JAMES M PLEASANTS CO INC
PO BOX 16706
GREENSBORO NC 27416
FIRE PUMP STARTUP, FLOW TEST AND SERVICE

TESTED BY: THOMAS BAILEY
CELL: 328-453-3356
OFFICE: 336-378-9011
EMAIL: THOMASB@JMPCO.COM

JOB NAME	LOCATION	CONTACT	DATE
JORDAN HALL	2800 FAUCETTE DR RALEIGH NC	EDDIE CLIFTON 919-518-8343	12/3/2019

PUMP
PUMP MANUFACTURER: | RATED GPM: 1000 | TYPE: HORIZONTAL SPLIT | MAX PRESSURE AT CHURN:
MODEL NUMBER: 6X8 | RATED PSI: 80 | WATER SOURCE: PUBLIC
SERIAL NUMBER: 87-803 | RATED RPM: 3520 | ROTATION:

MOTOR
ELECTRIC MOTOR MANUFACTURER: LINCOLN | RPM: 3520 | FRAME: 364TS
MODEL#: | HERTZ: 60 | HP: 75
SERIAL#: 4687 | PHASE: 3
VOLTAGE: 460 | FLA: 88 | SERVICE FACTOR: 1.15

DIESEL
DIESEL ENGINE MANUFACTURER: | HP: | GROUND:
MODEL#: | RPM: | HOURS:
SERIAL#: | VOLTAGE:

CONTROLLER
CONTROLER MANUFACTURER: FIRETROL | TYPE:
MODEL#: FTA1300 | LISTING AGENT: UL / FM
SERIAL#: 129041 | OPER HRS:
PRESSURE SETTINGS: ON 95 OFF | SHUT DOWN: MANUAL

JOCKEY PUMP MANUFACTURER
MANUFACTURER: AURORA
MODEL#: N/A
SERIAL#: N/A

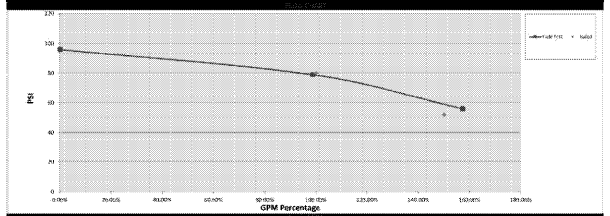
JOCKEY PUMP CONTROLLER MANUFACTURER
MANUFACTURER: FIRETROL
MODEL#: FTA500
SERIAL#:
PRESSURE SETTINGS: ON 110 OFF 130

TESTING METHOD
TYPE OF TEST: ANNUAL | TESTING DEVICE: LITTLE HOSE MONSTER
TESTING LOCATION: TEST HEADER

FLOW TEST

RPM	DIS PSI	SUCT PSI	NET PSI	NOZZLES	NOZZLE SIZE	Pitot 1	Pitot 2	Pitot 3	Pitot 4	Pitot 5	Pitot 6	GPM (rev)	PERC. RATED	VOLTS	AMPS
3567	166	70	96	0	2	0	0	0	0	0	0	0	0%	472	55 56 56
3548	134	55	79	2	2	10	10	0	0	0	0	988	99%	472	79 78 79
3539	94	38	56	3	2	16	12	12	0	0	0	1573	157%	472	86 85 86

FLOW CHART



FIRE WATCH REQUIREMENTS

WHERE THE AUTOMATIC SPRINKLER SYSTEM IS OUT OF SERVICE, THE FIRE DEPARTMENT SHALL BE NOTIFIED IMMEDIATELY AND AN APPROVED FIRE WATCH SHALL BE PROVIDED FOR ALL OCCUPANTS LEFT UNPROTECTED BY THE SHUTDOWN UNTIL THE AUTOMATIC SPRINKLER SYSTEM HAS BEEN RETURNED TO SERVICE.

FIRE WATCH PERSONNEL SHALL EACH BE PROVIDED WITH AT LEAST ONE (1) APPROVED MEANS FOR NOTIFICATION OF THE FIRE DEPARTMENT AND THEIR ONLY DUTY SHALL BE TO PERFORM CONSTANT PATROLS OF THE PROTECTED PREMISES AND KEEP WATCH FOR FIRES.

APPROVED MEANS OF DIRECT COMMUNICATION MAY INCLUDE CELLULAR PHONES, LANDLINE PHONES, HANDHELD TRANSCEIVERS, OR ANY OTHER FORM OF INSTANT AUDIO COMMUNICATION AT THE DISCRETION OF THE OWNER. EMAIL COMMUNICATIONS, TEXT MESSAGING, OR ANY OTHER FORM OF TEXT-BASED OR VISUAL COMMUNICATION ARE PROHIBITED.

THE GENERAL CONTRACTOR SHALL ASSIGN AN IMPAIRMENT COORDINATOR TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION.

A TAG SHALL BE USED TO INDICATE THAT A SYSTEM, OR PORTION THEREOF, HAS BEEN REMOVED FROM SERVICE.

THE TAG SHALL BE POSTED AT EACH FIRE DEPARTMENT CONNECTION, SYSTEM CONTROL VALVE, FIRE ALARM CONTROL UNIT, AND FIRE ALARM ANNUNCIATOR, INDICATING WHICH SYSTEM, OR PART THEREOF, HAS BEEN REMOVED FROM SERVICE. THE FIRE CODE OFFICIAL SHALL SPECIFY WHERE THE TAG IS TO BE PLACED.

PREPLANNED IMPAIRMENTS SHALL BE AUTHORIZED BY THE IMPAIRMENT COORDINATOR. BEFORE AUTHORIZATION IS GIVEN, A DESIGNATED INDIVIDUAL SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL OF THE FOLLOWING PROCEDURES HAVE BEEN IMPLEMENTED:

1. THE EXTENT AND EXPECTED DURATION OF THE IMPAIRMENT HAVE BEEN DETERMINED.
2. THE AREAS OR BUILDINGS INVOLVED HAVE BEEN INSPECTED AND THE INCREASED RISKS DETERMINED.
3. RECOMMENDATIONS HAVE BEEN SUBMITTED TO MANAGEMENT OR BUILDING OWNER/MANAGER.
4. THE FIRE DEPARTMENT HAS BEEN NOTIFIED.
5. THE INSURANCE CARRIER, THE ALARM COMPANY, BUILDING OWNER/MANAGER, AND OTHER AUTHORITIES HAVING JURISDICTION HAVE BEEN NOTIFIED.
6. THE SUPERVISORS IN THE AREAS TO BE AFFECTED HAVE BEEN NOTIFIED.
7. A TAG IMPAIRMENT SYSTEM HAS BEEN IMPLEMENTED.
8. NECESSARY TOOLS AND MATERIALS HAVE BEEN ASSEMBLED ON THE IMPAIRMENT SITE.

WHEN UNPLANNED IMPAIRMENTS OCCUR, APPROPRIATE EMERGENCY ACTION SHALL BE TAKEN TO MINIMIZE POTENTIAL INJURY AND DAMAGE. THE IMPAIRMENT COORDINATOR SHALL IMPLEMENT THE STEPS OUTLINED FOR PREPLANNED IMPAIRMENTS.

WHEN IMPAIRED EQUIPMENT IS RESTORED TO NORMAL WORKING ORDER, THE IMPAIRMENT COORDINATOR SHALL VERIFY THAT ALL OF THE FOLLOWING PROCEDURES HAVE BEEN IMPLEMENTED:

1. NECESSARY INSPECTIONS AND TESTS HAVE BEEN CONDUCTED TO VERIFY THAT AFFECTED SYSTEMS ARE OPERATIONAL.
2. SUPERVISORS HAVE BEEN ADVISED THAT PROTECTION IS RESTORED.
3. THE FIRE DEPARTMENT HAS BEEN ADVISED THAT PROTECTION IS RESTORED.
4. THE BUILDING OWNER/MANAGER, INSURANCE CARRIER, ALARM COMPANY, AND OTHER INVOLVED PARTIES HAVE BEEN ADVISED THAT PROTECTION IS RESTORED.
5. THE IMPAIRMENT TAG HAS BEEN REMOVED.

FIRE PROTECTION GENERAL NOTES

1. THE INTENT OF THESE PLANS IS TO PROVIDE INFORMATION TO THE REVIEWING AUTHORITIES THAT THE BUILDING WILL BE PROTECTED BY AUTOMATIC SPRINKLER SYSTEMS. THE INFORMATION INCLUDED WITHIN THESE DOCUMENTS IS PROVIDED FOR COORDINATION AND AS A REFERENCE ONLY AND THESE DOCUMENTS SHALL NOT BE CONSIDERED ACTUAL DESIGN OR CONSTRUCTION DOCUMENTS.
2. PROVIDE DESIGN, FABRICATION, AND INSTALLATION OF HYDRAULICALLY CALCULATED AUTOMATIC SPRINKLER SYSTEMS. INCLUDE ALL SERVICES, MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR COMPLETE WORKING SYSTEMS. DESIGN AND INSTALL AUTOMATIC SPRINKLER SYSTEMS IN FULLCOMPLIANCE WITH THE 2013 EDITION OF NFPA 13, THE NORTH CAROLINA FIRE PREVENTION CODE, THE OWNER'S INSURANCE UNDERWRITER, AND THE LOCAL AUTHORITY HAVING JURISDICTION.
3. PROVIDE SHOP DRAWINGS AND HYDRAULIC CALCULATIONS FOR REVIEW BY THE AUTHORITY HAVING JURISDICTION INCLUDING, BUT NOT LIMITED TO, ALL REQUIRED ITEMS AS OUTLINED IN NFPA 13 "PLANS AND CALCULATIONS" SECTIONS. SHOP DRAWINGS MUST BE PREPARED BY A NICET LEVEL III (OR HIGHER) TECHNICIAN CERTIFIED IN WATER-BASED SYSTEMS LAYOUT. INCLUDE DESIGNER'S NAME, SIGNATURE, AND CERTIFICATION NUMBER ON EACH PLAN SHEET OF THE SHOP DRAWING PACKAGE AND ON THE COVER SHEET OF EACH HYDRAULIC CALCULATION. THE HYDRAULIC CALCULATIONS SHALL BE BASED ON THE ACTUAL MANUFACTURER'S PRODUCT DATA INTENDED FOR INSTALLATION IN THE SYSTEMS AND NOT STANDARD VALUES FROM CALCULATION SOFTWARE.
4. THE CONTRACTOR SHALL WITNESS A FIRE FLOW AND/OR FIRE PUMP TEST PERFORMED BY THE OWNER PRIOR TO BEGINNING DESIGN. THIS TEST DATA SHALL BE INCLUDED IN THE HYDRAULIC CALCULATIONS PROVIDED IN THE SHOP DRAWING PACKAGE. FIRE FLOW TEST DATA OLDER THAN ONE YEAR WILL NOT BE ACCEPTED. COORDINATE WITH THE OWNER AND LOCAL UTILITY PRIOR TO PERFORMING ANY FIRE FLOW TESTS.
5. EXAMINE THE CONSTRUCTION DOCUMENTS INCLUDING ANY SPECIFICATIONS OR PROJECT MANUALS. REVIEW THE PROJECT CONDITIONS AND VERIFY ALL MEASUREMENTS, DISTANCES, ELEVATIONS, CLEARANCES, PIPE SIZES, ETC. PRIOR TO THE START OF CONSTRUCTION. COORDINATE THE LOCATION OF SPRINKLERS WITH THE ARCHITECTURAL CEILING PLANS AND THE WORK OF OTHER TRADES. PROVIDE ADDITIONAL SPRINKLERS IN ORDER TO COORDINATE WITH LUMINAIRES. ANY CHANGES OR ALTERATIONS REQUIRED DUE TO A LACK OF COORDINATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY. SPRINKLERS SHALL BE CENTERED IN CEILING TILES AND VISUALLY ALIGNED IN ALL OTHER CONFIGURATIONS.
6. PROVIDE ALL NECESSARY OFFSETS, RISES, OR DROPS IN THE PIPING AND ASSOCIATED AUXILIARY DRAINS AS REQUIRED BY NFPA 13.
7. FIRESTOP ALL PENETRATIONS OF FIRE-RATED WALLS, FLOORS, AND PARTITIONS. PROVIDE A DEVICE OR SYSTEM WHICH HAS BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. PROVIDE A DEVICE OR SYSTEM WITH AN F-RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.
8. FLUSH AND TEST SYSTEM PIPING IN ACCORDANCE WITH NFPA 13.
9. AT THE COMPLETION OF THE PROJECT, PROVIDE TO THE OWNER TWO SETS OF RECORD DRAWINGS WHICH CLEARLY SHOW ANY CHANGES AND/OR MODIFICATIONS, ADDITIONS OR DELETIONS OF THE CONSTRUCTION DOCUMENTS.
10. AT THE COMPLETION OF THE PROJECT, PROVIDE TO THE OWNER ALL EXTRA STOCK REQUIRED BY NFPA 13.
11. THE CONTRACTOR SHALL GUARANTEE ALL WORK, MATERIALS AND EQUIPMENT FURNISHED AGAINST DEFECTS, LEAKS, PERFORMANCE, AND NONOPERATION FOR A PERIOD OF ONE YEAR AFTER THE DATE OF THE OWNER'S FINAL ACCEPTANCE. DEFECTS SHALL BE INTERPRETED AS DEFECTIVE MATERIALS OR EQUIPMENT OR UNSATISFACTORY INSTALLATION AND ARE NOT INTENDED TO APPLY TO ORDINARY WEAR AND TEAR. THE CONTRACTOR SHALL PAY FOR ANY REPAIRS OR REPLACEMENTS CAUSED BY THESE DEFECTS WITHIN THE PERIOD COVERED BY THE GUARANTEE, INCLUDING ALL INCIDENTAL WORK REQUIRED TO FIX THE DEFICIENCY.

FIRE PROTECTION MATERIALS

1. PROVIDE UL LISTED BLACK STEEL PIPING (ASTM A53, ASTM A135, OR ASTM A795) WITH AN FM APPROVED MIC-INHIBITING COATING. PIPING 2" IN DIAMETER AND SMALLER SHALL BE SCHEDULE FORTY BLACK STEEL PIPE WITH THREADED FITTINGS. PIPING 2-1/2" IN DIAMETER AND LARGER SHALL BE SCHEDULE TEN BLACK STEEL PIPE ROLL GROOVED FOR MECHANICAL FITTINGS.
2. PROVIDE UL LISTED STANDARD WEIGHT CAST IRON OR MALLEABLE IRON FITTINGS FOR PRESSURES UP TO 175 PSI. PROVIDE EXTRA HEAVY WEIGHT CAST IRON OR MALLEABLE IRON FITTINGS FOR PRESSURES OVER 175 PSI. THREADED CAST IRON FITTINGS SHALL MEET ASME B16.4. THREADED MALLEABLE IRON FITTINGS SHALL MEET ASME B16.3. GROOVED FITTINGS AND COUPLINGS SHALL BE UL LISTED DUCTILE IRON UTILIZING AN EPDM GASKET. PLAIN-END FITTINGS AND COUPLINGS OR WELDED-SEGMENTED FITTINGS ARE PROHIBITED. BUSHINGS OR GROOVED-END REDUCING COUPLINGS SHALL NOT BE USED UNLESS STANDARD REDUCING FITTINGS ARE NOT REGULARLY AVAILABLE.
3. SUPPORT PIPING IN ACCORDANCE WITH NFPA 13.
4. PROVIDE ORDINARY AND INTERMEDIATE TEMPERATURE SPRINKLERS THROUGHOUT. PROVIDE CONCEALED PENDENT SPRINKLERS IN AREAS WITH CEILINGS. PROVIDE UPRIGHT SPRINKLERS IN AREAS WITH EXPOSED STRUCTURE. QUICK RESPONSE SPRINKLERS SHALL BE INSTALLED IN ALL LIGHT HAZARD AREAS IN ACCORDANCE WITH NFPA 13. WHERE QUICK RESPONSE SPRINKLERS ARE INSTALLED IN A COMPARTMENT, THEY SHALL BE INSTALLED THROUGHOUT THE COMPARTMENT.
5. PROVIDE ESCUTCHEONS WHERE PIPES PASS EXPOSED THROUGH WALLS, FLOORS, OR CEILINGS. COORDINATE COLOR WITH ADJACENT FINISHES AS INDICATED ON THE ARCHITECTURAL PLANS.
6. PROVIDE ALL SIGNAGE AS REQUIRED BY NFPA 13.

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
●	EXISTING PENDENT SPRINKLER TO REMAIN
○	EXISTING UPRIGHT SPRINKLER TO REMAIN
⊗ OR ✖	EXISTING SPRINKLER TO BE REMOVED AND ARM-OVER PLUGGED
●N	NEW PENDENT SPRINKLER
○N	NEW UPRIGHT SPRINKLER
●– – →●	RELOCATE EXISTING ARM-OVER AND PROVIDE NEW SPRINKLER REFER TO SPRINKLER SYMBOLS ABOVE FOR SPRINKLER TYPES

ADDITIONAL ABBREVIATIONS

AFC	ABOVE FINISH CEILING	"	INCH(ES)
AFF	ABOVE FINISH FLOOR	KW	KILOWATT(S)
AFG	ABOVE FINISH GRADE	LB	POUND
AHJ	AUTHORITY HAVING JURISDICTION	MAX	MAXIMUM
BFP	BACKFLOW PREVENTER	MIN	MINIMUM
BFC	BELOW FINISH CEILING	NIC	NOT IN CONTRACT
BFF	BELOW FINISH FLOOR	NTS	NOT TO SCALE
BFG	BELOW FINISH GRADE	PSI	POUNDS PER SQUARE INCH
°	DEGREE(S)	RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
°F	DEGREES FAHRENHEIT	RPM	REVOLUTIONS PER MINUTE
DIA	DIAMETER, NOMINAL	SF	SQUARE FEET
Δ	DIFFERENCE	TYP	TYPICAL
DN	DOWN		
'	FOOT OR FEET	EC	ELECTRICAL CONTRACTOR
FT-HD	FEET OF HEAD	FC	FIRE ALARM CONTRACTOR
GAL	GALLONS	GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE	MC	MECHANICAL CONTRACTOR
HP	HORSEPOWER	PC	PLUMBING CONTRACTOR
HZ	HERTZ	SC	SPRINKLER CONTRACTOR

DESIGN DATA

LIGHT HAZARD OCCUPANCY (ALL AREAS NOT MARKED "OH-1"):

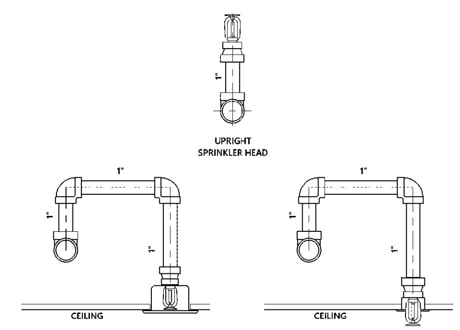
DESIGN DENSITY:	0.10 GPM/SF
WET PIPE HYDRAULICALLY MOST REMOTE AREA:	1,500 SF
SPRINKLER ORIFICE SIZE:	1/2"
MAXIMUM COVERAGE AREA PER SPRINKLER:	225 SF
DURATION OF WATER SUPPLY:	30 MINUTES
TOTAL COMBINED HOSE STREAM ALLOWANCE:	100 GPM

ORDINARY HAZARD OCCUPANCY, GROUP I (AREAS MARKED "OH-1"):

DESIGN DENSITY:	0.15 GPM/SF
WET PIPE HYDRAULICALLY MOST REMOTE AREA:	1,500 SF
SPRINKLER ORIFICE SIZE:	1/2"
MAXIMUM COVERAGE AREA PER SPRINKLER:	130 SF
DURATION OF WATER SUPPLY:	30 - 60 MINUTES
TOTAL COMBINED HOSE STREAM ALLOWANCE:	250 GPM

FIRE PROTECTION SHEET INDEX

PAGE	SHEET	TITLE
1	F0.01	FIRE PROTECTION LEGEND, SPECIFICATIONS, & DETAILS
2	F1.01	FIRE PROTECTION PLANS



REFER TO ARCHITECTURAL PLANS FOR CEILING TYPE, REFER TO SPRINKLER LEGEND FOR TYPE.

1 TYPICAL RETURN BEND SCHEMATIC
NOT TO SCALE

ARCHITECTURE
INTERIORS
PLANNING

WTS
WATSON TATE SAVORY

NC STATE UNIVERSITY

optima engineering
150 Fayetteville St., Suite 520, Raleigh, NC 27601
1927 South Tryon St., Suite 300, Charlotte NC 28203
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

Jordan Hall Library Renovation
Watson Tate Savory
NCSU Jordan Hall

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 039771 CHRISTOPHER CAIN COOK 8/24/20

ISSUE DATE: 08.24.2020
PHASE: Bid Set

#	DATE	REVISION

FIRE PROTECTION LEGEND, SPECIFICATIONS, & DETAILS

19244 A/E PROJECT NO.
F0.01 SHEET
Optima # 19-0360 Sheet 1 of 2

8/18/2020 1:48:09 PM C:\REVIT LOCAL\19-0360r NCSU Jordan Hall_MEP_R19_cccook.rvt

THIS DRAWING IS AN INSTRUMENT OF SERVICE. THE DRAWING AND THE INFORMATION THEREON IS THE PROPERTY OF OPTIMA ENGINEERING, P.A. ANY REPRODUCTION, ALTERATION, OR USE FOR OTHER THAN THE INTENDED PROJECT, WITHOUT THE WRITTEN CONSENT OF OPTIMA ENGINEERING, IS EXPRESSLY FORBIDDEN. COPYRIGHT © OPTIMA ENGINEERING P.A. 2020, ALL RIGHTS RESERVED.

Order Plans @ WWW.LDPLine.com