PROJECT:
UNIVERSITY OF COLORADO AT DENVER - LAWRENCE STREET CENTER
GARAGE DRY PIPE SPRINKLER REPLACEMENT PROJECT
1380 LAWRENCE STREET
DENVER, COLORADO
UCD PROJECT NUMBER - PN790625 / LSC GARAGE DRY PIPE
SPRINKLER REPLACEMENT

DOCUMENT PHASE:
100% CONSTRUCTION DOCUMENTS

OWNER: UCD

CONSULTANT:
BG BUILDINGWORKS
1626 COLE BLVD. SUITE # 300, BLDG. 7
LAKEWOOD, COLORADO

BG BUILDINGWORKS PROJECT # 9418.00

APPLICABLE CODES
NFPA 13 - 2015
NFPA 70 - 2017 (NEC)
NFPA 72 - 2015 (NATIONAL FIRE ALARM CODE)
2015 INTERNATIONAL BUILDING CODE
STORM PIPING UP TO REMAIN.

F(DRY) PIPING AND SPRINKLERS TO BE REMOVED.

4" F(DRY) UP TO FIRE PUMP ROOM. REMOVE PIPING AND REUSE PENETRATION.

GAS METER F (DRY) PIPING DN TO LOW CEILING.

F(DRY) DN TO LOW GARAGE AREA.

8" DIESEL LINES UP TO DIESEL TANK.

8" DOUBLE CHECK VALVE.

Designed:
Reviewed:
Project No:

Sheet Title:
Sheet No:
Date:

Scale:
As Shown
This page contains a detailed plan for the Lawrence Street Center, including the protection of new lobby level fire area. It specifies the use of lay-in ceiling with dry elevated steel beam structure, pendant heads in this area, and the coordination of sprinkler piping and sprinkler heads. The plan also includes notes on the coordination of electrical work, the installation of dry pendant sprinklers with bottom tap, and the provision of fire pump controllers. The plan also refers to the coordination of construction with the electrical contractor for new air compressors and reconnection. It highlights the importance of maintaining low ceiling heights in the garage areas and the necessity of coordinating with the contractor. The plan also mentions the provision of accelerated and anti-flood devices on dry system auxiliary drains at all piping low points for complete system drainage. It also notes the need for the contractor to coordinate with the electrical contractor for new air compressors and reconnection.
SPRINKLER PIPE ROUTING AND SPRINKLER HEAD LOCATIONS ARE SHOWN FOR GENERAL REFERENCE. ACTUAL PIPE SIZING, ROUTING AND SPRINKLER HEAD LOCATIONS SHALL BE PER FIRE PROTECTION CONTRACTORS FINAL LAYOUTS AND HYDRAULICALLY CALCULATED PLANS.

ALL BE DESIGNED PER NFPA 13.

DRY PIPE SYSTEM SHALL BE DESIGNED FOR A MAXIMUM TIME TO WATER DELIVERY AT MOST REMOTE SPRINKLER OF 50 SECONDS IN ACCORDANCE WITH THE LATEST EDITION OF NFPA 13.

PROVIDE ACCELERATOR AND ANTI-FLOOD DEVICE ON DRY PIPE VALVES FOR SYSTEMS WITH GREATER THAN 400 GPM CAPACITY.

SPRINKLER HEAD SPACING SHOWN HEREIN IS BASED ON SPRINKLER HEADS WITH MINIMUM PRESSURES AND K-FACTORS WHICH WILL PROVIDE AN AREA OF COVERAGE OF 130 S.F. CONTRACTOR MAY PROVIDE DIFFERENT OVERAGES BASED ON CALCULATED FLOWS AND PRESSURES AT THEIR OPTION.

CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT BUILDING CONTENTS AGAINST DAMAGE.

CONTRACTOR SHALL CLEAN ALL AREAS AFTER WORK HAS BEEN COMPLETED.

PROVIDE DRY SYSTEM AUXILIARY DRAINS AT ALL PIPING LOW POINTS FOR COMPLETE SYSTEM DRAINAGE AS INDICATED IN DIAGRAM A, SHEET FP302.

INSTALL DRY PENDANT SPRINKLERS WITH BOTTOM CONNECTION AS INDICATED IN DIAGRAM B, SHEET FP100.

REFER TO SHEET FP301 FOR OVERALL SYSTEM SCHEMATICS AND DRY PIPE VALVE SCHEMATICS.
CONTINUATION. REFER TO DRAWING FP202 FOR (N) 4" F(DRY) TO ZONE #2 LOWER GARAGE.

CONSTRUCTION DOCUMENTS

1380 LAWRENCE STREET

303.278.3820

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1. Disconnect Dry Pipe Sprinkler System Air Compressor, associated disconnect and motor starter. Remove branch circuit back to first junction box on the line side of the motor starter and store for future use. Label junction box as "Spare 120-Volt Emergency Branch Circuit In Junction Box." Turn source circuit breaker in panel "EL2" to the off position.

2. Disconnect Dry Pipe Sprinkler System Pressure Switch Connection to Air Compressor Motor Starter.

3. Disconnect Dry Pipe Sprinkler System Tamper Switch. Protect fire alarm monitoring cable for extension to replacement tamper switches.

4. Disconnect Dry Pipe Sprinkler System Pressure Switch. Protect fire alarm monitoring cable for extension to replacement pressure switches.

Flag Notes:

Refer to enlarged fire pump room on this sheet for electrical demolition scope in this room.
1. Extend fire alarm monitoring cable protected during demolition to new fire alarm pressure switch.
2. Extend fire alarm monitoring cable protected during demolition to new fire alarm tamper switch.
3. Electrical contractor shall install motor starter and associated disconnect switch provided with new air compressor. Provide new branch circuit to air compressor indicated.
4. Existing loading dock with lay-in ceiling tiles.
5. Existing vestibule with hard ceiling but with small access panel.
6. Existing parking garage with open structure.
7. Proposed routing of branch circuit from panel "EH2" to new air compressor.
8. Conduit down into accessible ceiling space from floor above.
1. Electrical contractor shall remove gypsum wall covering to allow for the installation of the branch circuit from AC-1-1 to panel "EH2" in void space. Route conduit from above accessible ceiling in parking dock area, up in void space exposed with removal of gypsum wall covering up to building structure then to existing panel "EH2". Once conduits are installed in void space, electrical contractor shall employ the services of a contractor to replace gypsum wall, tape and texture repair and paint wall to match existing color.

2. Provide one spare 1" EMT conduit from above loading dock accessible ceiling to structure above for future use. Label conduit on both ends as "spare conduit to above accessible ceiling in loading dock area".

Flag Notes:
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- SEAL
- ISSUED:
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- 12.15.2017

Sheet Title: Second Level Electrical New Plan

Scale: As Shown

UCD Lawrence Street Center
GARAGE DRY PIPE SPRINKLER REPLACEMENT PROJECT
1380 Lawrence Street
Denver, Colorado

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Current Issue: CONSTRUCTION DOCUMENTS

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**LOAD SUMMARY FOR "ATS-1" AND DISTRIBUTION BOARD "DP/EM"**

1. **EXISTING Switchboard "MDP"** is a 4000 AMP, 480/277 VOLT, 3-PHASE Switchboard with 800 AMP overcurrent protection. This electrical distribution and distribution board "DP/EM" are served by the 2000 AMPS switchboards sub main.

2. **EXISTING (3 #4+1 #10G)1-1/4" C.**

3. **EXISTING (4 #1 +1 # 8G)1-1/2" C.**

4. **EXISTING 300 KVA transformer**

5. **EXISTING 365 kW / 456 kVA 480/277 VOLT, 3-PHASE, 4-WIRE, 3-PHASE DISCONNECT SWITCH**

6. **EXISTING 13.3 KV - 480/277 VOLT, 3-PHASE, 4-WIRE, 800 AMP, 480 VOLT PANEL "EH2"**

7. **EXISTING 2 SETS OF (4 #3/0-CU)2"C.**

8. **EXISTING 2 SETS OF (4 #500 KCMIL)3-1/2"C.**

9. **EXISTING (4 #4+1 #10G)1-1/2" C.**

**LOAD SUMMARY FOR PANEL "EH2" AND PANEL "EL2"**

1. **CURRENT ISSUE:**
   - JANUARY ELECTRICAL LOAD WAS SERVED BY "ATS-1" AND DISTRIBUTION BOARD (JANUARY DEMAND) + 1.1 AMPS (LOAD ADDED TO "ATS-1" AND DISTRIBUTION BOARD AS A RESULT OF THIS PROJECT).
   - BUILDING LOAD IS SERVED BY THE 2000 AMPS SWITCHBOARDS SUB MAIN.

2. **EXISTING SERVICE**:
   - EXISTING 11 SETS OF 480/277 VOLT, 3-PHASE, 4-WIRE.
   - EXISTING 4000 AMP DISTRIBUTION BOARD "MDP".

3. **EXISTING 2 SETS OF 13.3 KV - 480/277 VOLT, 3-PHASE, 4-WIRE, 3-PHASE DISCONNECT SWITCH**

**NOTES:**

1. **AS SHOWN INFORMATION IS FOUND TO BE INCORRECT NOTIFY**
   - 3 @750 KVA UTILITY TRANSFORMER SIZE:
     - 445 KVA x 1.25% (PER NEC) = 556.3 KVA OR 669.4 AMPS.
   - BUILDING LOAD IS SERVED BY THE 2000 AMPS SWITCHBOARDS SUB MAIN.

2. **CURRENTLY THE OLD AIR COMPRESSOR**
   - IS SERVED FROM PANEL "EL2" THROUGH A 15 kVA WALL MOUNTED TRANSFORMER.
   - SERVES PANEL "EL2" WITH 800 AMP OVERCURRENT PROTECTION.
   - THIS ELECTRICAL DISTRIBUTION WITH 800 AMP OVERCURRENT PROTECTION.

3. **NEW AIR COMPRESSOR AC-1-1 UNTIL THIS PROJECT**
   - CURRENTLY THE OLD AIR COMPRESSOR SERVES PANEL "EL2" FROM A 20A1P TRANSFORMER, BUT WILL BE REPLACED WITH A 200 AMP TRANSFORMER TO CONFIRM THAT PANEL HAS SUFFICIENT CAPACITY TO INTERFACE TO 800 AMP TRANSFORMER. THIS WILL BE BILLED TO THE UCD ELECTRICIAN WILL METER THIS EQUIPMENT TO CONFIRM THAT PANEL HAS SUFFICIENT CAPACITY TO INTERFACE TO 800 AMP TRANSFORMER.

4. **00,000 (SERIES RATED) MAIN**
   - TYPE: MLO 277/480V, 3PH, 4W
   - TRIP B C

5. **LOAD ADDED TO "ATS-1" AND DISTRIBUTION BOARD "DP/EM" AS A RESULT OF THIS PROJECT**
   - = 905 VA ADDED TO PANEL "EH2" AS A RESULT OF THIS PROJECT.
   - LOAD REMOVED FROM "ATS-1" AND DISTRIBUTION BOARD "DP/EM" AS A RESULT OF THIS PROJECT: 1,920 VA (LOAD REMOVED FROM SWITCHBOARDS AS A RESULT OF THIS PROJECT) - 2,825 VA (LOAD ADDED TO SWITCHBOARD AS A RESULT OF THIS PROJECT) = 905 VA (LOAD ADDED TO SWITCHBOARD AS A RESULT OF THIS PROJECT) = 905 VA ADDED TO "ATS-1" AND DISTRIBUTION BOARD "DP/EM" AS A RESULT OF THIS PROJECT.

6. **LOAD REMOVED FROM "ATS-1" AND DISTRIBUTION BOARD "DP/EM" AS A RESULT OF THIS PROJECT**
   - 1,920 VA (LOAD REMOVED FROM SWITCHBOARDS AS A RESULT OF THIS PROJECT) - 2,825 VA (LOAD ADDED TO SWITCHBOARD AS A RESULT OF THIS PROJECT) = 905 VA ADDED TO "ATS-1" AND DISTRIBUTION BOARD "DP/EM" AS A RESULT OF THIS PROJECT.

7. **LOAD ADDED TO SWITCHBOARDS AS A RESULT OF THIS PROJECT WAS: 1,920 VA**
   - +1 125% TRIP B

8. **LOAD ADDED TO SWITCHBOARDS AS A RESULT OF THIS PROJECT**
   - = 905 VA ADDED TO "ATS-1" AND DISTRIBUTION BOARD "DP/EM" AS A RESULT OF THIS PROJECT.

**BUILDING NEC LOAD SUMMARY**

1. **CIRCUIT BREAKER FOR TERMINATION OF NEW EQUIPMENT**
   - SPECIFIC NOTES:
     - MOTORS (ALL)