device, Branch Circuits Are Not Permitted, Polarity Must Be Observed Throughout.
8. All Circuit Runs Shall Be Continuous Between Devices, Without Splices, Wherever Practical, Where A Continuous Wire Run Is Not Practical, Connections Shall Be Made In UL Listed Metal Electrical Enclosures Conforming To The Requirements Of Chapter 3 Of NFPA 70.
9. Ensure All Junction Boxes, Devices Backboxes, And Equipment Cabinets Are Provided With Strain Relief Fittings Where Nonmetallic Sheathed Cables Enter Without Raceway.
10. Power To Control Panel And Connection Of Batteries To Control Panel To Be Made Under Supervision Of System Manufacturer's Supplier's Representative.
11. Electrical Installer Must Place Dust Covers On All Detectors. Dust Covers To Be Removed Only By System Manufacturer's Technical Personnel At The Time Of Final Check-Out.
12. All Wiring Shall Be In Conduit.
13. Primary 120 VAC Power To Preaction Panel To Be On Separate Dedicated Branch Circuit. Circuit Breaker To Be Equipped With Lock And Identification Per NFPA Standards Tie Into The Existing Fire Alarm Fused Cutout Panel.

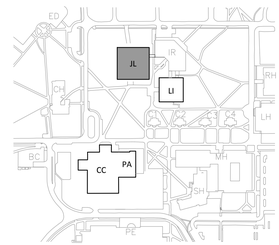
PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
F	Manual Pull Station
	Strobe Only
F	Horn/Strobe
SD ER	Smoke Detector (ER Indicates Elevator Recall)
	Heat Detector, Combination Fixed Temperature And Rate Of Rise
194	Heat Detector, Fixed Temperature (135°F Standard Or As Shown)
FACP	Fire Alarm Control Panel
FARA	Fire Alarm Remote Annunciator Panel

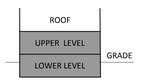
Detail Identifier

E4 / 01 — Drawing # (Detail Location) / Detail #

Identifier	Description
A	Abort
FACP	Fire Alarm Control Panel
SD	Smoke Detector



Campus Keyplan



Vertical Plan

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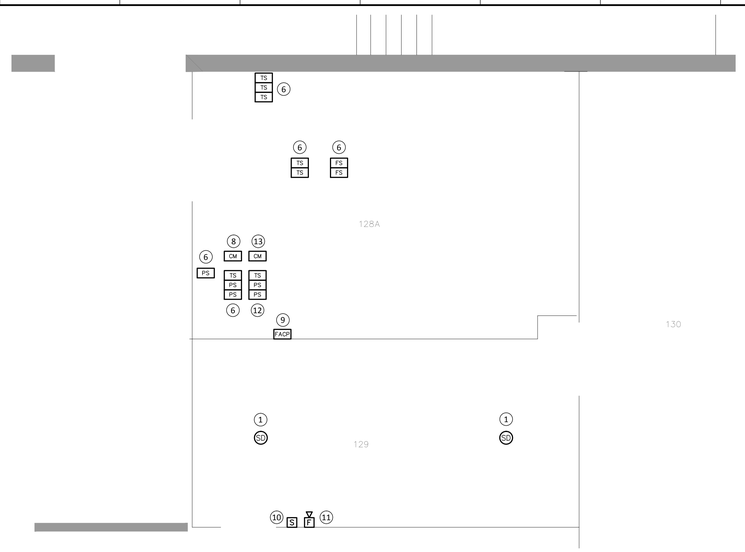
drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 JLC FA-101	

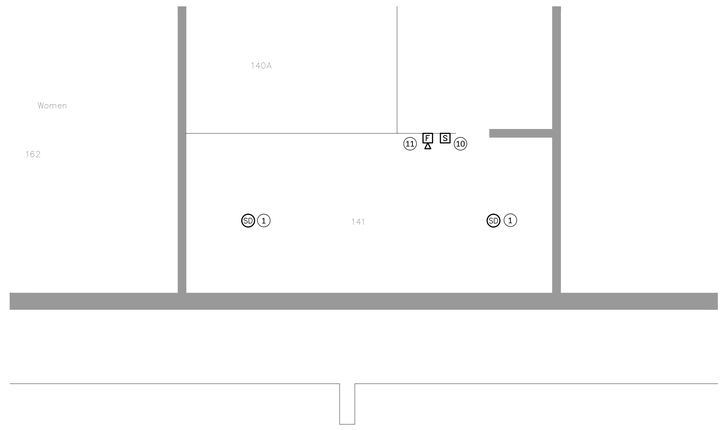
title
JOHNSON LEARNING CENTER
FIRE ALARM FLOOR PLANS

dwg. no.
FA-101

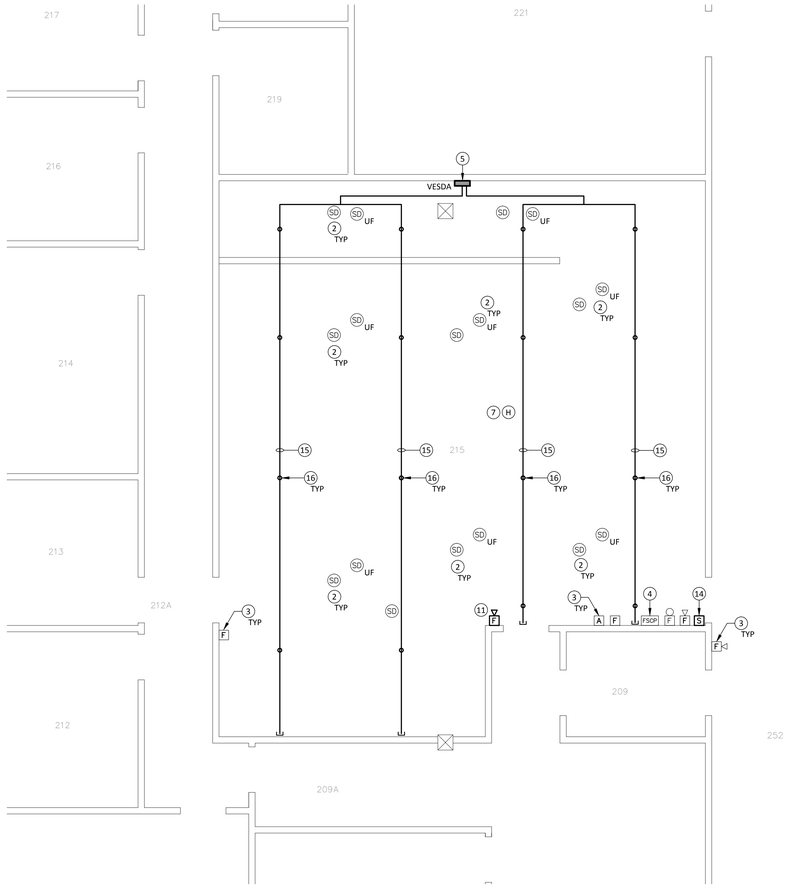
30x42



LOWER FLOOR ROOMS 128A & 129 PART PLAN — Scale: 1/4"=1'-0" (1' 2' 4' 8') — Drawing: **FA-201** Detail: **01**



LOWER FLOOR ROOM 141 PART PLAN — Scale: 1/4"=1'-0" (1' 2' 4' 8') — Drawing: **FA-201** Detail: **02**



UPPER FLOOR DATA CENTER PART PLAN — Scale: 1/4"=1'-0" (1' 2' 4' 8') — Drawing: **FA-201** Detail: **03**

KEY NOTES (SYMBOLS ①, ②, ETC.)

1. Furnish And Install New Smoke Detector In Lower Level IT And Telephone Rooms For Control Of Preaction Sprinkler System Tied Into The Signal Line Circuit From The Existing Simplex Fire Alarm Control Panel.
2. Existing Smoke Detectors To Remain.
3. Existing Fire Alarm / FM-200 Devices To Remain.
4. Engage The Owner's Simplex Fire Alarm Vendor To Program And Integrate The New Preaction And VESDA Systems Into Existing Simplex 4004R Fire Suppression Release Panel.
5. New VESDA VLP Detector And Piping. Provide Power For New VESDA System (2#12, #12G, 3/4"C.) Furnish And Install New Conduit And Wiring And Run To New 1P-20 Circuit Breaker To Be Installed In Space #31 In panel E (See Drawing FP-101).
6. Furnish And Install Fire Alarm Monitor Modules To Monitor All New Water Flow, Pressure And Tamper Switches (See Fire Protection Plans) And Tie Into The Signal Line Circuit From The Existing Simplex Fire Alarm Control Panel.
7. Existing Heat Detector To Remain.
8. Furnish And Install Fire Alarm Control Module To Control Sprinkler Preaction Valve. (See Fire Protection Plans) And Tie Into The Signal Line Circuit And 24VDC Circuit From The Existing Simplex Fire Alarm Control Panel.
9. Existing Simplex 4001U Fire Alarm Control Panel.
10. Furnish And Install Preaction Sprinkler System Manual Pull Station To Control Sprinkler Preaction Valve. (See Fire Protection Plans) And Tie Into The Signal Line Circuit From The Existing Simplex Fire Alarm Control Panel.
11. Furnish And Install New Horn / Strobe Tied Into The Notification Appliance Circuit From The Existing Simplex Fire Alarm Control Panel.
12. Furnish And Install Fire Alarm Monitor Modules To Monitor All New Pressure And Tamper Switches (See Fire Protection Plans) And Tie Into The Signal Line Circuit From The Existing Simplex Fire Suppression Release Panel.
13. Furnish And Install Fire Alarm Control Module To Control Sprinkler Preaction Valve. (See Fire Protection Plans) And Tie Into The Signal Line Circuit And 24VDC Circuit From The Existing Simplex Fire Suppression Release Panel.
14. Furnish And Install Preaction Sprinkler System Manual Pull Station To Control Sprinkler Preaction Valve. (See Fire Protection Plans) And Tie Into The Signal Line Circuit From The Existing Simplex Fire Suppression Release Panel.
15. VESDA Piping.
16. VESDA Sampling Port.

GENERAL NOTES

1. All Wiring Shall Be In Strict Compliance With The 2015 National Electrical Code, Authorities Having Jurisdiction, Local Codes, Electrical Specifications And Contract Documents.
2. Wire Sizes Shall Be As Follows:

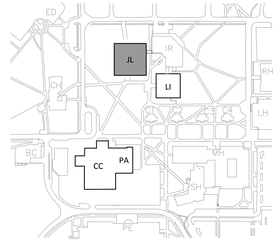
AC power	Per N.E.C.
Detector Circuit, Supervisory Circuit, Manual Pull Station	#16 AWG MIN.
SLC Loop	#16 AWG MIN.
Horn / Strobes	#16 AWG MIN.

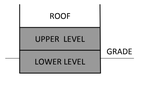
3. All Wiring Shall Be Installed Using Power Limited Fire Protective Signaling Circuit Cable. Installation Methods Shall Conform With Local Codes Or Contract Specifications.
4. Conductors For Smoke Detectors, Monitor Modules, Control Modules, Manual Release Stations, Supervisory Devices And Indicating Circuits (Horn-Strobes) Can Be Installed In The Same Raceway But Must Be Installed In A Separate Raceway From All 120 VAC Circuits.
5. Detector Locations May Vary A Few Feet To Avoid Any Light Fixtures Or Obstructions. Do Not Install A Detector Within 3' Of A Supply Register. Review Reflected Ceiling Plans. The Operable Part Of Each Manual Fire Alarm Box Shall Be 48" Above The Finished Floor. Wall Mounted Audio/ Visual Appliances Shall Be Mounted Such That The Entire Lens Is Not Less Than 80" And Not Greater Than 96" Above The Finished Floor.
6. All Conductors Are To Be Properly Tagged Or Numbered In The Control Panel And Correspond With Control Panel Terminal Or Field Wire Numbers For Identification Purposes.
7. Wiring Circuits Must Go To And From Each Device, Branch Circuits Are Not Permitted, Polarity Must Be Observed Throughout.
8. All Circuit Runs Shall Be Continuous Between Devices, Without Splices, Wherever Practical, Where A Continuous Wire Run Is Not Practical, Connections Shall Be Made In UL Listed Metal Electrical Enclosures Conforming To The Requirements Of Chapter 3 Of NFPA 70.
9. Ensure All Junction Boxes, Devices Backboxes, And Equipment Cabinets Are Provided With Strain Relief Fittings Where Nonmetallic Sheathed Cables Enter Without Raceway.
10. Power To Control Panel And Connection Of Batteries To Control Panel To Be Made Under Supervision Of System Manufacturer's Supplier's Representative.
11. Electrical Installer Must Place Dust Covers On All Detectors. Dust Covers To Be Removed Only By System Manufacturer's Technical Personnel At The Time Of Final Check-Out.
12. All Wiring Shall Be In Conduit.
13. Primary 120 VAC Power To Preaction Panel To Be On Separate Dedicated Branch Circuit. Circuit Breaker To Be Equipped With Lock And Identification Per NFPA Standards.
14. Contractor Shall Include All All Required Fire Alarm Expansion Panels, PC Boards, Power Supplies, Batteries, Branch Circuits, Fuse And NAC Signal Power Boosters, For A Complete And Operable Fire Alarm And Fire Suppression Systems. Include All Programming (By MCC's Fire Alarm Vendor) Of The Systems (New And Existing Devices).

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
F	FM-200 Manual Release Pull Station
	Strobe Only
F	Horn/Strobe
SD UF	Smoke Detector (UF Indicates Under Raised Floor)
H	Heat Detector, Combination Fixed Temperature And Rate Of Rise
194 H	Heat Detector, Fixed Temperature (135°F Standard Or As Shown)
FACP	Fire Alarm Control Panel
FARA	Fire Alarm Remote Annunciator Panel
FSCP	Fire Suppression Release Panel
A	FM-200 Abort Switch
F	Bell / Strobe
FS	Sprinkler Flow Switch
TS	Sprinkler Tamper Switch
PS	Sprinkler Pressure Switch
S	Preaction Sprinkler Manual Pull Station

Identifier	Description
A	Abort
FACP	Fire Alarm Control Panel
FS	Flow Switch
H	Heat Detector
SD	Smoke Detector
TS	Tamper Switch
PS	Pressure Switch





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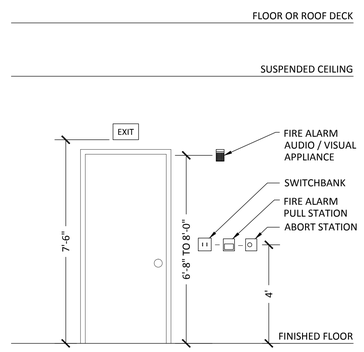
drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 JLC FA-201	

title
JOHNSON LEARNING CENTER
FIRE ALARM PART PLANS

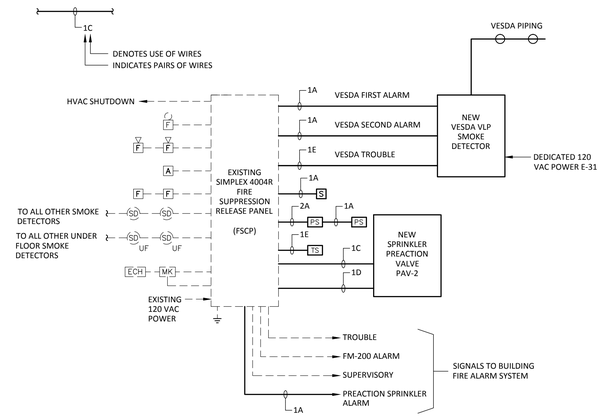
dwg. no.
FA-201

30x42

SYMBOLS LEGEND	
PLAN VIEW	DETAIL VIEW
	EXIT
A	
F F	
F	
S	



TYPICAL FIRE DEVICE MOUNTING LOCATIONS | Scale: NTS | Drawing: **FA501** Detail: **01**



NOTES:
1. Riser Diagram Shows Number Of Circuits And Wire Sizes. Actual Quantity Of Devices Is Shown On The Floor Plans.
2. Refer To Floor Plans For Exact Location Of Devices.
3. All Wiring To Be Color Coded.
4. Spot Type Smoke Detectors (Above And Below The Raised Floor) That Originally Controlled The Existing FM-200 Fire Suppression System Shall Be Reconfigured To Control The New Double Interlocked Preaction Sprinkler Valve.
5. The New VESDA Smoke Detection System Shall Control The Existing FM-200 Clean Agent Fire Suppression System.

FM-200 & PREACTION SPRINKLER SYSTEMS RISER DIAGRAM (UPPER FLOOR DATA CENTER) | Scale: NTS | Drawing: **FA501** Detail: **02**

WIRE GUIDE		
LTR	DESCRIPTION	DESCRIPTION
A	ZONE WIRING	16AWG UTP.
B	NOTIFICATION CIRCUIT	16AWG UTP.
C	24 VDC	16AWG UTP.
D	PREACTION SPRINKLER RELEASE CIRCUIT	16AWG UTP.
E	SUPERVISORY CIRCUIT	16AWG UTP.

SYMBOL LIST

- F — FM-200 Manual Release Pull Station
- F — Horn/Strobe
- SD UF — Smoke Detector (UF Indicates Under Raised Floor)
- FACP — Fire Alarm Control Panel
- FSCP — Fire Suppression Release Panel
- A — FM-200 Abort Switch
- F — Bell / Strobe
- FS — Sprinkler Flow Switch
- TS — Sprinkler Tamper Switch
- PS — Sprinkler Pressure Switch
- S — Preaction Sprinkler Manual Pull Station
- MK — FM-200 Maintenance Key Switch
- ECH — FM-200 Electric Valve Actuator

SYSTEM CONDITION	CONTROL PANEL OPERATION														
	Activate Alarm Signal At The Building FACP	Activate Supervisory Signal At The Building FACP	Activate Trouble Signal At The Building FACP	Activate Signal Transmission To Remote Station Via (DACT)	Display Active Event At The Building FACP And Annunciator(s)	Activate Fire Alarm Visual Notification Appliances	Activate Fire Alarm Audible Notification Appliances	Activate Relays For Door Release	Activate Relays To Security System	Shut Down HVAC & Close Fire Suppression Containment Dampers	Activate 30 Sec. FM-200 Discharge Timer. Release FM-200 After Timer	Activate FM-200 Bell / Strobe	Activate FM-200 Horn / Strobe When FM-200 Is Discharged	Activate Pre-Action Sprinkler Valve
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
FM-200 Manual Release Pull Station	X			X	X	X	X	X	X	X	X	X	X	
Preaction Sprinkler System Manual Release Pull Station	X			X	X	X	X	X	X					X
Spot Type Smoke Detector	X			X	X	X	X	X	X					X
VESDA Air Sampling Smoke Detector Ceiling - Alert		X		X	X									
VESDA Air Sampling Smoke Detector Ceiling - Action		X		X	X									
VESDA Air Sampling Smoke Detector Ceiling - Fire 1	X			X	X	X	X	X	X					
VESDA Air Sampling Smoke Detector Ceiling - Fire 2	X			X	X	X	X	X	X	X	X	X		
VESDA Air Sampling Smoke Detector Unit Trouble			X	X	X									
VESDA Air Sampling Smoke Detector Unit Supervisory		X		X	X									
Preaction Sprinkler Valve Tamper Switch		X		X	X									
Preaction Sprinkler Valve Pressure Switch (Alarm)	X			X	X	X	X	X	X					X
Preaction Sprinkler Valve Low Pressure Switch		X		X	X									
Heat Detector	X			X	X	X	X	X	X					
Fire Suppression Release Panel FM-200 Discharge	X			X	X	X	X	X	X	X	X	X		
Fire Suppression Release Panel Preaction Sprinkler System Discharge	X			X	X	X	X	X	X					X
Fire Suppression Release Panel Trouble			X	X	X									
Fire Suppression Release Panel Supervisory		X		X	X									

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 JLC FA-501	

title
JOHNSON LEARNING CENTER
SCHEDULES & DETAILS

dwg. no.
FA-501

30x42

Library

Sprinkler Design

Middlesex County College
2600 Woodbridge Avenue
Edison, NJ 08818

APPLICABLE CODES AND STANDARDS

The Entire Installation Shall Comply With All Local And State Codes, Including Amendments To Said Codes, And Other Authorities Having Jurisdiction.

1. International Building Code 2015, NJ Edition
2. International Fire Code 2015
3. National Electrical Code (NFPA 70) 2014 Edition
4. National Fire Protection Association (NFPA) 13-2013

BACKGROUND ON CERTAIN DESIGN DECISIONS

The Existing Library Ceiling On The Ground Floor And Approximately Half Of The Lower Level Is In Poor Condition And Needs To Be Replaced. Middlesex County College Has Decided To Replace The Ceiling In These Areas At The Same Time As The Sprinkler Scope Of Work. In Addition To Ceilings The Lighting Will Need To Be Replaced And Coordinated With The New Sprinkler Layouts.

PROJECT OVERVIEW

1. Project Mission Statement:
   A. To Implement A Full Automatic Sprinkler System Retrofit Installation On Time And With Minimal Disruption To Middlesex County College Personnel And The Events Scheduled At Each Facility. The Work Should Be Performed In A Safe Manner While Meeting All MCC Requirements. Upon Completion, All Upgrades Will Function Properly And Safely As Designed.
2. Project Description:
   A. The Project Consists Of Retrofitting An Automatic Sprinkler System Into The Facilities To Satisfy The Requirements Of The Violations Received By The College And To Provide Life Safety Provisions For The Campus Occupants.
3. Scope:
   A. The Following Is A Brief Scope Of The Work For This Project (Not Intended To Be All Inclusive):
      1) Systems To Be Demolished
         Reflected Ceilings Where Noted On Design Documents
      2) Systems To Be Modified And / Or Extended:
         Fire Alarm
         Campus Fire Water Infrastructure
      3) New Systems To Be Constructed:
         A Multi-Zoned Automatic Sprinkler System
      4) Provide Full Sprinkler Coverage For All Floor Areas Throughout The 3 Buildings In Scope.
      5) Provide Code Required Backflow Prevention For Each Site.
      6) Provide A New Fire Protection Water Service To Each Building.
      7) Provide New Fire Alarm Systems And Components As Required To Integrate Alarms And Signals With The Existing Fire Alarm Systems.
4. Objectives:
   A. To Provide A Safe Code Compliant Upgrade To The Life Safety Systems In The Following Buildings:
      Library
      College Center
      Johnson Learning Center
   B. The Intent To Keep These Building As Operational As Practical During The Construction. As A Result Timing And Phasing Of The Construction Will Be High Priority During Construction Planning And Contractor Selection.
   C. The Project Must Be Completed On Time.
   D. The Work Must Be Scheduled & Adjusted As Needed To Accommodate The Operation Of Middlesex County College.
   E. Complete The Project As Fast As Possible While Maintaining Quality And Minimizing Disruption.

FIRE PROTECTION DESIGN CRITERIA

1. Wet Sprinkler System: Light Hazard Occupancies: Classrooms And Restrooms: Density 0.10 GPM/Sq. Ft. Over Most Hydraulically Remote 1500 Sq. Ft. Maximum Coverage Per Sprinkler Head 225 Sq. Ft.
2. Wet Sprinkler System: Ordinary Hazard Group I Occupancies: General Library Space, Mechanical And Electrical Rooms: Density 0.15 GPM/Sq. Ft. Over Most Hydraulically Remote 1500 Sq. Ft. Maximum Coverage Per Sprinkler Head 130 Sq. Ft.
3. Minimum Pressure At Sprinkler Head 7 PSI.
4. Whenever Roll Grooved Connections Are Used For Wet Systems Only, Allowance For Additional Pressure Loss At Grooves Shall Be Made As Follows:
   A. For Each Coupling On Straight Run Including Straight Flow Through Tee Or Cross: Add 1 Equivalent Feet Of Pipe.
   B. For Each Coupling At Elbow, Tee Or Cross Where Direction Of Flow Changes: Add 2 Equivalent Feet Of Pipe.
5. Equivalent Fitting Lengths Used In Hydraulic Calculations Shall Be In Accordance With NFPA Standard No.13.
6. Black Steel Schedule 10 And/Or Lightwall Pipe Are Permitted For 2-1/2" And Larger Pipe Sizes Only. Black Steel Schedule 40 Pipe Are Permitted For 2" And Smaller Pipe Sizes.
7. Discharge From Each Sprinkler Head Shall Not Be Less Than Required For Area Covered By This Head. Area Coverage Per Head Shall Be Determined In Accordance With NFPA Standard No. 13.
8. Hydraulic Calculations Shall Be Brought Back To Connection To Water Supply.
9. Result Of Hydraulic Calculations Shall Indicate Minimum 10% Pressure Safety Margin. I.E. Excess Of Pressure Available Over Pressure Required.
10. MIC Testing Of The Water Supply Must Be Provided Before The System Is Installed And In Operation By An Independent Agency.
11. Contractor Shall Order Hydrant Flow Test And Base All Hydraulic Calculations On Results Of Test.
    A. Hydrants Tested Shall Be Located As Close As Possible To Point Of Fire Service Connection To Yard Main.
    B. Test Data Shall Indicate Static Pressure, Residual Pressure At Test Flow And Grade Elevation At Hydrant Tested.
    C. Hydrant Test Data Shall Be Submitted For Review Along With Shop Drawings And Hydraulic Calculations.

PROJECT CONSTRUCTION PHASING

General

1. See G-002 For Library Phasing Plans.
2. The Construction Of The Sprinkler System Will Be Performed In Active Buildings.
3. Protection Of Facilities And Temporary Construction Barriers Shall Be Included In All Contractor Bid Packages.
4. Dedicated Contractor Construction Pathways, Material Storage And Parking Will Be Assigned Prior To Beginning Work. Dedicated Construction Pathways Must Be Maintained For Debris Removal And Building Access Such That Phasing Does Not Affect General Building Operations.
5. The Contractor Must Submit A Comprehensive Phasing Plan And Schedule For Review And Approval By The Owner And Engineer Prior To Work Starting.
6. Minimum Required Paths Of Egress Must Be Maintained At All Times During The Duration Of Construction. Egress Pathways Must Remain Clear Of All Obstructions, Building Materials, Etc.
7. Construction Materials Stored On Site Must Be Stored In A Locked Area And Separated From Tenant Circulation Areas.
8. Debris, Dust, And Dirt Must Be Kept To A Minimum And Confined To The Area Of Work. Contractor Phasing Plan Must Illustrate Means To Create This Separation And Construct Temporary Partitions Where Required.
9. Construction Operation Hours Must Be Coordinated With The Owner To Limit Disruption Due To Excessive Noise In Active Buildings. The Owner Shall Provide The Contractor With Dates And Times Where Noise Must Be Eliminated Due To Scheduled Campus Activities (I.E. Exams, Special Events, Etc.).
10. Construction Operations Shall Not Disrupt Building Heat, Water, Or Electric Without Written Authorization From The Owner.

GENERAL NOTES

1. General:
   A. All General Notes Are To Be Read And Adhered To By Each Contractor. The Notes Are Loosely Categorized By Trade, But This Does Not Limit The Responsibility Of The Contractor To Any Single Category.
   B. All Work Shall Be Performed In A Neat Workmanlike Manner.
   C. "Furnish And Install" Or "Provide" Means To Supply, Erect, Install, And Connect Up To Complete For Readiness For Regular Operation, The Particular Work Referred To.
   D. All Temporary Construction Services (Electric, Water, Etc.) Shall Be Determined / Arranged By The Contractor And Included In The Bid Price.
2. Coordination:
   A. Contractors Shall Coordinate Their Work With The Work Of All Other Trades And The Existing Field Conditions.
   B. Contractor Shall Visit The Job Site And Verify Existing Field Conditions Prior To Submission Of Bid.
   C. Contractor Shall Secure And Pay For All Required Permits And Shall Arrange All Required Inspections.
   D. Contractor Shall Make Arrangements With Local Utility Companies To Provide Service. Contractor Shall Provide Service Equipment In Accordance With All Utility Company Requirements.
3. Installation / Demolition:
   A. Contractor Shall Provide All Necessary Miscellaneous Steel For The Support Of All Equipment Suspended From Slab, Steel, Wall, Or Trusswork.
   B. Proper Fire Protection Measures, Satisfactory To The Local Fire Department, Shall Be Taken When Welding Or Cutting With Torches Or Electric Arc.
   C. Each Contractor Shall Be Responsible For All Cutting And Patching Of Walls, Ceilings, Roofs, And Floors Required As A Result Of Their Work.
   D. All Penetrations Of Floors (Whether Or Not Fire Resistance Rated) And All Penetrations Of Fire Rated Walls Shall Be Firestopped. Refer To The Specification For Additional Requirements.
   E. Piping Layouts Are Schematic Diagrams And Are Intended To Show General Arrangement, Size And Capacity And Do Not Indicate Which Pipe Is Above Or Below The Other. All Offsets Are Not Necessarily Shown, Contractor Shall Arrange And Coordinate The Work, Furnish Necessary Offsets, Valves And Fittings To Avoid Conflict With Other Mechanical And Electrical Services And Structural And Architectural Elements Without Additional Cost To The Owner. If Areas Of Conflict Are Encountered, The Architect / Engineer Shall Be Notified And Contractors Recommendations Shall Be Submitted To The Architect / Engineer For Approval Before Work Has Begun.
   F. Owner Provided Equipment Shall Be Received, Stored And Installed By The Contractor. All Cost Associated With Rigging, Receiving And Storage Shall Be The Responsibility Of The Contractor.

FIRE PROTECTION NOTES

General

1. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13.
2. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
3. Numbers And Locations Of Sprinkler Heads, Shown On These Plans, Are For Illustration Purposes Only. Exact Number And Locations Shall Be Shown On Sprinkler Construction Shop Drawings Which Shall Be Provided By The Contractor.
4. All New Sprinkler Piping And Heads Shall Be Located Only As Indicated On Approved Shop Drawings. Shop Drawings Must Be Submitted And Approved Before Starting Work. Any Deviations Made To Approved Layout Must Be Submitted To Engineer As "As-Built" Drawings.
5. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
6. Coordinate Interlocks, Signaling And Alarm Contacts With Fire Alarm And Electrical Contractors. Coordinate Duct Smoke Detection With Mechanical Contractor.
7. Contractor To Design Per FM Global Standards Unless Otherwise Indicated.

Piping

1. All Piping And Equipment Shall Be Substantially Supported From The Building Structure. Hanger And Supports Shall Be Specifically Approved For Use In Sprinkler Systems.
   A. Where Overhead Construction Does Not Permit Fastening Of Hanger Rods In Required Locations, Provide Additional Steel Framing As Required And Approved.
   B. No Piping Shall Be Hung From The Piping Of Other Trades Or Ductwork. Hangers Shall Be Of Heavy Construction, Suitable For The Size Of Pipe To Be Supported.
2. Piping Penetrations Through Fire Rated Walls Shall Be Fire Stopped And Sealed To A Fire Rating Equal To The Wall It Penetrates.
3. All Sprinkler Piping 2" And Below Shall Be Schedule 40 Steel. Schedule 10 Piping Shall Be Allowable For Pipe Sizes 2-1/2" And Above.
4. All Sprinkler Piping In Critical Areas Must Be Schedule 40 Steel With Threaded Fittings Or Victaulic-Type Fittings Where Permitted.
5. Fire Protection Piping Layout Is Schematic In Nature And Does Not Indicate All Required Fittings, Drain Valves, Etc.
6. All Sprinkler Piping Shall Be Installed So That The System Can Be Drained. Provide Drains For Trapped Piping In Accordance With NFPA 13.
7. All Pipes Passing Through Foundation Walls To Be Protected.

Sprinklers

1. In Areas Without Suspended Ceilings, Locate Sprinkler Heads Above And Below All Ducts Over 48" In Width.
2. In Areas With Suspended Ceilings, Sprinkler Heads Shall Be Installed Centered In Both Directions Of The Ceiling Tile. Concealed Sprinkler Heads Shall Be Used For All Finished Ceiling Areas.
3. Upright Sprinklers Shall Be Installed In Areas Without Suspended Ceilings. Provide Protective Cage On All Heads In Areas Under Ducts Or Subject To Accidental Damage.
4. Stock Of Extra Sprinklers Shall Be Furnished As Required For Each Temperature Rating.
5. Distance Of Sprinklers From Heat Sources Shall Be In Accordance With NFPA 13.
6. Coordinate Sprinkler Head Locations With Architectural Reflected Ceiling Plans. Changes Are Subject To Approval By Architect And Shall Be Made At No Additional Cost To The Owner.

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265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Grieshaber
DLB Project ID: 11953 Phone: (732)927-5041

seal

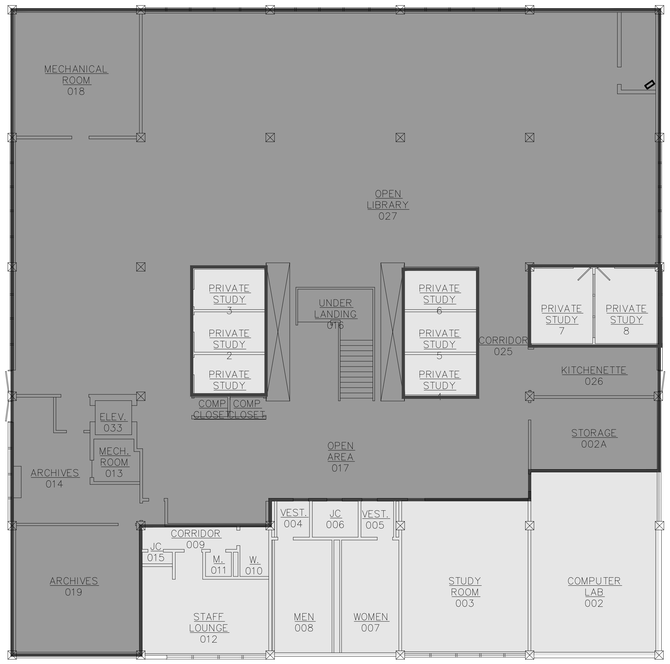
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale	filename	
AS SHOWN	11953 L - FP001	

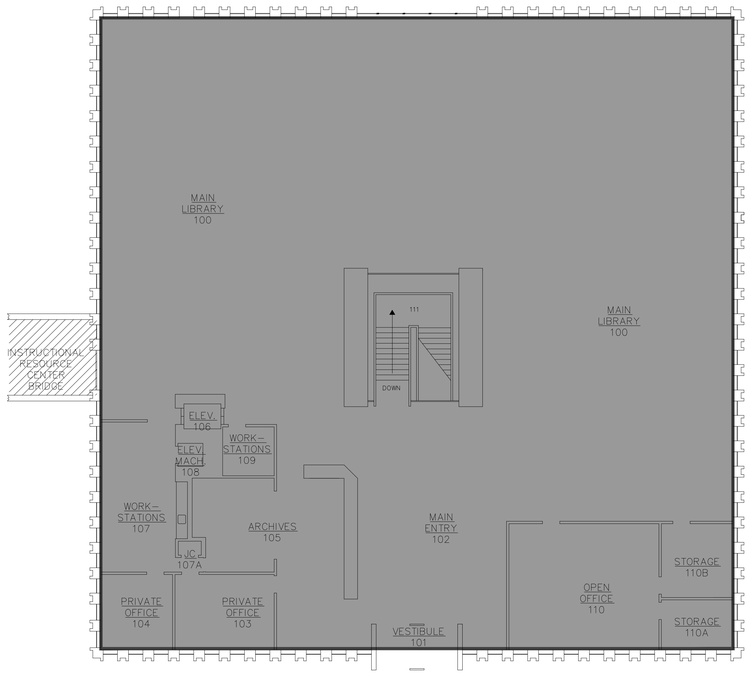
title
LIBRARY
PROJECT INTRODUCTION &
FIRE PROTECTION NOTES

dwg. no.
FP-001

30x42



LOWER LEVEL PLAN | Scale: 3/32"=1'-0" | 2' 4' 8' 12' 20' | Drawing: FP002 | Detail: 01



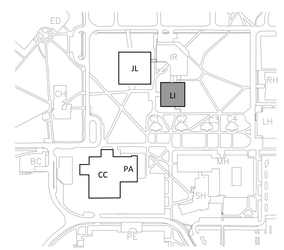
UPPER LEVEL PLAN | Scale: 3/32"=1'-0" | 2' 4' 8' 12' 20' | Drawing: FP002 | Detail: 02

GENERAL NOTES

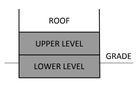
1. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13.
2. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
3. Numbers And Locations Of Sprinkler Heads, Shown On These Plans, Are For Illustration Purposes Only. Exact Number And Locations Shall Be Shown On Sprinkler Construction Shop Drawings Which Shall Be Provided By The Contractor.
4. All New Sprinkler Piping And Heads Shall Be Located Only As Indicated On Approved Shop Drawings. Shop Drawings Must Be Submitted And Approved Before Starting Work. Any Deviations Made To Approved Layout Must Be Submitted To Engineer As "As-Built" Drawings.
5. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
6. Coordinate Interlocks, Signaling And Alarm Contacts With Fire Alarm And Electrical Contractors. Coordinate Duct Smoke Detection With Mechanical Contractor.
7. Contractor To Design Per FM Global Standards Unless Otherwise Indicated.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Indicates Area Not In Scope
	Light Hazard - Wet System
	Ordinary Hazard Group 1 - Wet System



N **Campus Keyplan**



Vertical Plan

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dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

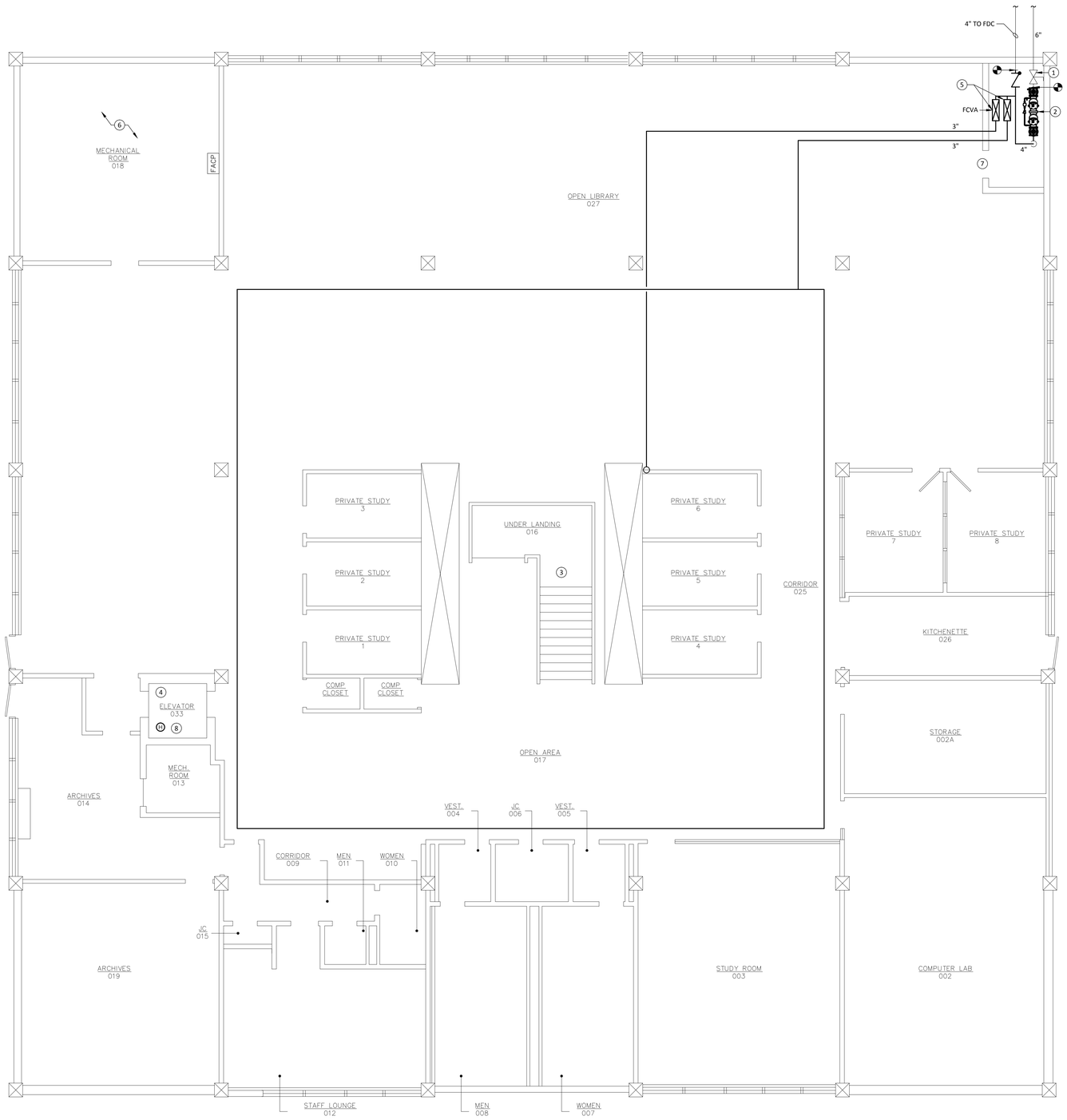
seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - FP002	

title
LIBRARY
SPRINKLER
ZONING PLANS

dwg. no.
FP-002



KEY NOTES (SYMBOLS 1, 2, ETC.)

1. Incoming Service Location With A House Control Valve. Coordinate Exact Location Of The Penetration With Existing MEP Conditions In The Mechanical Room.
2. 6" Double Detector Check Valve Assembly.
3. Full Sprinkler Coverage Required Under The Stair Landing. Coordinate Sprinkler Branch Line Drop In A Concealed Location.
4. Provide A Sidewall Sprinkler Head At The Base Of The Elevator Shaft.
5. Spill Floor Control Valve Assembly Drains To Outdoor Window Well Gravel Pits. Route Piping Along Exterior Wall And Stub Through To Gravel Pit In Least Obstructive Location Possible. Provide Splash Block And Termination Fitting At Outlet.
6. Install Upright Sprinkler Heads 1"-12" Below Concrete Deck. Install Heads Per NFPA 13 Chapter 8.6 Obstruction Rules.
7. Provide NFPA Required Signage On The Door For New Sprinkler Valve Room.
8. Furnish And Install 135 Degree Fixed Temperature Heat Detector In Elevator Machine Room, Elevator Pit And Top Of Elevator Shaft And Tie Into Existing Fire Alarm Signal Line Circuit.

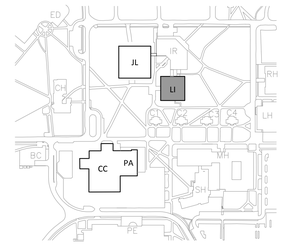
GENERAL NOTES

1. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13.
2. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
3. Numbers And Locations Of Sprinkler Heads, Shown On These Plans, Are For Illustration Purposes Only. Exact Number And Locations Shall Be Shown On Sprinkler Construction Shop Drawings Which Shall Be Provided By The Contractor.
4. All New Sprinkler Piping And Heads Shall Be Located Only As Indicated On Approved Shop Drawings. Shop Drawings Must Be Submitted And Approved Before Starting Work. Any Deviations Made To Approved Layout Must Be Submitted To Engineer As "As-Built" Drawings.
5. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
6. Contractor To Design Per FM Global Standards Unless Otherwise Indicated.
7. Contractor Shall Furnish And Install Fire Alarm Monitor Modules To Monitor All New Water Flow, Pressure Switches And Tamper Switches And Tie Into The Signal Line Circuit From The Existing Simplex 4100U Fire Alarm Control Panel.
8. Contractor Shall Include In Their Bid All Costs For Reprogramming The Fire Alarm System And Reacceptance Testing By MCC's Fire Alarm Service Contractor.

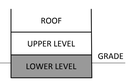
PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
E	Upright Sprinkler Head (E - Existing)
D / R	Upright Sprinkler Head (D - Demo, R - Relocated)
E	Concealed Pendant Sprinkler Head (E - Existing)
D / R	Concealed Pendant Sprinkler Head (D - Demo, R - Relocated)
E	Pendant Sprinkler Head (E - Existing)
D / R	Pendant Sprinkler Head (D - Demo, R - Relocated)
	Sidewall Sprinkler Head
FCVA	Floor Control Valve Assembly
	New Sprinkler Piping
	Existing Sprinkler Piping
	Existing Ceiling To Be Demolished
H	Heat Detector, Fixed Temperature
FACP	Fire Alarm Control Panel (Existing)

Identifier	Description
GPM	Gallons Per Minute
FDC	Fire Department Connection
FS	Flow Switch
TS	Tamper Switch
FCVA	Flow Control Valve Assembly
SP	Sprinkler



Campus Keyplan



Vertical Plan

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drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 L - FP101	

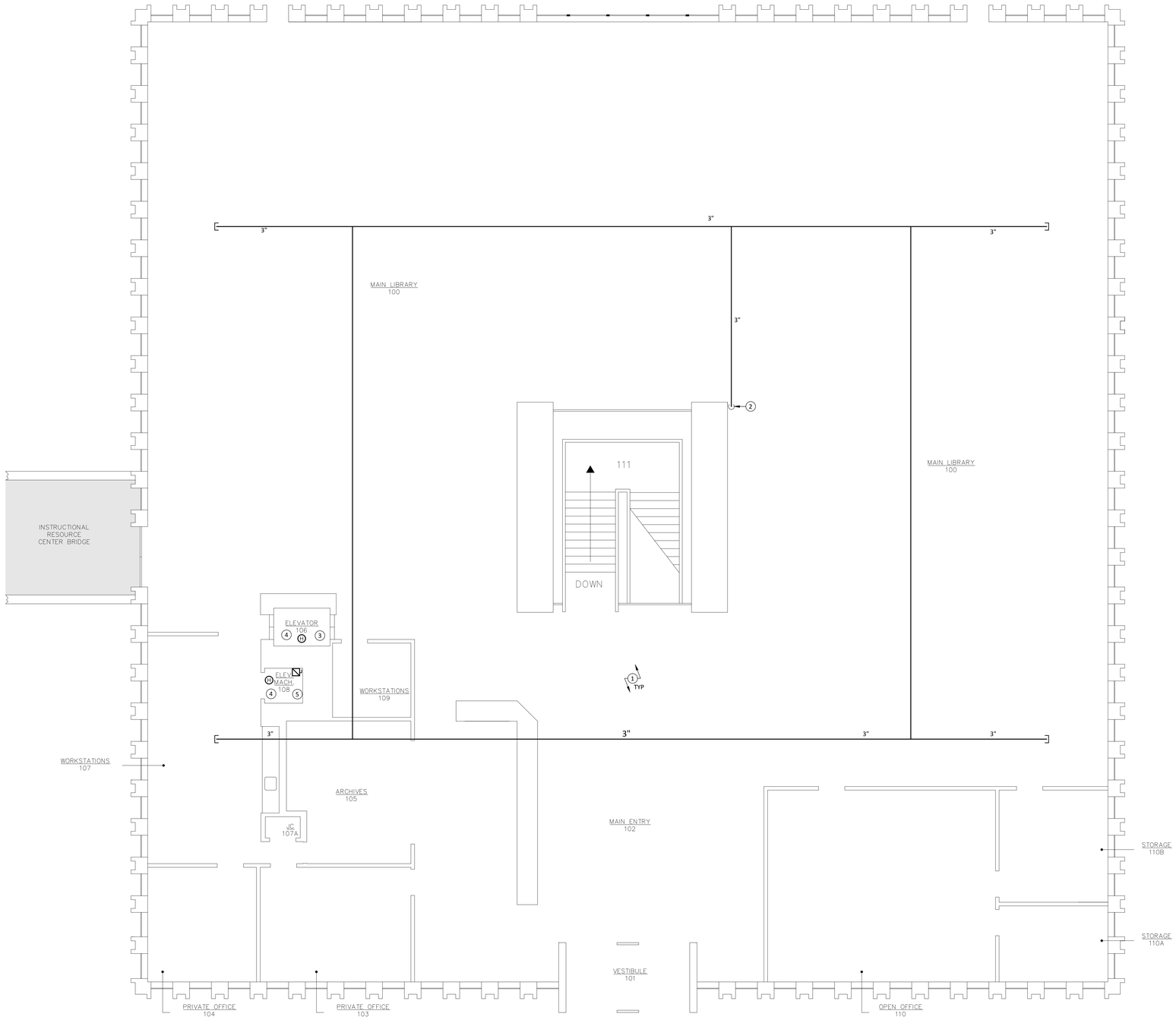
title
LIBRARY
SPRINKLER & FIRE ALARM
LOWER FLOOR PLAN

dwg. no.
FP-101

LOWER FLOOR PLAN Scale: 3/16"=1'-0" (1' 2' 4' 6' 10')

Drawing: **FP-101**
Detail: **01**

30x42



UPPER FLOOR PLAN Scale: 3/16"=1'-0" (1' 2' 4' 6' 10')

Drawing: **FP-102**
Detail: **01**

KEY NOTES (SYMBOLS 1, 2, ETC.)

1. Ground Floor Existing Ceiling And Lighting To Be Replaced In Its Entirety.
2. Construct Metal Stud Enclosure With Gypsum Board To Conceal Piping. Paint New Closure To Match Adjacent Wall Finishes.
3. Provide An Upright Sprinkler Head At The Top Of The Elevator Shaft.
4. Furnish And Install 135 Degree Fixed Temperature Heat Detector In Elevator Machine Room, Elevator Pit And Top Of Elevator Shaft And Tie Into Existing Fire Alarm Signal Line Circuit.
5. Remove Existing 3P-60 Amp Enclosed Circuit Breaker Feeding Elevator In Elevator Machine Room And Replace With New Fusible Shut Trip Switch (Mersen Cat. No. ES 6 T48 R2 G A) and 50A Fuses. Furnish And Install Fire Alarm Monitor Module And Tie Into Existing Signal Live Circuit To Shut Trip Switch When Heat Detectors In Elevator Machine Room, Top Of Elevator Shaft Or Elevator Pit Are Activated. Control Power For Shut Trip Shall Be 24VDC From The Fire Alarm Control Panel.

GENERAL NOTES

1. Furnish All Labor, Materials And Equipment Required For A Complete Fire Suppression System Where Shown On Drawings And Required By The Appropriate Building Codes, Including, But Not Limited To NFPA 13.
2. The Contractor Shall Submit For Approval, Detailed Construction Drawings And Hydraulic Calculations To The Engineer And Fire Sub-Code Official, Prior To The Installation Of Any Equipment. Obtain Certificate Of Inspection And Approval From The Same Agency Having Jurisdiction After Installation. Fire Suppression Construction Drawings Shall Be Signed And Sealed By An Engineer Licensed In The Area Where The Project Is Located.
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5. All Sprinkler System Components To Be Approved By The Engineer And General Contractor And Installed By The Fire Protection Contractor.
6. Coordinate Interlocks, Signaling And Alarm Contacts With Fire Alarm And Electrical Contractors. Coordinate Duct Smoke Detection With Mechanical Contractor.
7. Contractor To Design Per FM Global Standards Unless Otherwise Indicated.
8. Contractor Shall Furnish And Install Fire Alarm Monitor Modules To Monitor All New Water Flow And Tamper Switches And Tie Into The Signal Line Circuit From The Existing Simplex 4100U Fire Alarm Control Panel.
9. Contractor Shall Include In Their Bid All Costs For Reprogramming The Fire Alarm System And Reacceptance Testing By MCC's Fire Alarm Service Contractor.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
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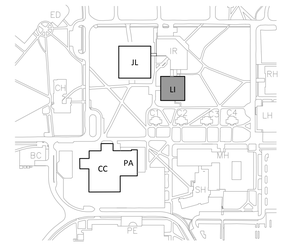
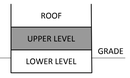
D / R	Upright Sprinkler Head (D - Demo, R - Relocated)
E	Concealed Pendant Sprinkler Head (E - Existing)
D / R	Concealed Pendant Sprinkler Head (D - Demo, R - Relocated)
E	Pendant Sprinkler Head (E - Existing)
D / R	Pendant Sprinkler Head (D - Demo, R - Relocated)
	Sidewall Sprinkler Head
FCVA	Floor Control Valve Assembly
	New Sprinkler Piping
	Existing Sprinkler Piping
H	Heat Detector, Fixed Temp.
F	Fusible Shunt Trip Switch

Identifier	Description
GPM	Gallons Per Minute
FDC	Fire Department Connection
FS	Flow Switch
TS	Tamper Switch
FCVA	Flow Control Valve Assembly
SP	Sprinkler



Campus Keyplan



Vertical Plan

ITEM	DATE	ISSUE DESCRIPTION
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2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

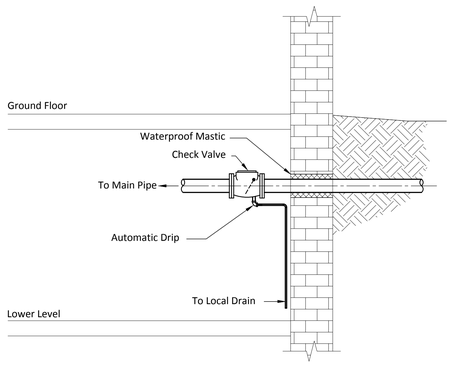
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
LR	DG	01/09/2015
scale	filename	
AS SHOWN	11953 L - FP102	

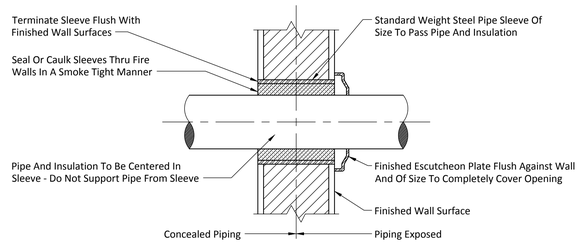
title
LIBRARY
SPRINKLER & FIRE ALARM
UPPER FLOOR PLAN

dwg. no.
FP-102

30x42

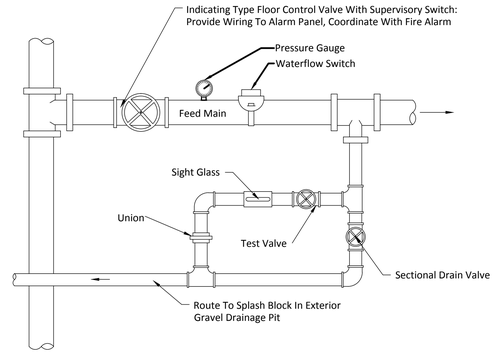


CHECK VALVE AND BALL DROP FOR FIRE DEPARTMENT CONNECTION | Scale: NTS | Drawing: **FP-501** | Detail: **01**



NOTES:
1. All Fire-Stopping Shall Be Selected In Order To Maintain The Fire Rating Of The Barrier That Is Being Penetrated.

DETAIL OF PIPE SLEEVE THRU WALL | Scale: NTS | Drawing: **FP-501** | Detail: **02**



NOTES:
1. Size Drain At 1 1/4" For Pipe Sized 3" And Less. Fitting Sized at 2" For Pipe Sized 4" And More.

FLOOR CONTROL VALVE ASSEMBLY | Scale: NTS | Drawing: **FP-501** | Detail: **03**

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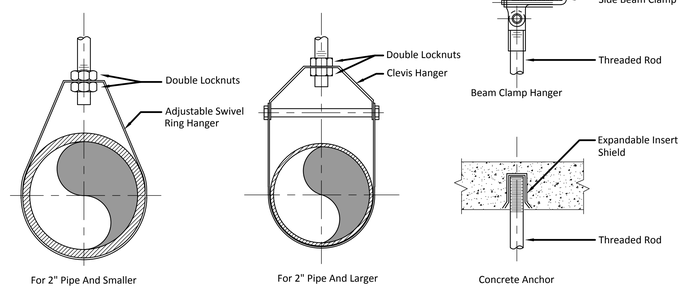
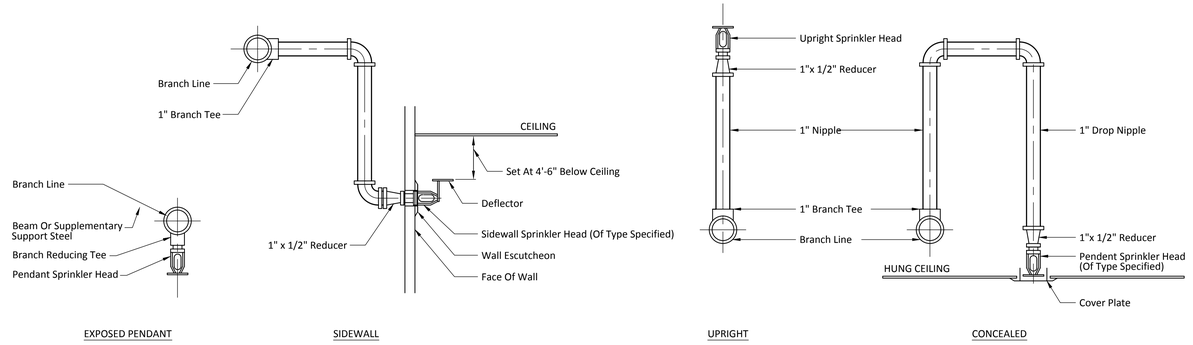
seal



NOTES:
1. During Installation Of New Pipe Hanger Rods And Clamps, Any Removed Or Damaged Fire-Proofing On Steel Must Be Repaired Or Replaced To Match Existing.
2. Locate Hangers As Close As Possible To Turns And Tees Of Pipe. Provide Supplementary Steel Struts Between Joists If Required. Anchor Water Pipe Against Swaying Due To Changes In Water Velocity. Provide Seismic Bracing If/As Required By Local Authorities. Chains Or Perforated Strap Iron Or Steel Is Not Acceptable. Do Not Suspend Pipe From Joist Bracing Members. Refer To Codes And Specifications For Further Information.

TYPICAL FIRE PROTECTION PIPE SUPPORTS | Scale: NTS | Drawing: **FP-501** | Detail: **04**



SPRINKLER CONNECTION | Scale: NTS | Drawing: **FP-501** | Detail: **05**

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

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scale: AS SHOWN	filename: 11953 L - FP501	

title
LIBRARY
SCHEDULES & DETAILS

dwg. no.
FP-501

30x42

KEY NOTES (SYMBOLS 1, 2, ETC.)

1. Existing Ceiling Diffuser Shall Be Disconnected From Main At Point Of Disconnection Shown And Demolished.
2. Existing Ceiling Register Shall Be Disconnected From Main At Point Of Disconnection Shown Demolished.

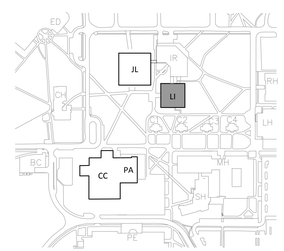
GENERAL NOTES

1. Prior To Start Of Demolition Work, The Contractor Shall Coordinate Equipment Shutdown With Owner. Work Shall Be Performed Based On Owner Work Schedule.
2. Each Contractor Shall Be Responsible For All Preparation And Clean-Up Work Associated With His Scope Of Work. Contractor Must Start And Complete Tasks Each Day. The Area Will Be Kept Clean And No Potential Safety Hazards Will Remain.
3. Demolition Drawings Show Approximate Equipment And / Or Piping Layout, And Are Intended For Establishing Demolition Scope Of Work. Not All Existing Infrastructure Is Shown On These Drawings.
4. Any Damage To Walls, Floors, Piping, Or Equipment During Demolition Work Shall Be Repaired To Like-New Condition.
5. Each Contractor Shall Be Responsible For All Cutting And Patching Of Walls And Ceilings Required As A Result Of Their Work.
6. All Existing Items Remaining That Have Been Removed To Provide Ease of Demolition And Removal Shall Be Reinstalled After All Work Is Complete. Contractor Shall Furnish And Install Any Items That Have Been Damaged Or Lost.

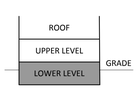
PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Disconnect From Existing
	Demo Equipment
	Existing Ductwork To Remain
	Existing Ductwork To Be Removed
	Indicates Area Not In Scope

Identifier	Description
CFM	Cubic Feet Per Minute



Campus Keyplan



Vertical Plan

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dlb associates
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DLB Project ID: 11953 Phone: (732)927-5041

seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

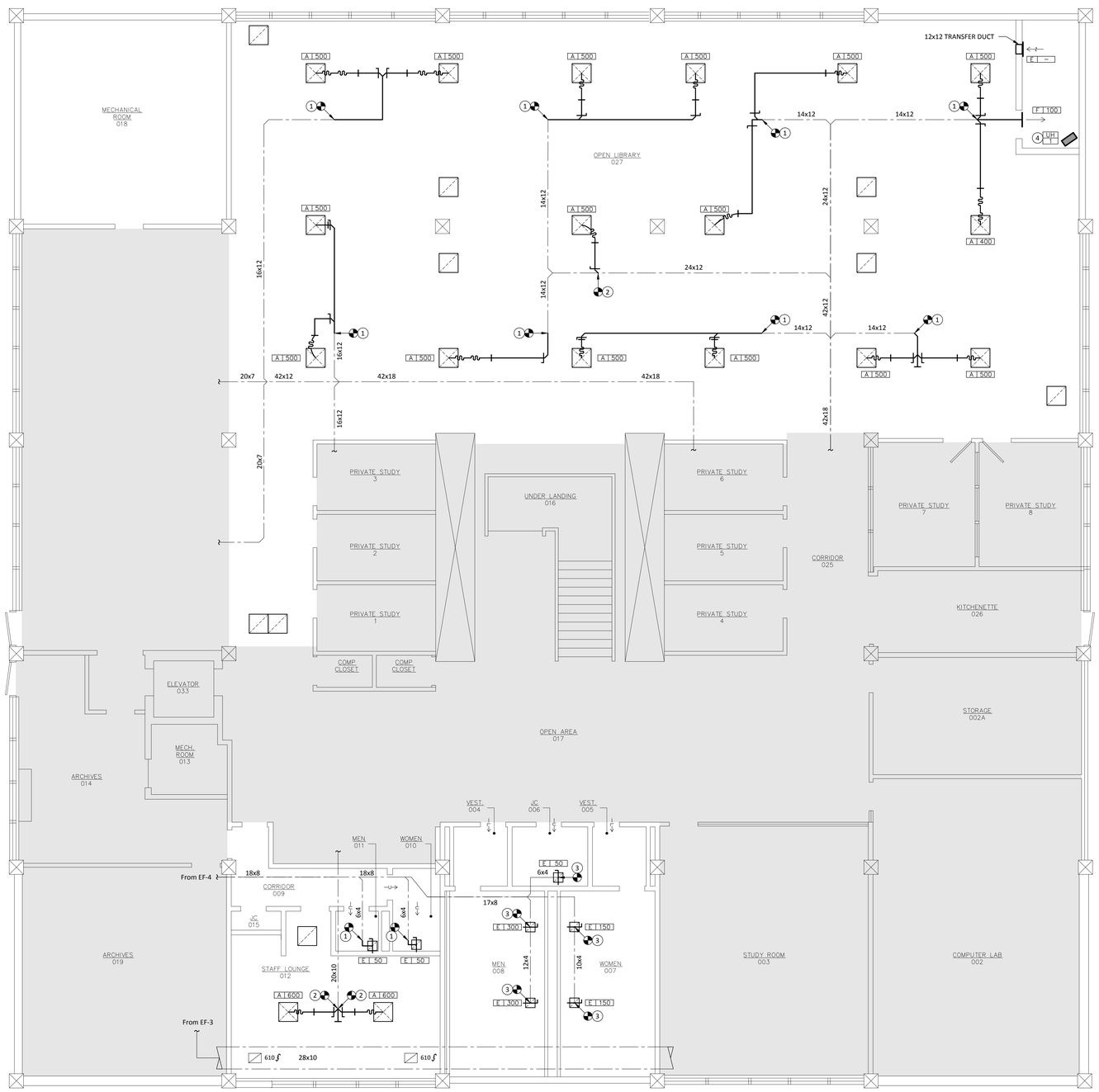
drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - MD101	

title
LIBRARY
MECHANICAL DEMOLITION PLAN
LOWER FLOOR

dwg. no.
MD-101

LOWER FLOOR PLAN - DEMO WORK Scale: 3/16"=1'-0" 1' 2' 4' 6' 10' Drawing: **MD-101** Detail: **01**

30x42



KEY NOTES (SYMBOLS 1, 2, ETC.)

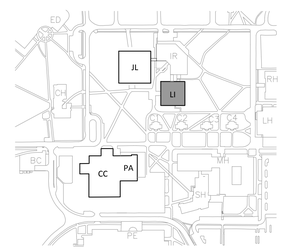
1. Provide New Ductwork At Point Of Connection Shown. New Ductwork Size Shall Match The Ductwork It Is Connecting To. Contractor Shall Field Verify And Confirm Existing Duct Sizes At Connection Points. Transition Duct Size As Necessary To Provide Room For Side Tap Of Runout Duct To Diffuser. Diffuser Runout Shall Be Sized Per Diffuser Schedule.
2. Tap New Ductwork Into Existing Ductwork. Duct Size Shall Match Connecting Neck Size For Diffuser Based On Indicated CFM. See Diffuser Schedule.
3. Provide New Tap From Bottom Of Existing Ductwork With Volume Damper To Connect To New Register. Tap Size Shall Match Connecting Register. See Diffuser Schedule.
4. New Vertical, Wall Hung, Electric Unit Heater By QMark, Model Number MUH0371, 277V, 1ph, 3.0kW, 11 Amps Or Equal. Provide With Integral Thermostat And Mounting Kit. Mount With Bottom Of Unit 8'-6" Above Finished Floor.

GENERAL NOTES

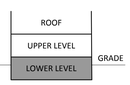
1. All Duct Sizes Stated On Plans On New Ductwork Are Internal Clear Dimensions. Outer Dimensions Of Internally Lined Ductwork Shall Be Updated Accordingly.
2. Ducts Penetrating Fire Rated Walls Shall Have Fire Dampers And Access Doors As Necessary.
3. All Offsets And Transitions Necessary To Successfully Construct The Duct Distribution System Are Not Shown On These Plans, But Are Still Included In The Scope Of Work.
4. All Open Ended Ducts Shall Be Terminated With 1/4" x 1/4" Aluminum Woven Wire Mesh Screen Unless Noted Otherwise.
5. Flexible Duct Shall Only Be Used As A Branch Take-Off From Main Trunk Duct To A Single Diffuser And The Maximum Length Shall Be Six (6) Lineal Feet. Flexible Ducts Shall Not Pass Through Any Floor, Ceiling Or Wall.
6. The Existing And New Ductwork, Air Distribution Devices Shall Be Professionally Cleaned. Refer To Duct Cleaning Specification Section.
7. The Contractor Shall Coordinate The Location Of Ceiling Grilles, Registers And Diffusers With The Architectural Ceiling And Existing Structural Steel.
8. All Ceiling Return / Exhaust Grilles Indicated On Plan Are Type 'B1' Unless Directed Otherwise. See Diffuser Schedules For Details.
9. Contractor Shall Cap All Existing Ductwork Open Ends As A Result Of The Demolition Scope Unless Indicated Otherwise.
10. Balance Diffusers According To CFM Indicated. If Actual Airflow Amount Differs Significantly (+ / - 20%)From What Is Shown On These Plans, Balance Diffusers Connected To The Same Branch Duct Equally.
11. Per The Owner's Request, A Middlesex County College Representative Must Witness The Balancing Of All Diffusers. Coordinate Timing And Schedule With The Owner.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Connect To Existing
	New Equipment
XXX / XX	Equipment Type / Equipment Number
	Existing Ductwork To Remain
	New Ductwork
	Insulated Flexible Duct
	Volume Damper
X XXX	Diffuser / Register / Grille Number, CFM
	Supply Air Flow
	Exhaust Air Flow
	Undercut Door
	Louvered Door
	4 Way Ceiling Diffuser
	Exhaust Grille / Return Register
	Indicates Area Not In Scope
CFM	Cubic Feet Per Minute



Campus Keyplan



Vertical Plan

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seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

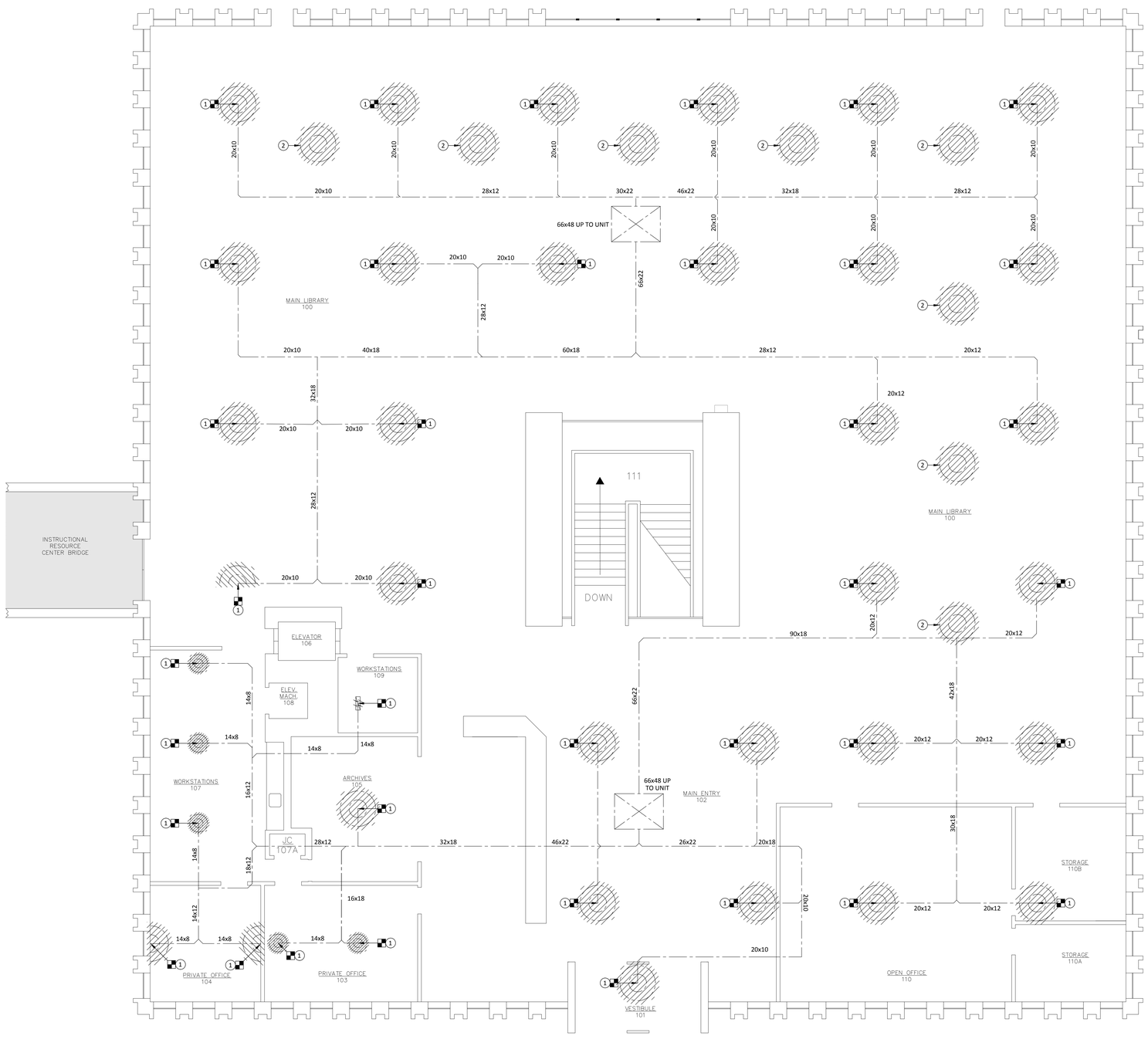
drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - M101	

title
LIBRARY
MECHANICAL
LOWER FLOOR PLAN

dwg. no.
M-101

LOWER FLOOR PLAN - NEW WORK Scale: 3/16"=1'-0" (1' 2' 4' 6' 10') Drawing: **M-101** Detail: **01**

30x42



KEY NOTES (SYMBOLS 1, 2, ETC.)

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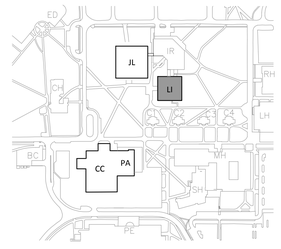
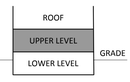
PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Disconnect From Existing
	Demo Equipment
	Existing Ductwork To Remain
	Existing Ductwork To Be Removed
	Indicates Area Not In Scope

Identifier	Description
CFM $\mathcal{f}$	Cubic Feet Per Minute



Campus Keyplan



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seal

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MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - MD102	

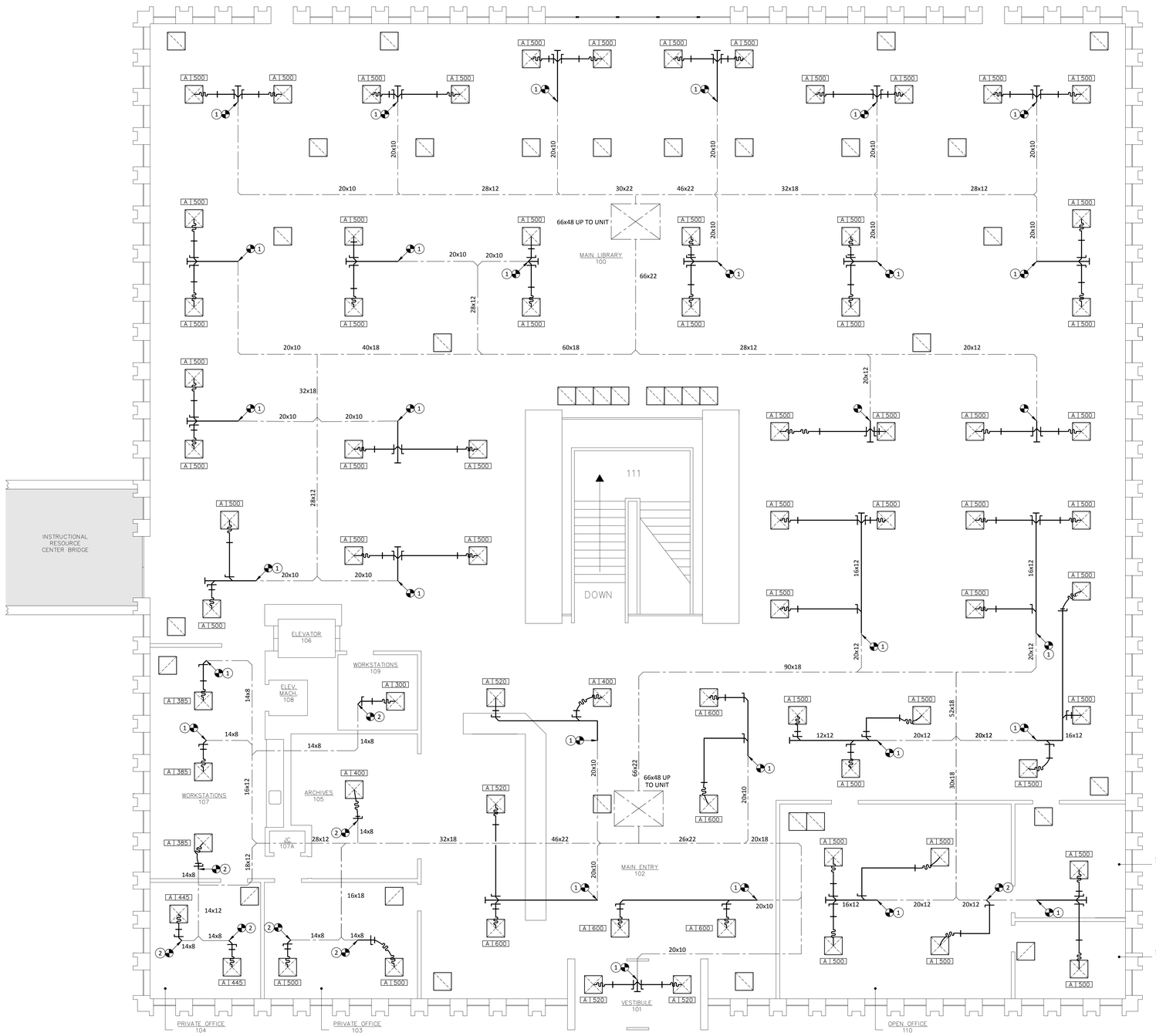
title
LIBRARY
MECHANICAL DEMOLITION PLAN
UPPER FLOOR

dwg. no.
MD-102

UPPER FLOOR PLAN - DEMO WORK

Scale: 3/16"=1'-0" (1' 2' 4' 6' 10')

Drawing: **MD-102**
Detail: **01**



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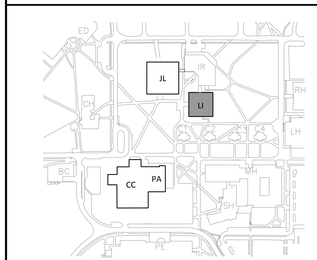
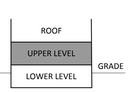
PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Connect To Existing
	New Equipment
XXX / XX	Equipment Type / Equipment Number
	Existing Ductwork To Remain
	New Ductwork
	Insulated Flexible Duct
	Volume Damper
X | XXX	Diffuser / Register / Grille Number, CFM
	Supply Air Flow
	Exhaust Air Flow
	Undercut Door
	Louvered Door
	4 Way Ceiling Diffuser
	Exhaust Grille / Return Register
	Indicates Area Not In Scope
CFM	Cubic Feet Per Minute



Campus Keyplan



Vertical Plan

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drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - M102	

title
LIBRARY
MECHANICAL
UPPER FLOOR PLAN

dwg. no.
M-102

UPPER FLOOR PLAN - NEW WORK

Scale: 3/16"=1'-0" (1' 2' 4' 6' 10')

Drawing: **M-102**
Detail: **01**

30x42

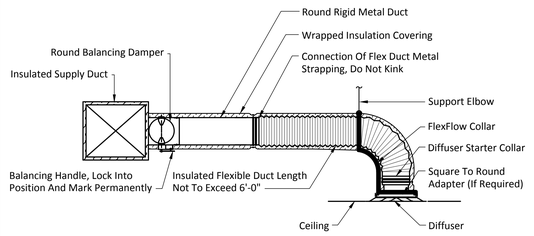
DIFFUSER & GRILLE SCHEDULE

ID	BASIS OF DESIGN		DESCRIPTION	FACE SIZE	NOTES
	MFG	MODEL		(IN.)	
A	Titus	TMS-AA	Square Three-Cone Full Face Ceiling Diffuser, Aluminimum, High Performance, Full Face, Volume Control Damper And Opposed Blade Damper.	24x24	1,2,3,4,5,6
B1	Titus	PXP	Return Grille, Perforated, Ceiling Lay-in Plenum, 3/16" Diameter Holes At 1/4" Staggered Centers 51% Free Area.	24x24	2,3,5
B2	Titus	PXP	Return Grille, Perforated, Ceiling Lay-in Plenum, 3/16" Diameter Holes At 1/4" Staggered Centers 51% Free Area.	12x12	2,3,5
E	Titus	355RL	Return Grille, Louvered, Ceiling Lay-in Plenum, 1/2" Spacing, 35 Degree Fixed Deflection Blades, Opposed Blade Damper And Front Blades Parallel To The Long Dimension.	12x12	2,3,5
F	Titus	272RL	Supply Grille; Adjustable Double Deflection Blades, 3/4" Blade Spacing, And Opposed Blade Damper.	12x10	2,3,5

NOTES:
1. Flexible Ducts Connecting The Diffusers Shall Be Full Size Of Neck Diameter.
2. Maximum Noise Criterion Rating < 30 NC.
3. Baked Enamel Finish, Color To Be Selected By Architect.
4. Diffusers Shall Be 4-Way Blow Unless Otherwise Indicated On Plans.
5. Mounting Frame Type Shall Be Coordinated With Ceiling Construction Type.
6. Neck Diameter Shall Be As Scheduled In Table 1.

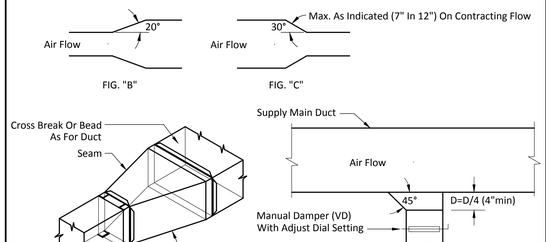
TABLE 1 - ROUND NECK SIZE SCHEDULE

UP TO 175 CFM -	6" DIAMETER
176 TO 275 CFM -	8" DIAMETER
276 TO 380 CFM -	10" DIAMETER
381 TO 550 CFM -	12" DIAMETER
551 TO 700 CFM -	14" DIAMETER
701 TO 900 CFM -	16" DIAMETER



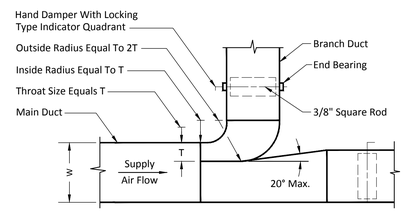
NOTES:
1. Provide At Flexible Duct Connection Metal Or "Panduit" Drawband On The Interior Flexible Duct Helix. Secure The Insulation Over The Draw Band With An Additional Drawband.
2. Provide Beading On Round Metal Duct 12" Or Larger In Diameter.
3. Provide Minimum 2" Collars For Attachment Of The Flex Duct To Round Duct, Dampers And Diffusers.
4. Band Rigid Round Duct Insulation To Duct And Provide Tape For Insulation Overlap.

FLEXIBLE DUCT INSTALLATION | Scale: NTS | Drawing: **M501** | Detail: **01**



NOTES:
1. Duct Transitions Typical After Each Take-Off(s) Where Change In Duct Size Is Indicated.

DUCT TRANSITION DETAILS | Scale: NTS | Drawing: **M501** | Detail: **02**

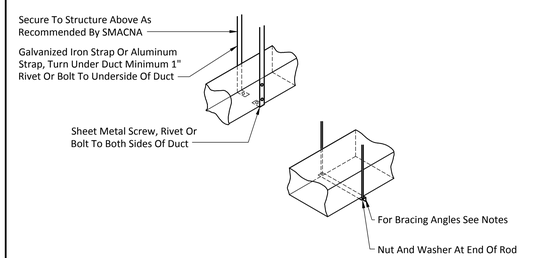


NOTES:
1. Furnish This Type Connection ⌐ For Branches With More Then 200 CFM.
2. Must Be Used When W Is Greater Than, Or Equal To 36".
3. Minimum T = 4".

RECTANGULAR DUCT BRANCH WITH THROAT AND VOLUME DAMPER | Scale: NTS | Drawing: **M501** | Detail: **03**

Rectangular Duct Hanger Schedule (Minimum Sizes)

Half Duct Perimeter Range	Pair At 10' Spacing		Pair At 8' Spacing		Pair At 5' Spacing		Pair At 4' Spacing	
	Strap	Wire/Rod	Strap	Wire/Rod	Strap	Wire/Rod	Strap	Wire/Rod
P/2 < 30"	1" x 22 GA.	10 GA.	1" x 22 GA.	10 GA.	1" x 22 GA.	12 GA.	1" x 22 GA.	12 GA.
P/2 < 72"	1" x 18 GA.	3/8"	1" x 20 GA.	1/4"	1" x 22 GA.	1/4"	1" x 22 GA.	1/4"
P/2 < 96"	1" x 16 GA.	3/8"	1" x 18 GA.	3/8"	1" x 20 GA.	3/8"	1" x 22 GA.	1/4"
P/2 < 120"	1-1/2" x 16 GA.	1/2"	1" x 16 GA.	3/8"	1" x 18 GA.	3/8"	1" x 20 GA.	1/4"
P/2 < 168"	1-1/2" x 16 GA.	1/2"	1" x 16 GA.	1/2"	1" x 16 GA.	3/8"	1" x 18 GA.	3/8"
P/2 < 192"	-	1/2"	1-1/2" x 16 GA.	1/2"	1" x 16 GA.	3/8"	1" x 16 GA.	3/8"



DUCT STRAP HANGER DETAILS | Scale: NTS | Drawing: **M501** | Detail: **04**

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

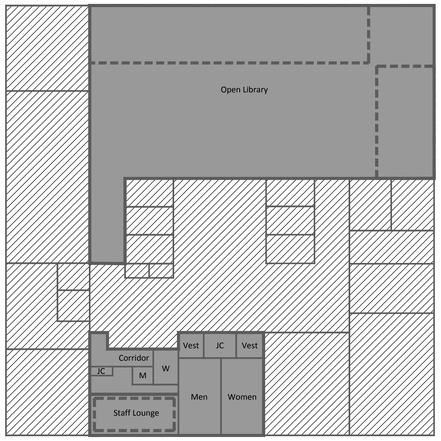
seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - M501	

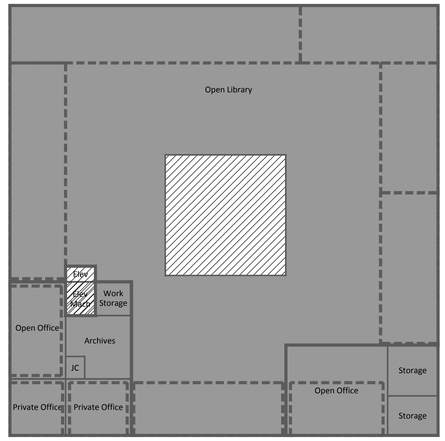
title
LIBRARY
DETAILS & SCHEDULES

dwg. no.
M-501



Lower Level

Not In Scope | Occupancy Sensor | Area Of Daylighting



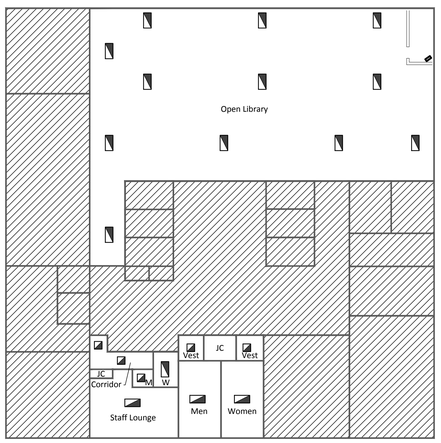
Upper Level

Not In Scope | Occupancy Sensor | Area Of Daylighting

LIGHTING CONTROLS

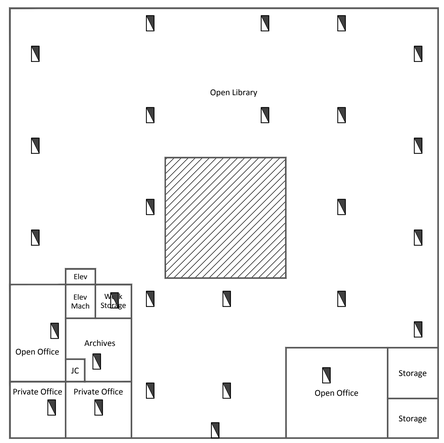
Scale: NTS

Drawing: **E-001**
Detail: **01**



Lower Level

Not In Scope



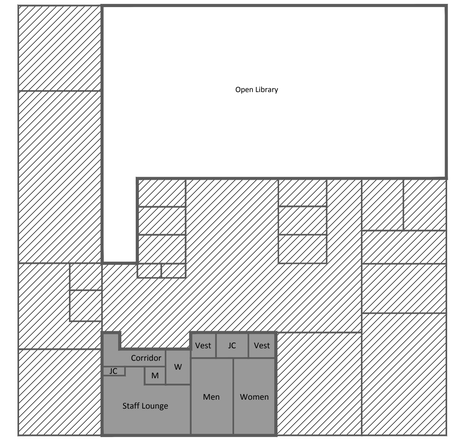
Upper Level

Not In Scope

EMERGENCY LIGHTING

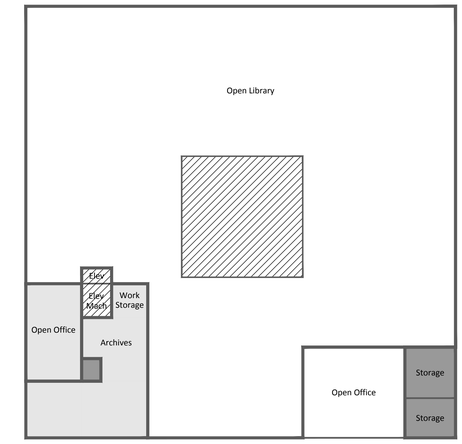
Scale: NTS

Drawing: **E-001**
Detail: **03**



Lower Level

Not In Scope | 10 Foot Candles | 30 Foot Candles | 50 Foot Candles



Upper Level

Not In Scope | 10 Foot Candles | 30 Foot Candles | 50 Foot Candles

LIGHTING LEVELS ZONING

Scale: NTS

Drawing: **E-001**
Detail: **02**

GENERAL NOTES - LIGHTING & POWER

Electrical Wiring

1. In General, Branch Circuit Wiring Is Not Shown On The Plan Drawings. Numerals Adjacent To Symbols For Lighting Fixtures, Receptacles, Motors, Appliances, Etc. Indicate The Panelboard And Circuit Number To Which The Item Is To Be Connected. Provide Branch Circuit Wiring For All Items Shown In Accordance With These General Notes And The Electrical Specifications.
2. Mechanical Equipment (Motors, HVAC Equipment, Etc.) Is Shown On Electrical Plan Drawings For Coordination And Are Only Approximate Locations. Refer To Mechanical Plans For Exact Locations.
3. All 1 Pole, 15 And 20 Amp Branch Circuits Serving Receptacles Or Lighting Shall Be 2 Wire Circuits Providing An Individual Neutral Conductor For Each Ungrounded (Hot) Circuit Conductor. Do Not Share Neutral Conductors.
4. The Minimum Branch Circuit Wiring Size Shall Be 2#12, #12 Ground In 3/4 Inch Conduit Unless Otherwise Noted.

Wiring Methods

1. General
   - A. In Finished Areas, Conceal All Wiring In Building Walls, Floors, And Above Finished Ceilings. Wiring May Be Run Exposed In Mechanical/Electrical Equipment Rooms, Electrical Closets, Utility Rooms, And Unfinished Basements. No Wiring Shall Be Installed Exposed On The Outside Surfaces Of The Building(s).
   - B. Final Connections To Mechanical Equipment, Lighting Fixtures, Motors, Transformers, Instruments, And Control Devices Shall Be Flexible Conduit To Minimize Vibration Transmission.
2. Indoors (Unclassified Areas)
   - A. Exposed: EMT Conduit With Steel Set Screw Fittings, Unless Otherwise Noted
   - B. In Dry Walls/Above Ceilings: EMT Conduit With Steel Set Screw Fittings (Type MC Metal Clad Cable May Be Used For 1 Pole, 15 And 20 Amp Branch Circuits)
   - C. In Concrete Walls/Floors: RGS Threaded Conduit
   - D. Final Connections: Flexible Metal Conduit (Liquid-Tight Flexible Conduit In Damp Or Wet Areas)
3. Outdoors (Including Unconditioned Covered Areas)
   - A. Above Ground: RGS Threaded Conduit
   - B. Underground: Unless Otherwise Noted — Schedule 40 PVC Conduit, Minimum Burial Depth 24 Inches Below Finished Grade,
   - C. Final Connections: Liquid-Tight Flexible Conduit

Equipment Grounding

1. An Insulated (Green) Equipment Ground Conductor(s) Shall Be Provided In All Feeders And Branch Circuits. Utilizing The Conduit As The Equipment Grounding Conductor Is Not Acceptable.

Electrical Enclosures And Terminations

1. Electrical Equipment Enclosures Shall Be Provided As Listed Below Unless Otherwise Noted.
   - A. Indoors Unclassified Areas — NEMA 1
   - B. Indoors Classified 'Damp' — NEMA 1
   - C. Outdoors — NEMA 3R
   - D. Indoors Classified 'Wet' — NEMA 4
2. Electrical Terminations (Lugs, Terminals, Etc.) On All Equipment Shall Be Rated For Use With 75 Degree Celsius Conductors.

GENERAL NOTES - FIRE ALARM

1. All Wiring Shall Be In Strict Compliance With The 2015 National Electrical Code, Authorities Having Jurisdiction, Local Codes, Electrical Specifications And Contract Documents.
2. Wire Sizes Shall Be As Follows:

AC power	Per N.E.C.
Detector Circuit, Supervisory Circuit, Manual Pull Station	#16 AWG MIN.
SLC Loop	#16 AWG MIN.
Horn / Strobes	#16 AWG MIN.

3. All Wiring Shall Be Installed Using Power Limited Fire Protective Signaling Circuit Cable. Installation Methods Shall Conform With Local Codes Or Contract Specifications.
4. Where Raceways Are Used, Conductors For Smoke Detectors, Monitor Modules, Test Stations, Manual Release Stations, Supervisory Devices And Indicating Circuits (Horn-Strobes) Can Be Installed In The Same Raceway But Must Be Installed In A Separate Raceway From All 120 VAC Circuits.
5. Detector Locations May Vary A Few Feet To Avoid Any Light Fixtures Or Obstructions. Do Not Install A Detector Within 3' Of A Supply Register. Review Reflected Ceiling Plans. The Operable Part Of Each Manual Fire Alarm Box Shall Be 48" Above The Finished Floor. Wall Mounted Audio/ Visual Appliances Shall Be Mounted Such That The Entire Lens Is Not Less Than 80" And Not Greater Than 96" Above The Finished Floor.
6. All Conductors Are To Be Properly Tagged Or Numbered In The Control Panel And Correspond With Control Panel Terminal Or Field Wire Numbers For Identification Purposes.
7. Wiring Circuits Must Go To And From Each Device, Branch Circuits Are Not Permitted, Polarity Must Be Observed Throughout.
8. All Circuit Runs Shall Be Continuous Between Devices, Without Splices, Wherever Practical, Where A Continuous Wire Run Is Not Practical, Connections Shall Be Made In UL Listed Metal Electrical Enclosures Conforming To The Requirements Of Chapter 3 Of NFPA 70.
9. Ensure All Junction Boxes, Devices Backboxes, And Equipment Cabinets Are Provided With Strain Relief Fittings Where Nonmetallic Sheathed Cables Enter Without Raceway.
10. Power To Control Panel And Connection Of Batteries To Control Panel To Be Made Under Supervision Of System Manufacturer's Supplier's Representative.
11. Electrical Installer Must Place Dust Covers On All Detectors. Dust Covers To Be Removed Only By System Manufacturer's Technical Personnel At The Time Of Final Check-Out.
12. All Wiring Shall Be In Conduit.
13. Primary 120 VAC Power To Preaction Panel To Be On Separate Dedicated Branch Circuit. Circuit Breaker To Be Equipped With Lock And Identification Per NFPA Standards Tie Into The Existing Fire Alarm Fused Cutout Panel.

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dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - E001	

title
LIBRARY
ZONING PLANS

dwg. no.
E-001

30x42

KEY NOTES (SYMBOLS 1, 2, ETC.)

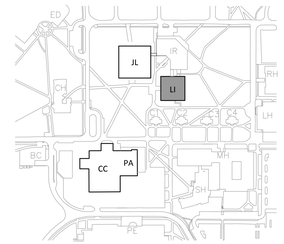
1. Existing Ceiling Grid Within This Area Shall Be Removed In Its Entirety. Lights Shall Be Demolished And Circuits Demolished Back To Breaker Within Existing Lighting Panel.
2. Existing Smoke Detector Shall Be Detached From Ceiling And Temporarily Supported From Structure Above Ceiling For Reinstallation On New Ceiling Grid.
3. Existing Wireless Access Point Shall Be Detached From Ceiling And Temporarily Supported From Structure.
4. Existing Speaker Shall Be Detached From Ceiling And Temporarily Supported From Structure Above Ceiling For Reinstallation On New Ceiling Grid.
5. Existing Security Camera Shall Be Detached From Ceiling And Temporarily Supported From Structure Above Ceiling For Reinstallation On New Ceiling Grid.

GENERAL NOTES

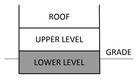
1. These Drawings Are Only Intended To Show The General Scope / Intent Of The Demolition Work And Are Not All Inclusive. Field Verify The Exact Quantity, Location, And Circuiting Of The Equipment / Devices To Be Demolished.
2. This Electrical Demolition Drawing Has Been Determined Based Upon A Visual Inspection, Field Survey Performed On August 24, 2016.
3. All Existing Devices Located Within Areas To Be Demolished Shall Be Removed Back To Its Source Unless Noted Otherwise.
4. Coordinate The Electrical Disconnection Of Existing Equipment With All Other Trades.
5. Where Existing Equipment And / Or Devices Are Indicated For Demolition, Remove All Electrical Components, Conduits, Conductors, Hangers, Supports, Etc. Back To Source, Unless Otherwise Noted. Place Breaker In The Off Position And Update Panel Schedule To Indicate As Spare.
6. Contractor Shall Coordinate The Relocation And Installation Of Any Existing Equipment Or Ceiling Mounted Devices Within The Scope Of Work Area That Are Not Shown On These Plans.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Indicates Area Not In Scope
	Existing Lighting Fixtures
	Existing Security Camera
	Existing Ceiling Mounted Speaker
SD	Existing Ceiling Mounted Smoke Detector
S	Existing Single Pole Snap Switch, 20A, 120-277 VAC - 48" AFF
S3	Existing Three-Way Switch, 20A, 120-277 VAC - 48" AFF
	Existing Exit Sign, Wall Or Ceiling Mounted, Shaded Area Denotes Lighted Face, Chevrons As Shown On Plans



Campus Keyplan



Vertical Plan

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale	filename	
AS SHOWN	11953 L - ED101	

title
LIBRARY
ELECTRICAL DEMOLITION PLAN
LOWER FLOOR

dwg. no.
ED-101

LOWER FLOOR PLAN - DEMO WORK

Scale: 3/16"=1'-0"
1' 2' 4' 6' 10'

Drawing: **ED-101**
Detail: **01**

30x42

KEY NOTES (SYMBOLS 1, 2, ETC.)

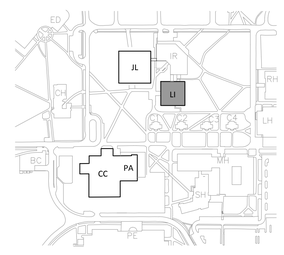
1. Existing Lighting Panel '2H'. Lighting Circuits Shall Be Provided From This Panel And Use Circuits Freed Up During Demolition.
2. New Location Of Existing Wireless Access Point.
3. New Location Of Existing Smoke Detector.
4. New Location Of Existing Speaker.
5. Approximate Location Of Relay Panel 'R1'. Coordinate Relay Panel Location With Existing Equipment And Available Wall Space. Do Not Install Directly Below Piping. Provide Circuit From Panel '2H' #4.
6. Lighting Within Outlined Area Shall Have Dimming Ballasts Wired To Daylighting Sensor Within That Outline Via Lighting Control Panel.
7. Wall Mounted Lighting Control Pack. Coordinate Exact Location With Owner. See Detail E-501/02 For More Information.
8. Provide 30A-Rated General Duty Disconnect Switch For Mechanical Unit Heater.
9. Furnish And Install Fire Alarm Monitor Modules To Monitor All New Water Flow And Tamper Switches (See Fire Protection Plans) And Tie Into The Signal Line Circuit From The Existing Simplex 4100U Fire Alarm Control Panel.

GENERAL NOTES

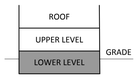
1. Coordinate Final Fixture Locations With Existing Building Structure And Architectural Ceiling Grid.
2. Coordinate Lighting Fixtures Located Within Book Stacks To Be Centered Between Book Stacks.
3. Contractor Shall Rewire To Existing Lighting Switch Locations Such That Existing Switches Control The Same Areas / Rooms As They Did Prior To The Demolition Of The Old Ceiling Grid.
4. Type 'A' Fixture (Denoted By A 2'x4' Rectangle Symbols On Plans) Shall Be 2'x4' LED Recessed Tropher By Lithonia Lighting With LED Dimming Driver, 2GTL4LP840, 4290 Lumens, 4000K, Patterned #12 Acrylic, 120-277V, 39W Or Equal.
5. Type 'B' Fixture (Denoted By A 2'x2' Rectangle Symbols On Plans) Shall Be 2'x2' LED Recessed Tropher By Lithonia Lighting With LED Dimming Driver, 2GTL2LP840, 3883 Lumens, 4000K, Patterned #12 Acrylic, 120-277V, 39.6W Or Equal.
6. Contractor Shall Include In Their Bid All Costs For Reprogramming The Fire Alarm System And Reacceptance Testing By MCC's Fire Alarm Service Contractor.
7. Circuit Numbers Are Provided For Reference Only. New Fixtures Shall Be Connected To Circuits Freed Up During Demolition Within Existing Electrical Panels '1H' And '2H'
8. R# Adjacent To A Light Fixture Circuit Indicates The Control Relay Number In The New Lighting Control Panels 'R1' And 'R2'.
9. Contractor To Provide An As Built Drawing Depicting Circuit Numbers And Updated '1H', '2H' And 'E' Panel Schedules Depicting Existing, Spare And New Circuits.
10. Exit Signs / Emergency Lighting Units / Emergency Battery Packs Within Lighting Fixtures Shall Be Connected To The Lighting Circuit Serving The Same Room Or Area And Ahead Of All Local Switching.
11. Existing Lighting Relay Controls Shall Be Bypassed.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Indicates Area Not In Scope
	Existing Security Camera
	Existing Ceiling Mounted Speaker
SD	Existing Ceiling Mounted Smoke Detector Relocated
S	Existing Single Pole Snap Switch, 20A, 120-277 VAC - 48" AFF
S3	Existing Three-Way Switch, 20A, 120-277 VAC - 48" AFF
	Existing Exit Sign, Wall Or Ceiling Mounted, Shaded Area Denotes Lighted Face, Chevrons As Shown On Plans
SLV	Digital Low Voltage Switch 48" AFF
SVS	Vacancy Sensor Wall Switch, 800W, 120 VAC
OS	Ceiling Mounted Dual Technology Occupancy Sensor
VS	Ceiling Mounted Dual Technology Vacancy Sensor
DLS	Daylight Sensor
	Shading Indicates Fixture Connected To Emergency Circuit
	Panel Board, Flush Or Surface Mtd
	Exit Sign, Wall Or Ceiling Mounted, Shaded Area Denotes Lighted Face, Chevrons As Shown On Plans
	Unfused Safety Switch - Sized Per Equipment Requirements
TS FS	Tamper Switch / Flow Switch



Campus Keyplan



Vertical Plan

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

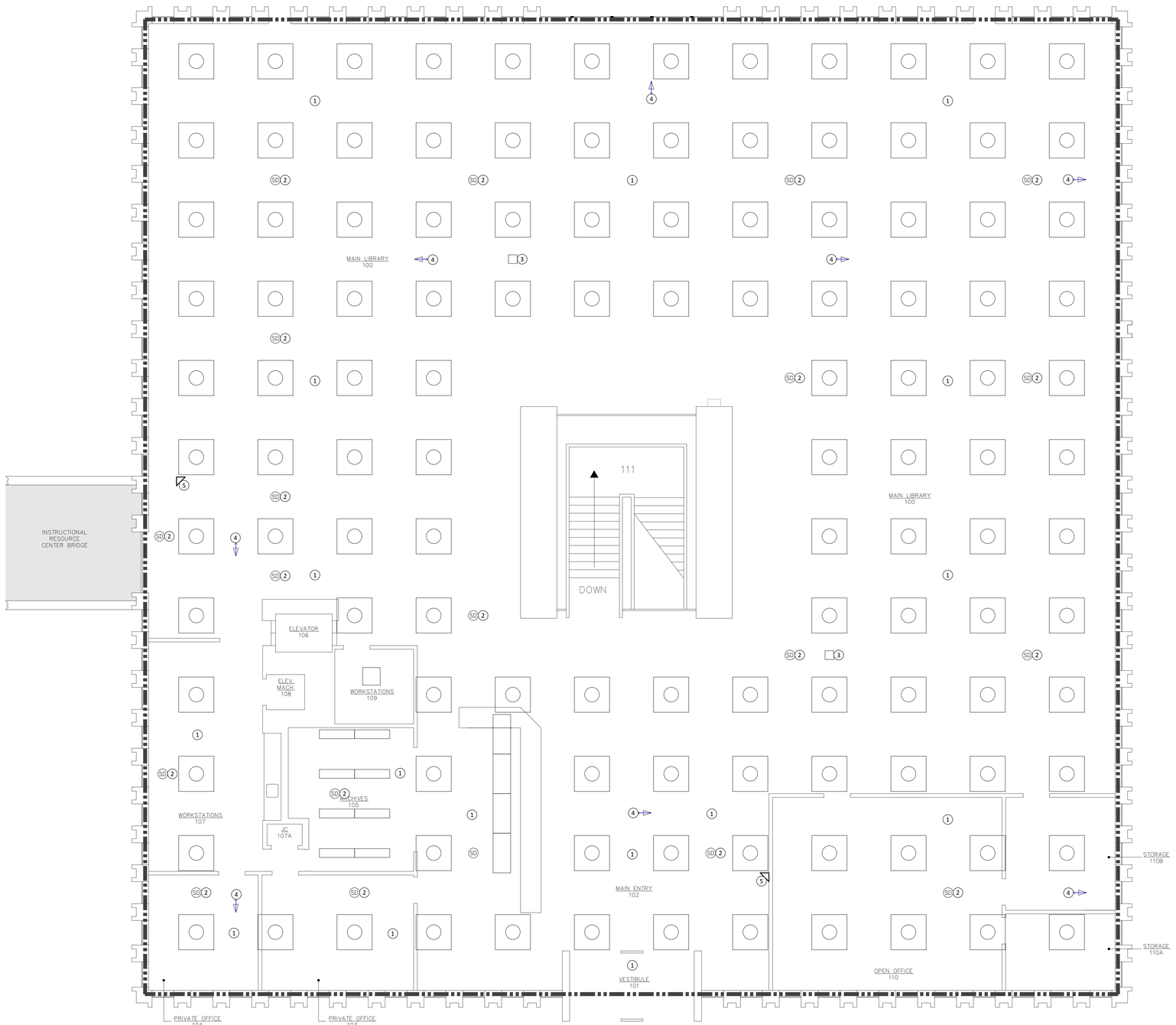
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - E101	

title
LIBRARY
ELECTRICAL PLAN
LOWER FLOOR

dwg. no.
E-101

LOWER FLOOR PLAN - NEW WORK Scale: 3/16"=1'-0" (1' 2' 4' 6' 10') Drawing: **E-101** Detail: **01**



KEY NOTES (SYMBOLS 1, 2, ETC.)

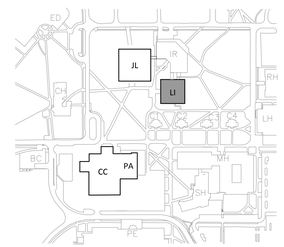
1. Existing Ceiling Grid Within This Area Shall Be Removed In Its Entirety. Lights Shall Be Demolished And Circuits Demolished Back To Breaker Within Existing Lighting Panel.
2. Existing Smoke Detector Shall Be Detached From Ceiling And Temporarily Supported From Structure Above Ceiling For Reinstallation On New Ceiling Grid.
3. Existing Wireless Access Point Shall Be Detached From Ceiling And Temporarily Supported From Structure.
4. Existing Speaker Shall Be Detached From Ceiling And Temporarily Supported From Structure Above Ceiling For Reinstallation On New Ceiling Grid.
5. Existing Security Camera Shall Be Detached From Ceiling And Temporarily Supported From Structure Above Ceiling For Reinstallation On New Ceiling Grid.

GENERAL NOTES

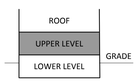
1. These Drawings Are Only Intended To Show The General Scope / Intent Of The Demolition Work And Are Not All Inclusive. Field Verify The Exact Quantity, Location, And Circuiting Of The Equipment / Devices To Be Demolished.
2. This Electrical Demolition Drawing Has Been Determined Based Upon A Visual Inspection, Field Survey Performed On August 24, 2016.
3. All Existing Devices Located Within Areas To Be Demolished Shall Be Removed Back To Its Source Unless Noted Otherwise.
4. Coordinate The Electrical Disconnection Of Existing Equipment With All Other Trades.
5. Where Existing Equipment And / Or Devices Are Indicated For Demolition, Remove All Electrical Components, Conduits, Conductors, Hangers, Supports, Etc. Back To Source, Unless Otherwise Noted. Place Breaker In The Off Position And Update Panel Schedule To Indicate As Spare.
6. Contractor Shall Coordinate The Relocation And Installation Of Any Existing Equipment Or Ceiling Mounted Devices Within The Scope Of Work Area That Are Not Shown On These Plans.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Indicates Area Not In Scope
	Existing Lighting Fixtures
	Existing Security Camera
	Existing Ceiling Mounted Speaker
SD	Existing Ceiling Mounted Smoke Detector
S	Existing Single Pole Snap Switch, 20A, 120-277 VAC - 48" AFF
S3	Existing Three-Way Switch, 20A, 120-277 VAC - 48" AFF
	Existing Exit Sign, Wall Or Ceiling Mounted, Shaded Area Denotes Lighted Face, Chevrons As Shown On Plans



Campus Keyplan



Vertical Plan

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seal

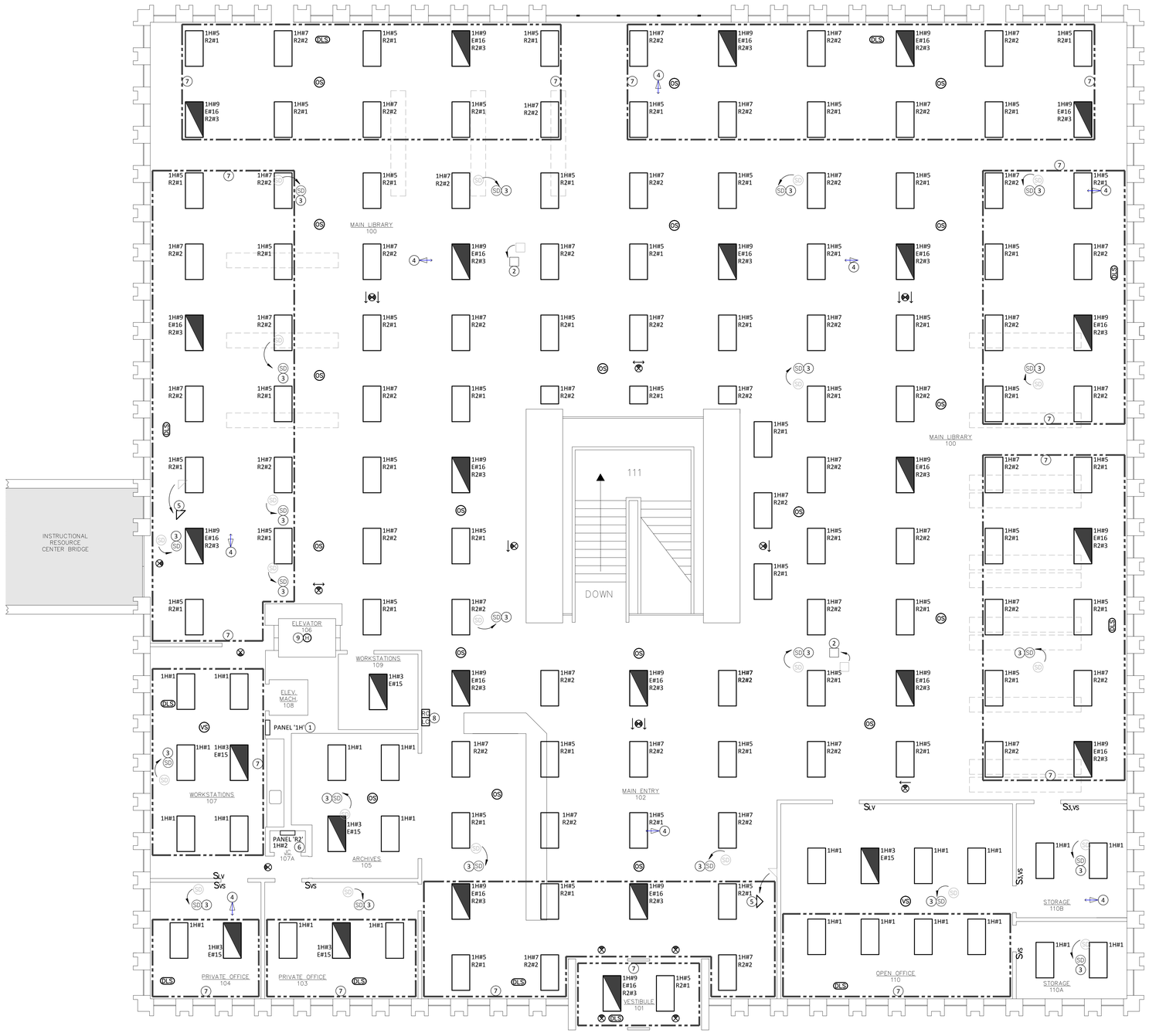
project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - ED102	

title
LIBRARY
ELECTRICAL DEMOLITION PLAN
UPPER FLOOR

dwg. no.
ED-102

UPPER FLOOR PLAN - DEMO WORK Scale: 3/16"=1'-0" 1' 2' 4' 6' 10' Drawing: **ED-102** Detail: **01**



KEY NOTES (SYMBOLS ①, ②, ETC.)

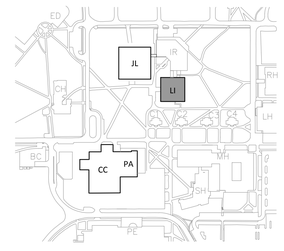
1. Existing Lighting Panel '1H'. Lighting Circuits Shall Be Provided From This Panel And Use Circuits Freed Up During Demolition.
2. New Location Of Existing Wireless Access Point.
3. New Location Of Existing Smoke Detector.
4. New Location Of Existing Speaker.
5. New Location Of Existing Ceiling Mounted Security Camera.
6. Approximate Location Of Relay Panel 'R2'. Coordinate Relay Panel Location With Existing Equipment And Available Wall Space. Do Not Install Directly Below Piping. Provide Circuit From Panel '1H' #2.
7. Lighting Within Outlined Area Shall Have Dimming Ballasts Wired To Daylighting Sensor Within That Outline Via Lighting Control Panel.
8. Side-By-Side Wall Mounted Lighting Control Packs. Coordinate Exact Location With Owner. See Detail E-501/01 For More Information.
9. Furnish And Install 135 Degree Fixed Temperature Heat Detector In Elevator Machine Room, Elevator Pit And Top Of Elevator Shaft And Tie Into Existing Fire Alarm Signal Line Circuit.

GENERAL NOTES

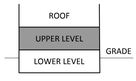
1. Coordinate Final Fixture Locations With Existing Building Structure And Architectural Ceiling Grid.
2. Coordinate Lighting Fixtures Located Within Book Stacks To Be Centered Between Book Stacks.
3. Contractor Shall Rewire Existing Lighting Switches Such That Existing Switches Control The Same Areas / Rooms As They Did Prior To The Demolition Of The Old Ceiling Grid.
4. Type 'A' Fixture (Denoted By A 2'x4' Rectangle Symbols On Plans) Shall Be 2'x4' LED Recessed Tropher By Lithonia Lighting With LED Dimming Driver, 2GTL4LP840, 4290 Lumens, 4000K, Patterned #12 Acrylic, 120-277V, 39W Or Equal.
5. Type 'B' Fixture (Denoted By A 2'x2' Rectangle Symbols On Plans) Shall Be 2'x2' LED Recessed Tropher By Lithonia Lighting With LED Dimming Driver, 2GTL2LP840, 3883 Lumens, 4000K, Patterned #12 Acrylic, 120-277V, 39.6W Or Equal.
6. Contractor Shall Include In Their Bid All Costs For Reprogramming The Fire Alarm System And Reacceptance Testing By MCC's Fire Alarm Service Contractor.
7. Circuit Numbers Are Provided For Reference Only. New Fixtures Shall Be Connected To Circuits Freed Up During Demolition Within Existing Electrical Panels '1H' And '2H'
8. R# Adjacent To A Light Fixture Circuit Indicates The Control Relay Number In The New Lighting Control Panels 'R1' And 'R2'.
9. Contractor To Provide An As Built Drawing Depicting Circuit Numbers And Updated '1H', '2H' And 'E' Panel Schedules Depicting Existing, Spare And New Circuits.
10. Exit Signs / Emergency Lighting Units / Emergency Battery Packs Within Lighting Fixtures Shall Be Connected To The Lighting Circuit Serving The Same Room Or Area And Ahead Of All Local Switching.
11. Existing Lighting Relay Controls Shall Be Bypassed.

PARTIAL SYMBOLS & ABBREVIATIONS

Identifier	Description
	Indicates Area Not In Scope
	Existing Security Camera
	Existing Ceiling Mounted Speaker
SD	Existing Ceiling Mounted Smoke Detector
S	Existing Single Pole Snap Switch, 20A, 120-277 VAC - 48" AFF
S3	Existing Three-Way Switch, 20A, 120-277 VAC - 48" AFF
	Existing Exit Sign, Wall Or Ceiling Mounted, Shaded Area Denotes Lighted Face, Chevrons As Shown On Plans
SLV	Digital Low Voltage Switch 48" AFF
SVS	Vacancy Sensor Wall Switch, 800W, 120 VAC
OS	Ceiling Mounted Dual Technology Occupancy Sensor
VS	Ceiling Mounted Dual Technology Vacancy Sensor
DLS	Daylight Sensor
	Shading Indicates Fixture Connected To Emergency Circuit
or	Panel Board, Flush Or Surface Mtd
	Exit Sign, Wall Or Ceiling Mounted, Shaded Area Denotes Lighted Face, Chevrons As Shown On Plans
H	Heat Detector, Fixed Temp.



Campus Keyplan



Vertical Plan

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale	filename	
AS SHOWN	11953 L - E102	

title
LIBRARY
ELECTRICAL PLAN
UPPER FLOOR

dwg. no.
E-102

UPPER FLOOR PLAN - NEW WORK Scale: 3/16"=1'-0" 1' 2' 4' 6' 10'

Drawing: **E-102**
Detail: **01**

30x42

SCHEDULE FOR PANEL: Panel 1H (Existing)

SYSTEM:	480Y/277V, 3Φ, 4W			NUMBER OF POLES:	42			AREA SERVED:	2ND FLOOR LIGHTING				
BUS RATING:	125 A	MINIMUM CB IC:	42kA RMS SYM	EQUIP GROUND BUS:	YES			PANEL LOCATION:	2ND FLOOR				
MAINS TYPE:	MCB	MAINS RATING:	100 A	ISOLATED GND BUS:	NO			MOUNTING:	FLUSH	SUPPLIED FROM:			

CIR. #	SERVES	LOAD	MINIMUM BRANCH CIRCUIT & CONDUIT SIZE	BREAKER P	BREAKER TRIP	PHASE A	PHASE B	PHASE C	BREAKER TRIP	BREAKER P	MINIMUM BRANCH CIRCUIT & CONDUIT SIZE	LOAD	SERVES	CIR. #
1	**Workstation / Office Lighting**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**	**1700**			**20**	**1**	**2#12, #12 G, 3/4" C**	**200**	**Relay Panel 'R2'**	2
3	**Workstation / Office Lighting (Emr.)**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**		**3300**		20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	4
5	**Reading Area Lighting**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**			3300	20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	6
7	**Reading Area Lighting**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**	**3300**			20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	8
9	**Reading Area Lighting (Emr.)**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**		**3300**		20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	10
11	Reading & Stack Area Lites	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	12
13	Reading & Stack Area Lites	1800	2#12, #12 G, 3/4" C	1	20	3600			20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	14
15	Reading & Stack Area Lites	1800	2#12, #12 G, 3/4" C	1	20		3600		20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	16
17	Reading & Stack Area Lites	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	18
19	Reading & Stack Area Lites	1800	2#12, #12 G, 3/4" C	1	20	3600			20	1	2#12, #12 G, 3/4" C	1800	Reading & Stack Area Lites	20
21	Reading & Stack Area Lites	1800	2#12, #12 G, 3/4" C	1	20		3600		20	1	2#12, #12 G, 3/4" C	1800	Technical Processing & Office Lits	22
23	Spare				20			1800	20	1	2#12, #12 G, 3/4" C	1800	Rm. Lites	24
25	Contactor	300	2#12, #12 G, 3/4" C	1	20	300			20				Spare	26
27	Spare				20		0		20				Spare	28
29	Heaters (Two Small Offices)	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Heaters (Large Office)	30
31	Space				-	0			-				Space	32
33	Space				-		0		-				Space	34
35	Space				-			0	-				Space	36
37	Space				-	0			-				Space	38
39	Space				-		0		-				Space	40
41	Space				-			0	-				Space	42
						12500	13800	15900	VA PER PHASE					
						45	50	57	AMPS PER PHASE					

TOTAL CONNECTED LOAD (VA) 42200 — **51** — **TOTAL CONNECTED LOAD (AMPS)**

NOTES:
1. Bold Circuits Indicate New Circuits Under This Scope And Are For Reference Only. Contractor Shall Use Existing Circuits Freed Up By Demolition.

SCHEDULE FOR PANEL: Panel 2H (Existing)

SYSTEM:	480Y/277V, 3Φ, 4W			NUMBER OF POLES:	42			AREA SERVED:	FIRST FLOOR LIGHTING				
BUS RATING:	125 A	MINIMUM CB IC:	42kA RMS SYM	EQUIP GROUND BUS:	YES			PANEL LOCATION:	BASEMENT MER				
MAINS TYPE:	MCB	MAINS RATING:	100 A	ISOLATED GND BUS:	NO			MOUNTING:	SURFACE	SUPPLIED FROM:			

CIR. #	SERVES	LOAD	MINIMUM BRANCH CIRCUIT & CONDUIT SIZE	BREAKER P	BREAKER TRIP	PHASE A	PHASE B	PHASE C	BREAKER TRIP	BREAKER P	MINIMUM BRANCH CIRCUIT & CONDUIT SIZE	LOAD	SERVES	CIR. #
1	**Lower Level - Break / RR Lites**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**	**3000**			**20**	**1**	**2#12, #12 G, 3/4" C**	**1500**	**Stack Lighting (Within Stacks)**	2
3	**Lower Level - Stack Lighting**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**		**1700**		**20**	**1**	**2#12, #12 G, 3/4" C**	**200**	**Relay Panel 'R1'**	4
5	**Lower Level - Stack Lighting**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**			**4500**	**20**	**1**	**2#12, #12 G, 3/4" C**	**3000**	**Basement Fire Room Unit Heater**	6
7	**Lower Level - Stack Lighting (Emr.)**	**1500**	**2#12, #12 G, 3/4" C**	**1**	**20**	**3300**			20	1	2#12, #12 G, 3/4" C	1800	Future Stack Area Lites	8
9	Contactor Feed	1800	2#12, #12 G, 3/4" C	1	20		3600		20	1	2#12, #12 G, 3/4" C	1800	Lounge, Toilet, Janitor Lites	10
11	Staff Lounge & Storage Lites	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Heater Ladies Room	12
13	Heater Ladies Room	1800	2#12, #12 G, 3/4" C	1	20	3600			20	1	2#12, #12 G, 3/4" C	1800	Heater Men's Room	14
15	Heater Men's Room	1800	2#12, #12 G, 3/4" C	1	20		3600		20	2	2#12, #12 G, 3/4" C	1800	480V Water Heater	16
17	Future Room Lites By Stairwell	1800	2#12, #12 G, 3/4" C	1	20			3600				1800		18
19	Lecture Seminar Lites	1800	2#12, #12 G, 3/4" C	1	20	1800			20	1			Spare	20
21	Heater LH003 Room	1800	2#12, #12 G, 3/4" C	1	20		3600		20	1	2#12, #12 G, 3/4" C	1800	Liebert Evap	22
23	Heater LH002 Room	1800	2#12, #12 G, 3/4" C	1	20			3000				1200		24
25	Space				-	1200			20	3	3#12, #12 G, 3/4" C	1200	3 Phase Heaters In Storage Room	26
27	Space				-		1200					1200		28
29	Space				-			0	-				Space	30
31	Space				-	0			-				Space	32
33	Space				-		0		-				Space	34
35	Space				-			0	-				Space	36
37	Space				-	0			-				Space	38
39	Space				-		0		-				Space	40
41	Space				-			0	-				Space	42
						12900	13700	14700	VA PER PHASE					
						47	49	53	AMPS PER PHASE					

TOTAL CONNECTED LOAD (VA) 41300 — **50** — **TOTAL CONNECTED LOAD (AMPS)**

NOTES:
1. Bold Circuits Indicate New Circuits Under This Scope And Are For Reference Only. Contractor Shall Use Existing Circuits Freed Up By Demolition.

SCHEDULE FOR PANEL: Panel E (Existing)

SYSTEM:	208Y/120V, 3Φ, 4W			NUMBER OF POLES:	30			AREA SERVED:	EMERGENCY POWER				
BUS RATING:	100 A	MINIMUM CB IC:	42kA RMS SYM	EQUIP GROUND BUS:	YES			PANEL LOCATION:	BASEMENT MER				
MAINS TYPE:	MLO	MAINS RATING:	N / A	ISOLATED GND BUS:	NO			MOUNTING:	SURFACE	SUPPLIED FROM:			

CIR. #	SERVES	LOAD	MINIMUM BRANCH CIRCUIT & CONDUIT SIZE	BREAKER P	BREAKER TRIP	PHASE A	PHASE B	PHASE C	BREAKER TRIP	BREAKER P	MINIMUM BRANCH CIRCUIT & CONDUIT SIZE	LOAD	SERVES	CIR. #
1	Unusable Space					0								2
3	Unusable Space						50			3		50	Main Panel Breaker	4
5	Unusable Space							0						6
7	Unusable Space					0							Unusable Space	8
9	Unusable Space						0						Unusable Space	10
11	Unusable Space							0					Unusable Space	12
13	**"E" Fixtures - LL Break / RR**	**500**	**2#12, #12 G, 3/4" C**	**1**	**20**	**1500**			**20**	**1**	**2#12, #12 G, 3/4" C**	**1000**	**"E" Fixtures - LL Reading Area**	14
15	**"E" Fixtures - ML Offices / Workst.**	**500**	**2#12, #12 G, 3/4" C**	**1**	**20**		**1500**		**20**	**1**	**2#12, #12 G, 3/4" C**	**1000**	**"E" Fixtures - ML Reading Area**	16
17	"E" Fixtures Technical	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Processing 1st Floor	18
19	"E" Fixtures Future	1800	2#12, #12 G, 3/4" C	1	20	3600			20	1	2#12, #12 G, 3/4" C	1800	Stack Area - Basement	20
21	Spare			1	20		0		20	1			Spare	22
23	Fire Alarm Panel	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Exit Lites	24
25	Equipment Room Liites	1800	2#12, #12 G, 3/4" C	1	20	3600			20	1	2#12, #12 G, 3/4" C	1800	Elevator Lighting	26
27	Spare			1	20		1800		20	1	2#12, #12 G, 3/4" C	1800	Heater Switch Gear	28
29	Emg Rece	1800	2#12, #12 G, 3/4" C	1	20			3600	20	1	2#12, #12 G, 3/4" C	1800	Telephone Rack Power	30
						8700	3350	10800	VA PER PHASE					
						73	28	90	AMPS PER PHASE					

TOTAL CONNECTED LOAD (VA) 22850 — **63** — **TOTAL CONNECTED LOAD (AMPS)**

NOTES:
1. Bold Circuits Indicate New Circuits Under This Scope And Are For Reference Only. Contractor Shall Use Existing Circuits Freed Up By Demolition.

ITEM	DATE	ISSUE DESCRIPTION
1	10/21/16	ISSUED FOR 100% CD
2	01/23/17	ISSUED FOR ADDENDUM #1

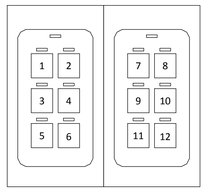
dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

Questions For DLB Call: **Dan Grieshaber**
DLB Project ID: 11953 Phone: (732)927-5041

seal

Main Level Control
6 Button Switch

Lower Level Control
6 Button Switch



LIGHTING CONTROL TABLE

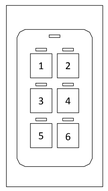
Button	Control
1	On / Off - Main Level Master
2	On / Off - Main Level Reading Area Luminance Level 1
3	On / Off - Main Level Reading Area Luminance Level 2
4	On / Off - Main Level Reading Area "Night Lighting"
5	Spare
6	Spare
7	On / Off - Lower Level Master
8	On / Off - Lower Level Reading Area Luminance Level 1
9	On / Off - Lower Level Reading Area Luminance Level 2
10	On / Off - Lower Level Reading Area "Night Lighting"
11	On / Off - Lower Level Reading Area Within Stacks
12	Spare

NOTES:

1. (2) Switches Based On AcuityControls CH6 BWH PWH.

LIGHTING CONTROL SWITCH STATION "LC" DETAIL — Scale: NTS — Drawing: **E-501** Detail: **01**

Lower Level Control
6 Button Switch



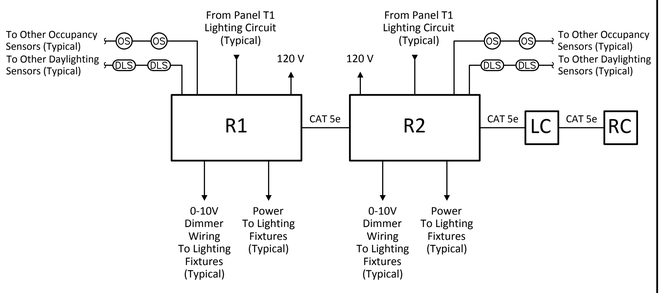
LIGHTING SWITCH CONTROL TABLE

Button	Control
1	On / Off - Lower Level Master
2	On / Off - Lower Level Reading Area Luminance Level 1
3	On / Off - Lower Level Reading Area Luminance Level 2
4	On / Off - Lower Level Reading Area "Night Lighting"
5	On / Off - Lower Level Reading Area Within Stacks
6	Spare

NOTES:

1. (2) Switches Based On AcuityControls CH6 BWH PWH.

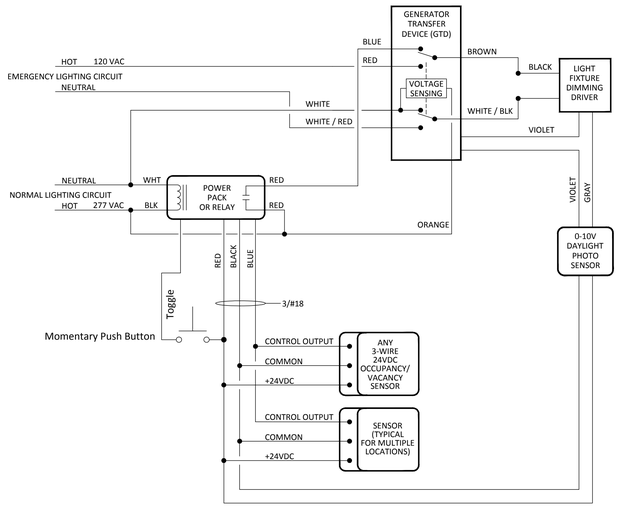
LIGHTING CONTROL SWITCH STATION "RC" DETAIL — Scale: NTS — Drawing: **E-501** Detail: **02**



NOTES:

1. R1: Dimming Panel; 8 Relays - LC&D CAT. NO: GR1408 LTD ENC HL SM NE1 GR1408 LTD INT 8FCR IDIM REMOTE DV D14
2. R2: Dimming Panel; 8 Relays - LC&D CAT. NO: GR1408 LTD ENC HL SM NE1 GR1408 LTD INT 8FCR IDIM DTCMOD DV D14
3. Photo Sensor Based ON AcuityControls PCELL 3WITZ.
4. Occupancy Sensor Based On AcuityControls CMPDT10.

LIGHTING CONTROL DIAGRAM - RETAIL TENANT — Scale: NTS — Drawing: **E-501** Detail: **03**



NOTES:

1. Basis Of Design Is WattStopper Universal Power Packs, Occupancy / Vacancy Sensors And Daylight Photosensors. Power Pack Shall Be BZ-150. Daylight Photo Sensor Shall Be LS-301. Occupancy / Vacancy Sensor Shall Be DT-305. Vacancy Sensor Wall Switch Shall Be DW-100. All Listed Manufacturers Shall Be Bid As Basis Of Design Or Equal.
2. Generator Transfer Device (GTD) Shall Be Emergency Bypass / Shunt Relay Manufacturer By Functional Device Inc. Cat. No. ESR With Dimming Override.
3. Provide Low Voltage Wiring As Recommended By Manufacturer, Installed Per Applicable Code.
4. Provide 3/4" Concealed EMT Conduit With Bushing Stubbed Up To Accessible Ceiling Space For At All Manual Switch Locations.
5. The Presence Of A Device Shown In This Detail Does Not Imply Its Use On The Project. The Contractor Shall Provide Devices Shown On The Drawings To Achieve The Intent Indicated.

LIGHTING CONTROLS DETAIL — Scale: NTS — Drawing: **E-501** Detail: **04**

SCHEDULE FOR RELAY PANEL: R1

				AREA SERVED:	LOWER LEVEL	
BUS RATING:	N/ A			PANEL LOCATION:	CELLAR	
MAINS TYPE:	N/A	MAINS RATING:	N/ A	MOUNTING:	SURFACE	SUPPLIED FROM: 2H

RELAY NUMBER	CIRCUIT NUMBER	BUTTON NUMBER	SERVES	LOAD WATTS	SIZE AMPS	MINIMUM FEEDER AND CONDUIT SIZE	COMMENTS
1	2H #3	2	LIGHTS - LEVEL 1 LUMINANCE	800	20	2 #12, #12G, 3/4"C	0 - 10V DIMMING
2	2H #5	3	LIGHTS - LEVEL 2 LUMINANCE	800	20	2 #12, #12G, 3/4"C	0 - 10V DIMMING
3	2H #7	4	LIGHTS - LEVEL 3 LUMINANCE (NIGHT LIGHTING)	800	20	2 #12, #12G, 3/4"C	0 - 10V DIMMING
4	2H #9	5	LIGHTS - STACK	480	20	2 #12, #12G, 3/4"C	0 - 10V DIMMING
5	-	-	SPARE				
6	-	-	SPARE				
7	-	-	SPARE				
8	-	-	SPARE				

TOTAL CONNECTED LOAD (WATTS) 2880
TOTAL CONNECTED LOAD (AMPS) 24

SCHEDULE FOR RELAY PANEL: R2

				AREA SERVED:	MAIN LEVEL	
BUS RATING:	N/ A			PANEL LOCATION:	JANITORS CLOSET	
MAINS TYPE:	N/A	MAINS RATING:	N/ A	MOUNTING:	SURFACE	SUPPLIED FROM: 1H

RELAY NUMBER	CIRCUIT NUMBER	BUTTON NUMBER	SERVES	LOAD WATTS	SIZE AMPS	MINIMUM FEEDER AND CONDUIT SIZE	COMMENTS
1	1H #5	2	LIGHTS - LEVEL 1 LUMINANCE	1200	20.0	2 #12, #12G, 3/4"C	0 - 10V DIMMING
2	1H #7	3	LIGHTS - LEVEL 2 LUMINANCE	1200	20.0	2 #12, #12G, 3/4"C	0 - 10V DIMMING
3	1H #9	4	LIGHTS - LEVEL 3 LUMINANCE (NIGHT LIGHTING)	1200	20.0	2 #12, #12G, 3/4"C	0 - 10V DIMMING
4	-	-	SPARE				
5	-	-	SPARE				
6	-	-	SPARE				
7	-	-	SPARE				
8	-	-	SPARE				

TOTAL CONNECTED LOAD (WATTS) 3600
TOTAL CONNECTED LOAD (AMPS) 30

project
CAMPUS SPRINKLER UPGRADES
MIDDLESEX COUNTY COLLEGE
2600 WOODBRIDGE AVENUE
EDISON, NJ 08818

drawn by	checked by	date
NM	DG	01/09/2015
scale: AS SHOWN	filename: 11953 L - E501	

title
LIBRARY
DETAILS & SCHEDULES

dwg. no.
E-501