Appendix D

PROJECT CONCEPT, PROGRAM AND SPECIFICATIONS

Appendix D: Program Concept, Program, Drawings and Specifications

Program Concept / Program:

Provide exterior cameras at all indicated CSU-P STATE building entrances for the purpose of capturing facial recognition to retrieve to document. All images should be able to retrieve for documenting purposes.

Provide exterior cameras at selected CSU-P STATE buildings for the purpose of capturing license plate recognition at selected road entrances. All images should be able to retrieve for documenting purposes.

See floor plan diagrams and estimate budget of security cameras

1. ***69*** Desired location of cameras
2. Structured wire pathways from camera to the nearest IDF room.

See site diagrams and estimate budget of security cameras

1. ***23*** Desired location of intersections and Paseo to be monitored.

Specifications include:

1. Video Management System and Security Network CSUP
2. 2015 Colorado State University Pueblo Telecommunications Specifications
3. Cut sheet of "basis of design" cameras. Equals will be accepted.

   Camera specifications provided are the "basis of design" to provide quantitative requirements desired. All manufactures that can provide an "EQUAL" specification. This is an open specification to all camera suppliers.

   1. Exterior / Parking Lot Entry/Exit Points:
      Axis Q1786-LE or ***EQUAL***

   2. Interior / Exterior Building Door Entrances:
      Axis Q3518-LVE or ***EQUAL***

Drawings include

1. Diagrams of buildings showing locations of cameras at entrance. Also shown are path ways to IDF rooms. For the purpose of the proposal use quantities provided on spread sheet only.
2. Diagram of site showing desired areas to be monitored.
3. For the purpose of the proposal provide cost for ***69*** building cameras, ***23*** parking cameras and estimated ***6963 LF*** of wire required.

Video Management System and Security Surveillance Network— Colorado State University-Pueblo

Scope of Project:

This project shall include the complete installation of a Video Management System (VMS), exterior cameras, network cabling, network switches, and any other related devices or equipment. All bldgs. involved in the installation are state owned and, therefore, shall conform to the codes and standards as listed and defined in NEC NFPA 70/ Articles 820 and 725/ Edition 2008. Additionally, the campus has adopted ANSI/ BICSI 568 and 607 Standards for telecommunications cabling—the installation shall conform to the latest editions of each of these.

Part 1--General

A. The Design builder shall provide all specified equipment, materials, associated hardware, labor, and services to allow for a complete and operable turnkey VMS system as per this specification and CSU-Pueblo's expectations of a complete and operable system. The design builder shall ensure all aspects of the complete installation are in compliance with the following listed specifications.

B. Definitions:
   1. VMS—video management system
   2. camera—IP dome type
   3. PTZ—pan, tilt, and zoom dome camera type
   4. UPS—uninterruptable power supply battery back-up with surge suppression protection on outputs
   5. CCTV—closed circuit television
   6. IDF—intermediate distribution frame/ telecom closet
   7. MDF—main distribution frame/ main telecom room
   8. EMI—electromagnetic interference
   9. NEC—National Electric Code/ NFPA 70
   10. NFPA—National Fire Protection Association
   11. ethernet cabling—any cabling associated with IP or the campus network
   12. POE—power over Ethernet
   13. PSE—power sourcing equipment

C. It is the purpose of this specification to require the highest quality workmanship. The workmanship shall be in accordance with this specification and any attached designs, layouts, and descriptions as provided by CSU-Pueblo. The installation shall also conform to any referenced publications in this specification. Workmanship shall be at the judgment of CSU-Pueblo Facilities Dept..

D. The design builder shall cooperate and coordinate with, Sheriff, CSU-Pueblo Facilities and IT Departments. and all other contractors or departments during the course of this project to achieve a complete operable system. The design builder shall provide separate and licensed contractors for any work requiring special licenses—such as high voltage electrical work.

E. The complete installation shall include all required programming of hardware and software to include, but not limited to, VMS software, servers, cameras addressing, encoders, web clients, network clients.

F. The design builder shall include in their bid, labor costs for the purpose of determining exact camera locations, wire runs, equipment locations, workstations, and network engineering with CSU-Pueblo. This shall also include time to discuss the routing of wires and any necessary raceways inside and outside buildings. The design builder shall include labor to adjust all cameras to the desired views of CSU-Pueblo.

G. The design builder shall employ factory certified technicians. Documentation of certification is to be provided with bid. Certifications shall be in accordance with the mfr. requirements for installation of their product(s). Certifications shall be in the area of the VMS software and camera manufacturer.

Part 2 – Product/ Equipment

Products shall consist of hardware and software that meets or exceeds specifications listed on attached pages. Attached pages detail specific product requirements—products must meet or exceed these specifications in all aspects. Products shall also consist of any related hardware required for a complete installation not noted on any attachments—these products shall also be recommended for use with the other products or hardware and shall be of comparable quality. Products shall be UL listed and specifically designed for the application in which they are being used.

A. Products shall be consistent by manufacturer, make, and model throughout the product line and shall be consistent from one building to the next.

B. Products shall incorporate 25% spare outputs or inputs where products or equipment utilize inputs, outputs, or the like.

C. Products shall be installed in accordance with manufacturer installation instructions and any guidelines or recommendations referenced within them.

D. Products shall be installed to ensure adequate mounting space for future expansion that might require additional hardware or products to be mounted or installed.

E. Products shall be installed so that there is adequate workspace and access per OSHA standards 1910.303(g). Where possible, they shall be installed at a working height not requiring the use of a ladder or step stool.

F. Products shall be programmed in their entirety to take advantage of all features within that product.

G. Products such as control panels, power supplies, termination blocks, fiber transceivers, and the like are to be installed in IDF closets or MDF rooms.

H. UPS' systems shall be used at all PSE, POE switches or midspans, network servers, network switches, central management workstations, camera power supplies, and fiber transceivers. They shall provide backup capability to maintain standby operation for a minimum (4) hours.

I. All published specifications of the hardware or software manufacturer shall be considered as being a part of this specification, even though they have not been written in detail.

J. All products and equipment provided shall be new and unused and of the most current make and model.

K. All products and equipment shall be securely fastened to the structure they are mounted to.
L. An original installation and technical cut sheet of each product or equipment provided with the product or equipment shall be given to CSU-Pueblo at the end of the project.

Part 3 – VMS (Video Management System)

A. Please see separate attachment for other detailed minimum specifications.
B. The VMS software shall be installed at (10) workstations and shall be capable of supporting an unlimited number or workstations and users.
C. See pdf plans and diagrams for number and location of cameras and wire runs.

Part 4 – Camera Types

A. Cameras shall be of the IP type and shall be capable of being supported by the IEEE 802.3at POE+ Type 2 standard.
B. All cameras shall have the minimum following characteristics: dome/ color video / vandal resistant covers/ white / minimum 1/3" image sensor/ WDR/ minimum 720 x 480 HD resolution (1.3MP)/ H.264 compression. Please see attachments for more detailed camera technical specifications—interior, exterior, and PTZ types.
C. Exterior cameras which are not mounted on a horizontally surface shall use an "A Arm" type mount specifically designed for use with that camera and shall be matching in color.
D. Exterior cameras shall be carry a minimum IP66 weatherproof certification.
E. Video analytics shall be embedded at the camera.
F. All exterior cameras (PTZ and non-PTZ) shall have a minimum 18AWG /4 conductor cable included in their cable run. A minimum of 3 ft. length shall be provided at the camera or it's nearest junction box and marked "future use" if not used.

Part 5 -- POE Switch/ Endspan/ PSE

A. All cameras shall be integrated into the campus network via a separate parallel network and shall be managed by a separate, dedicated "smart" type 24 port POE+ network switch.
B. Network switches shall support the IEEE 802.3at POE+ type 2 standard and shall be capable of supporting 10/100 or gigabit ethernet service with a multimode or single mode fiber uplink.
C. Network switches shall support POE+ Modes A and B and shall maintain a minimum 42.5VDC (and a maximum of 57.0VDC) at the IP camera under full load and at a maximum distance of 330 feet. Each port shall be capable of producing 34.2 watts under all conditions. The switch shall maintain these specifications at all ports under full capacity.
D. Network switches shall be approved by the campus IT dept.. Technical specifications and documentation are to be submitted to the campus CIO at the project beginning for approval.
E. POE network switches shall be located within MDF or IDF rooms or closets.
F. POE network switches shall be rack mounted—by use of existing (where space is available and approved) or through the use of a separate mount. Location and mounting of a separate wall or floor mounted rack shall be subject to approval by CSU-Pueblo. Racks

shall be industry standard 19 inches in width and contain wire managers.

Part 6 – Materials

Materials shall consist of any items needed to install products and shall be provided by the contractor. It is the intention of CSU-Pueblo to have only those materials that are of "high quality" and industry standard used throughout the course of this project.

A. Materials shall be consistent by manufacturer, make, and model throughout the project and shall be consistent from one building to the next.
B. Materials shall be installed in accordance with manufacturer installation instructions and any guidelines or recommendations referenced within them.
C. All materials shall be installed in a professional like manner, following the industry's best practices.

Part 7 – Cables and Cabling

A. Ethernet Cables and Cabling
   1. Ethernet field cabling shall adhere to the latest edition of BICSI Standards and NEC NFPA 70. Field cable shall be plenum rated Category 5e with a minimum performance rating of 350MHZ and be blue in color. All patch cables shall also be blue in color. Ethernet runs shall be kept to a minimum 330ft. measured from device port to network switch port and shall include the length of all associated patch cables.
   2. Ethernet cabling shall be tested and certified—reports of all runs are to be given to CSU-Pueblo Facilities Dept..
   3. Patch cables from patch panel to network switch shall be factory made and consistent with the campus standard—by mfr. and type. Patch cables shall be of an adequate length that do not require excessive looping or stretching from patch panel to network port. Patch cables shall be blue in color. Patch cables shall utilize wire managers.
   4. Ethernet cables shall not be spliced. They shall be free of splices from the point of termination to device end.
   5. Cabling shall take into consideration manufacturer recommended radii and any other considerations. Kinked, bent, burned, or cables with damaged sheathing shall be replaced in their entirety. Cables shall be installed a minimum of (12) inches from high voltage cables, electric motors, fluorescent lighting, or any other such source emitting EMI. Cabling, with respect to EMI, shall follow all codes referenced within NEC/ NFPA 70/ Article 820 and any other articles referenced within.
   6. Ethernet cabling shall be terminated in the T568B standard. Terminations shall maintain twists at termination points in accordance with BICSI standards.
   7. Ethernet cabling shall utilize Category 5e rated connectors, termination panels, and patch cords.
   8. (Reserved)
   9. Service loops shall be utilized at all camera locations with a minimum 10 ft loop. Junction boxes, control panels, termination panels, or the like shall have service loops located within

them. All cables located within these shall be terminated at like lengths and neatly bundled.

10. All cabling shall be neatly dressed above and below ceilings and be consistent in form, radius, and support intervals with existing cabling. Below ceiling cabling shall be "pencil dressed".
11. All cabling shall utilize j-hooks or other CSU-Pueblo approved data cabling type supports. Cables shall be supported independently by the building structure. Use of existing ceiling wires or electrical conduit as a means of support is unacceptable. Plenum rated velcro shall be utilized to secure wires to their supports or to backboards when dressing wires. Wire ties are not acceptable unless prior approval is obtained by the university.
12. All cables shall be clearly labeled on device end and at termination or control panel endpoint. Cables shall be labeled by use of a an industry standard label maker with black lettering on white background. The label tape shall be rated for use on cables. Flag type labels are not acceptable—only those labels that wrap around cable with no extra material outside of the cable shall be deemed acceptable. Where cables are terminated at patch panels, the front of the port shall be labeled in addition to the cable. Labeling shall contain unique letters and numbers as directed by CSU-Pueblo.

B. Power Cables and Cabling

1. Power cabling, where needed, shall be stranded copper type and sized according to distance and current requirements and shall be a minimum of 18AWG with (4) current carrying conductors.
2. Shielded cables, where needed, shall have their drain wire grounded on one end only. Shielded cables shall have their shields taped off at the undrained side of termination points.
3. All cables shall be clearly marked at the field side and sourcing side by use of a label maker with black lettering on white background. The labels shall be rated for use on cables. Flag type labels are not acceptable—only those labels that wrap around cable with no extra material outside of the cable shall be deemed acceptable. Labels at the device end shall correspond to ports, terminals, or outputs at the control panel side and labeled identical.
4. All wires entering junction boxes, control panels, power supplies, or the like shall utilize strain relief connectors and shall be secured and tightened so as not to damage cables.
5. Service loops for all cables shall be utilized at all junction boxes, control panels, power supplies, racks or the like.
6.
7. Power and ethernet cables shall be installed a minimum of (12) inches from high voltage cables, electric motors, fluorescent lighting, or any other such source emitting EMI. Cabling, with respect to EMI, shall follow all codes referenced within NEC/ NFPA 70/ Article 725 and any other articles referenced within.

D. Raceways and Junction Boxes

1. All junction boxes shall be marked on their outside cover "CCTV". These shall be marked by use of a label maker and shall use black lettering on a white background only. Lettering font and size shall be consistent from one junction box to another and from one building to another.

2. Raceways and junction boxes shall be rated for use in the environment they are being used. Exterior raceways and junction boxes shall be rated as weatherproof.
3. All EMT conduits shall be reamed and burr free before fittings are installed.
4. EMT stubs shall use plenum rated bushings at the point of cable entry and/ or exit.
5. Raceways and junction boxes shall be installed in accordance with NEC/NFPA 70 and all articles within relating to their installation.
6. All installed conduit shall be a minimum of ¾" in size.
7. Pull strings shall be installed on all cable runs or raceways (EMT or otherwise) exceeding 30 feet in length. Pull strings shall be secured at both ends.
8. Cables within junction boxes shall not exceed the cable's maximum bend radius—as determined by the cable mfr..
9. The routing of raceways on the exterior of buildings shall require prior approval by CSU-Pueblo Facilities Dept..

E. Cables and Cabling—Miscellaneous

1. All cabling shall be installed in a professional like manner, following the industries best practices and in adherence with manufacturer's specifications and recommendations.
2. All cabling shall be supported by the building structure. Wires shall not be attached to existing ceiling grid support wires and shall not rest on pipes, ducting, equipment, or the like within the ceiling. They shall not be attached to existing electrically conduit or supports utilized by other bldg. systems.
3. UL listed firestop shall be utilized on all wall penetrations.
4. All cables shall labeled by use of an industry standard label maker with black lettering on white background. Font size shall be a minimum 18 point.
5. Cables and raceways shall be securely supported at intervals not to exceed 4 feet in length Where the minimum 4 foot is not possible—alternate means of support or lack of shall be discussed with CSU-Pueblo.
6. Plenum rated velcro shall be utilized as a means of securing all cabling. Wire ties shall be acceptable and shall be of plenum type--only with prior approval and where velcro is not feasible.
7. Location and mounting of products, raceways, and cabling shall be discussed with CSU-Pueblo prior to installation.
8. The design builder shall be responsible for installing ceiling access panels (where needed) to facilitate cable runs. The size, type, color, and location of all ceiling access panels shall be approved by CSU-Pueblo.

Part 4--Installation

A. The design builder shall maintain a minimum of two factory certified technicians on site at all times

Monday – Friday 8am-4:30pm throughout the course of the physical installation of the project. The contractor and staff shall not be allowed to work outside these days and hours without prior approval by CSU-Pueblo.

B. The design builder shall complete the project within the time period specified by CSU-Pueblo.

C. The design builder shall assure his staff adheres to the campus "smoking and tobacco" use policies.

D. The design builder shall assure his staff provides the utmost in professionalism when working around campus students and staff--this shall include physical appearance. The contractor shall assure staff wears clothing bearing the company name at all times.

E. The design builder shall utilize vehicles bearing the company name and shall park in areas designated by CSU-Pueblo.

F. The design builder shall have a dedicated project manager throughout the course of the project. The project manager shall attend periodic meetings with CSU-Pueblo to discuss coordination, issues, time frames, and any other related topics. The project manager shall be responsible for field engineering of camera model types and locations, network engineering and installation, field installation, programming, adjustments, coordination with IT dept., and any other such items relating to the project.

Part 5 – Training

A. The design builder shall provide adequate in house training for all end users and advanced system users. "Adequate" shall be determined by CSU-Pueblo. Training shall take place after the system is complete in all aspects and at 4 months intervals, thereafter, during the first year. A mfr. representative shall be present at the initial training.

B. Training shall consist of software usage, programming, adjustments, and maintenance.

C. Training shall consist of any adjustments that might be needed in the field.

Part 6 – Warranties

A. Unless otherwise stated, the design builder shall provide a minimum of (1) year parts and labor warranty on all products, equipment, materials, and workmanship.

B. The contractor shall provide "timely" service on any warranty related work. Timely service shall be determined by the nature of problem and CSU-Pueblo. Timely service shall not exceed (5) working days from occurrence of problem under any circumstance.

Part 7—Miscellaneous

A. A mfr. representative of the software and cameras shall be present during contractor final testing and prior to training to ensure the installation has been installed to factory expectations and standards and to ensure proper operation and programming.

Part 8—Documentation

A. A complete O&M manual shall be provided at the project end consisting of technical documents needed to troubleshoot all installed products and hardware. This shall also detail any maintenance requirements of product and hardware.

B. Technical support phone numbers shall be provided for all product, hardware, and software.

C. One thumb drive and two full size drawings and specifications sets containing all pertinent information of the system, hardware, and cabling shall be provided to CSU-Pueblo at project end.

PARKING LOTS

AXIS COMMUNICATIONS

AXIS Q1786-LE

Robust, first-class 4 MP video with 32x optical zoom

AXIS Q1786-LE Network Camera is an all-integrated camera delivering 4 megapixel resolution and 32x optical zoom for easy and flexible installation at any distance as well as detailed video for identification. With a wide temperature range, impact resistance and IP66, IP67 and NEMA 4X ratings, this robust and reliable camera is ready for tough environments. Lightfinder, Forensic WDR and OptimizedIR with 80 m (262 ft) range ensure details in challenging light conditions and darkness. AXIS Q1786-LE offers built-in analytics for proactive surveillance, corridor format and audio in for video with sound. Furthermore, Axis Zipstream saves bandwidth while keeping high video quality.

> 4 MP / Quad HD 1440p at up to 60 fps

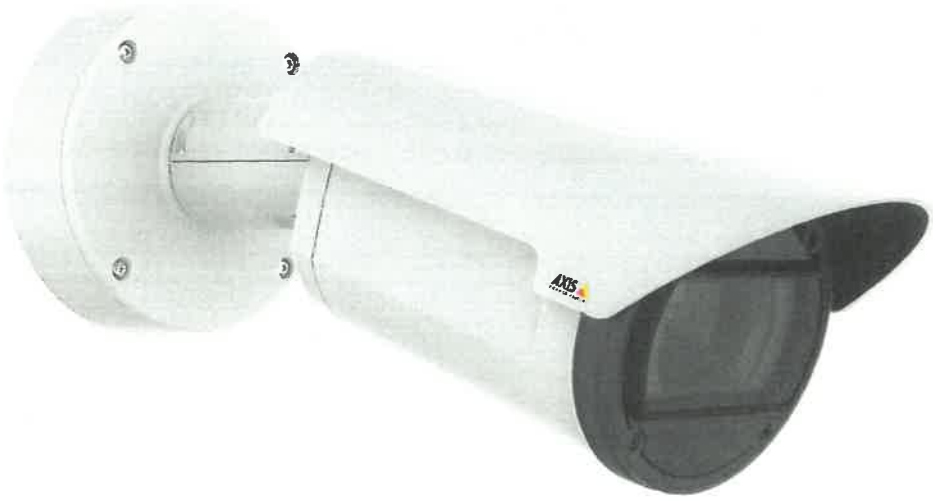
> -40 °C to 60 °C (-40 °F to 140 °F)

> OptimizedIR with 80 m (262 ft) range

> Electronic Image Stabilization

> AXIS Guard Suite included

THIS IS THE "BASIS OF DESIGN" EQUAL PRODUCTS WILL BE ENTERTAINED. AND ACCEPTED IF EQUAL



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HDTV NETWORK VIDEO

AXIS Q1786-LE

Camera	
Image sensor	1/1.8" progressive scan RGB CMOS
Lens	4.3–137 mm, F1.4–4.0 Horizontal field of view: 60°–2.3° Vertical field of view: 39°–1.3° Autofocus, automatic day/night Thread for 62 mm filters, max filter thickness: 5 mm
Day and night	Automatically removable infrared-cut filter in day mode and infrared-pass filter 720 nm in night mode
Minimum illumination	Color: 0.18 lux at 50 IRE F1.4 B/W: 0.04 lux at 50 IRE F1.4, 0 lux with IR illumination on
Shutter time	1/100000 s to 2 s
Video	
Video compression	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles Motion JPEG
Resolution	2560x1440 to 160x120 Maximum pixel density with 32x optical zoom: 25 m (82 ft): 2551 px/m 50 m (164 ft): 1275 px/m 250 m (820 ft): 255 px/m
Frame rate	With WDR: Up to 25/30 fps (50/60 Hz) in all resolutions Without WDR: Up to 50/60 fps (50/60 Hz) in all resolutions
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG Axis Zipstream technology in H.264 Controllable frame rate and bandwidth VBR/MBR H.264
Image settings	Saturation, contrast, brightness, sharpness, Forensic WDR: Up to 120 dB depending on scene, defogging, white balance, day/night threshold, exposure mode, exposure zones, compression, mirroring of images, electronic image stabilization, barrel distortion correction, text and image overlay, dynamic text and image overlay, privacy masks Rotation: auto, 0°, 90°, 180°, 270° including Corridor Format Scene profiles: forensic, vivid, traffic overview
Pan/Tilt/Zoom	Digital ptz, 32x optical zoom, preset positions
Audio	
Audio streaming	Audio in, simplex
Audio compression	AAC-LC 8/16/32/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Opus 8/16/48 kHz, LPCM Configurable bit rate
Network	
Security	Password protection, IP address filtering, HTTPS[a] encryption, IEEE 802.1X[a] network access control, digest authentication, user access log, centralized certificate management Brute force delay protection
Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTPS[a], SSL/TLS[a], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH, LLDP
System integration	
Application Programming Interface	Open API for software integration, including VAPIX® and AXIS Camera Application Platform; specifications at *axis.com* AXIS Video Hosting System (AVHS) with One-Click Connection ONVIF® Profile S and ONVIF® Profile G, specification at *onvif.org*
Analytics	Included AXIS Video Motion Detection, AXIS Fence Guard, AXIS Loitering Guard, AXIS Motion Guard, active tampering alarm, gatekeeper Supported AXIS Perimeter Defender, AXIS Cross Line Detection Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*
Event triggers	Analytics, edge storage events Supervised external input, virtual inputs through API, shock detection
Event actions	Pre- and post-alarm video buffering File upload: FTP, SFTP, HTTP, HTTPS, network share and email Notification: email, HTTP, HTTPS, TCP and SNMP trap
Data streaming	Event data
Built-in installation aids	Remote zoom, pixel counter, leveling assistant, autorotation
General	
Casing	IP66-, IP67-, and NEMA 4X-rated, IK10 impact-resistant aluminum enclosure with integrated dehumidifying membrane, IK08 impact-resistant glass front window, weathershield with black anti-glare coating Color: White NCS S 1002-B For repainting instructions of casing and impact on warranty, contact your Axis partner.
Sustainability	PVC free, 2% recycled plastic
Memory	1024 MB RAM, 512 MB Flash
Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3 Typical 8.6 W, max 12.95 W 20–28 V DC, typical 8.6 W, max 13.8 W 20–24 V AC, typical 12.6 V A, max 20 V A
Connectors	RJ45 10BASE-T/100BASE-TX PoE IDC punchdown connector DC Power connector Terminal block for two configurable supervised inputs / digital outputs (12 V DC output, max. load 50 mA) 3.5 mm mic/line in
IR illumination	OptimizedIR with power-efficient, long-life 850 nm IR LED's with adjustable angle of illumination and intensity. Range of reach 30 m (98 ft) in wide field of view and 80 m (262 ft) in full tele view, or more depending on the scene
Storage	Support for microSD/microSDHC/microSDXC card Support for SD card encryption Support for recording to network-attached storage (NAS) For SD card and NAS recommendations see *axis.com*
Operating conditions	-40 °C to 60 °C (-40 °F to 140 °F) Humidity 10-100% RH (condensing)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F)
Approvals	EMC EN 55032 Class A, EN 50121-4, IEC 62236-4, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 32 Class A, KCC KN32 Class A, KN35, EAC Safety IEC/EN/UL 62368-1, IEC/EN/UL 60950-22 Environment EN 50581, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-27, IEC 60068-2-78, IEC/EN 60529 IP66, IP67, IEC/EN 62262 IK10 body, IK08 glass, NEMA 250 Type 4X NetworkNIST SP500-267 Other EN/IEC 62471
Dimensions	Length: 386 mm (15 3/16 in) ø 147 mm (5 13/16 in)
Weight	2.4 kg (5.3 lb)
Included accessories	Installation Guide, Windows decoder 1-user license, connector kit, Resistorx® L-key RJ45 patch cable
Optional accessories	AXIS T8604 Media Converter Switch AXIS T91A47 Pole Mount AXIS T94P01B Corner Bracket AXIS Q17 Front Window Kit B (IK10 impact-resistant plastic front window) For more accessories, see *axis.com*
Video management software	AXIS Companion, AXIS Camera Station, video management software from Axis' Application Development Partners available on *axis.com/vms*
Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Traditional Chinese

Warranty	Axis 3-year warranty and AXIS Extended Warranty option, see *axis.com/warranty*

Environmental responsibility:
www.axis.com/environmental-responsibility

a. *This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (openssl.org), and cryptographic software written by Eric Young (eay@cryptsoft.com).*

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AXIS COMMUNICATIONS

BUILDING ENTRANCES

AXIS COMMUNICATIONS

AXIS Q3518-LVE

Outdoor-ready fixed dome for solid performance in 4K

AXIS Q3518-LVE Network Camera is a vandal-resistant fixed dome for harsh environments with a weathershield protecting against sun, rain and snow. Thanks to its top-quality image sensor, Forensic WDR, Lightfinder technology, and OptimizedIR illumination, the camera provides unparalleled video quality in any light conditions. Electronic image stabilization is instrumental for smooth and steady video when the camera is subject to vibrations. AXIS Q3518-LVE offers redundancy between Power over Ethernet and DC power. Video analytics, supervised inputs and digital outputs further support the surveillance task.

> 4K video at full frame rate

> Forensic WDR, Lightfinder, and OptimizedIR

> Axis Zipstream technology

> EIS and vandal resistance with IK10+ rating

> Power with redundancy and configurable I/O ports

"THIS IS THE BASIS OF DESIGN"

EQUAL PRODUCTS WILL BE ENTERTAINED AND ACCEPTED IF EQUAL

ONVIF | GSC

HDTV NETWORK VIDEO

4K NETWORK VIDEO

AXIS Q3518-LVE

Camera

Image sensor	Progressive scan RGB CMOS 1/1.7"
Lens	Varifocal, 4.3–8.6 mm, F1.5 Remote focus and zoom, P-Iris control, IR-corrected Horizontal field of view: 93° – 48° Vertical field of view: 51° – 27°
Day and night	Automatically removable infrared-cut filter
Minimum illumination	Color: 0.15 lux at 50 IRE, F1.5 B/W: 0.03 lux at 50 IRE, F1.5
Shutter time	1/28500 to 2 s
Camera angle adjustment	Pan: 360° Tilt: ±80° Rotation: ±175°

Video

Video compression	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles Motion JPEG
Resolution	3840x2160 to 160x120
Frame rate	25/30 fps with power line frequency 50/60 Hz
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG Axis Zipstream technology in H.264 Controllable frame rate and bandwidth VBR/MBR H.264
Multi-view streaming	8 individually cropped-out view areas
Pan/Tilt/Zoom	Digital PTZ, Optical zoom, Preset positions
Image settings	Compression, color, brightness, sharpness, contrast, local contrast, white balance, day/night threshold, exposure control (including automatic gain control), defogging, exposure zones, fine tuning of behavior at different light levels, Forensic WDR: Up to 120 dB depending on scene, electronic image stabilization, dynamic text and image overlay, privacy masks, mirroring of images, rotation: 0°, 90°, 180°, 270°, auto, including corridor format

Audio

Audio streaming	Full-duplex
Audio compression	24-bit LPCM 48 kHz, AAC LC 8/16/32/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8kHz, Opus 8/16/48 kHz Configurable bitrate
Audio input/output	Input for external microphone or line-level device Line output

Network

Security	Password protection, IP address filtering, IEEE 802.1X network access control[a], HTTPS[a] encryption, digest authentication, user access log, centralized certificate management, brute force delay protection
Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTPS, SSL/TLS[a], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP™, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SFTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH, LLDP

System integration

Application Programming Interface	Open API for software integration, including VAPIX® and AXIS Camera Application Platform; specifications at *axis.com* AXIS Video Hosting System (AVHS) with One-Click Connection ONVIF Profile G, ONVIF Profile S and ONVIF Profile T, specification at *onvif.org*
Analytics	Included AXIS Loitering Guard, AXIS Motion Guard, AXIS Fence Guard, AXIS Video Motion Detection, active tampering alarm, audio detection Supported AXIS Perimeter Defender, AXIS Digital Autotracking Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*
Event triggers	Analytics, supervised external inputs, virtual inputs through API, edge storage events, shock detection
Event actions	Record video: SD card and network share Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email Pre- and post-alarm video or image buffering for recording or upload Notification: email, HTTP, HTTPS, TCP and SNMP trap Overlay text, external output activation, play audio clip, zoom preset
Data streaming	Event data
Built-in installation aids	Remote zoom, remote focus, pixel counter, leveling assistant, autorotation, straighten image

General

Casing	IP66-, IP67-, IP6K9K- and NEMA 4X-rated, IK10+ (50 joules) impact-resistant casing with polycarbonate hard-coated dome, aluminum base and dehumidifying membrane Encapsulated electronics, captive screws Color: White NCS S 1002-B For repainting instructions of casing or skin cover and impact on warranty, contact your Axis partner.
Mounting	Mounting bracket with holes for junction boxes (double-gang, single-gang, 4" square, and 4" octagon) and for ceiling and wall mounting ¾" (M25) conduit side entry
Sustainability	PVC-free
Memory	1 GB RAM, 512 MB Flash
Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3, typical 7.1 W, max 12.6 W 8–28 V DC, typical 7.7 W, max 13.4 W Power redundancy
Connectors	RJ45 10BASE-T/100BASE-TX PoE, terminal block for two configurable supervised inputs / digital outputs (12 V DC output, max load 50 mA), 3.5 mm mic/line in, 3.5 mm line out, terminal block for DC input
IR illumination	OptimizedIR with power-efficient, long-life 850 nm IR LEDs Range 40 m (130 ft) or more, depending on the scene
Storage	Support for microSD/microSDHC/microSDXC card Support for SD card encryption Support for recording to network-attached storage (NAS) For SD card and NAS recommendations see *axis.com*
Operating conditions	-50 °C to 60 °C (-58 °F to 140 °F) Start-up: -40 °C to 60 °C (-40 °F to 140 °F) Humidity 10–100% RH (condensing)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F)
Approvals	EMC EN 55032 Class A, EN 50121-4, IEC 62236-4, EN 55024, IEC/EN 61000-6-1, IEC/EN 61000-6-2, FCC Part 15, Subpart B, Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 22 Class A, KCC KN32 Class A, KN35 Safety IEC/EN/UL 62368-1, IEC/EN/UL 60950-22, IEC/EN 62471 Environment IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78 NEMA 250 Type 4X, IEC/EN 62262 IK10+ (50J), ISO 20653 IP6K9K IEC/EN 60529 IP66/67 Network NIST SP500-267
Dimensions	Height: 182 mm including weathershield ø 183 mm
Weight	2.0 kg (4.4 lb) including weathershield
Included accessories	Installation Guide, Windows decoder 1-user license, drill hole template, cable gaskets, I/O and DC connectors, connector guard, weathershield, Axis U-shape conduit adapter
Optional accessories	AXIS Q35 Smoked Dome A, AXIS Dome Intrusion Switch B, AXIS Multicable B I/O Audio Power AXIS Q35-VE Skin Cover A Black, AXIS ACI Conduit Adapter 3/4" NPS, AXIS T94M01D Pendant Kit including weathershield, AXIS T94M02L Recessed Mount, AXIS T8351 Microphone, Axis Mounts & Cabinets

	For more accessories, see *axis.com*
Video management software	AXIS Companion, AXIS Camera Station, video management software from Axis' Application Development Partners available at *axis.com/vms*
Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Traditional Chinese
Warranty	Axis 3-year warranty and AXIS Extended Warranty option, see *axis.com/warranty*

a. *This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (www.openssl.org), and cryptographic software written by Eric Young (eay@cryptsoft.com).*

Environmental responsibility:

www.axis.com/environmental-responsibility

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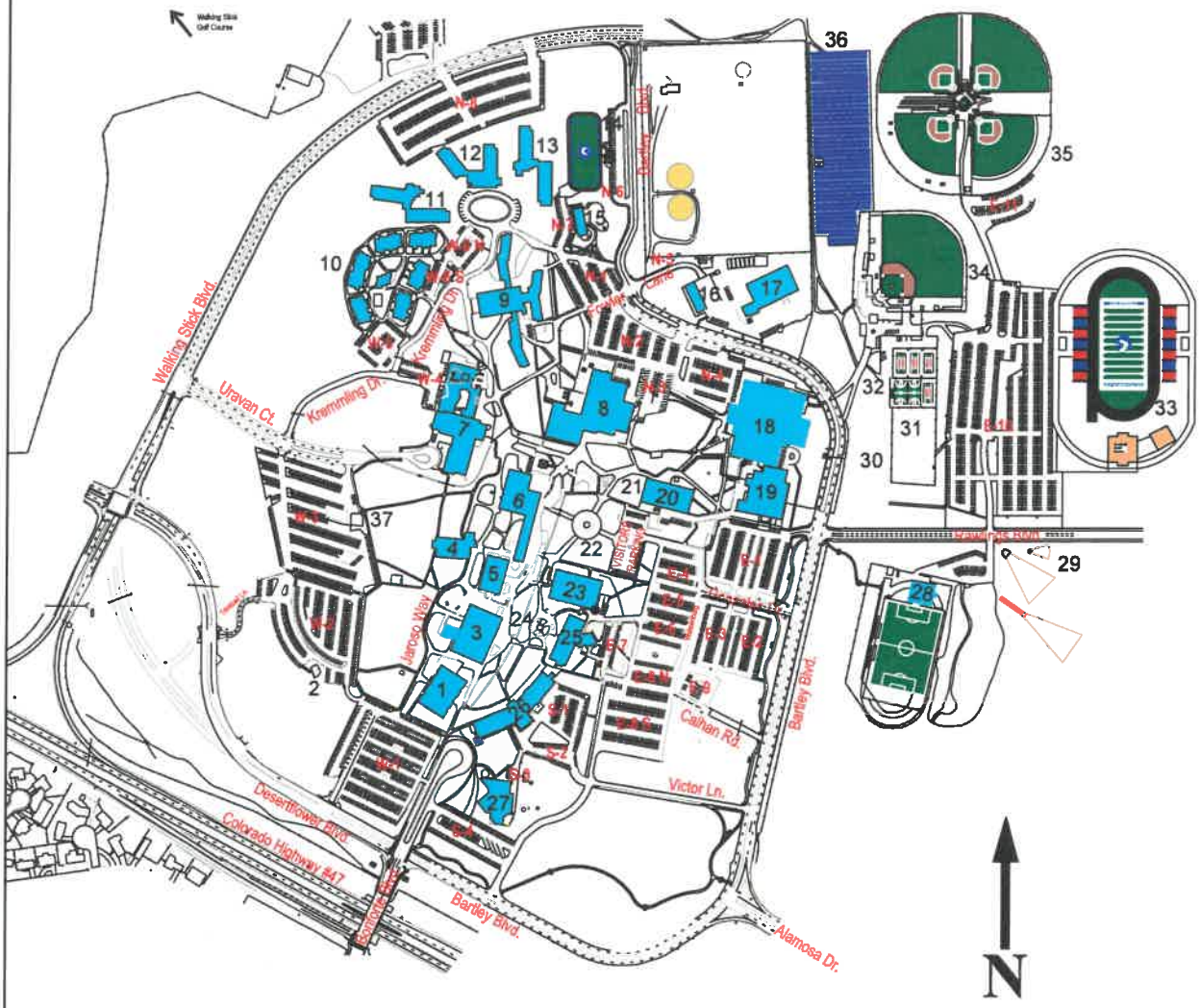
Diagrams of campus buildings showing locations of cameras at entrances.



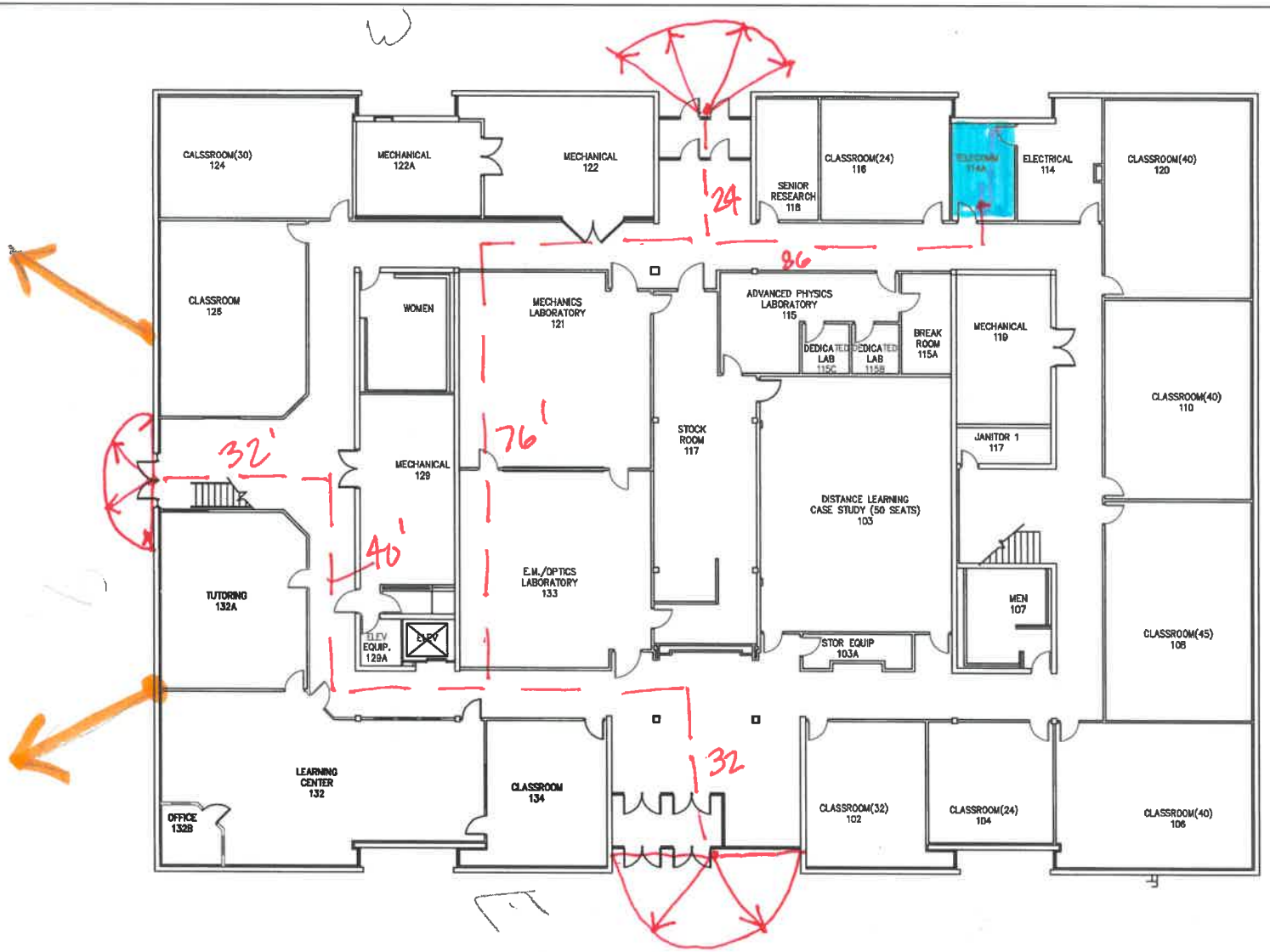
CAMPUS LEGEND

1. Physics/Mathematics Building
2. Outdoor Classroom
3. Life Sciences Building
4. General Classroom Building
5. Chemistry Building
6. Library and Academic Resources Center
7. Capps Capozzolo Academic Center for the Arts (Hoag Hall)
8. Occhiato Student Center
9. Belmont Residence Hall
10. University Village at Walking Stick Apartments
11. Greenhorn Residence Hall
12. Culebra Residence Hall
13. Crestone Residence Hall
14. Student Recreation Field
15. CSU-Pueblo Child Care Center
16. Heating Plant
17. Physical Plant
18. Health, Physical Education and Recreation Building (Massari Arena, Sam Jones Sports Complex and Levert W. Hoag Recreation Center)
19. Student Recreation Center
20. Administration Building
21. Lindberg Garden
22. University Fountain Plaza
23. Psychology Building
24. McKinney Pavilion
25. Hasan School of Business
26. Technology Building
27. Buell Communications Center Visitors Center (KTSC-TV)
28. Art & Lorraine Gonzales Soccer/LaCrosse Complex
29. Track and Field Events
30. Weindling Park
31. Ropes Course
32. Tennis Courts
33. Neta & Eddie DeRose Thunderbowl
34. Baseball Complex (Rawlings Field)
35. Softball Complex
36. Solar Array
37. Outdoor Amphitheater

Colorado State University Pueblo

COLORADO STATE UNIVERSITY-PUEBLO

CAMPUS MAP



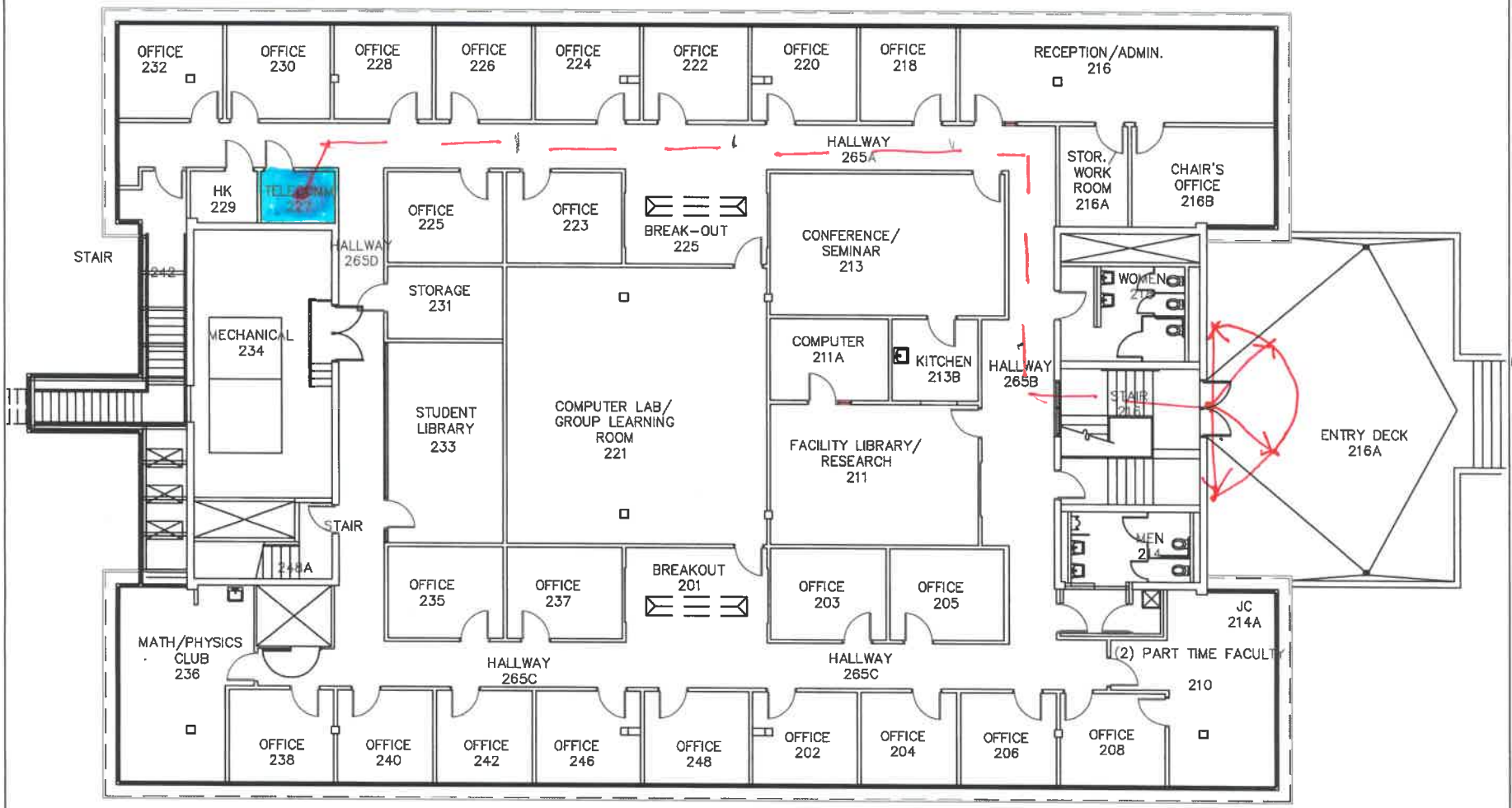
PHYSICS/ MATH BUILDING 1st FLOOR

SCALE: 1/16" = 1'-0"

PHYSICS/MATH BUILDING
1st FLOOR

Colorado State University - Pueblo
2200 N. Bonforte Blvd.
Pueblo, CO 81001

DRAWING
A-1



PHYSICS/MATH BUILDING 2nd FLOOR
SCALE: 3/32" = 1'-0"

PHYSICS/MATH BUILDING
2nd FLOOR

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DRAWING
A-2

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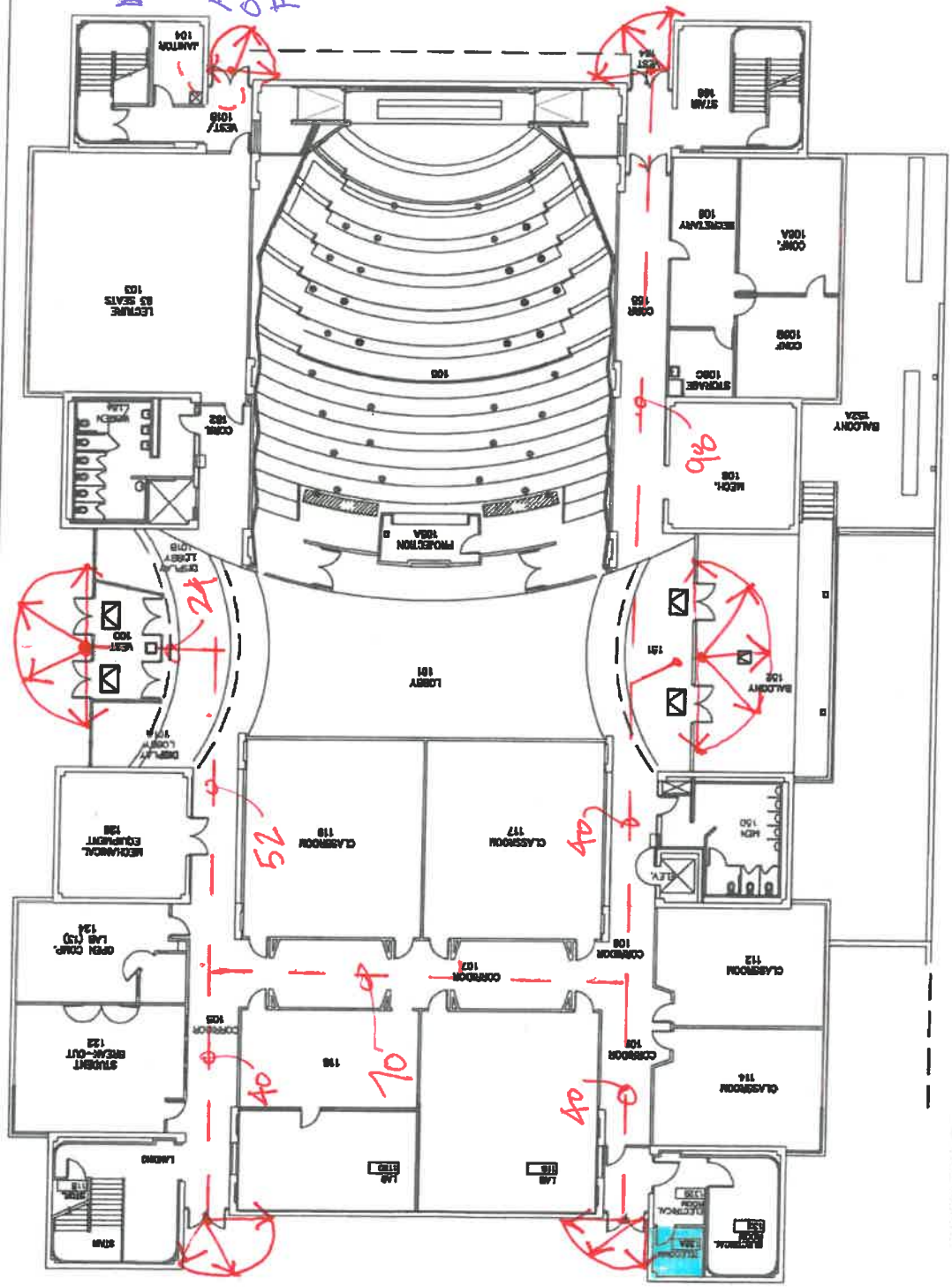
Pueblo, CO 81001

LIFE SCIENCE BUILDING
1st FLOOR

DRAWING A-1

NOTE IDF ABOVE ON 2ND FLOOR



LIFE SCIENCE BUILDING 1st FLOOR
SCALE: 1/16" = 1'-0"

LIFE SCIENCE BUILDING
2nd FLOOR

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DRAWING
A-1

LIFE SCIENCE BUILDING 2nd FLOOR
SCALE: 1/16" = 1'-0"

CHEMISTRY BUILDING
1st FLOOR

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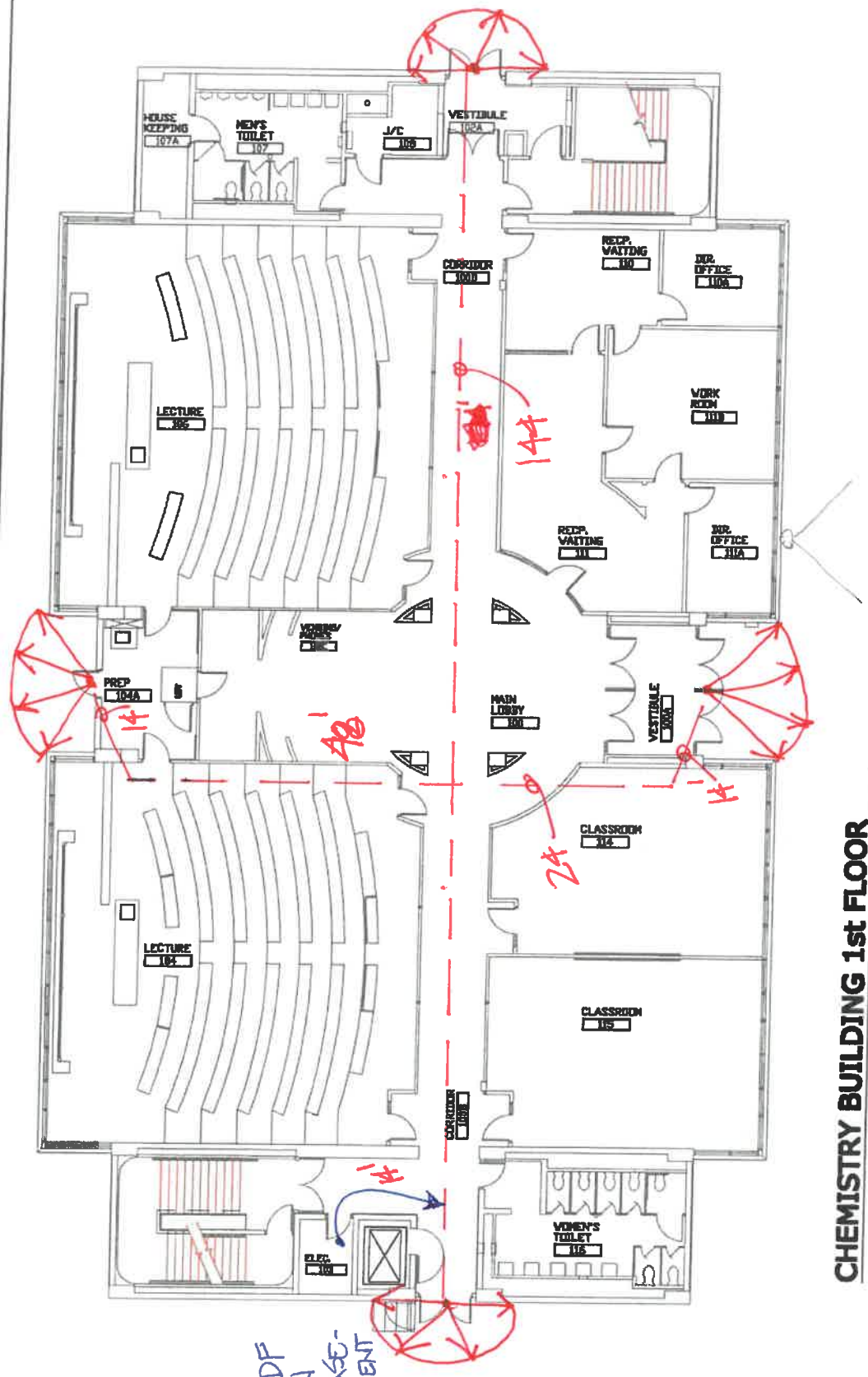
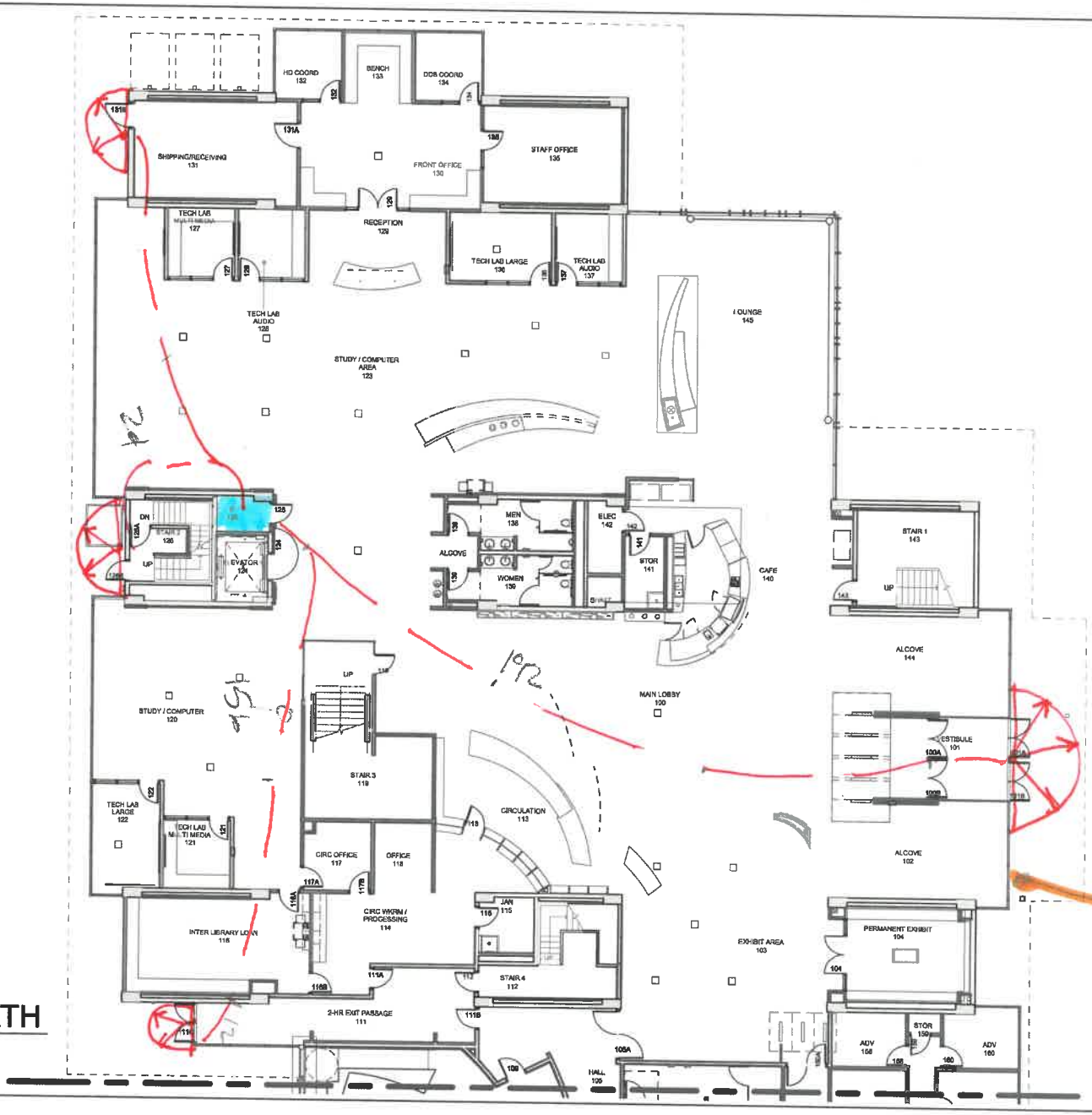
A-1



CHEMISTRY BUILDING 1st FLOOR
SCALE: 3/32" = 1'-0"

Jun 16, 2019 12:18 PM



LARC - 1st FLOOR PLAN NORTH
SCALE: 3/32" = 1'-0"

LARC -LIBRARY ACADEMIC RESOURCE CENTER
1st FLOOR PLAN - NORTH

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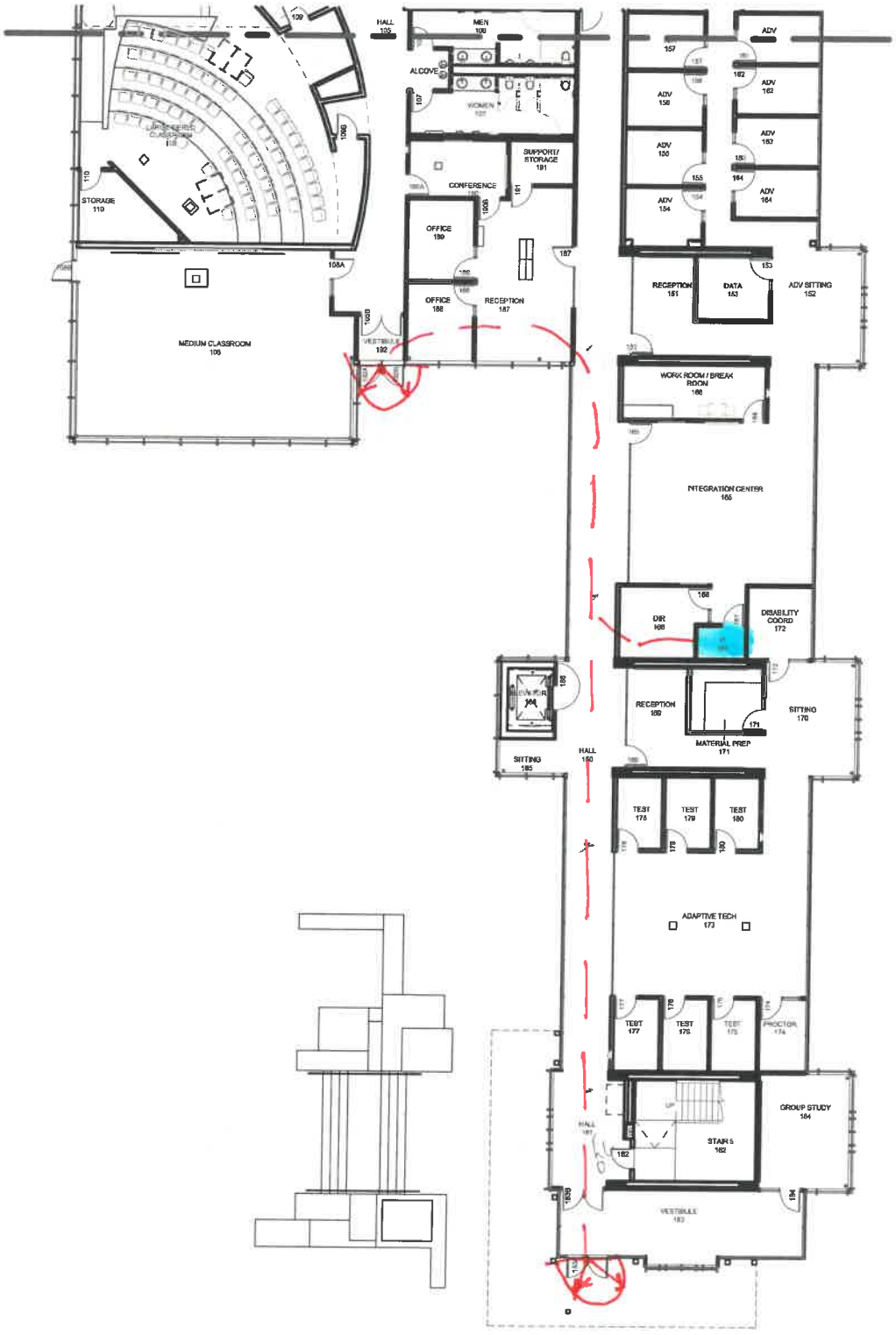
Pueblo, CO 81001

23/41

DRAWING
A-1



LARC - 1st Floor Plan - South

SCALE: 1/16" = 1'-0"

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LARC -LIBRARY ACADEMIC RESOURCE CENTER
1st Floor Plan - South

Jan 16,2019 12:18 PM

ART/MUSIC BUILDING 1st Floor
SCALE: 1/32" = 1'-0"

ART/MUSIC BUILDING
1ST FLOOR

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DRAWING
A-1

ART/MUSIC BUILDING
2nd FLOOR

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DRAWING A-1

TO 1ST Floor IDF

ART/MUSIC BUILDING 2nd FLOOR
SCALE: 1/32" = 1'-0"

ADMINISTRATION BUILDING 1st FLOOR
SCALE: 1/16" = 1'-0"

ADMINISTRATION BLDNG.
1st FLOOR

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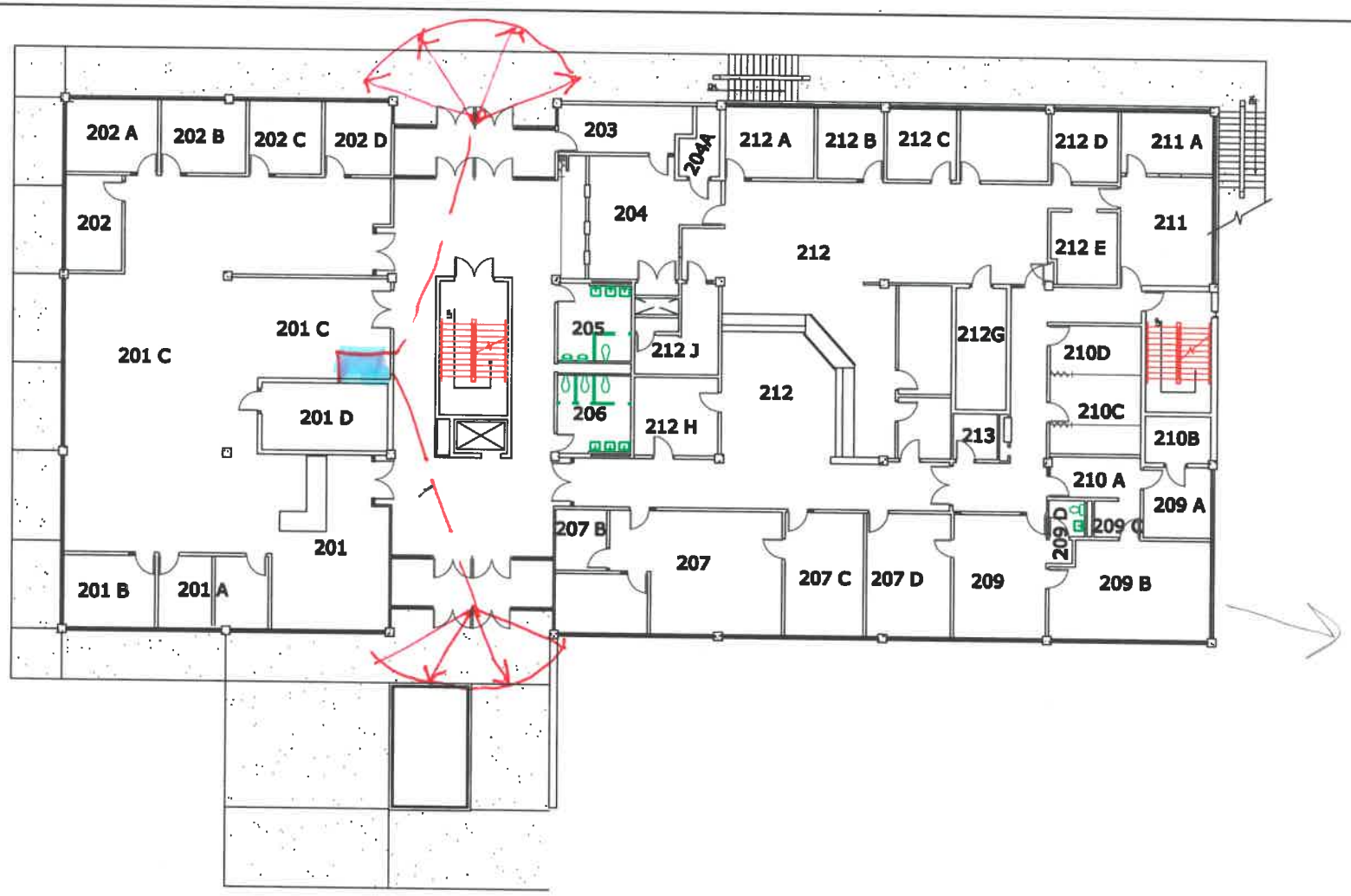
DRAWING
A-1



ADMINISTRATION BUILDING 2ND FLOOR
SCALE: 1/16" = 1'-0"

ADMINISTRATION BLDNG.
2nd FLOOR

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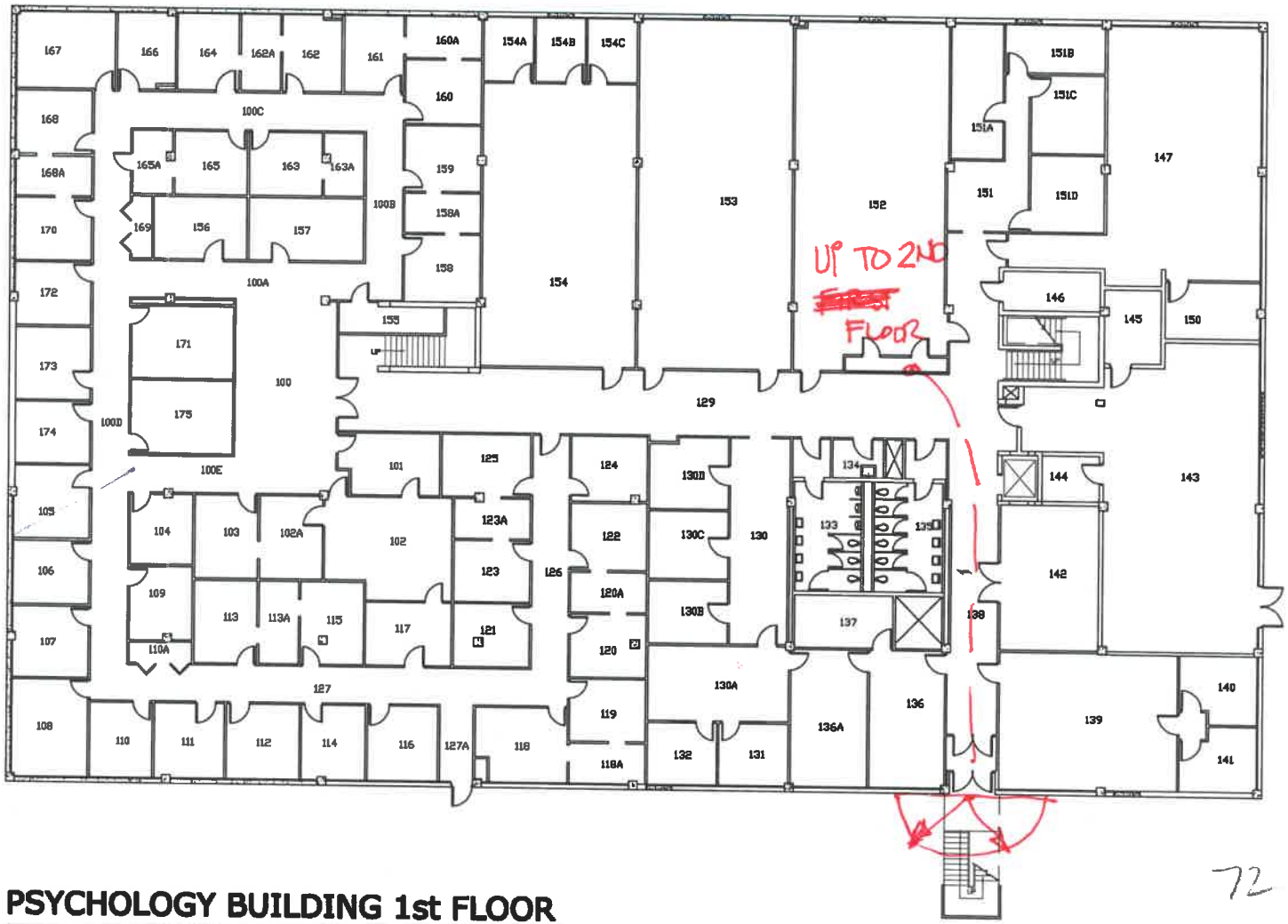
DRAWING
A-1



PSYCHOLOGY BUILDING 1st FLOOR
SCALE: 1/16" = 1'-0"

PSYCHOLOGY BUILDING
1st FLOOR

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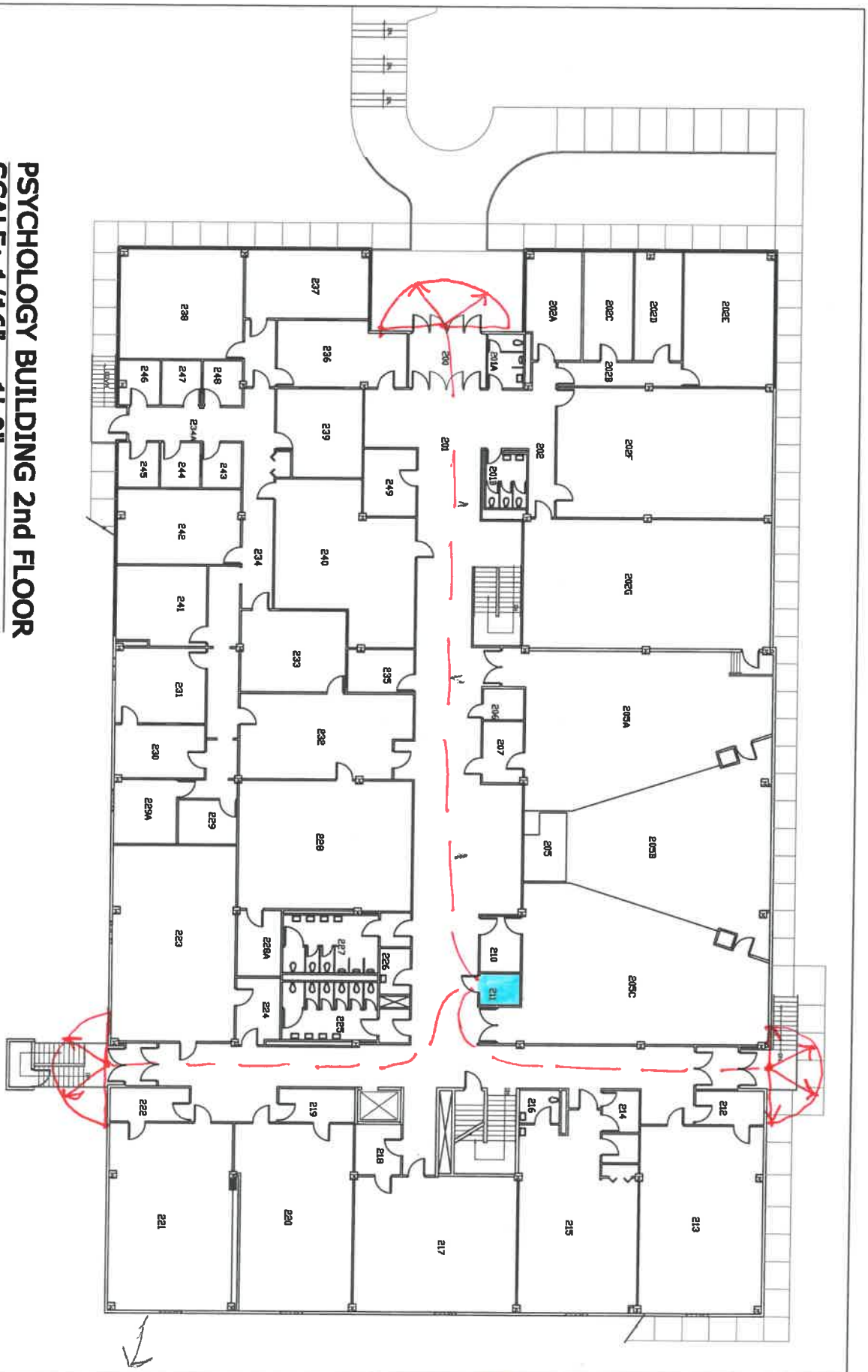
DRAWING
A-1

PSYCHOLOGY BUILDING 2nd FLOOR

SCALE: 1/16" = 1'-0"



DRAWING A-2	Colorado State University - Pueblo 2200 N. Bonforte Blvd. Pueblo, CO 81001		PSYCHOLOGY BUILDING 2nd FLOOR

Jan 16,2019 12:18 PM

HASSAN SCHOOL OF BUSINESS
1st FLOOR

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DRAWING A-1

128

64

HASSAN SCHOOL OF BUSINESS 1st FLOOR
SCALE: 1/16" = 1'-0"

HASSAN SCHOOL OF BUSINESS
2nd FLOOR

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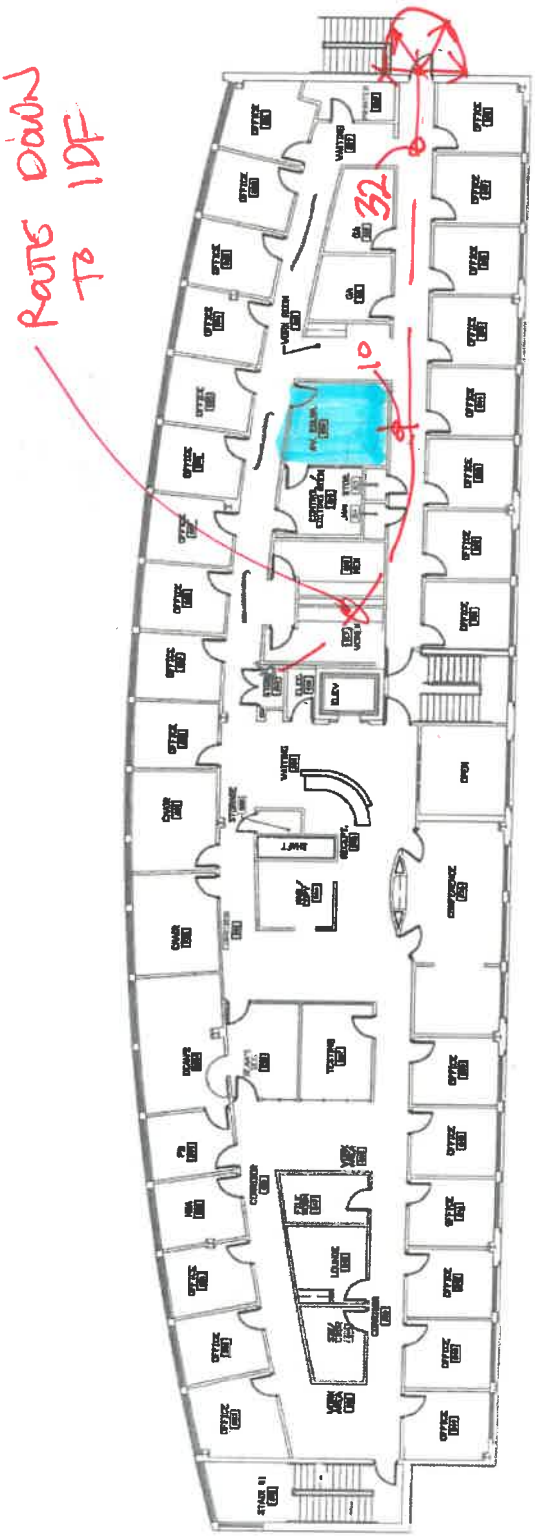
Pueblo, CO 81001

DRAWING A-1



HASSAN SCHOOL OF BUSINESS 2nd FLOOR
SCALE: 3/32" = 1'-0"

TECHNOLOGY BUILDING 1st FLOOR
SCALE: 1/32" = 1'-0"

A-1

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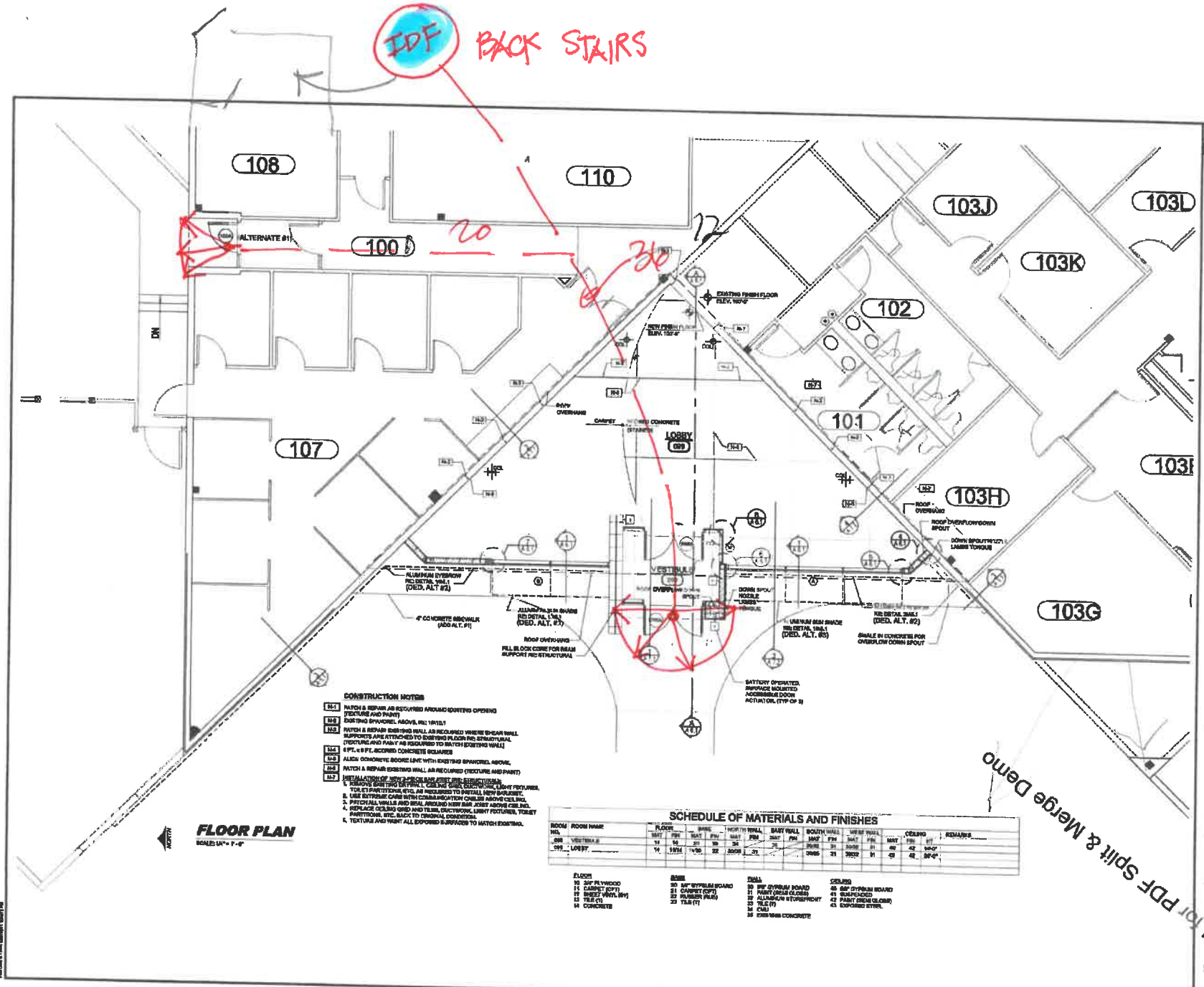
TECHNOLOGY BUILDING
1st FLOOR



FLOOR PLAN
SCALE: 1/4" = 1'-0"

CONSTRUCTION NOTES

N-1 PATCH & REPAIR AS REQUIRED AROUND EXISTING OPENING (TEXTURE AND PAINT)
N-2 EXISTING SPANDREL ABOVE, RE: 1R10.1
N-3 PATCH & REPAIR EXISTING WALL AS REQUIRED WHERE SHEAR WALL SUPPORTS ARE ATTACHED TO EXISTING FLOOR PER STRUCTURAL (TEXTURE AND PAINT AS REQUIRED TO MATCH EXISTING WALL)
N-4 6 FT. x 6 FT. SCORED CONCRETE SQUARES
N-5 ALIGN CONCRETE SCORE LINE WITH EXISTING SPANDREL ABOVE.
N-6 PATCH & REPAIR EXISTING WALL AS REQUIRED (TEXTURE AND PAINT)
N-7 INSTALLATION OF NEW 2x BACK BAR JOIST PER STRUCTURAL
1. REMOVE EXISTING SOFFIT, CEILING GRID, CEILING TILE, LIGHT FIXTURES, TOILET PARTITIONS, ETC., AS REQUIRED TO INSTALL NEW BACKBOX.
2. USE EXTREME CARE WITH COMMUNICATION CABLES ABOVE CEILING.
3. PATCH ALL WALLS AND SEAL AROUND NEW BAR JOIST ABOVE CEILING.
4. REPLACE CEILING GRID AND TILES, DIFFUSERS, LIGHT FIXTURES, TOILET PARTITIONS, ETC. BACK TO ORIGINAL CONDITION.
5. TEXTURE AND PAINT ALL EXPOSED SURFACES TO MATCH EXISTING.

SCHEDULE OF MATERIALS AND FINISHES

ROOM NO.	ROOM NAME	FLOOR MAT	FLOOR FIN	BASE MAT	BASE FIN	NORTH WALL MAT	NORTH WALL FIN	EAST WALL MAT	EAST WALL FIN	SOUTH WALL MAT	SOUTH WALL FIN	WEST WALL MAT	WEST WALL FIN	CEILING MAT	CEILING FIN	CEILING HT	REMARKS
088	VESTIBULE	11	14	21	19	34		34		3648	31	3648	31	49	42	9'-0"	
089	LOBBY	11	11/14	11/20	22	3648	31			3648	31	36532	31	49	42	9'-0"	

FLOOR
11 CARPET (CPT)
14 SHEET VINYL (SV)
19 TILE (T)
34 CONCRETE

BASE
20 6" GYPSUM BOARD
21 CARPET (CPT)
22 RUBBER (RUB)
23 TILE (T)

WALLS
30 5/8" GYPSUM BOARD
31 PAINT (BEAR CLOSE)
32 ALUMINUM STOREFRONT
33 TILE (T)
34 CMU
35 EXISTING CONCRETE

CEILING
40 5/8" GYPSUM BOARD
41 SUSPENDED
42 PAINT (BEAR CLOSE)
43 EXPOSED STEEL

ABEL
ARCHITECTURE
CIVIL ENGINEERING
SURVEY

CONSULTANTS:

CSU-P
10036

Colorado State University-Pueblo
RE - BID SET
2200 Bonforte Boulevard
Pueblo, Colorado 81001-4901

Buell Communication Center
Entry Foyer Addition & HVAC Upgrade

STAMP:

ISSUE RECORD:
DD Plan Review — November 1, 2018
Structural/CMEP Review — 11/21/18
Mtrls. CD Review — December 3, 2018
Bid Set — March 29, 2019
Revised Set — June 21, 2019
Re-Bid — June 26, 2019

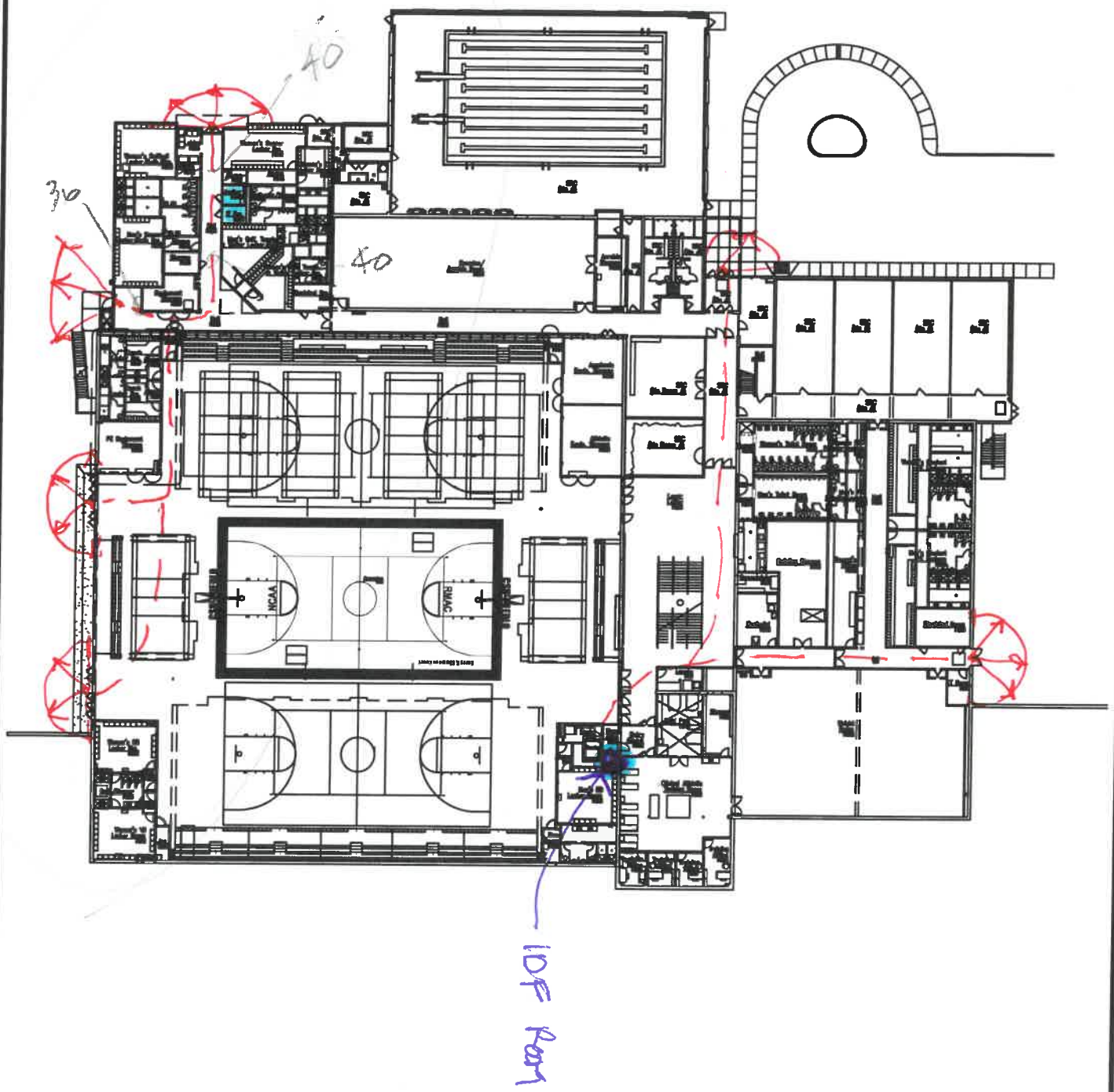
PROJECT NUMBER: 2018-054
DRAWN BY: L. Flores
REVIEWED BY: K. Webber
DATE: June 26, 2019

Floor Plan

RA2.1

Jan 16, 2019 12:18 PM
Dec 17, 2018 12:46 PM

34/41
16/22



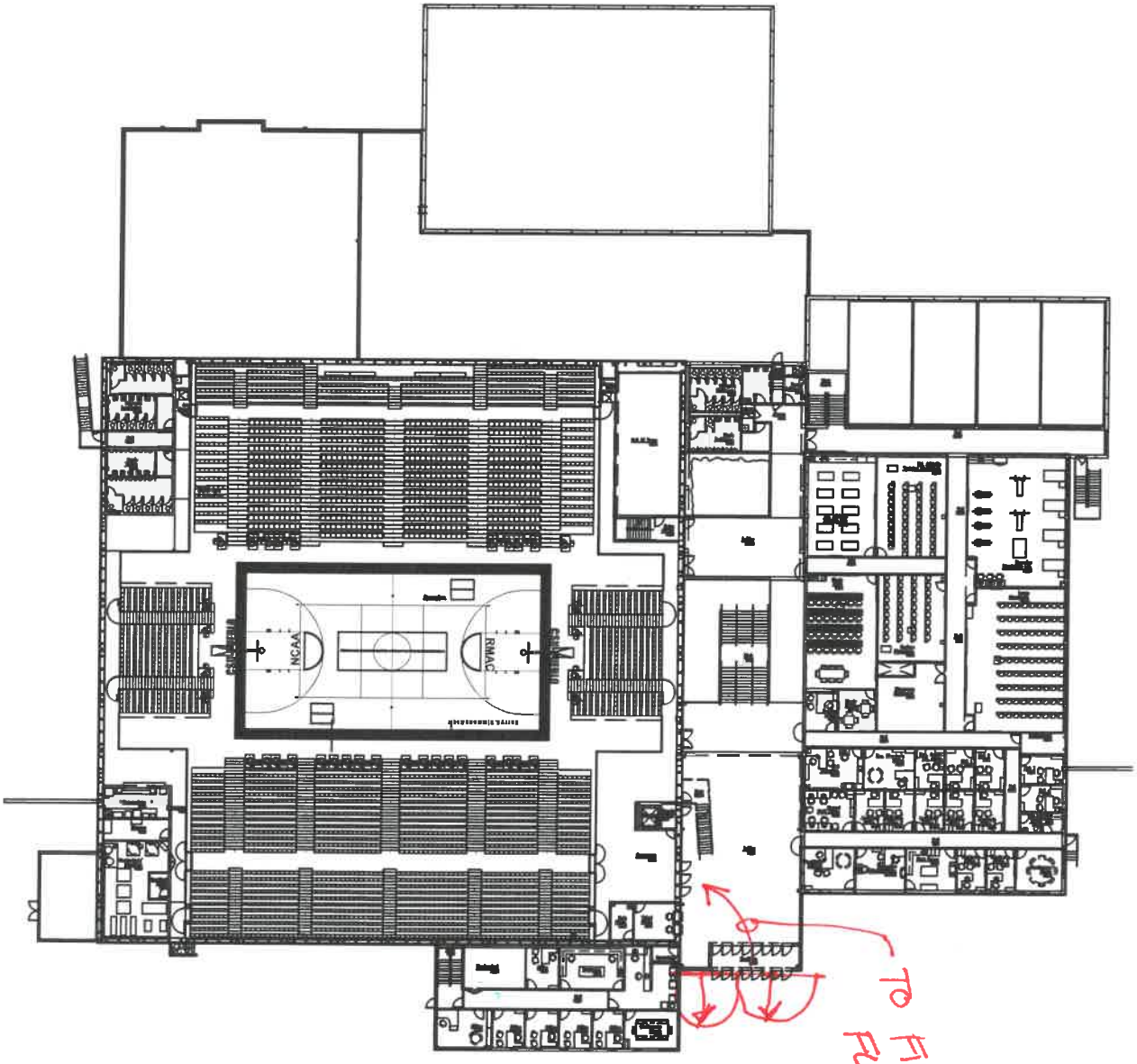
Colorado State University Pueblo

Colorado State University - Pueblo

Health, Physical Education & Recreation (HPER) - First Floor

CSU PUEBLO

Jan 16, 2019 12:18 PM



Colorado State University Pueblo

Colorado State University - Pueblo

Health, Physical Education & Recreation (HPER) - Second Floor

CSU PUEBLO

Jan 16, 2019 12:18 PM

PHYSICAL PLANT
SCALE: 1/16" = 1'-0"

Jan 16,2019 12:18 PM
Dec 17,2018 12:46 PM

PHYSICAL PLANT BUILDING

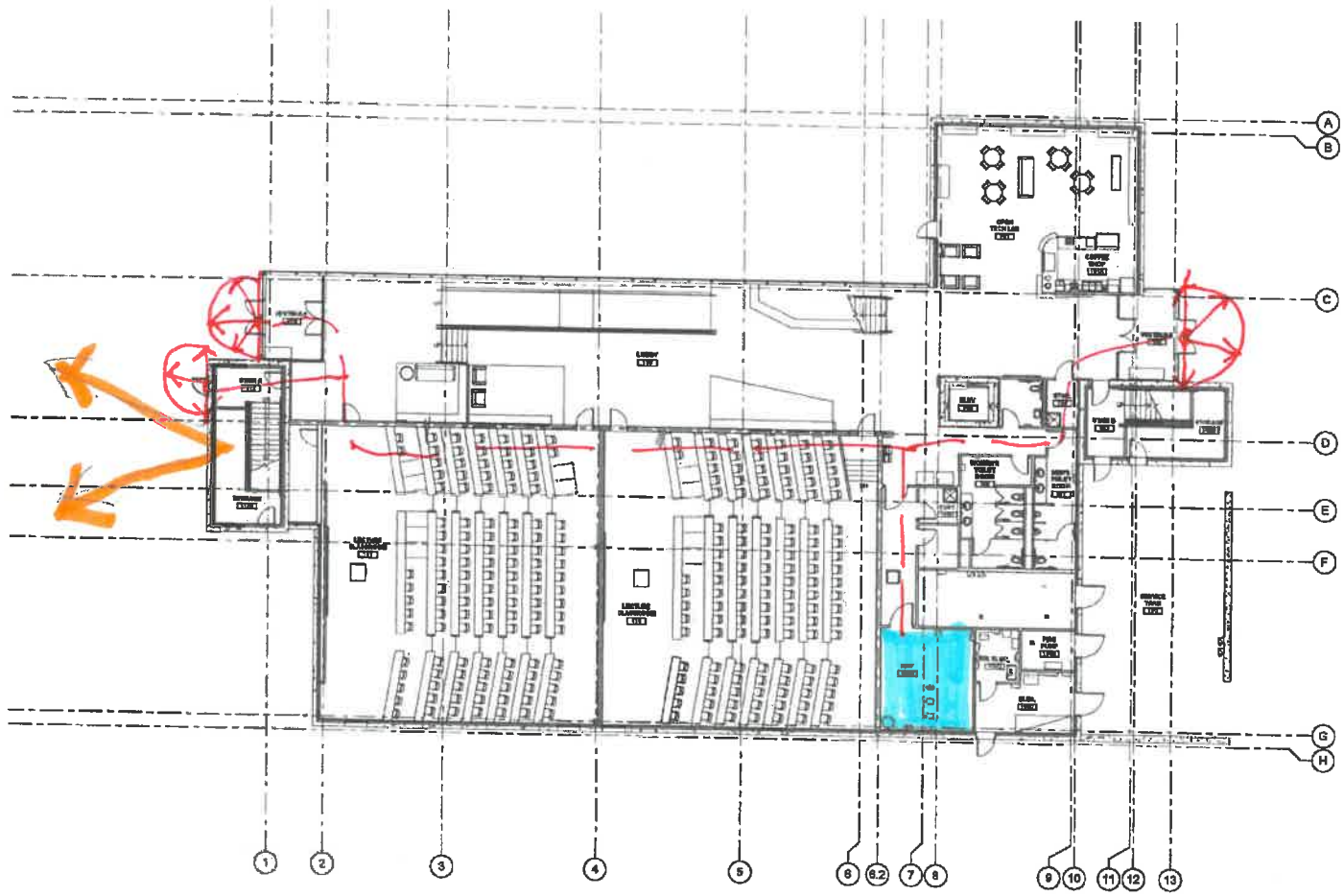
Colorado State University - Pueblo
2200 N. Bonforte Blvd.
Pueblo, CO 81001

37/41
19/22

DRAWING
A-1

FURNITURE GENERAL NOTES

1. FURNITURE PLAN FOR REFERENCE ONLY, ALL FURNITURE BY OWNER.



A1 FIRST FLOOR FURNITURE PLAN
1/8" = 1'-0"

PROJECT NORTH

SLATERPAULL ARCHITECTS
1331 Nineteenth Street
Denver, CO 80202
P 303.607.0977
www.slaterpaull.com

CONSULTANT

PROJECT:
CSU PUEBLO GENERAL CLASSROOM BUILDING
PUEBLO, COLORADO

OWNER:
COLORADO STATE UNIVERSITY - PUEBLO
2200 BONFORTE BOULEVARD
PUEBLO, COLORADO 81001

ISSUE:
05.30.2014 BID PACKAGE 04

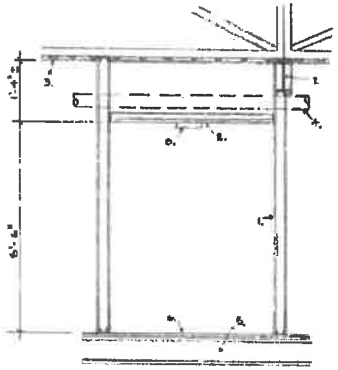
DESIGNER INFORMATION:

PROJECT NO:	11366.000
DRAWN BY:	DM
CHECKED BY:	GG
APPROVED BY:	JC

SHEET TITLE
FIRST FLOOR FURNITURE PLAN

A-151
SHEET OF

1. 3-5/8" x 25 ga. metal studs @ 24" o/c with 5/8" Type X gyp. bnd. ea. side
2. One Hour rated shaftwall UL Design No. U415
3. 5/8" type X gyp. bnd. on 7/8" hat channel at 24" o/c.
4. HVAC ductwork (Typical)
5. Floor structure – See structural
6. Flooring – See structural
7. Beam, wrap with 5/8" Type X gyp. bnd.
8. Surface mounted light fixture- See electrical.
9. Roof Trusses – See structural



Section Through 1 Hour Rated Corridor (A)
1/2" = 1'-0"

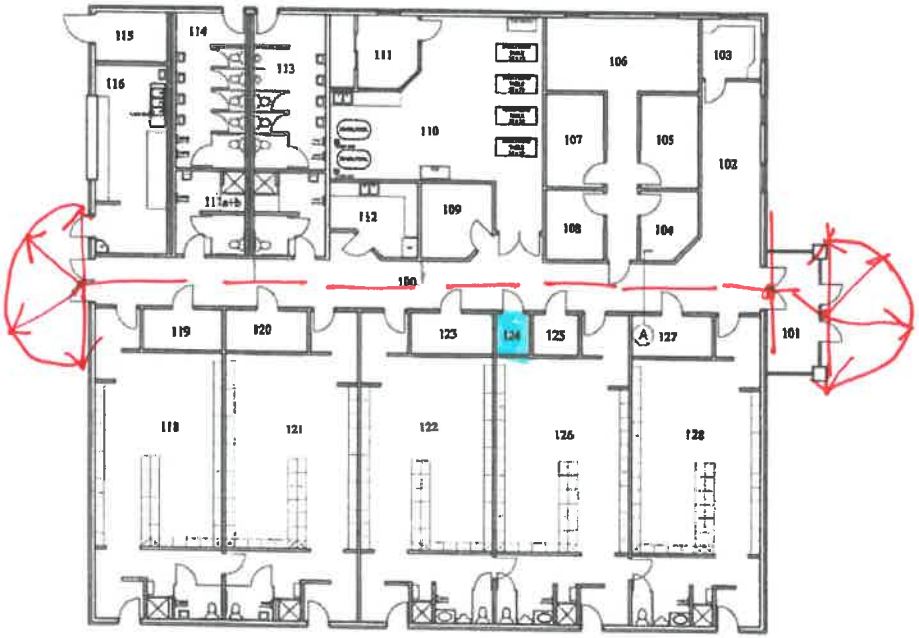
2012 IBC Building Code Analysis

Address	2200 Bonforte Blvd.
Zone	NA State of Colorado
Building Construction	5B – Non Sprinklered
Building Size	9,000 square feet
No. of Stories	1 Story
Occupancy	B - Field House / Locker Rooms
Occupant Load	243 Persons
Exits Required/Provided	2/7

Occupant Load (per table 1004 1.2)

Room No.	Room Name	Room size	Occ. Load
100	Corridor	540 sf	Accessory
101	Vestibule	216 sf	Accessory
102	Lobby	216 sf	Accessory
103	Ticket Off.	73 sf	1
104	Office	78 sf	1
105	Office	114 sf	2
106	Office	221 sf	3
107	Office	114 sf	2
108	Office	90 sf	1
109	Laundry	121 sf	1
110	Athletic Room	621 sf	8
111	Office	82 sf	1
112	Break Room	104 sf	4
113	Public Rest Room	274 sf	Accessory
114	Public Rest Room	274 sf	Accessory
115	Storage	78 sf	1
116	Concession	320 sf	2
117a+b	Shower	56 sf ea.	Accessory
118	Lockers	435 sf	42
119	Storage	72 sf	1
120	Mechanical	72 sf	1
121	Lockers	435 sf	42
122	Lockers	435 sf	42
123	Storage	72 sf	1
124	Data	48 sf	1
125	Mechanical	61 sf	1
126	Lockers	435 sf	42
127	Mechanical	72 sf	1
128	Lockers	435 sf	42
TOTAL OCCUPANT LOAD			243 Persons

Notes: Corridor #100 to be 1 hour rated construction. See detail



Code Analysis Plan
1/8" = 1'-0"

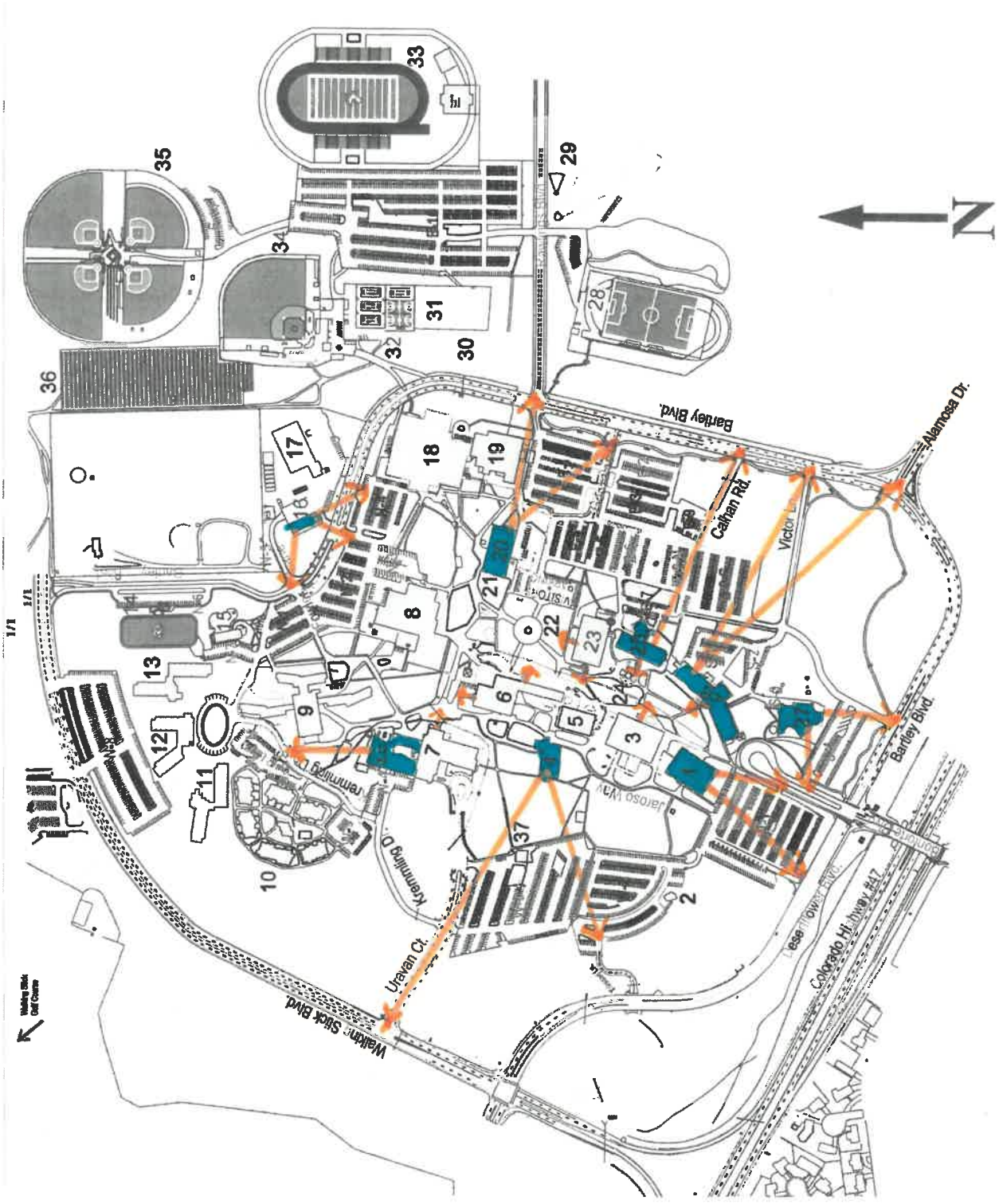
anzuini design and development
718.251.8570
112 West D Street
Pueblo, Colorado 81003
gamuini@comcast.net

CSU-PUEBLO
SOCCER/LaCROSSE STADIUM PROJECT
PROJECT # P-14045

REVISIONS

SHEET
C-1

Diagram of campus showing locations of cameras monitoring site.



Jan 16,2019 12:18 PM