Security and Safety Cameras at Grossmont-Cuyamaca Community College District (GCCCD)

May 20, 2024

INTRODUCTION

The use of security and safety cameras on a community college district campus is legally permissible and is a common practice. When determining the location and scope of the security and safety cameras, the Grossmont-Cuyamaca Community College District ("GCCCD" or "District") will be mindful not to record locations where employees, students, or staff have a reasonable expectation of privacy. GCCCD will take care when determining the locations where cameras may be installed, and understands the legal framework for the installation and use of cameras on campus, including the Educational Employment Relations Act ("EERA"), Family Educational Rights and Privacy Act, ("FERPA"), and the California Public Records Act ("PRA").

The District intends to install security and safety cameras on its college campuses in public areas such as parking lots, open areas around and at the entrances of buildings, views of incoming roads, athletic fields, parking garages/lots, adjacent to lockers, and *areas* where money is exchanged (e.g., cashier offices). The purpose of installing these cameras is security and safety, crime prevention, liability reduction, and emergency preparedness.

The use of a security and safety camera system cameras is consistent with several components contained in "Grossmont-Cuyamaca Community College District Campus Security Philosophy," set forth in Board Policy 3500 Campus Safety(see attached), including:

Utilize proactive strategies to improve safety and deter crime.

Strive to protect individual privacy rights.

Mitigate human and economic losses from personal injury and property damage.

The use of security and safety cameras is not new at GCCCD. Currently there are approximately 110 cameras on the Grossmont campus and approximately 20 on the Cuyamaca campus. These numbers include security and safety cameras as well as instructional cameras. The security and safety cameras are in areas where cash handling occurs and to protect assets. These cameras are in various states of operation, some are completely operational, some are working, but the video quality is poor, some have been installed but not activated, awaiting approval. Some of these security and safety cameras were installed as long ago as 20+ years. The instructional cameras have a wide variety of uses, such as observation as part of an academic program and to monitor work in labs. Both campuses have installed the infrastructure to

accommodate cameras in/on buildings, but the specific camera locations have not been identified and no equipment has been purchased or installed.

The District began exploring the potential expansion of security and safety cameras in 2017, however, this project has been met with some resistance from various stakeholders who are concerned about privacy and potential abuse surrounding profiling/targeting and unauthorized use of the video images. The purpose of this memorandum is to share more information regarding the nature of this project and demonstrate that the District's plans are consistent with the law and aimed at protecting our campuses.

PROPOSED SECURITY AND SAFETY CAMERAS

The District has selected Bosch to provide security and safety cameras. The models are in the FLEXIDOME IP series, which are high-performance, fixed dome cameras designed for professional video capture.

The District plans to use the Bosch DIVAR IP all-in-one 7000, which is a device that will sink with the cameras. This device will combine recording, viewing, and management of IP video footage.

The District chose Bosch Technology as the standard based on their state-of-the-art technology in security and safety products, as well as for their quality, durability and cost. The Bosch cameras also have the ability to tie into the Bosch intrusion alarms currently being used at GCCCD. The District Standard was approved at the November 8, 2022 Governing Board Regular Meeting with the passage of Resolution 22-021. This resolution does not pertain to instructional cameras.

The cameras will only capture images/videos. The cameras will not have microphones and therefore will not record audio. The cameras will have motorized pan, tilt, roll, and zoom features. Although the cameras are able to recognize user-specific targets, the cameras are not intended to track or target individuals unless it is an emergency or active threat situation. In those situations, cameras will allow an operator to move the frame of reference to follow the situation and/or threat.

The District has contracted with the San Diego County Sheriff's Department for law enforcement services. As such, the District may provide images or videos to law enforcement, who would have the ability to run them through their database in the event of a health and safety emergency.

FREQUENTLY ASKED QUESTIONS

1. **Q: The Right To Privacy - Do security and safety cameras violate the privacy rights of students, employees, and/or visitors?**

No, the installation of security and safety cameras on a college campus is legally permissible in spaces where students, employees, and/or individuals have no reasonable expectation of privacy.

The right to privacy is addressed in both our state and federal Constitutions.

Federally, individuals have the right to be free from unreasonable searches and seizures under the Fourth Amendment of the U.S. Constitution. A Fourth Amendment "search" occurs when the government violates a subjective expectation of privacy that society recognizes as reasonable. Monitoring through security and safety cameras is a form of a search.

The right to privacy is also an inalienable right under Article 1, Section 1 of the California Constitution. This right to privacy includes a legally protectable interest in conducting personal activities without observation, intrusion, or interference. This right to privacy extends to the right to be free from unreasonable monitoring by security and safety cameras.

The right to privacy in California is also addressed in several statutes. For example, under the California Labor Code, it is unlawful for an employer to record an employee in a restroom, locker room, or other room designated by an employer for changing clothes (unless expressly authorized by a court order). (Labor Code section 435.)

Regardless of the jurisdiction or court, the central issue in all privacy cases is whether the individual had a reasonable expectation of privacy under the circumstances. The U.S. Supreme Court has held that an individual has a reasonable expectation to privacy if: (1) the individual has an actual (subjective) expectation of privacy, and (2) society would agree that their expectation of privacy is reasonable. (See also California v. Ciraolo (1986) 476 U.S. 207, 211, 106 citing Katz v. United States (1967) 389 US 347.)

Applying the law, the District may install the proposed security and safety cameras in public spaces, such as cafeterias, hallways, building entrances and exits, parking lots, outdoor common areas, areas facing exterior doors, athletic fields, and public event spaces.

Students, employees, and/or visitors do not have a reasonable expectation of privacy in these areas. This is because these are public spaces and common areas are regularly within the public view. Installation of security and safety cameras in these places is in accordance with societal norms.

The expectation to privacy is further reduced when individuals are on notice, such as signs are posted, and the cameras are placed in plain sight, as they would be at GCCCD.

The District does not plan to install security and safety cameras in areas exclusively for employee use, such as offices and break rooms. This is consistent with California case law, which generally recognizes that employees have a greater expectation to privacy in places reserved for their exclusive use, even if other employees can access it or if an office is shared.

2. **Q: How will the DIVAR be Accessed?**

As stated above, the District plans to use the Bosch DIVAR IP all-in-one 7000, which is a device that will sink with the cameras. The DIVAR is a simple and reliable all-in-one recording device with remote viewing and management solution for network security and safety systems. The DIVAR will be rack mounted in an MDF* or IDF* room on each campus. The MDF/IDF rooms have limited and controlled access. They require a card key be used to gain entry to the space where the DIVAR will be housed. The DIVAR will be accessed only if an incident has been reported to the Public Safety Department and the Sheriff. The tape will be viewed to determine if there is any information which could be useful to resolve the incident. The DIVAR will not be monitored except in situations where there is a real-time threat to property or human life, such as an active shooter. The real-time monitoring will be for the safety of the first responders. The DIVAR does not have a display/monitor and the recordings can only be accessed using a web link which requires double encryption/authentication to sign on. The DIVAR can be accessed by a computer or a cellular device.

*MDF stands for Main Distribution Frame and IDF stands for Independent Distribution Frame. An MDF is the main computer room for servers, hubs, routers, DSL's, etc. to reside. An IDF is a remote room or closet connected to the MDF, in which you can expect to find hubs and patch panels.

3. **Q: Who will have access to log into the DIVAR?**

The Director of Public Safety and Sheriff's Deputies who are contracted to provide law enforcement support to the District will be the only individuals authorized to login to the system using the computer in their offices located in Building 57 at Grossmont and Building A at Cuyamaca. To gain entry to their offices you must enter through an authorized personnel entrance after you enter the building lobby. There is a second entrance at each location requiring either a key code or use of an access fob to gain entry into private spaces. This is a restricted space for authorized personnel only. Next a person must again have an authorized key code or fob to enter the MDF/IDF room or office where the DIVAR server/computer will be located.

4. **Q: What are the benefits of installing security and safety cameras on campus?**

The District believes the following are the main benefits for our campuses and community:

- **Crime Prevention**: Security and safety cameras act as a deterrent to criminal activities such as theft, vandalism, and assault on campus premises. The presence of cameras can discourage potential wrongdoers from engaging in unlawful behavior. In the event of criminal activities or incidents, security cameras provide valuable evidence for investigations conducted by law enforcement agencies. The recorded footage can help identify perpetrators, reconstruct events, and facilitate the apprehension and prosecution of offenders. This can be particularly useful when the theft or damage falls under the Districts deductible.
- **Liability Reduction**: Installing security cameras can reduce the liability of the District in case of accidents, disputes, or legal claims. Video footage can serve as evidence in investigations and legal proceedings, helping to clarify events and establish facts. Recently, ASCIP, had a member with a workers' compensation claim and the recording aided the Cal/OSHA investigation.
- **Emergency Preparedness**: Security and safety cameras can be integrated with emergency response systems to provide visual confirmation of incidents and assist emergency responders in coordinating their actions effectively. This can improve the district's overall emergency preparedness and response capabilities.

5. **Q. Can schools videotape students for security and safety purposes?**

While schools generally refrain from monitoring students with security and safety cameras for the purpose of catching students engaged in wrongdoing, it is not unlawful to record students for safety purposes. For example, it is not uncommon to place video devices in certain locations, such as entrances, hallways, and computer labs, to ensure general student and school safety. Indeed, *in response to school shootings and other acts of school violence, many districts have turned to recording devices as a proactive method of improving safety in their schools. According to the National Center for Education Statistics, more than 75 percent of public schools across the nation use security cameras to monitor their buildings. (*See U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), Public School Safety and Discipline: 2013-14, https://nces.ed.gov/pubs2015/2015051.pdf.)

6. **Q: Will GCCCD Insurance Premiums be reduced with the use of security and safety cameras?**

ASCIP, Alliance of Schools for Cooperative Insurance Programs, GCCCD's Risk Services and Insurance Provider, was contacted on this question. There is no premium reduction for having security and safety cameras installed. ASCIP does not track which members have security and safety cameras, so they don't have in-depth data on reduction of incidences, etc. However, they provided anecdotal information on how they have been useful to their member districts in various ways as discussed above with respect to Question No. 4.)

Additionally, ASCIP, recommends that districts adopt a policy on the use of cameras. GCCCD is in the process of developing an *Operating Protocol: Acceptable Use of Security and Safety Cameras for the Protection of Students, Faculty, Staff, Visitors and District Assets*. This protocol is intended to provide guidance on the installation of safety and security cameras and equipment, and the handling, viewing, retention, dissemination, and destruction of security and safety camera records.

Of note, with the new requirement for mandatory training on Workplace Violence Prevention Plan which begins July 1, 2024, one of the suggested items in the Workplace Violence Hazard Correction section is to utilize security and safety measures, such as cameras and mirrors, to provide information as to what is going on outside and inside the workplace and to dissuade criminal activity.

7. **Q. Are there other needed uses of the security and safety system? How else will the cameras be used?**

In addition to emergency response support, there are other reasons that the cameras are needed at the colleges. For example:

- There is the need for cameras at the existing campus entry gates. The District is in process of upgrading the campus security at the campus entries. The District is proposing to install more secure entry gates in lieu of the aluminum tube framed entry gates. This is due to the gates being continuously damaged, broken, locks cut off and vehicles pushing them open. The new secure gates will require the ability to see activities at the gates like pedestrians, vehicles etc. from the CAPS office. This will require cameras at the entries to increase safety, visibility, reduce liability, injury and damages to district facilities and assets.

- Both campuses have become locations where individuals dump trash and garbage in areas that are less frequently monitored. People dump their trash, appliances, and yard waste over the sides of the canyons. It looks terrible, becomes an increased fire hazard, possible hazardous waste, is a cost to remove, wastes staff time, and is visually unsightly to our community. As an example, at Cuyamaca, people dump items by the warehouse along the fire road virtually every week, and our Sheriff Deputies along with Public Safety staff find

dumped items by Ornamental Horticulture. The dumping has become so frequent, staff have made an agreement with the owners of the plaza, next to the campus, to take turns cleaning out the culvert to share in this workload. At Grossmont, the dumpster by the Softball field is frequently used for household trash, old appliances and furniture. This has become an unnecessary expense and diverts the limited resources at both campuses to remove these items. In addition, some of the items may contain Hazardous Waste which will require a specialized hauler to remove and properly dispose of them. The security and safety system could capture images of vehicles coming on the campuses and dumping trash and unwanted items, rather than disposing of these items appropriately.

8. **Q: Are cameras being used for instructional purposes?**

The security and safety cameras that the District is proposing will not be used for instructional purposes. However, as noted above, cameras are already used for instructional purposes in some classrooms, such as with the use of the Hyflex cameras.

Some of these existing cameras are voice activated and use voice tracking technology. In addition, some have the ability to record. See the attached spreadsheets of the existing HyFlex camera locations. In addition to the HyFlex cameras, a couple of examples of other instructional use include, cameras used in Nursing, the SIM Lab, and the Grossmont Child Development Center, for observation.

9. **Q. Aside from laws governing the right to privacy, what other laws is the District required to consider with respect to security and safety cameras?**

State and Federal Anti-Discrimination Laws

State and federal anti-discrimination laws, and Board Policy, prohibit discrimination on the basis of a protected class, such as race, ethnicity, national origin, religion, sex, sexual orientation, gender identity or expression, economic status, age, cultural group, or disability, in both the employment and educational environment. (See Fair Employment and Housing Act, Unruh Civil Rights Act, California Government Code, California Education Code, California Labor Code.) The District will be in compliance with these laws. The District will not use security and safety cameras in a manner that could be perceived as discriminatory or have a disproportionate impact on protected groups of students or employees.

EERA and Collective Bargaining Issues

The District will be in compliance with EERA. The District has already notified the bargaining groups of the plan to install safety and security cameras, and has entered into Memorandums of Understanding ("MOUs") with AFT, AA and CSEA regarding the

installation and use of cameras within the District. The District's use of cameras will be in accordance with the terms of these MOUs.

FERPA Implications and Privacy Rights

In some scenarios, recordings of students on campus can become "education records." If a recording meets the definition of an "education record," then it is entitled to certain protections under the Family Educational Rights and Privacy Act ("FERPA").

As defined by FERPA, education records are (1) directly related to a student; and (2) maintained by an educational agency or a party acting for the educational agency.

The following are examples of when a recording is not an "education record:"

- If a recording includes only the instructor, it is not a student record and FERPA does not limit its use.
- Incidental images of students or images captured as only part of background are not education records. (U.S. Department of Education, FAQs on Photos and Videos under FERPA.)
- A video of a student shown participating in school activities that are open to the public and without a specific focus on any individual are not education records. (U.S. Department of Education, FAQs on Photos and Videos under FERPA.)

The following are examples of when a recording is an "education record"

- An instructor records a student who is making a presentation or leading a class, and the recording is maintained.
- A security camera captures two students get into a fight on campus and the recording is maintained by the District for disciplinary purposes.

The District does not intend to maintain recordings of specific students as part of their education records. However, there may be some exceptional cases where FERPA does apply, such as the retention of a video recording of a student engaging in behavior that warrants student discipline (e.g., a fight on campus, theft, vandalism, etc.). In cases where video recordings meet the definition of FERPA, the District will abide by FERPA.

The Public Records Act PRA

Under some circumstances, security and safety footage may be subject to the California Public Records Act ("PRA"). Under the PRA, public entities are required to produce "writings" that meet the definition of a public record. Video monitoring footage meets the definition of a "writing" that would need to be produced under the PRA unless otherwise exempt. (Government Code sections 7920.530, § 7920.545.)

There are a variety of exemptions under the PRA that may apply to security and safety camera footage. For example, footage may be exempt because it implicates privacy interests, or because it is an investigatory file for law enforcement purposes, or because it is otherwise exempt from disclosure under other laws like FERPA. (Gov. Code § 7923.600.) Exemptions are determined on a case-by-case basis and may require a legal balancing test.

In the event that a member of the public makes a request for security and safety camera footage under the PRA, the District will only disclose such footage when it is required to do so by law. The District will also consult with legal counsel on an as needed basis to determine its obligations under the PRA.

Operating Protocol:

Acceptable Use of Security and Safety Cameras for the Protection of Students, Faculty, Staff, Visitors, and District Assets

Operating Protocol: Acceptable Use of Security and Safety Cameras for the Protection of Students, Faculty, Staff, Visitors, and District Assets

Summary

To ensure the protection of individual privacy rights in accordance with the District's core values and state and federal laws, this Operating Protocol provides guidance on the installation of safety and security cameras and equipment, and the handling, viewing, retention, dissemination, and destruction of video records.

Introduction

The Grossmont-Cuyamaca Community College District ("District") committed to enhancing the quality of education and life of the campus community by integrating the best practices of safety and security with technology contained in BP 3500 Campus Safety which includes the Grossmont-Cuyamaca Community College District Campus Security Philosophy, for the safety and well-being of the District community. A critical component of a comprehensive security plan is utilizing Security and Safety Cameras. The purpose of these cameras is to promote and ensure the safety and security of students, staff, and District property by deterring crime and enhancing the District's emergency preparedness. Research has shown that the installation of cameras can generally reduce crime 50% or more when a camera is in the vicinity, and for incidents that do occur can help solve up to 35% more of these cases.

Security and Safety Cameras will be used in a professional manner at all times in accordance with existing District Policies, including, BP 3410 Nondiscrimination, BP 3430 Prohibition of Harassment, and BP 3435 Discrimination and Harassment Complaints and Investigations, as well as applicable laws, including the Family Educational Rights & Privacy Act (FERPA), Educational Employment Relations Act (EERA) local, state and federal laws and regulations. Images and related data collected by cameras are the property of the District, and will be held in the strictest of confidence and retained for a reasonable period of time, before being destroyed by either Public Safety staff, Sheriff's Deputies, or a time-based auto deletion through the camera system. Destruction shall be formally documented and maintained in the Vice-Chancellor of Business Services Office in accordance with BP 3310 Records Retention and Destruction Policy.

This Operating Protocol does not apply to: webcams or other cameras for general use by District personnel; video equipment used for academic purposes; videotaping of athletic events for post-game review; videotaping of concerts, plays, and lectures; videotaped interviews of persons used for academic/instructional purposes; cameras installed in automated teller machines (ATMs); and/or the use of HyFlex cameras in the classroom for instructional purposes.

As discussed herein, Security and Safety Cameras will only be installed where the District deems it necessary to enhance the security and safety of people and property on District premises. They will not be installed in locations where individuals have a reasonable expectation of privacy. Security and Safety Cameras will be visible and signage will be placed in clearly visible areas on District property to ensure proper notification of their presence.

Security and Safety Cameras will record images and video only and will confidentially store them on a remote device. No cameras will utilize audio recording. The footage will only be viewed when

necessary to respond to an emergency or security event, investigate reasonable suspicions of crimes to persons or property, provide information to law enforcement to respond to emergency situations, when otherwise required by law, or in order to respond to a claim against the District, including a claim under the Government Claims Act (Cal. Govt. Code Section 810, *et seq.*).

Definitions

As used within this Operating Protocol, the following terms are defined as follows:

1. **Security and Safety Camera**: a camera used for monitoring and recording public areas. A critical component of a comprehensive security and safety plan is the utilization of a camera system. The recording of public areas is intended to deter crime and assist in protecting the security and safety of students, faculty, staff and visitors and protect the property of the campus community.
2. **Security Camera Monitoring:** the review or watching of Security and Safety Camera video images.
3. **Security and Safety Camera Recording**: a digital recording of the video feed from a Security and Safety Camera.
4. **Security and Safety Systems**: any electronic service, software, or hardware directly supporting a deployed security camera.

General Operating Principles

1. Security and Safety Camera Systems will be used in a manner consistent with all existing District policies.
2. The Director of Public Safety will be responsible for ensuring the confidentiality of recordings, appropriate signage and notifications of the use of Security and Safety Cameras and video recording will be posted to inform students, faculty, staff and visitors they may be recorded while on District property.
3. The Public Safety Department will ensure the Security and Safety System and equipment is maintained in good working order and that all storage devices (such as DIVARs, hard drives, or servers) that are not in active use will be stored securely in a locked cabinet in a controlled-access area.
4. All employees who may require access to the information collected through Security and Safety Cameras system will be properly trained on this Operating Protocol, as well as the laws and regulations that may apply to security camera footage obtained from the Security and Safety Camera systems. All persons authorized to access Security and Safety System information shall sign the **AUTHORIZED USER AGREEMENT FOR DISTRICTWIDE VIDEO SECURITY AND SAFETY SYSTEM** (attached).

5. Any employee who knowingly or deliberately violates this policy will be subject to discipline in accordance with all bargaining agreements and employment contracts up to and including termination.
6. The Director of Public Safety will ensure the security and safety equipment password and/or access code is changed whenever the employment of an authorized user of the Security and Safety System is terminated or is no longer in a position that requires them to view video recordings.

7. Anyone may anonymously inform the Public Safety Department and/or the Human Resources Department of any employee who does not comply with this Operating Protocol. Anyone may also inform the Chancellor if a suspected privacy breach has occurred or may have occurred. All reports will be protected under BP 7700 Whistleblower Protection Policy.

8. The Director of Public Safety will ensure Security and Safety Cameras and any related equipment is installed in accordance with these procedures and only in areas where they are necessary for security and safety reasons, where suitable conditions exist (exterior of structures, interior of structures, low light areas, and others areas of concern), and where it does not unreasonably invade the privacy rights of students, staff, or visitors.

9. If Security and Safety Cameras or Security and Safety System is adjustable by operators, this function will be restricted to the Director of Public Safety or the law enforcement, wherever possible, so that operators cannot adjust or manipulate the cameras to view spaces that are not intended to be covered by the Security and Safety System.

10. Under no circumstances will security and safety equipment be directed at any locations where persons have a reasonable expectation of privacy.

11. The Director of Public Safety will ensure that no attempt will be made to alter any part of a Security and Safety Camera Recording. The Bosch system uses embedded Watermarks to protect against recordings being altered.

12. The Director of Public Safety will ensure that old Security and Safety System storage devices are wiped clean and rendered unreadable and unserviceable before disposal. They will maintain a written record describing the date, method and location of the disposal in compliance with the District Records Management Policy.

13. When an incident is reported, a review of recorded information, by a law enforcement official, will generally occur. Security and safety system evidence will be stored securely until law enforcement responds. When a recording is requested as evidence, the name of the investigating officer and date and time of possession will be recorded and retained in a log book, which will be retained in compliance with BP 3310 Records Retention and Destruction Management Policy.

14. Any use of the Security and Safety Camera Recording other than which is detailed in this Operating Protocol is strictly prohibited, and is subject to disciplinary action in accordance with all bargaining agreements and employment contracts up to and including termination.

Responsibility for this Operating Protocol

The Director of Public Safety is responsible for the Security and Safety Cameras and Systems, and implementation of this Operating Protocol. The District's Public Safety Department, in conjunction with contracted law enforcement agencies, have the responsibility to select, coordinate, operate, manage, and monitor all campus Security and Safety Camera systems. Installation of a Security and Safety Cameras on District property without being approved by the Vice Chancellor Business Services is strictly prohibited.

All existing Security and Safety Cameras and Systems must comply with this policy. Unapproved or nonconforming devices will be removed. The Director of Public Safety working with the Vice Chancellors of Business Services and Human Resources, will be responsible for the creation, maintenance, and review of the District's strategy for the procurement, deployment, and use of Security and Safety Cameras.

This includes:

1. Establishment of the District standards for Security and Safety System devices and services and for authorizing the placement of all security cameras.

2. Requesting the purchase of any new security components or camera systems.

3. Reviewing existing Security and Safety Systems and installations and identifying required changes to bring these into compliance with the District standards.

4. Updating the policy and procedures for the use of Security and Safety Cameras and systems.

5. Ensure all requests to add cameras to new locations is reviewed by Human Resources, who will be responsible for ensuring that the District is acting in accordance with the Memorandums of Understanding (MOU) with collective bargaining groups and acting in accordance with laws governing employee rights, including but not limited to the Educational Employment Relations Act ("EERA") of 1976.

The Director of Public Safety will be responsible for addressing issues and concerns about the use of Security and Safety Cameras and Systems. If the Director is unable to satisfactorily resolve an issue or concern, then the Vice Chancellor of Business Services will review the details of the concern, and the Director of Public Safety's response, and make a final decision.

Copies of Security and Safety Camera Recordings and/or Security and Safety System information will be released internally or to law enforcement personnel only as authorized by the Vice Chancellor Business Services and in accordance with state and federal law, including the Family Educational Rights and Privacy Act ("FERPA"). Recordings will not be released to any other party except pursuant to a valid

subpoena or court order, and only after being reviewed by the District's Legal Counsel prior to the release of any records.

Security and Safety Camera Placement

Security and Safety Camera placement locations and operation typically will be limited to visual access of areas where there is no reasonable expectation of privacy. Use of the Security and Safety System for the purpose of monitoring work areas, staff areas, or sensitive areas such as shared offices, will not be permitted unless approved by the Vice Chancellor of Human Resources and is consistent with the this Protocol, which includes the prevention and deterrence of dangerous or illegal activity and the enhancement of security and safety.

The District may establish temporary or permanent placement of Security and Safety Systems in public areas of the college campuses in accordance with the bargaining agreement MOU's.

Monitoring private areas including bathrooms, shower areas, locker/changing rooms, or other areas where people may change clothes, and private offices, is prohibited.

The locations where cameras are installed may be restricted access sites such as a departmental computer lab; however, these locations are not places where a person has a reasonable expectation of privacy. Cameras will be located so that personal privacy is maximized.

The view of a camera must not violate the standard of a reasonable expectation of privacy.

Storage and Retention of Recordings

Logs will be kept of all instances of access to, use, or release of any stored copies of recordings to provide for a proper audit trail.

No attempt shall be made to alter any part of any recording other than selecting specific incidents or periods of time to be retained.

All recorded information shall be automatically destroyed after thirty (30) days, except information specifically awaiting review by law enforcement agencies, information retained as evidence, information that has been duplicated for use under civil or criminal subpoena or court order or as required by law or this Operating Protocol.

Requests for Installation of Additional Cameras

Individual departments, programs, or campus organizations requesting Security and Safety Cameras shall submit a written request to their appropriate Director/Dean describing the proposed location of device(s) justifying the need for the proposed installation. If the Director/Dean approves the request it will follow the campus process for the campus President approval. If the campus President approves the request, it will be forwarded to the Vice Chancellor Business Services/Human Resources.

USER AGREEMENT FOR DISTRICTWIDE VIDEO SECURITY AND SAFETY SYSTEM

By signing this agreement, I, the undersigned, understand and agree to the following:

1. I will conduct recording or monitoring of activities of individuals or groups by District Security and Safety Cameras in a manner consistent with all District policies and procedures, state and federal laws.
2. I will conduct recording or monitoring of activities in a professional, ethical, and legal manner.
3. I will not use Security and Safety Cameras except in accordance with the District's *Operating Protocol: Acceptable Use of Security and Safety Cameras for the Protection of Students, Faculty, Staff, Visitors and District Assets*, a copy of which I have read, received, and understand.
4. I understand that District Security and Safety Cameras are not monitored continuously under normal operating conditions but may be monitored for legitimate security and safety purposes that include, but are not limited to, the following: high risk areas, restricted access areas/locations, in response to an alarm, special events, and specific investigations authorized by the Director of Public Safety. I agree to adhere to this at all times.
5. I understand that for Security and Safety Cameras, access to live video or recorded video from cameras shall be limited to authorized personnel only. I will not disclose any recordings to anyone without prior confirmation that they are authorized personnel.
6. I understand that the copying, duplicating, and/or re-transmission of live or recorded video will be limited to only to myself and other persons expressly authorized by the Public Safety Department.
7. I understand that if I copy, duplicate, re-transmit, or misuse the District Security and Safety Cameras, equipment, or recordings from Security and Safety Cameras or violate or fail to adhere to this User Agreement, I will be subject to discipline, including but not limited to termination.
8. I understand that a record log will be kept of all instances of access to, and use of, recorded material. The log will be maintained on a network drive accessible only by authorized parties. I understand that I will be responsible for maintaining that record log when I access and use recordings.
9. I acknowledge I have been trained on the proper use of the Security and Safety System. I agree to the terms stated above and agree to follow the *Operating Protocol: Acceptable Use of Security and Safety Cameras for the Protection of Students, Faculty, Staff, Visitors and District Assets*.

Date: _____

Printed Name: _____

Signature of User: _____

Director of Public Safety Signature: _____

Date Training was Completed:_____

CC: Director of Public Safety, Vice Chancellor Business Services, Vice Chancellor of Human Resources and Associate Vice Chancellor of Human Resources

ATTACHMENTS

District Incidents Statistics March 2023 through March 2024

BP 3500 Campus Safety

AP 3500 Campus Safety-Proposed

BP 3501 Campus Security and Access

AP 3501 Campus Security and Access-Proposed

Operating Protocol: Acceptable Use of Security and Safety Cameras for the Protection of Students, Faculty, Staff, Visitors and District Assets

Campus Maps of Current Cameras

- Grossmont
- Cuyamaca

Campus Maps of Proposed Non-Instructional Cameras on Campuses Phase One

- Grossmont
- Cuyamaca

Campus Maps of Proposed Non-Instructional Cameras on Campuses Phase Two

- Grossmont
- Cuyamaca

Campus Locations of HyFlex Instructional Cameras

- Grossmont
- Cuyamaca

MOU between GCCCD and AFT Guild Local 1931

MOU between GCCCD and AA

MOU between GCCCD and CSEA and its Chapter 707

HyFlex Specification Sheets

- AVer TR333V2
- Aver PTZ310W/PTZ330W
- Aver CAM550

Bosch Specification Sheets

- DIVAR IP All-in-One 7000 2U
- Fixed dome 2mp HDR-NDE 8512-RX
- Fixed dome 4mp HDR-NDE-8513-RX
- Fixed dome 6mp HDR- NDE-8113-R
- Fixed dome 4mp HDR-NDE-8513-RXT

District Incidents Statistics
March 2023 Through March 2024

Incidents Statistics for the Period of March 2023 thru March 2024 Gathered by the San Diego County Sheriffs & the GCCCD Department of Public Safety

Sheriff's Stats for the hours of M-F 8am-6pm	
Narcotics	2
Incomplete 911 calls	12
Suspicious Person	74
Disturbances	44
MH Counselor calls	7
Trespass	3
Medical	39
Theft	24
Alarms	24
Traffic	38
Assaults	8
TRO	4
Missing Persons BOLO	4

CAPS Stats 24 hours/7 days a week	
Narcotics	
Incomplete 911 calls	47
Suspicious Person- referred to SDSO when possible	173
Disturbances	39
MH Counselor calls- referred to SDSO when possible	Unknown**
Trespass	Unknown**
Medical	31
Theft -referred to SDSO	2
Alarms	1195
Traffic	5
Assaults- referred to SDSO	1
TRO- referred to SDSO	5
Missing Persons BOLO- referred to SDSO when possible	3

Total of Combined Stats
2
59
247
83
7
3
70
26
1219
43
9
9
7

- **Narcotics** include: found narcotics- does NOT include violations of student conduct or employee conduct
- **Incomplete 911 calls**- anything that made it to a deputy to investigate
- **Suspicious Person** includes: Person, vehicle, transient calls, welfare checks or requests, including from student affairs
- **Disturbances** include: arguments, preserve the peace, protestors, ordinance violations such as smoking, skateboarding.
- **Mental health counselor calls**: directly from MH counselors, include PERT assists, suicide calls and evaluations.
- **Trespassing** includes: complaints of transients trespassing. **CAPS emails in regards to trespassers at night. However, we do not have a specific code in our reporting software for this. As an example, when Sam was attacked, it did not go in as a "trespass". So it is impossible to know a number but we encounter trespassing about 2-4 times per week.
- **Medical** calls note: we do not get sent to all medical. After hours, CAPS only knows about medical calls if they call from a campus phone. Not if they use a cell phone.
- **Theft** includes: grand theft, burglaries, vandalism of buildings or vehicles.
- **Alarms** include: assisting caps with dangerous intrusion alarms and fire alarms when available
- **Traffic** includes: reckless driving, DUI's, accidents, hit and runs, traffic signal issues, traffic stops
- **Assaults** include: all categories such as rape, assault, battery, etc. Included displays of threats and harassment
- **TRO** – restraining order requests, questions, assistance and enforcement- we do not always track these clearly.
- **Missing person** includes: BOLOs, dangerous BOLO's or sometimes people at risk. Many parents asking for help looking for their kids.

BP 3500 Campus Safety

BP 3500 Campus Safety

Reference: ***Education Code 67380(a)(4)***

Adoption Date: August 21, 2001 Updated: October 16, 2018

The Grossmont-Cuyamaca Community College District (District) Governing Board is committed to a safe and secure District work and learning environment. To that end, the Chancellor shall establish a campus safety plan and ensure that it is posted or otherwise made available to District students.

The Chancellor shall ensure that the campus safety plan includes availability and location of security personnel, methods for summoning assistance of security personnel, any special safeguards that have been established, any actions taken in the preceding 18 months to increase safety, and any changes in safety precautions to be made during the next 24 months.

The attached District *Campus Security Philosophy* is a guideline for integrating the best practices of safety and security.

Grossmont-Cuyamaca Community College District
Campus Security Philosophy

The Grossmont-Cuyamaca Community College District (GCCCD) is fully committed to enhancing the quality of life of the campus community by integrating the best practices for safety and security. The District shall establish a safety philosophy with the primary objective of providing a safe and healthy working environment for all District employees, students and the public.

Implementation components:

1. Utilize proactive strategies such as Crime Prevention through Environmental Design (CPTED) to improve safety and deter crime.
2. Strive to protect individual privacy rights.
3. Consider campus climate conditions and plan for a comforting and welcoming environment.
4. Refurbish and repair buildings to address student and district employee safety and access standards.
5. Mitigate human and economic losses from personal injury and property damage.
6. Make training available to all employees to provide a first line of response for the safety of themselves and their neighbors in the event of violence, natural disaster, medical or psychiatric emergency using strategies for violence prevention. The training will emphasize high expectations for conduct, responsible behavior and civility.
7. Encourage all employees, students and the public to be aware of their surroundings while on District property, and refer questions or concerns to the Public Safety Department.

The GCCCD is committed to our values of diversity, equity and inclusion and to support all our students and employees, regardless of background, race, ethnicity, heritage, national origin, immigration status, religion, age, gender, gender identity, sexual orientation or ability. This is in keeping with our District and Colleges value statement to cultivate a student-centered, culture of excellence, trust, stewardship, and service.

GCCCD Public Safety and Emergency Preparedness Council assists with analysis, recommendations and communication regarding this philosophy. Further information regarding safety and security is available in BP and AP 3500 and 3501.

This philosophy is a component of BP 3500.

AP 3500 Campus Safety-Proposed

AP 3500 Campus Safety DRAFT

Reference: Education Code Sections 212, 67380, 87014;

Penal Code Section 245;

20 U.S. Code Sections 1232g, 1292(f);

34 Code of Federal Regulations 668.46;

34 Code of Federal Regulations 99.31(a)(13),(14); and

Campus Security Act of 1990

Date Issued: December 3, 2008 Revised: ~~October 16, 2018~~ April 1, 2024

The Grossmont-Cuyamaca Community College District (District) campus safety plan is available for students in the Public Safety Annual Security Report on the District website (handbook or brochure?).

-The District Public Safety Department prepares and annually updates a report of all occurrences reported to District Public Safety of, and arrests for, crimes that are committed on campuses and that involve violence, hate violence, theft or destruction of property, illegal drugs, or alcohol intoxication ~~which are reported to the District Public Safety Department~~, and of all occurrences of noncriminal acts of hate violence reported to campus authorities. A w~~W~~ritten report will be submitted to the Board. Written records of noncriminal acts of hate violence shall include, at a minimum, a description of the act of hate violence, the victim characteristics, and offender characteristics, if known.

Education Code 67380 defines "h~~H~~ate violence" as ~~defined by Education Code 67380 is~~ "any act of intimidation or physical harassment, physical force or physical violence, or the threat of physical force or physical violence, that is directed against any person or group of persons or the property of any person or group of persons because of the~~ir~~ ethnicity, race, national origin, sex, sexual orientation, gender identity, gender expression, disability, or political or religious beliefs of that person or group ~~identity or association with one or more of the protected categories.~~

-For purposes of reporting under the Clery Act, "hate crimes" include domestic violence, dating violence, and stalking. Also see BP 3410 Nondiscrimination

These changes are to bring the Administrative Procedure in line with the legally required language and the recommendations from the Community College League of California (CCLC), which issues periodic updated to Policies and Procedures based on the recommendation of AALRR Law Firm.

BP 3501 Campus Security and Access

BP 3501 Campus Security and Access

Reference: ***34 Code of Federal Regulations Part 668.46(b)(3)***

Adoption Date: April 17, 2012 Reviewed: May 16, 2017

The Chancellor shall establish procedures for security and access to Grossmont-Cuyamaca Community College District facilities.

AP 3501 Campus Security and Access-Proposed

AP 3501 Campus Security and Access

Reference: 34 Code of Federal Regulations Section 668.46(b)(3)

~~34 Code of Federal Regulations Section 668.46(b)(3)~~

Date Issued: April 9, 2012 Updated: April 2, 2024 ~~May 16, 2017~~

During business hours, the Grossmont-Cuyamaca Community College District (District) will be open to students, parents, employees, contractors, guests, and invitees. Business hours vary during different times of the year and the District has the right to close areas as needed. All District facilities and grounds are closed between the hours of 11:00 p.m. and 5:00 a.m. each day. After hours visitors must check in with the District Public Safety O~~o~~ffice. During non-business hours access to all District facilities is by key, and/or alarm code, if issued, or by admittance via the District Public Safety Office. In the case of periods of extended closing, the District will admit only those with Prior written approval to all facilities.

Emergencies may necessitate changes or alterations to any posted schedules of operation. During an emergency response closure, the District Public Safety Department will provide access as approved by the Chancellor or designee.

Areas that are revealed as problematic will have regular periodic surveys and may be monitored by security and safety systems. Administrators from Public Safety, Law Enforcement, Human Resources and others as needed, may review the information gathered. These surveys examine security issues such as landscaping, locks, alarms, lighting, and mishaps, unfortunate events and communications.

~~After hours visitors must check in with the District Public Safety office.~~ The Public Safety, Facilities, and Risk Management ~~Information Systems and Human Resources~~ Departments will meet to review ~~consider~~ security issues such as locks, alarms, lighting, landscaping, ~~and~~ communications, security and safety, and access concerns and work to resolve these issues. ~~as needed~~. In addition, the Districtwide Public Safety and Emergency Preparedness Council shall meet as needed to discuss campus security and access. The atmosphere of community at the District ~~campus~~ must be one of honesty, acceptance of responsibility and willingness to represent clearly and accurately oneself and one's activities. While on any property owned or occupied by the District., Eemployees and students must identify themselves to Campus and Parking Services personnel when requested, by showing a photo identification card.

Campus Maps of Current Cameras

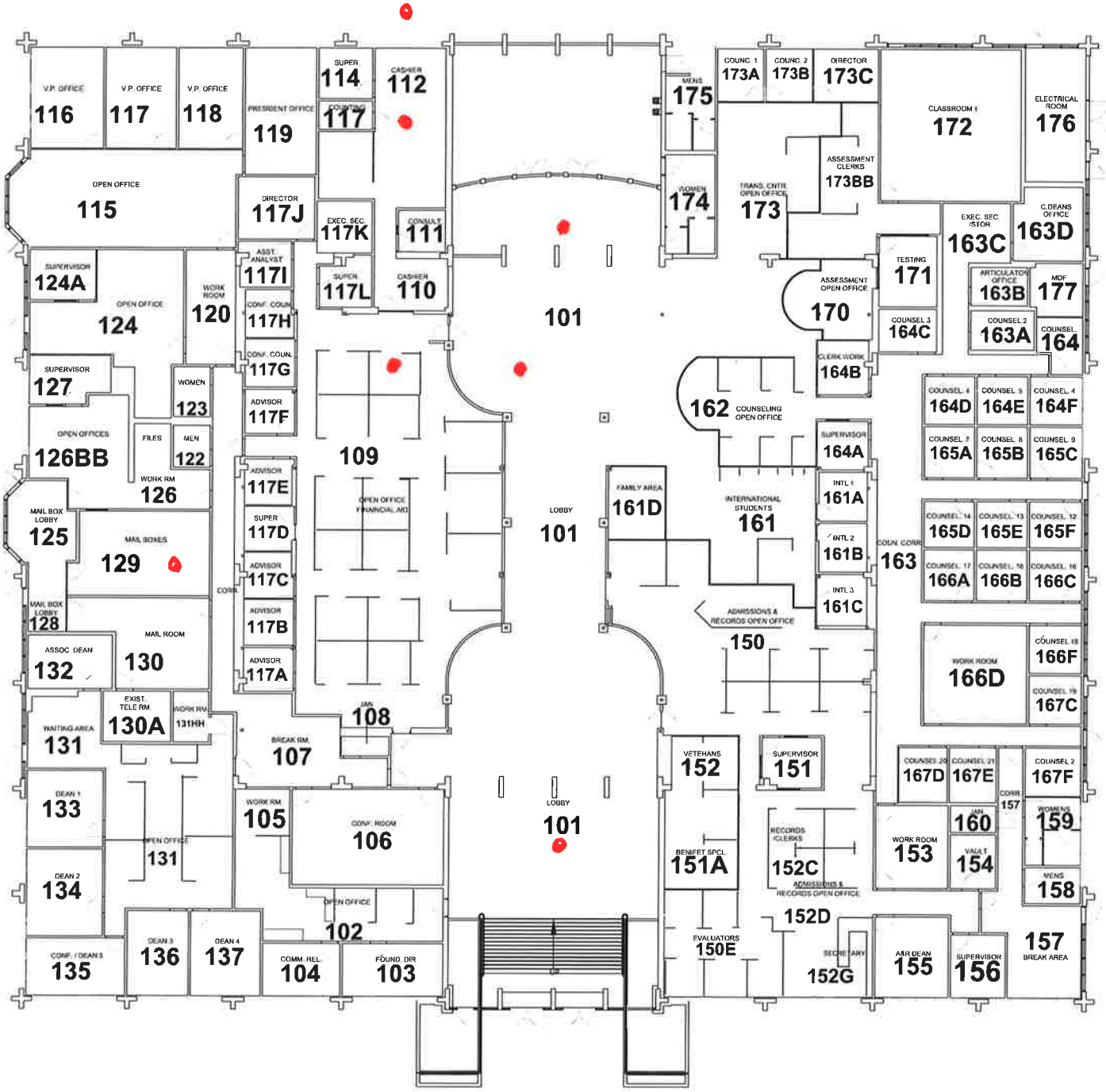
- Grossmont
- Cuyamaca

Legend

- Indicates Instructional Program Camera
- Indicates Infrastructure Only For a Camera
- Indicates Security Camera

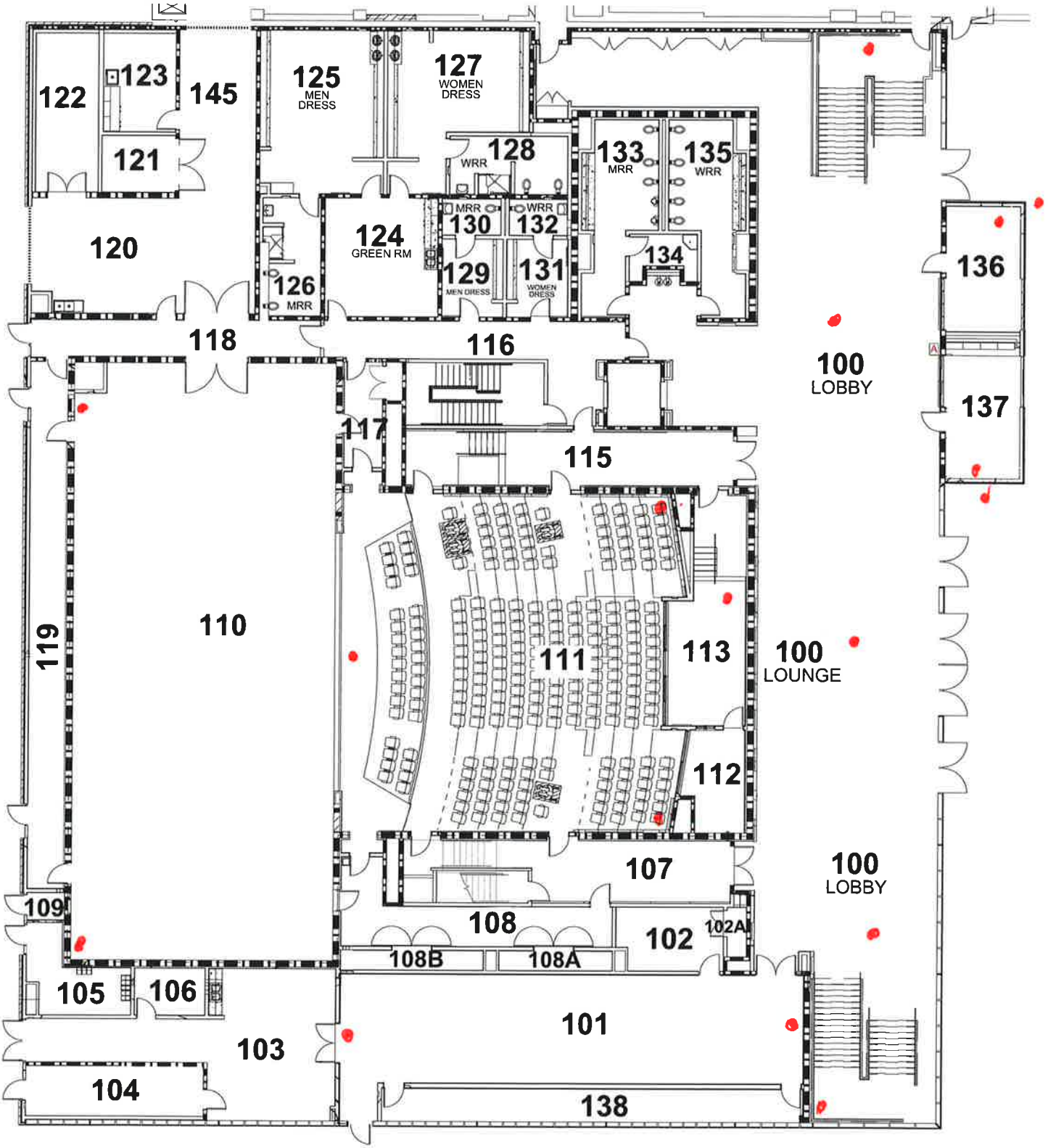
Note: No Hyflex Cameras are shown

Grossmont College Building 10
(7) Security Cameras

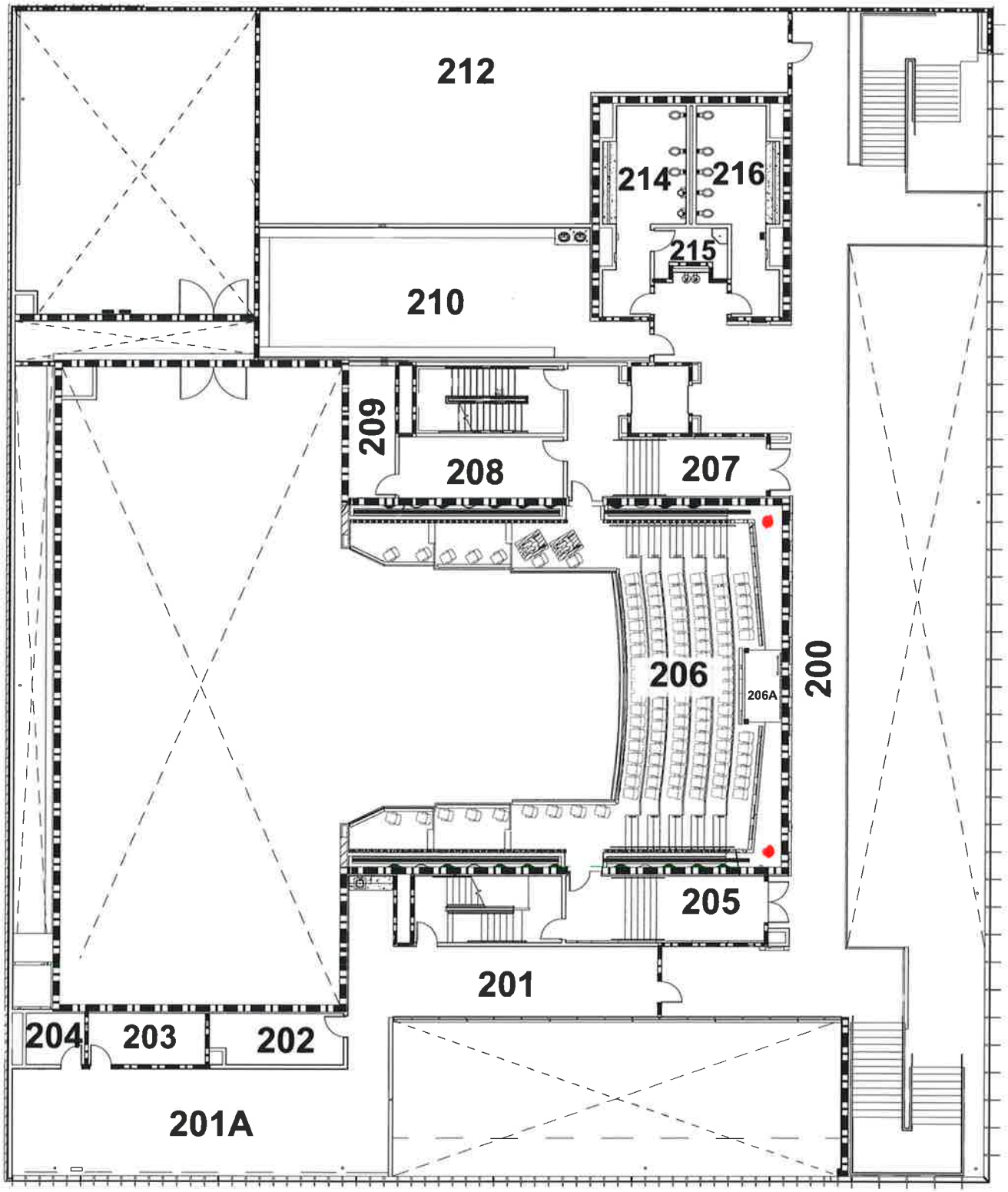


BUILDING 10

Grossmont College Building 22 - First Floor
(17) Security Cameras

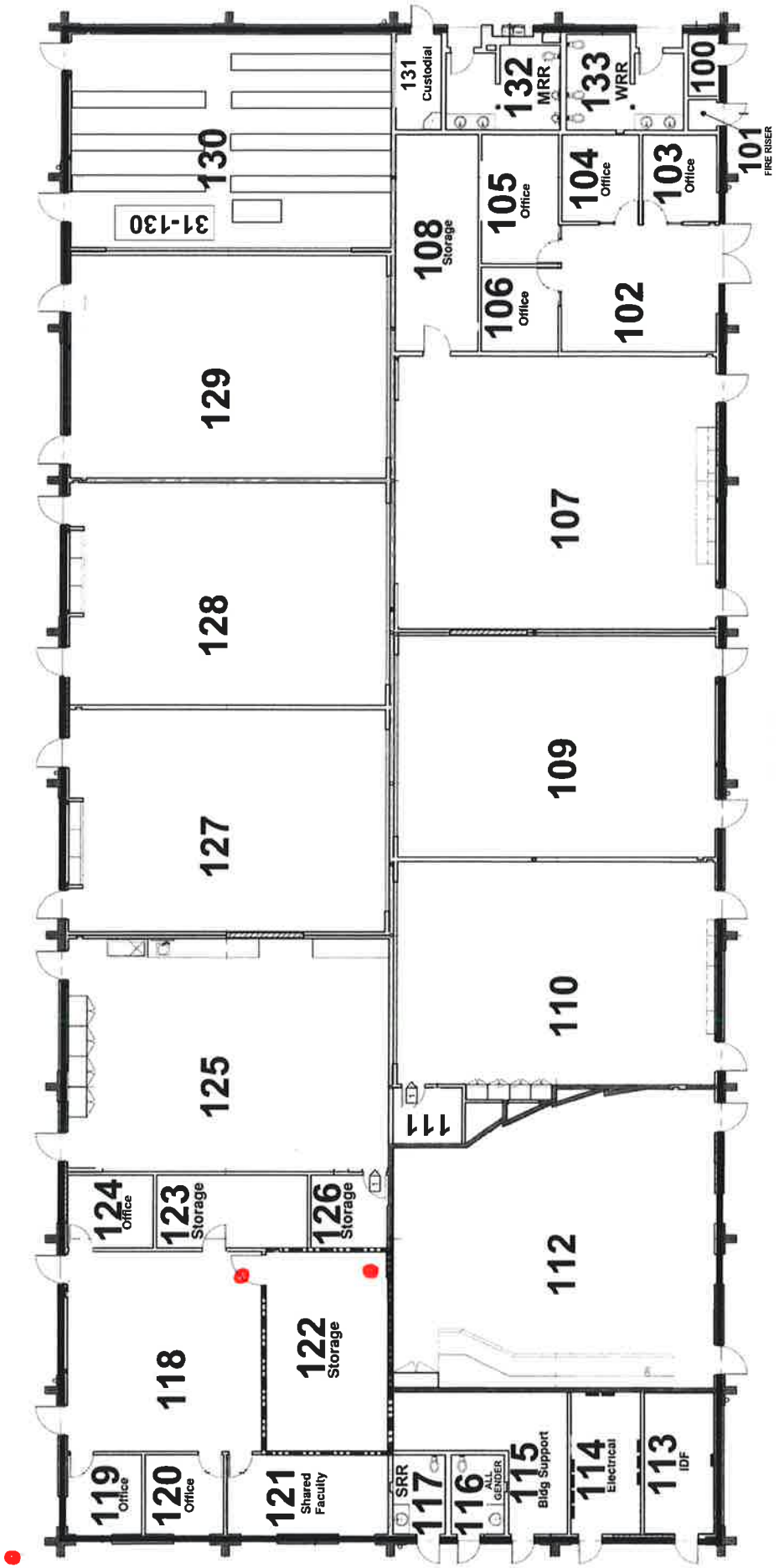


Grossmont College Building 22 - 2nd Floor
(2) Security Cameras

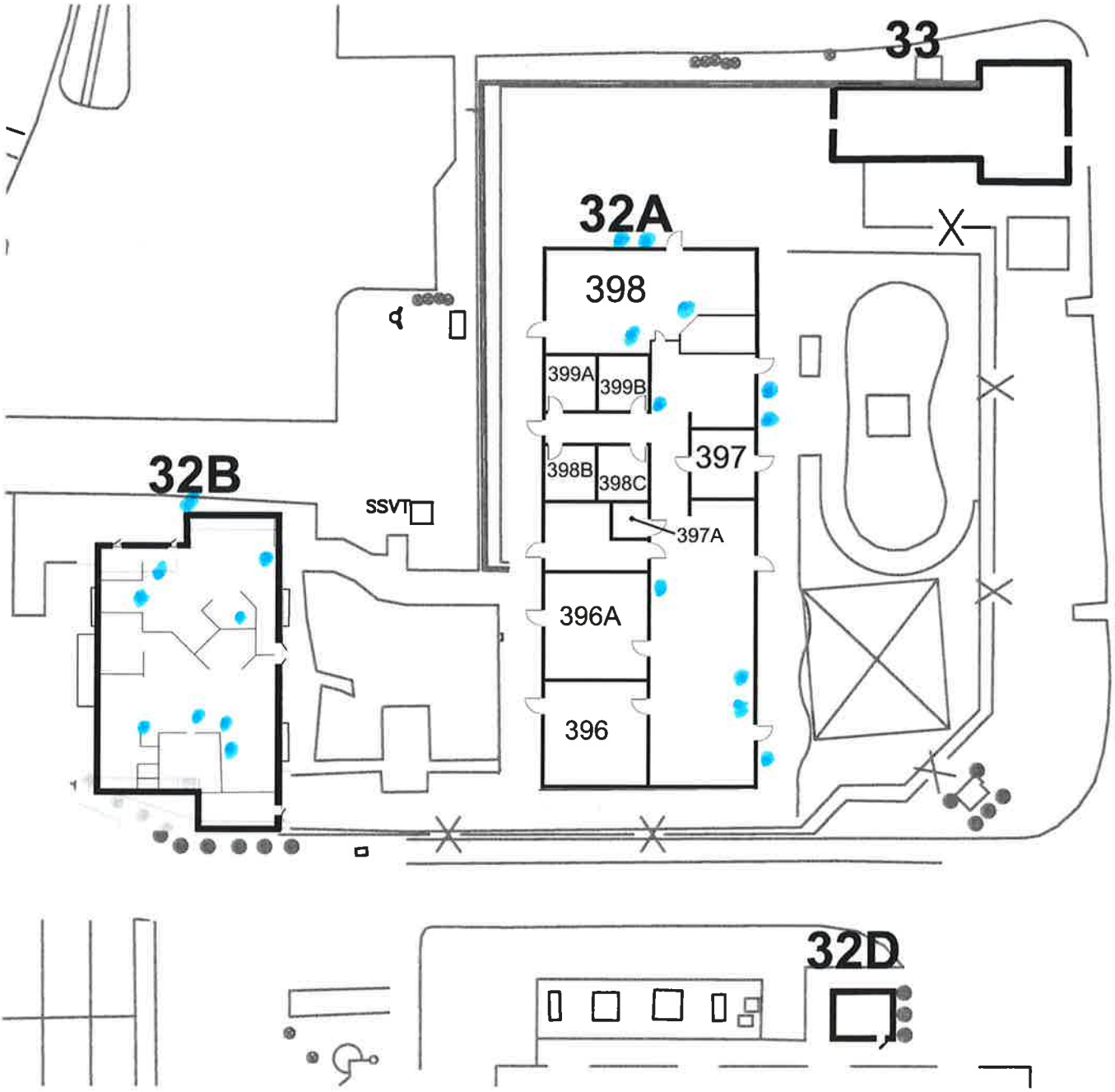


PVAC
BUILDING 22
SECOND FLOOR

Grossmont College Building 31
(3) Security Cameras



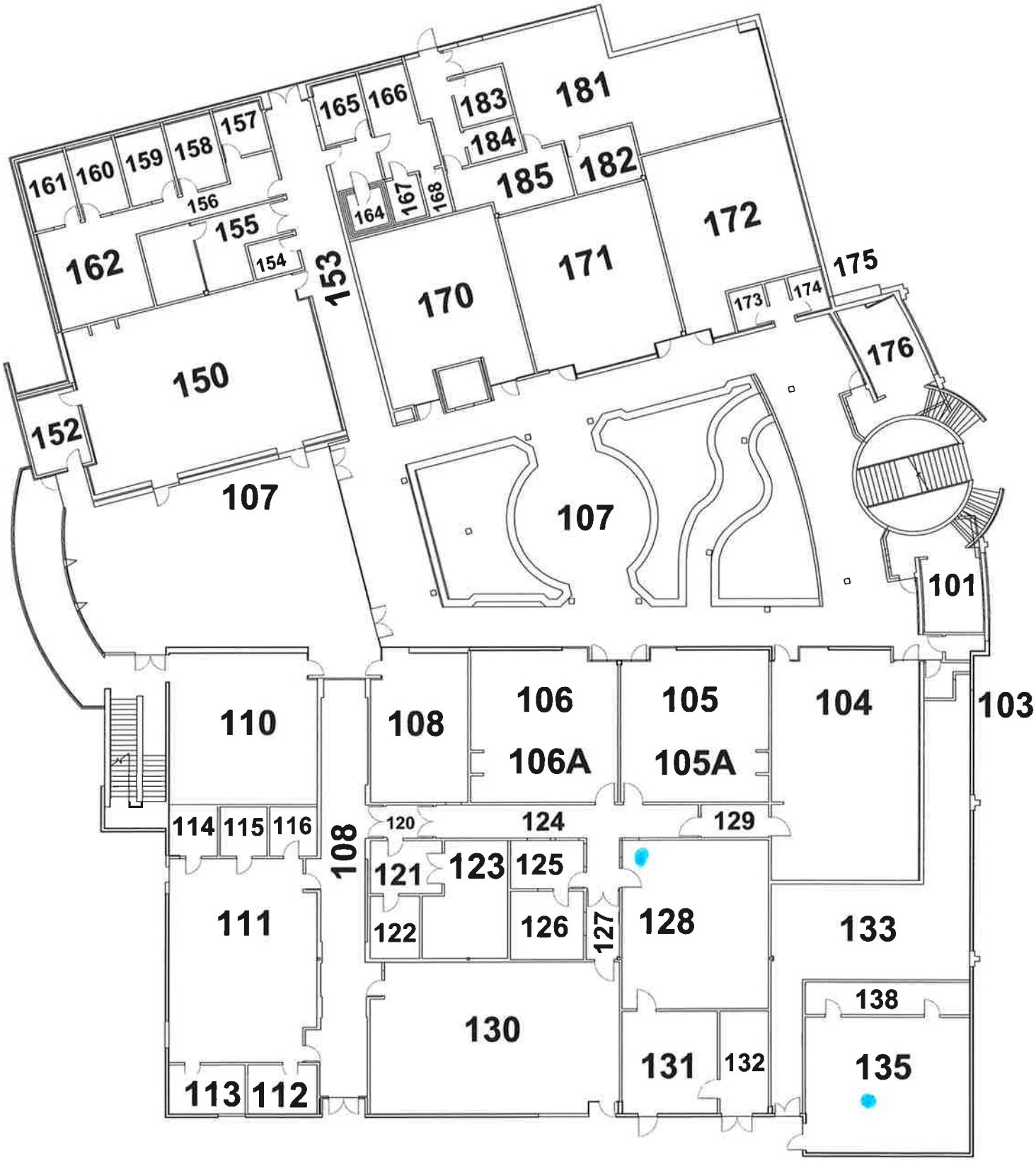
Grossmont College Building 32A & 32B
(20) Instructional Program Cameras



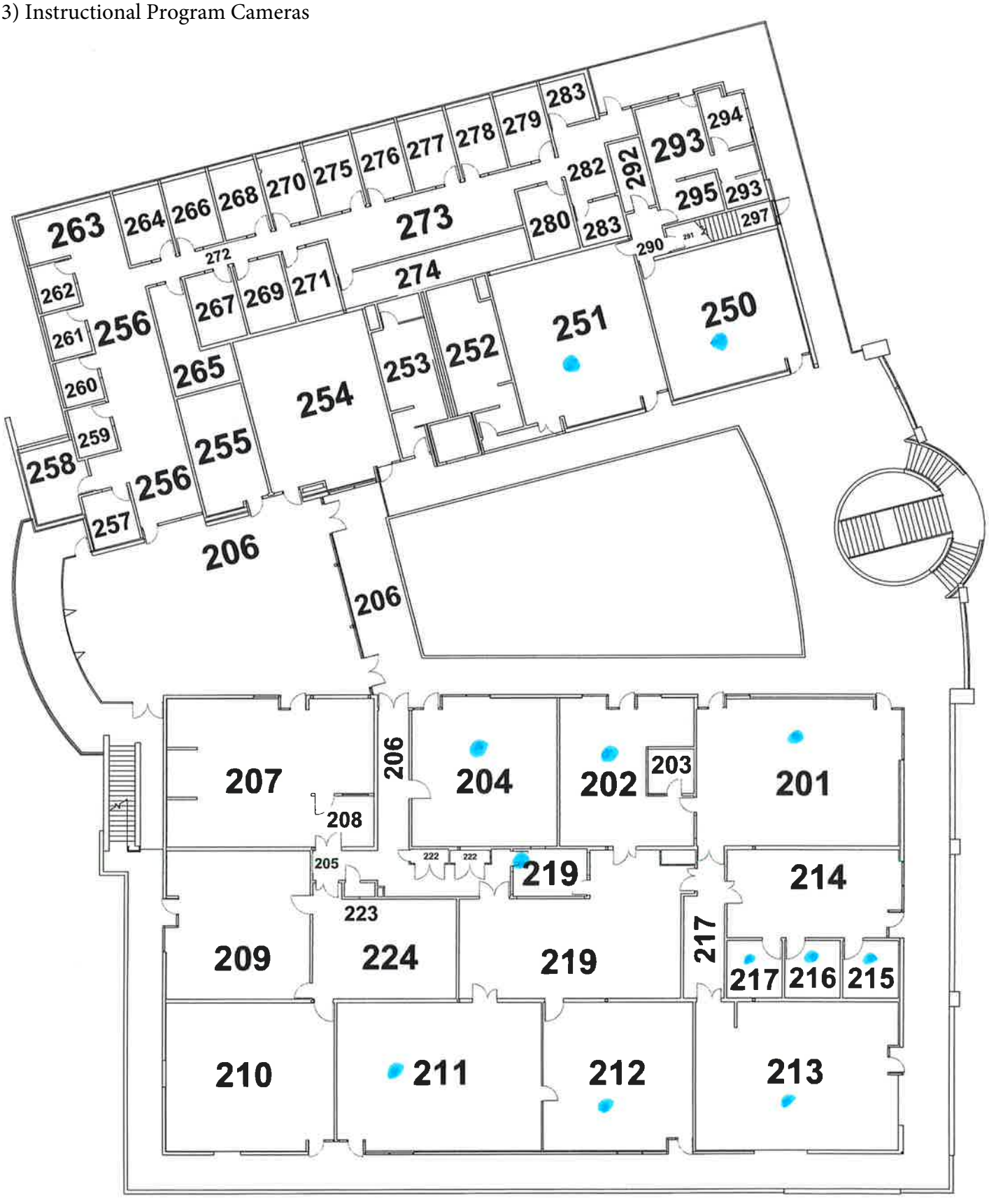
● instructional camera

BUILDING 32A, 32B, 32D, 33

Grossmont College Building 34 - First Floor
(2) Instructional Program Cameras

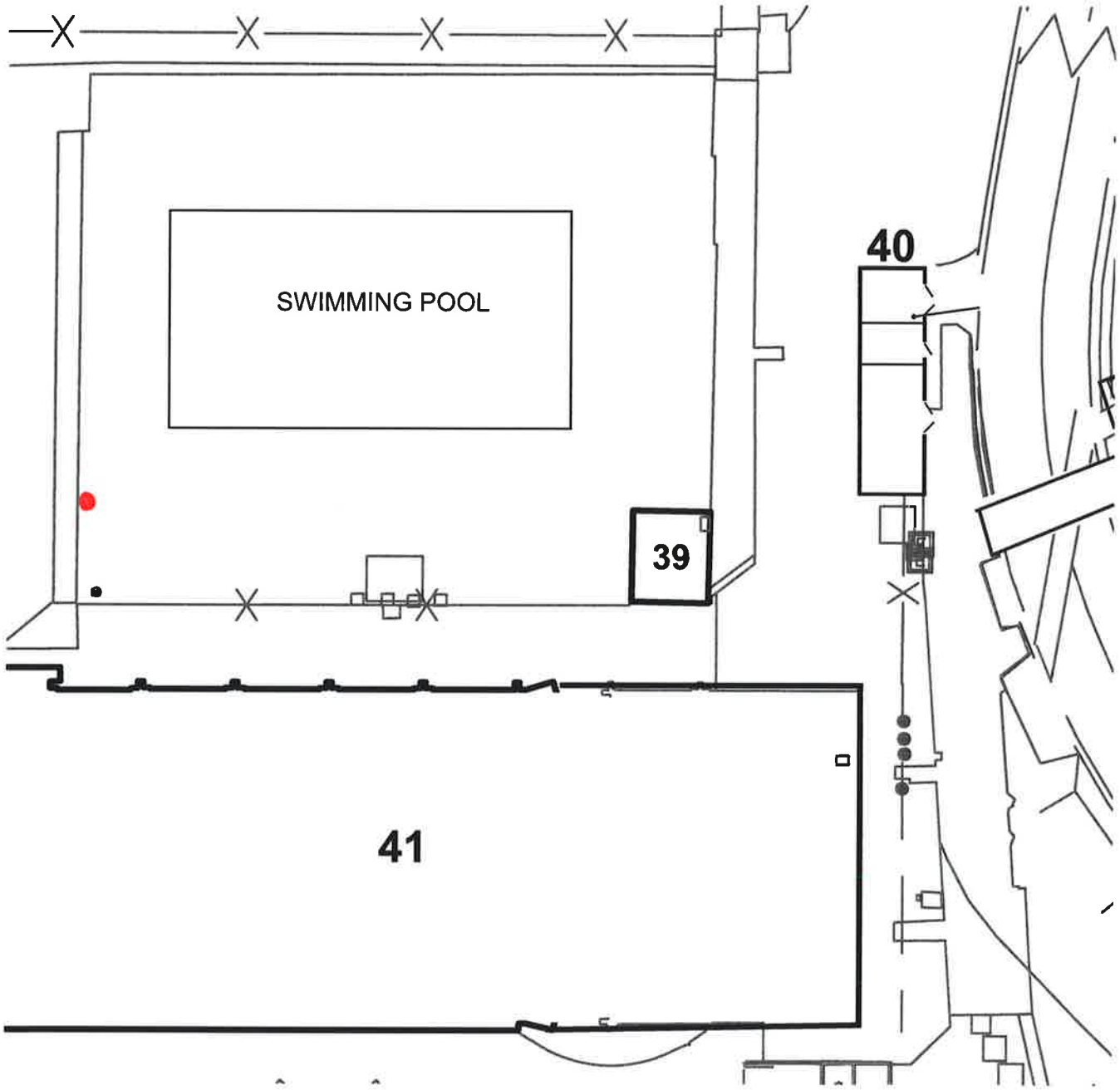


Grossmont College Building 34 - Second Floor
(13) Instructional Program Cameras



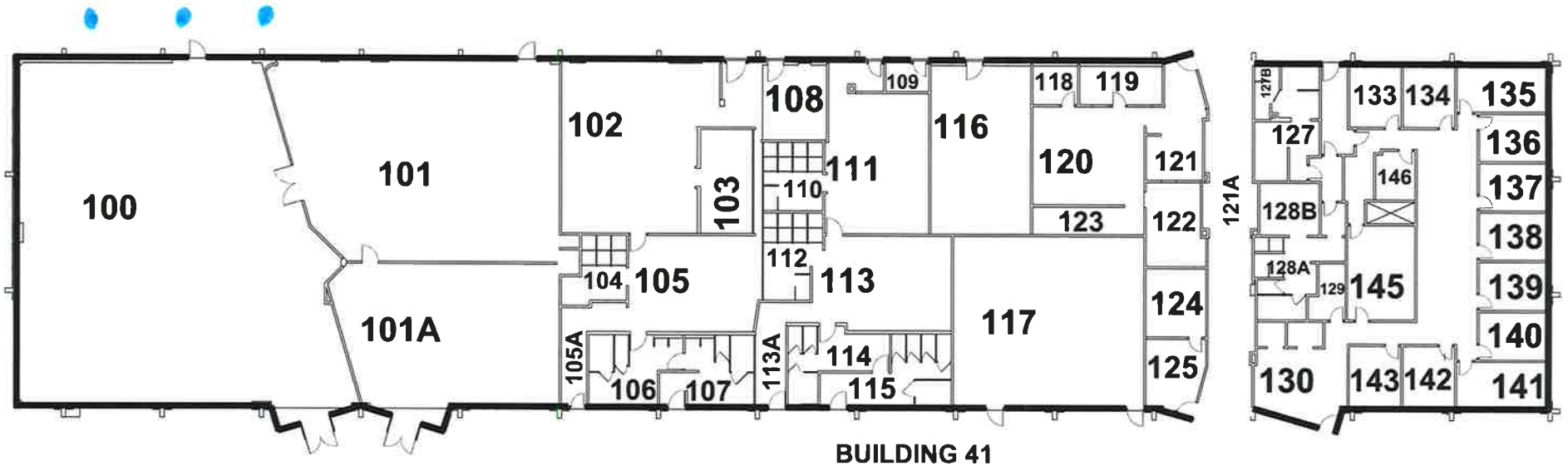
BUILDING 34
SECOND FLOOR

Grossmont College Building 39
(1) Security Camera

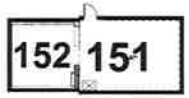


**BLDG 39 POOL HOUSE,
BLDG 40 POOL EQUIPMENT,
SWIMMING POOL**

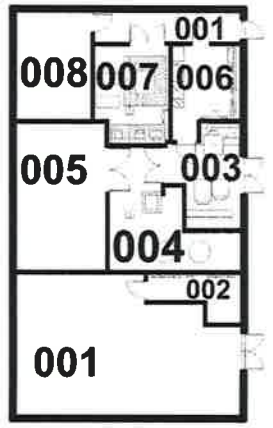
Grossmont College Building 41
(3) Instructional Program Cameras



BUILDING 41
FIRST FLOOR



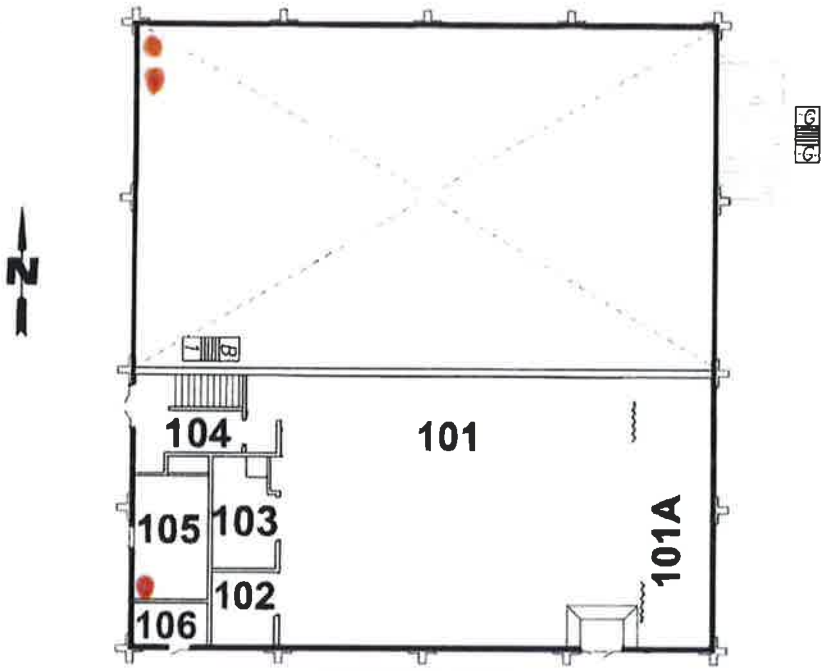
● Instructional Program Camera



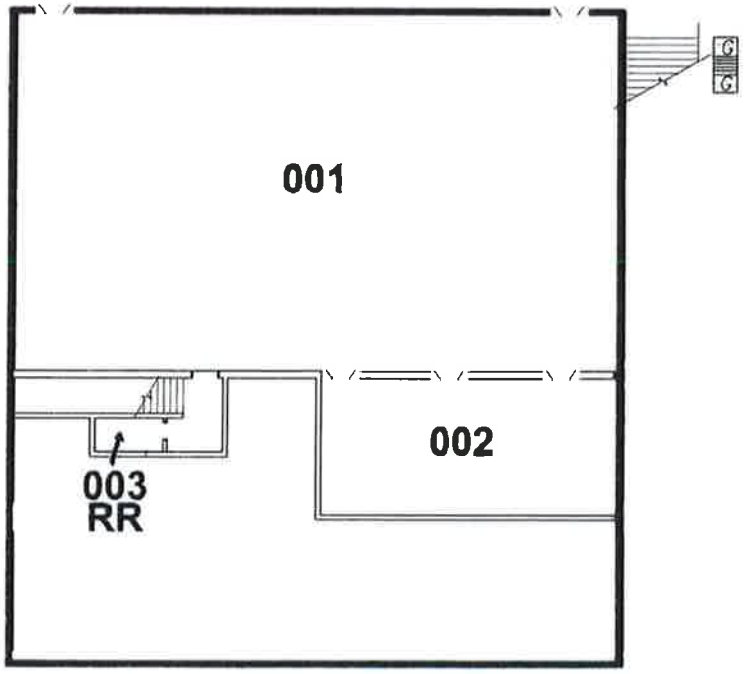
BLDG 41 BASEMENT

BUILDING 41

Grossmont College Building 42
(3) Security Cameras



FIRST FLOOR



BASEMENT FLOOR

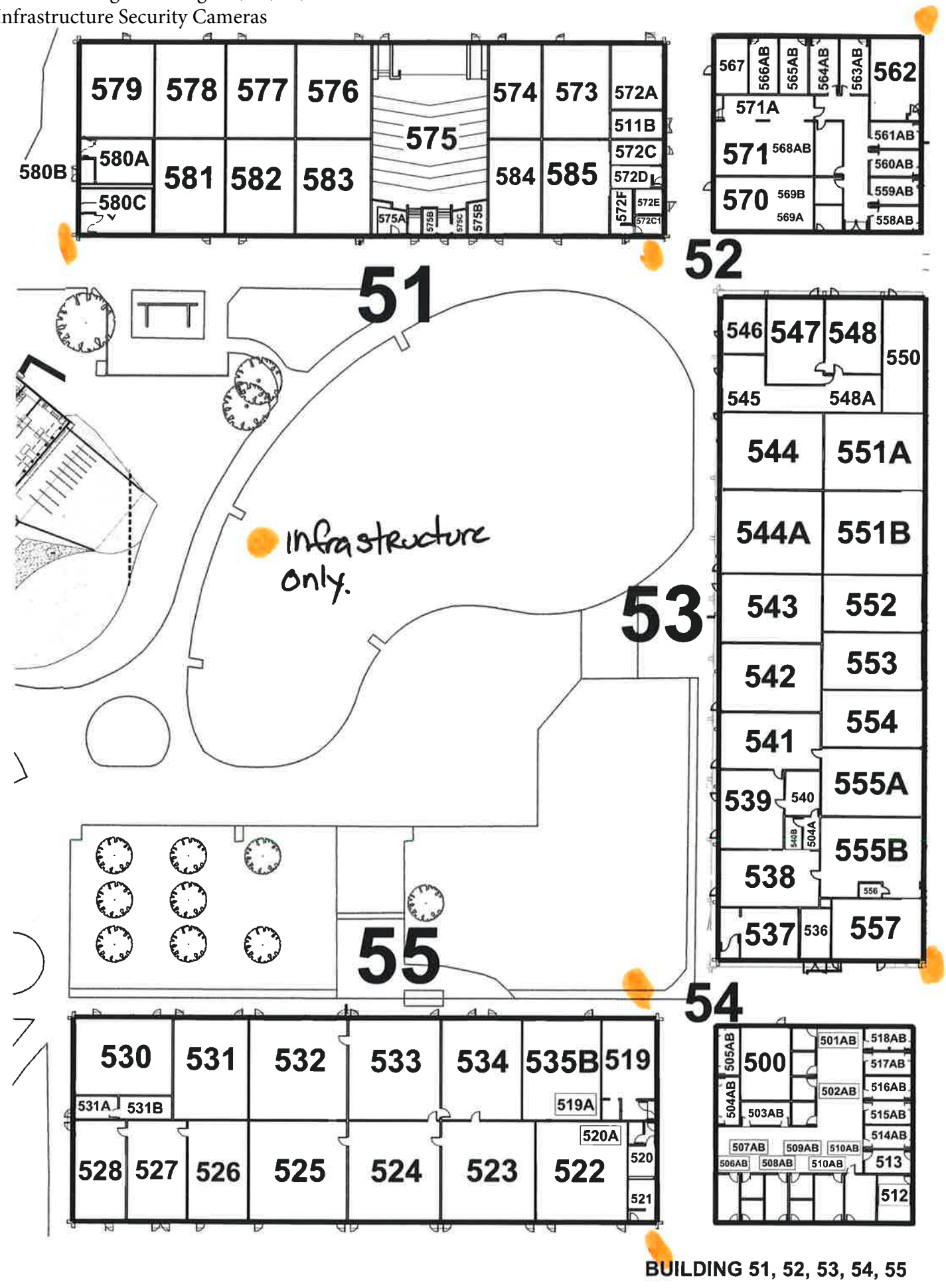
LEGEND:

STAIRWAYS

ACCESS RAMPS

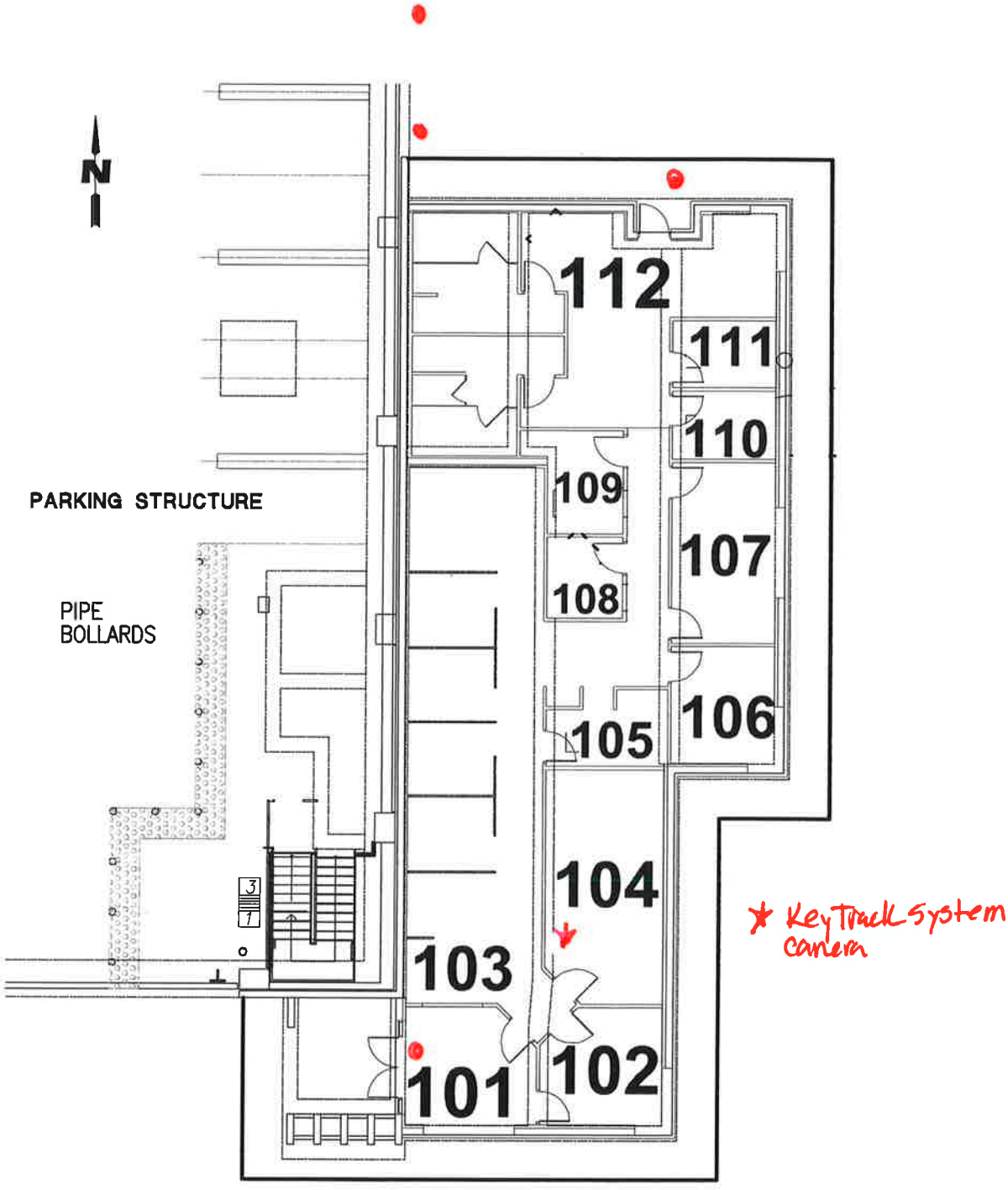
BUILDING 42

Grossmont College Buildings 51, 52, 53, 54 & 55
(6) Infrastructure Security Cameras

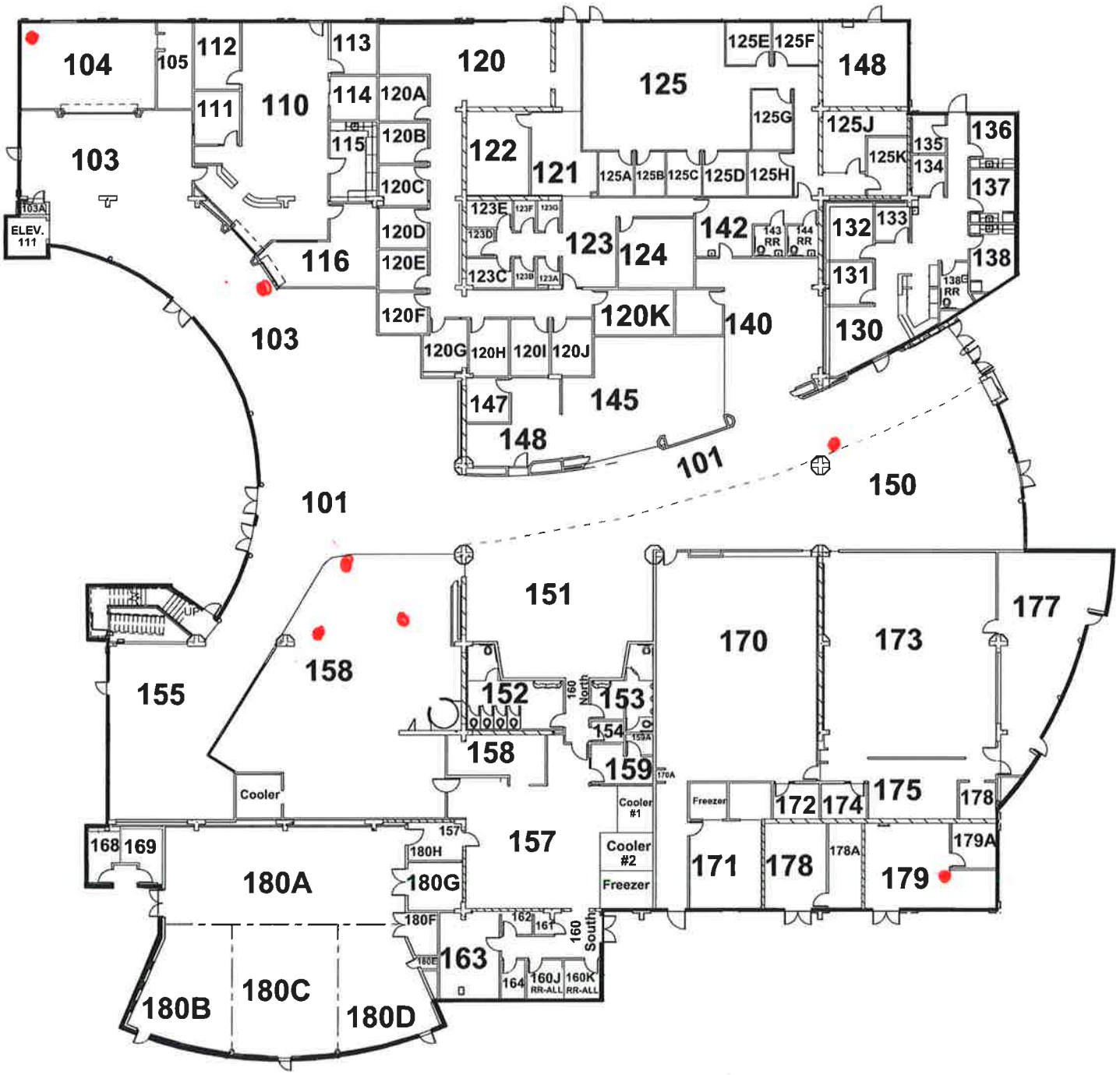


BUILDING 51, 52, 53, 54, 55

Grossmont College Building 57
(3) Security Cameras & (1) Key Track Camera

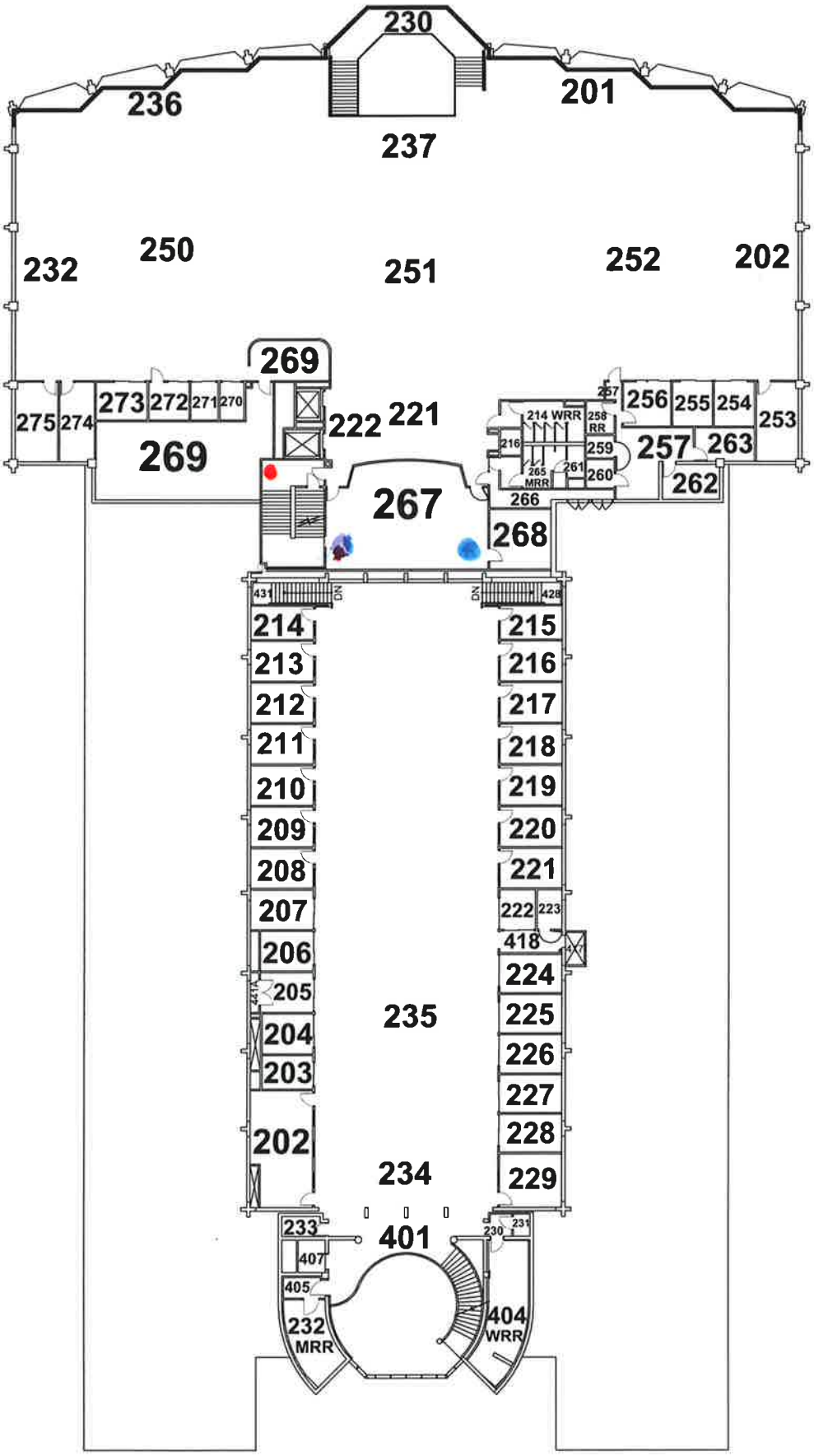


Grossmont College Building 60
(7) Security Cameras

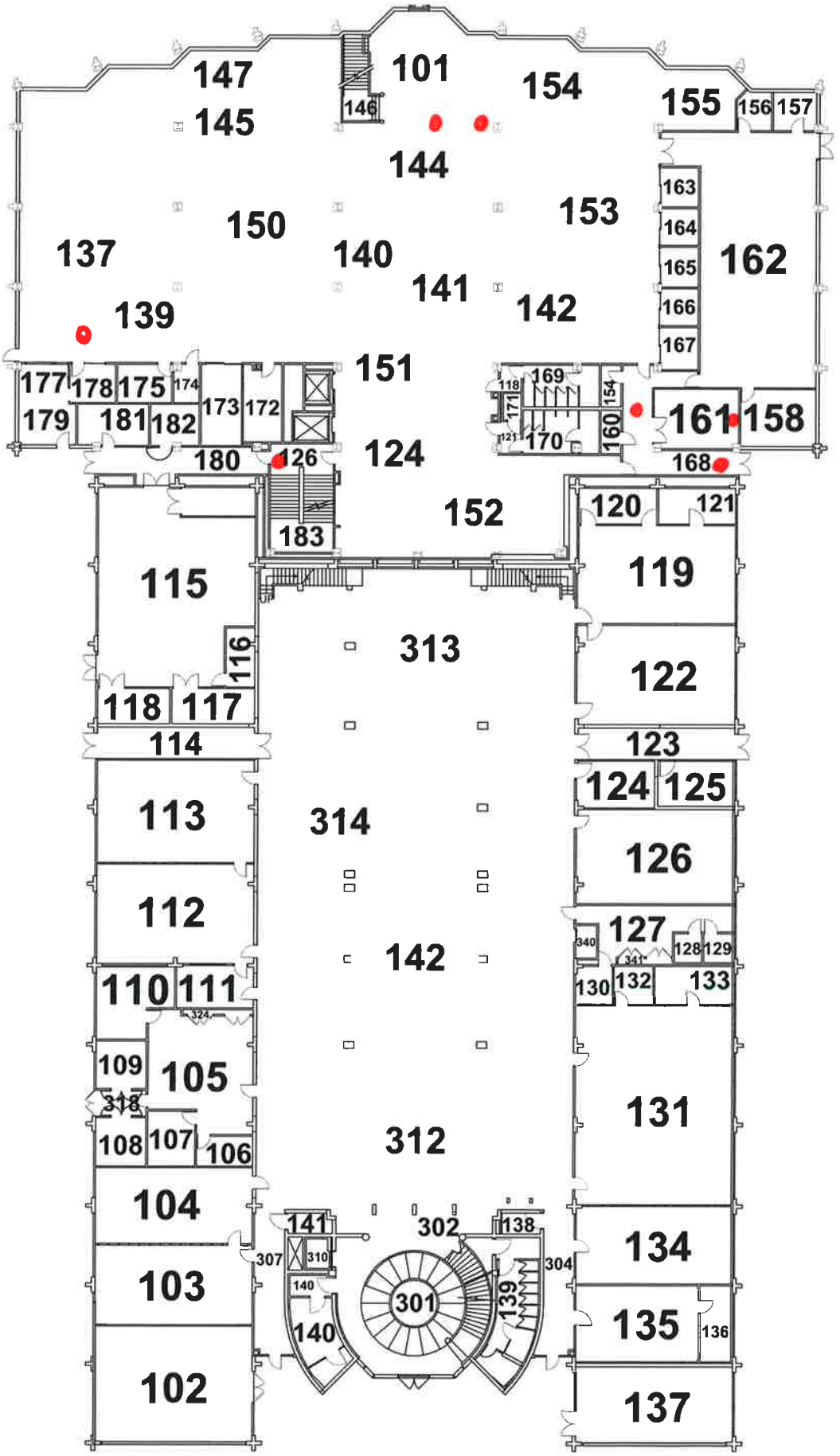


BUILDING 60
FIRST FLOOR

Grossmont College Building 70 - 2nd Floor
(1) Security Camera & (2) Instructional Program Cameras

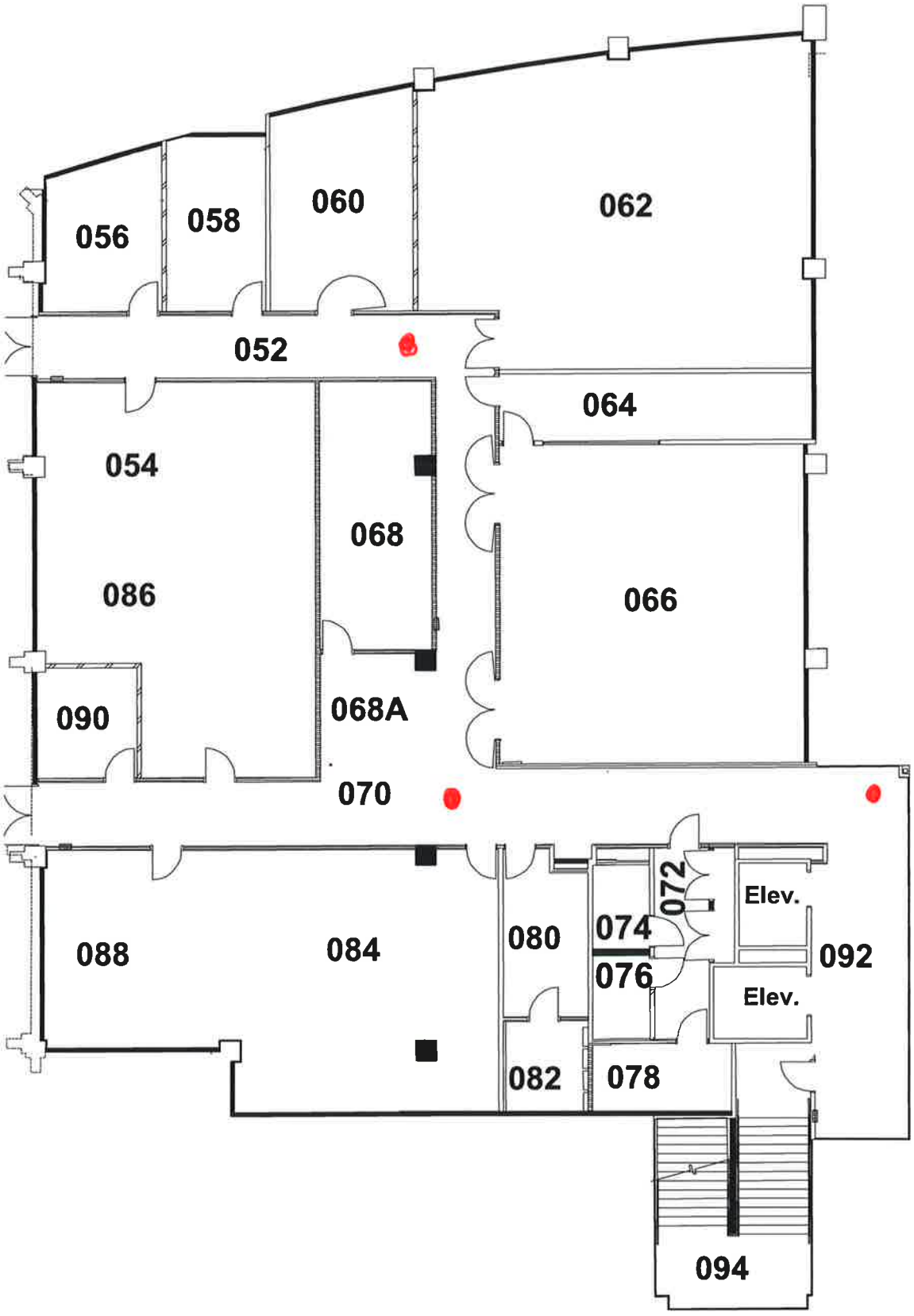


Grossmont College Building 70 - First Floor
(7) Security Cameras



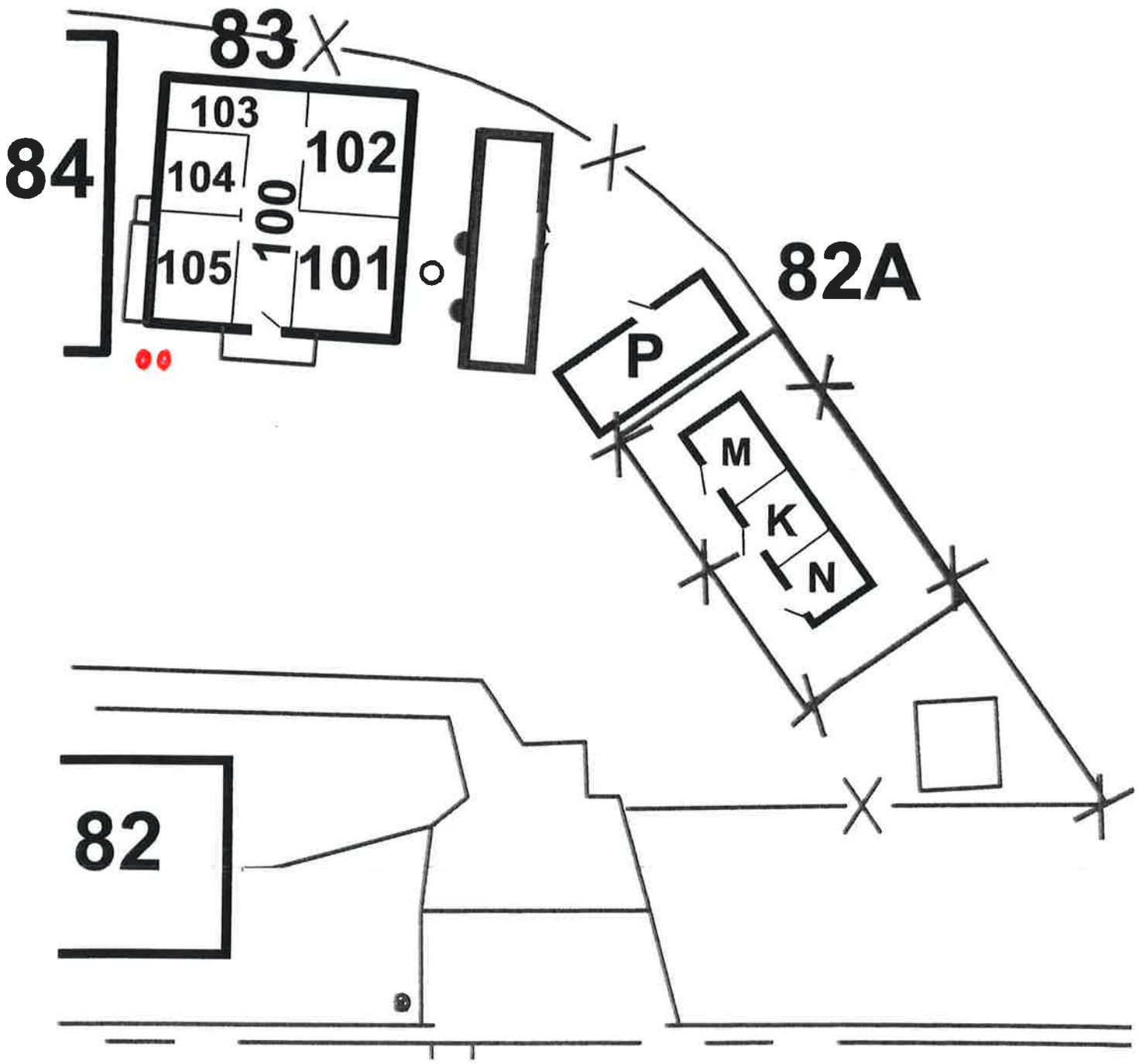
BLDG 70
FIRST FLOOR

Grossmont College Building 70 Basement
(3) Security Cameras



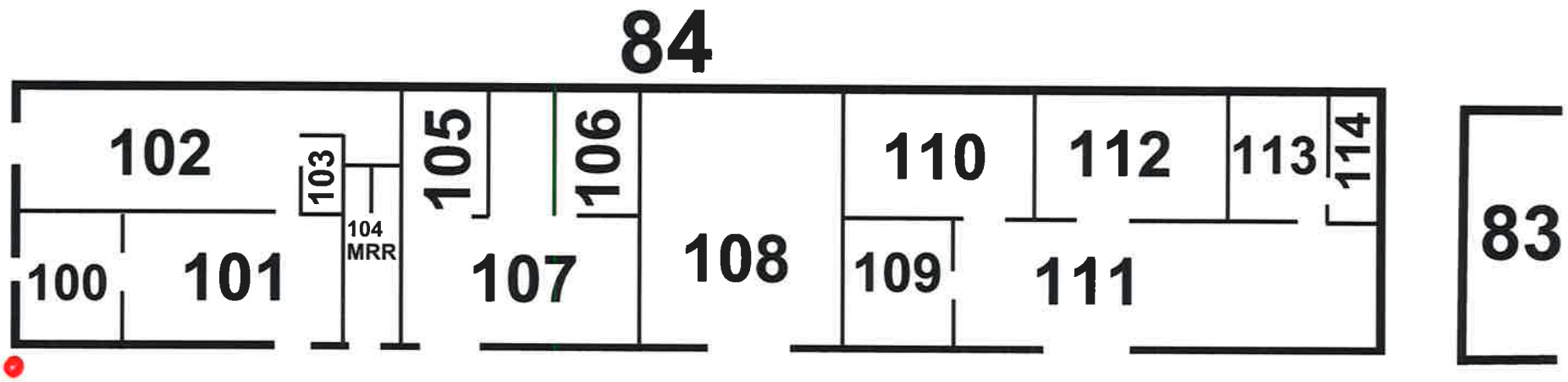
BLDG 70
BASEMENT FLOOR

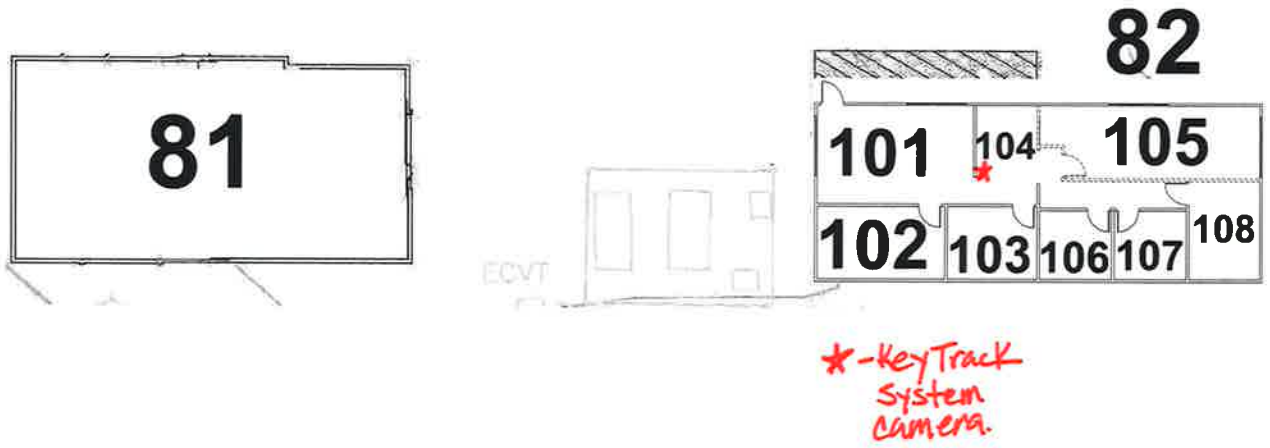
Grossmont College Building 83
(2) Security Cameras



BUILDING 82A, 83

Grossmont College Buildings 82 & 84
(1) Security Camera & (1) Key Track Camera





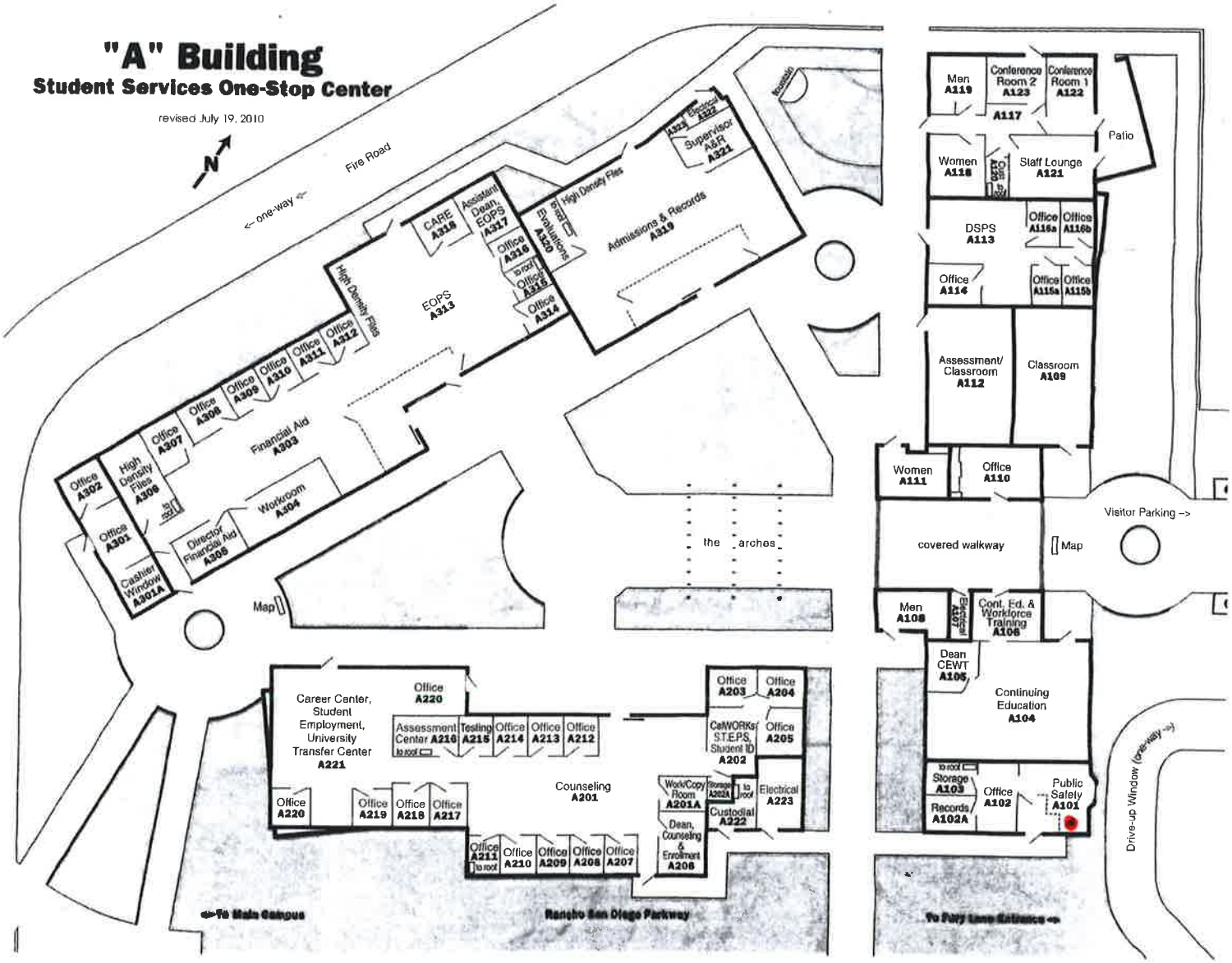
BUILDING 81, 82, 84

Grossmont College Substation
(5) Security Cameras

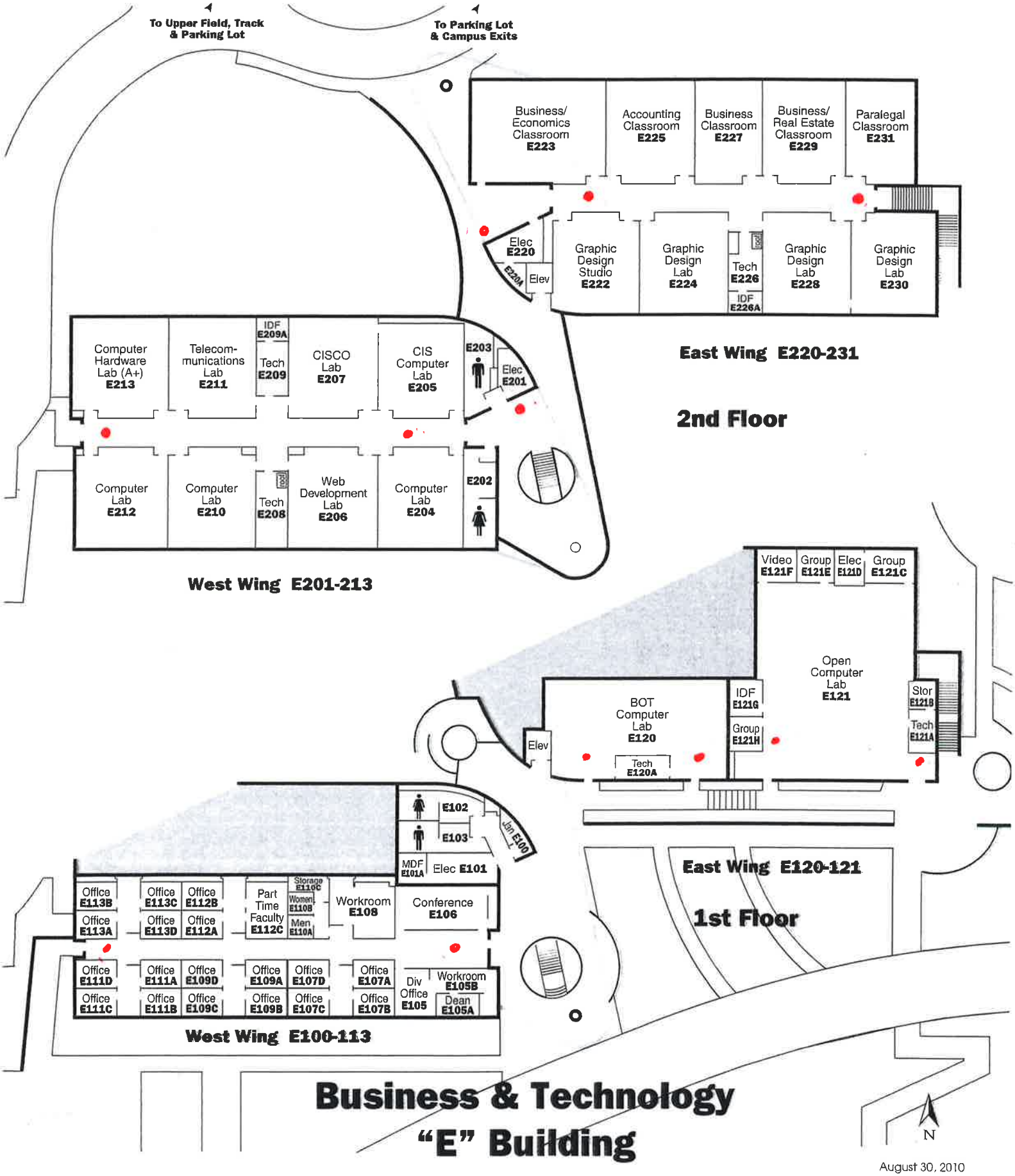
• Security camera.

BUILDING 1
12KV and Electronic
Maintenance

Cuyamaca College Building A
(1) Security Camera

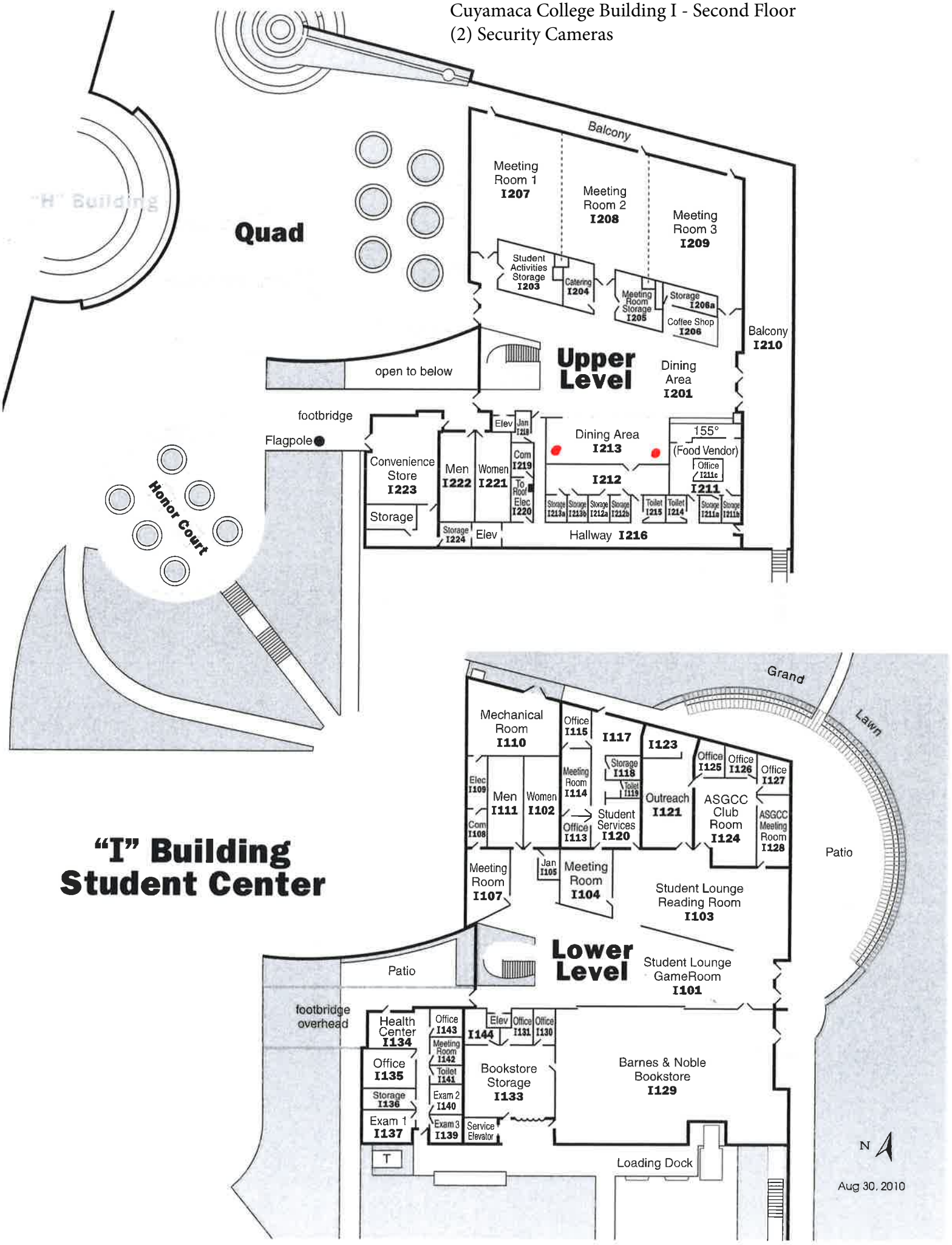


Cuyamaca College Building B
(12) Security Cameras



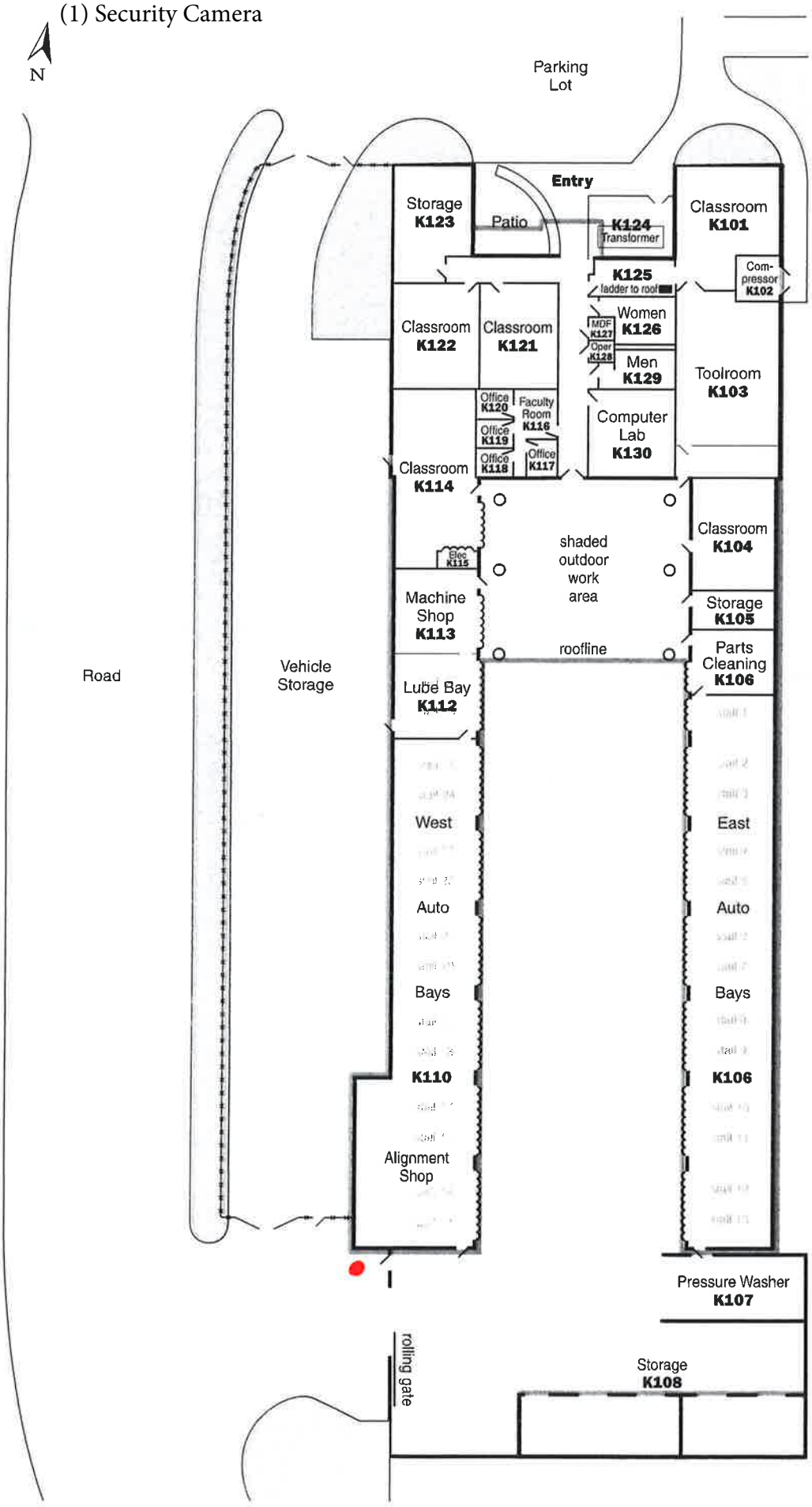
August 30, 2010

Cuyamaca College Building I - Second Floor
(2) Security Cameras



"I" Building Student Center

Cuyamaca College Building K
(1) Security Camera



"K" Building
Automotive Technology Complex

revised August 30, 2010

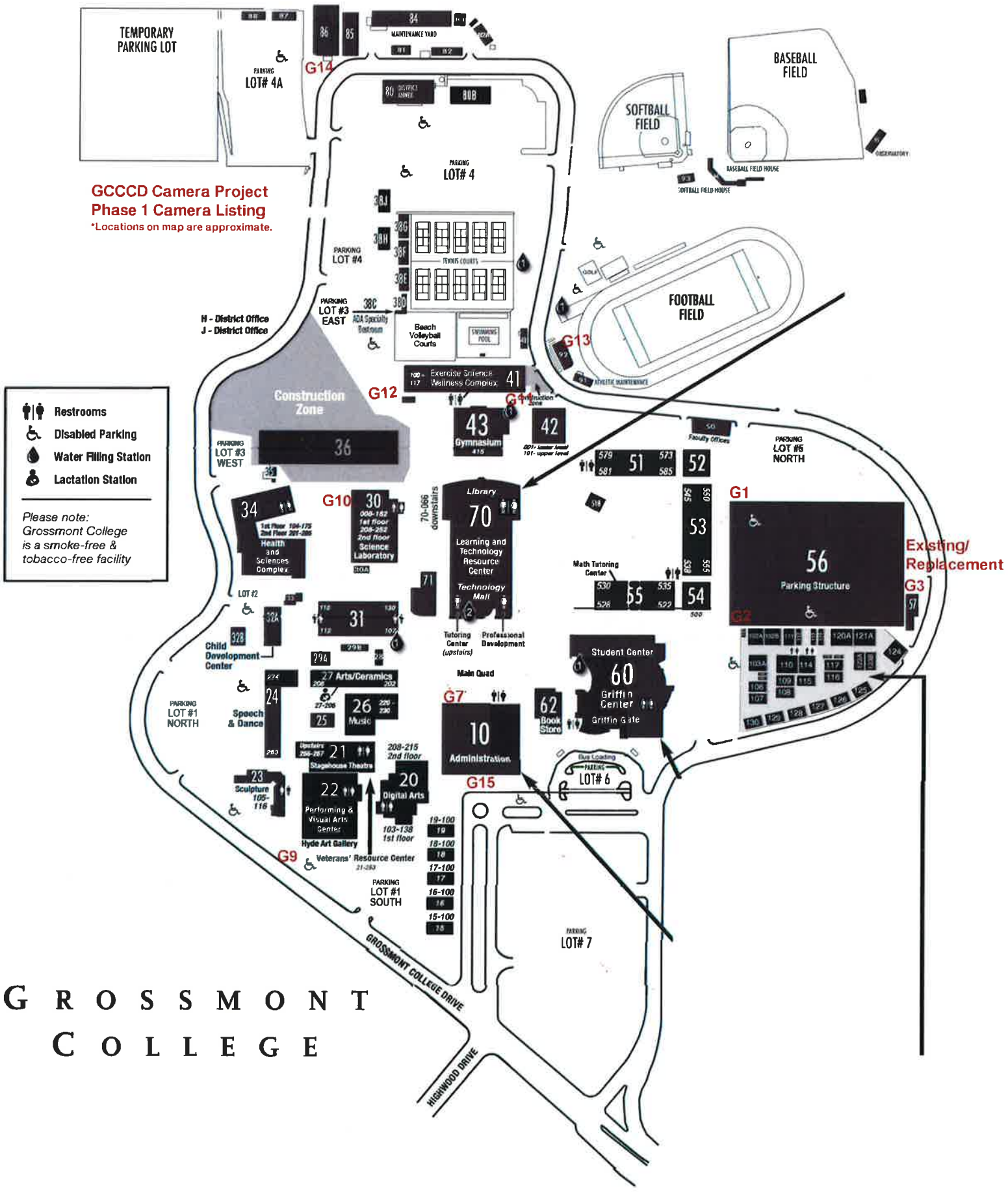
Campus Maps of Proposed

Non-Instructional Cameras on Campuses

Phase One

- Grossmont
- Cuyamaca

GROSSMONT COLLEGE CAMPUS MAP



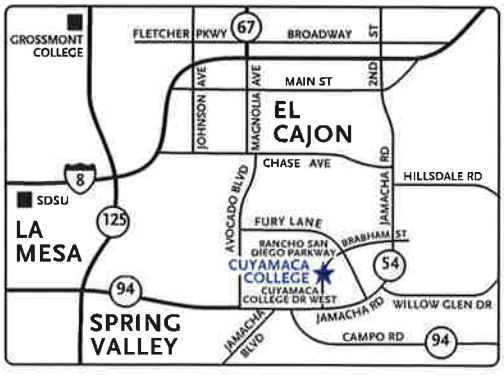
CUYAMACA COLLEGE

900 Rancho San Diego Parkway
El Cajon, California 92019-4369
(619) 660-4000
www.cuyamaca.edu

PARKING/LEGEND

- Parking Permit Machines (*Parking permits are not required for fall 2023. Park only in student/visitor spaces.)
- V VISITOR
- STAFF
- STUDENT
- DISABLED
- FLEX PARKING
- MOTORCYCLE
- BICYCLE
- Wheelchair Ramp Access
- Wi-Fi Available
- Public Pay Phone
- Call Box
- $ ATM Machine
- Restrooms
- Restrooms (All Gender)
- Contemplation Room
- Lactation Room
- Bookstore

Academic Resource Center - C Bldg
Administration - F Bldg
Admissions & Records - G Bldg
Automotive Technology - K Bldg
Bookstore - Student Center
CalWORKs - G Bldg
Campus & Parking Services (CAPS) - A Bldg
CARE - G Bldg
Career Center I Bldg
Cashier - G Bldg
Center for Water Studies - L Bldg
Child Development Center - R Bldg
Computer Labs/Tech Mall - E Bldg
Counseling - G Bldg
Cuyamaca Cares - Next to R Bldg
DSPS - G Bldg
DSPS Hi Tech Center - C Bldg
Duplicating (Faculty Support Services) - F Bldg
Environmental Training Center (ETC) - F Bldg
EOPS - G Bldg
Financial Aid - G Bldg
Fitness Center - D Bldg
Food Services - I Bldg
Gym - D Bldg
Health & Wellness Center - I Bldg
Heritage of the Americas Museum - O Bldg
High School & Community Relations - G Bldg
Institutional Effectiveness, Success & Equity - E Bldg
Library (LRC) - C Bldg
Mailroom - F Bldg
Ornamental Horticulture - M Bldg
Placement Center - G Bldg
Samuel M. Ciccati Performing Arts Center - B Bldg
Sheriff's Office - A Bldg
STEM Achievement Center - H Bldg
Student Affairs - I Bldg
Student Center - I Bldg
Switchboard - F Bldg
Together We Rise! Center – Annex 2
Transfer Center - G Bldg
Veterans Center - I Bldg
Writing Center - B Bldg



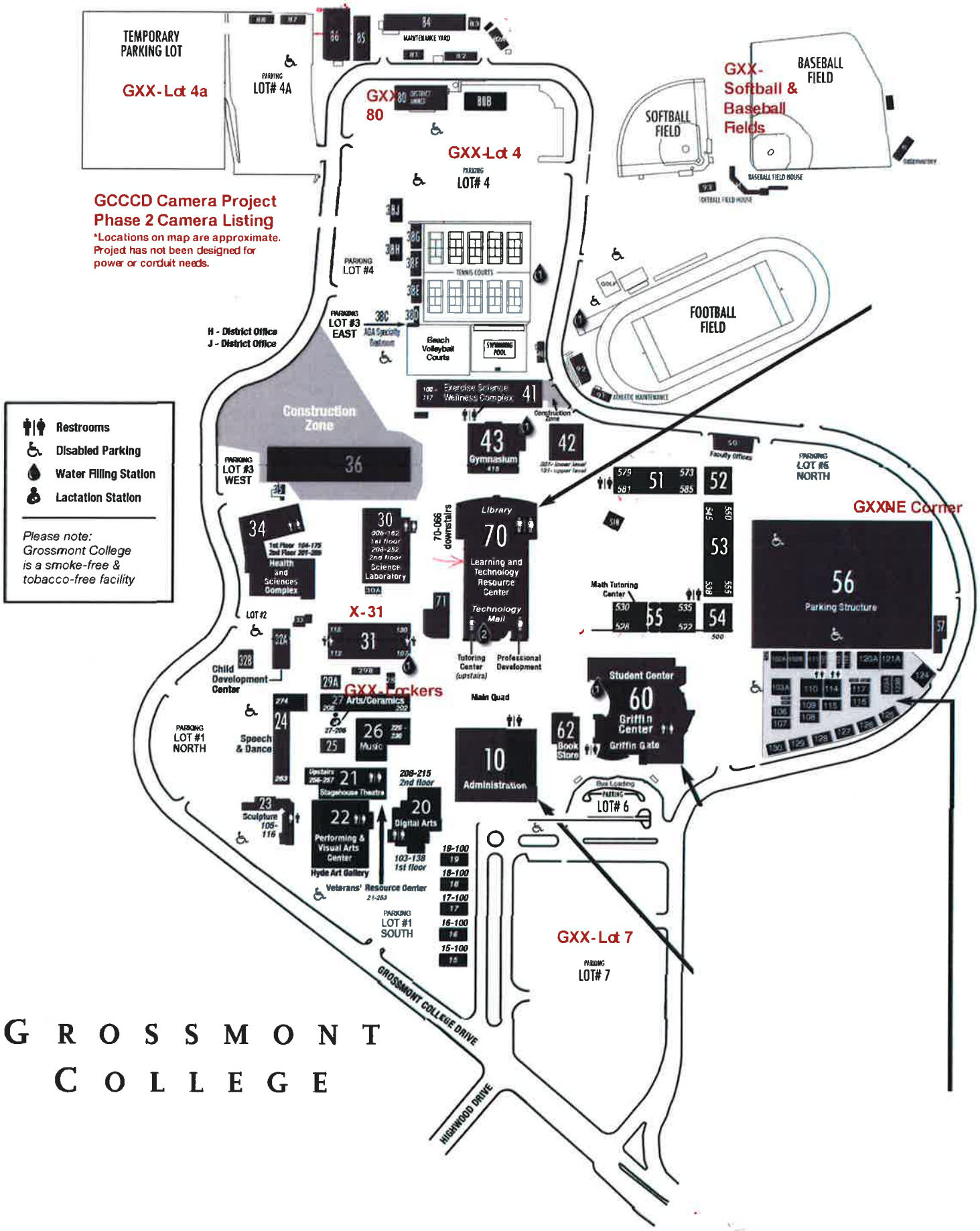
Campus Maps of Proposed

Non-Instructional Cameras on Campuses

Phase Two

- Grossmont
- Cuyamaca

GROSSMONT COLLEGE CAMPUS MAP

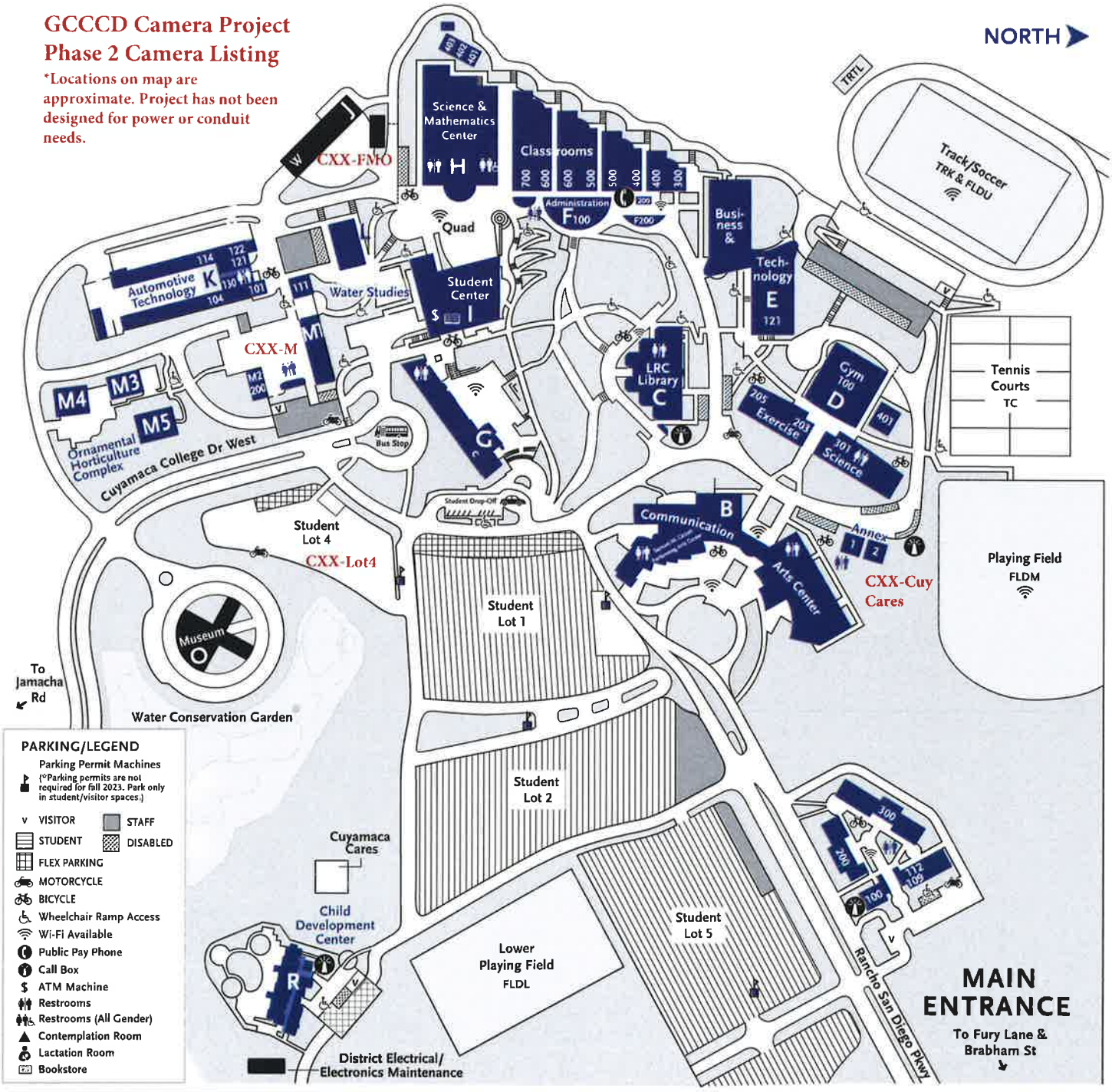


GROSSMONT COLLEGE

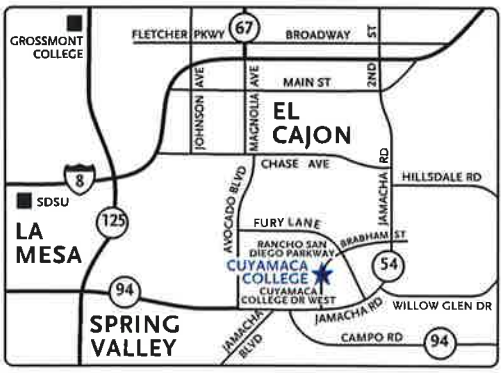
CUYAMACA COLLEGE

GCCCD Camera Project Phase 2 Camera Listing

*Locations on map are approximate. Project has not been designed for power or conduit needs.



Academic Resource Center - C Bldg
Administration - F Bldg
Admissions & Records - G Bldg
Automotive Technology - K Bldg
Bookstore - Student Center
CalWORKs - G Bldg
Campus & Parking Services (CAPS) - A Bldg
CARE - G Bldg
Career Center I Bldg
Cashier - G Bldg
Center for Water Studies - L Bldg
Child Development Center - R Bldg
Computer Labs/Tech Mall - E Bldg
Counseling - G Bldg
Cuyamaca Cares - Next to R Bldg
DSPS - G Bldg
DSPS Hi Tech Center - C Bldg
Duplicating (Faculty Support Services) - F Bldg
Environmental Training Center (ETC) - F Bldg
EOPS - G Bldg
Financial Aid - G Bldg
Fitness Center - D Bldg
Food Services - I Bldg
Gym - D Bldg
Health & Wellness Center - I Bldg
Heritage of the Americas Museum - O Bldg
High School & Community Relations - G Bldg
Institutional Effectiveness, Success & Equity - E Bldg
Library (LRC) - C Bldg
Mailroom - F Bldg
Ornamental Horticulture - M Bldg
Placement Center - G Bldg
Samuel M. Ciccati Performing Arts Center - B Bldg
Sheriff's Office - A Bldg
STEM Achievement Center - H Bldg
Student Affairs - I Bldg
Student Center - I Bldg
Switchboard - F Bldg
Together We Rise! Center – Annex 2
Transfer Center - G Bldg
Veterans Center - I Bldg
Writing Center - B Bldg



GCCCD Camera Project

Grossmont College

Camera Number on Drawing	Description	Phase 1- Map Phase 1	Phase 2- Map Phase 2	Is this also replacing an existing camera?
G1	Parking structure NW- Corner - Lot 5N	X		
G2	Parking structure SW- Corner - Lot 5N	X		
G3	Parking structure CAPS back door - Lot 5N	X		Y
G7	Building 10/Cashier Outdoor Existing Replacement	X		Y
G9	Parking Lot 1 (view of incoming road) - Lot 1S	X		
G10	Building 30 Changed from Building 34		X	
G11	Between buildings 41 and 42	X		
G12	Building 41/view of building 36, stairs, lot and exitway	X		
G13	Football Field	X		
G14	Building 86 and Lot 4 Entrance	X		
G15	Building 10 View of Griffin Drive/Flagpole area	X		
Requests from Academic Senate/Phase 2				
GXX	Softball field		X	
GXX	Baseball field		X	
GXX	building 31 north side		X	
GXX	parking lot 4 and 4a		X	
GXX	building 80		X	
GXX	parking lot 7		X	
GXX	remaining corner of the garage - NE		X	
GXX	building 27 lockers		X	
Cameras Recently Removed from the Project				
G4	Building 62			
G5	Building 60			
G6	Building 70			
G8	Building 25 lockers			
GXX	500's Quad			

Cuyamaca College

Camera Number on Drawing	Description	Phase 1- Map Phase 1	Phase 2- Map Phase 2	Is this replacing an existing camera?
C3	Buiding A - RSDP West/Fury Drive entrance	X		
C4	Parking lot 5- nearest Fury	X		
C5	Lot 1 view of RSDP	X		
C6	Building B view of roadway past back of B	X		
C7	Building C	X		
C8	Parking lot 2	X		
C9a	track and field (back to back views)	X		
C9b	track and field (back to back views)	X		
C11	Center for water studies exterior pathways	X		
C12	building G cashier exterior	X		
C13	building L water studies	X		
C14	Building G towards bus loop	X		
C15	middle of Cuyamaca College Drive roadway	X		
Requests from Academic Senate/Phase 2				
	Cuyamaca Cares			
	Lot 4 Water Conservation			
	FMO Trailers			
	Building M Horticulture			
Cameras Recently Removed from the Project				
	G Building Plaza			
	H Buiding Plaza			
	B Building Plaza			

Camera Replacement Project - Removing 3 Cameras from PVAC to replace current needs

CAPS Lobby at CC (inside)
CAPS Lobby at GC (inside)
GC Cashiers (inside)

*All of these cameras in PVAC are indoor use only. We cannot replace outdoor cameras with these.

Campus Locations

of HyFlex Instructional Cameras

- Grossmont
- Cuyamaca

UPDATED ON

7/20/2023

PROGRESS LEGEND (GROSSMONT COLLEGE)

X	= Work Performed
/	= In Progress
?	= Pending District review
Blank	= No work noted
PST	= Pending GC Submission (Southland)
NA	= Not Applicable

Activity 10

Rm. Qty. per Bldg.	Quantity	ROOM #	Room Layout	Room Type	Equip. Type	TV's	Building #	Rooms Complete = 1 Not Complete = 0	Building equipment installed Completed = 1 Not Completed = 0	Hyflex spaces, cameras respond to controls from touch panel. Audio and Video appear correctly on the PC (zoom). Confirm Dante routing is correctly set.
	1	10-116	F	Conference TV	31	75	10	1	1	X
	2	10-117	F	Conference TV	31	75		1		X
	3	10-118	F	Conference TV	31	75		1		X
	4	10-119	F	Conference TV	31	75		1		X
	5	10-135	F	Conference TV	31	85		1		X
	6	10-153	F	Conference TV	31	75		1		X
	7	10-166D	F	Conference Projector	32			1		X
8	8	10-172	E	Classroom Projector	27			1		X
	9	20-104	E	Classroom Projector & Hyflex	27 HF		20	1	1	X
	10	20-105	E	Classroom Projector & Hyflex	27 HF			1		X
	11	20-116	F	Classroom TV & Hyflex	28 HF	85		1		X
	12	20-120	E	Classroom Projector & Hyflex	27 HF	touch TV		1		X
	13	20-131	F	Classroom TV	28	65		1		NA
	14	20-138	F	Classroom TV	28	98		1		NA
	15	20-211	F	Conference TV	31	75		1		X
	16	20-212	E	Classroom Projector & Hyflex	27 HF			1		X
9	17	20-214	F	Conference Touch TV	34	75 TOUCH		1		X
	18	21-235	E	Classroom Projector & Hyflex	27 HF		21	1	1	X
	19	21-241	E	Classroom Projector	27	special		1		NA
	20	21-247	E	Classroom Projector	27			1		NA
GC PAGE 1	21	21-249	F	Classroom TV	28	65		1		NA

	22	21-256	E	Classroom Projector	27			1		NA
6	23	21-257	E	Classroom Projector	27			1		NA
1	24	22-210	E	Classroom Projector	27		22	1	1	NA
	25	23-105	E	Classroom Projector	27		23	1	1	NA
2	26	23-112	E	Classroom Projector	27			1		NA
	27	24-263	E	Classroom Projector & Hyflex Record	27 HFR		24	1	1	X
	28	24-268	E	Classroom Projector & Hyflex Record	27 HFR			1		X
	29	24-269	E	Classroom Projector & Hyflex Record	27 HFR			1		X
	30	24-271	E	Classroom Projector	27			1		NA
5	31	24-274	E	Classroom Projector	27			1		NA
	32	26-220	E	Classroom Projector & Hyflex Record	27 HFR		26	1	1	X
	33	26-221	E	Classroom Projector & Hyflex	27 HF			1		X
	34	26-224	E	Classroom Projector	27			1		NA
	35	26-225	E	Classroom Projector & Hyflex	27 HF			1		X
5	36	26-230A	F	Classroom TV	28	65		1		NA
	37	27-202	E	Classroom Projector	27		27	1	1	NA
	38	27-204	F	Classroom TV	28	85		1		NA
	39	27-207	E	Classroom Projector	27			1		NA
4	40	27-208	E	Classroom Projector	27			1		NA
	41	30-108	E	Classroom Projector	27		30	1	1	NA
	42	30-112	E	Classroom Projector	27			1		NA
	43	30-120	E	Classroom Projector	27			1		NA
	44	30-128	E	Classroom Projector	27			1		NA
	45	30-138	E	Classroom Projector	27			1		NA
	46	30-154	E	Classroom Projector	27			1		NA
	47	30-208	E	Classroom Projector	27	65 DUAL		1		NA
	48	30-222	E	Classroom Projector	27			1		NA
	49	30-240	E	Classroom Projector	27			1		NA
	50	30-242	E	Classroom Projector	27			1		NA
	51	30-250	E	Classroom Projector	27			1		NA
12	52	30-252	H	Classroom Projector Dual & Hyflex	30 HF			1		X
	53	31-107	N/A	wiring only	Keynote 25, 38		31	1	1	X
	54	31-109	N/A	wiring only	Keynote 25, 38			1		X
	55	31-110	N/A	wiring only	Keynote 25, 37			1		NA
	56	31-112	N/A	wiring only	Keynote 25			1		NA
	57	31-125	N/A	wiring only	Keynote 25, 37			1		NA
	58	31-127	N/A	wiring only	Keynote 25, 37			1		NA
	59	31-128	N/A	wiring only	Keynote 25, 37			1		X
8	60	31-129	N/A	wiring only	Keynote 25, 37			1		X
1	61	32A-296	E	Classroom Projector	27		32A	1	1	NA
	62	34-104	H	Classroom Projector Dual	30			1		X
	63	34-105	E	Classroom Projector	27			1		X
GC PAGE 2	64	34-106	E	Classroom Projector	27			1		X

	65	34-107	E	Health	Special - See Keynote work		34	1	1	NA
	66	34-108	E	Classroom Projector	27			1		X
	67	34-110	E	Classroom Projector	27			1		X
	68	34-111	E	Classroom Projector	27			1		X
	69	34-130	H	Classroom Projector Dual	30			1		X
	70	34-135	E	Classroom Projector & Hyflex	27 HF			1		X
	71	34-150	E	wiring only	Keynote 17, 38			1		X
	72	34-170	E	Classroom Projector	27			1		X
	73	34-171	E	Classroom Projector & Hyflex	27 HF			1		X
	74	34-172	E	Classroom Projector	27			1		X
	75	34-201	H	Classroom Projector Dual & Hyflex	30 HF			1		X
	76	34-202	F	Classroom TV	28	55		1		NA
	77	34-204	E	Classroom Projector & Hyflex	27 HF			1		X
	78	34-206	N/A	Health	Special - See Keynote work			1		X
	79	34-207	E	Classroom Projector & Hyflex	27 HF			1		X
	80	34-209	E	Classroom Projector & Hyflex	27 HF			1		X
	81	34-210	E	Classroom Projector & Hyflex	27 HF			1		X
	82	34-211	E	Classroom Projector	27			1		X
	83	34-212	E	Classroom Projector	27			1		X
	84	34-213	H	Classroom TV Dual	29	70 DUAL		1		X
	85	34-214	E	Classroom Projector	27			1		X
	86	34-250	E	Classroom Projector & Hyflex	27 HF			1		X
	87	34-251	E	Classroom Projector & Hyflex	27 HF			1		X
	88	34-254	E	Classroom Projector	27			1		X
28	89	34-255	E	Conference Projector & Hyflex	32			1		X
	90	38F-101	E	Classroom Projector	27		38-F	1	1	X
2	91	38F-102	E	Classroom Projector	27			1		X
1	92	38G-101	E	Classroom Projector	27		38-G	1	1	X
1	93	38-H	F	Conference TV	31	75	38-H	1	1	X
1	94	38-J	G	Conference TV Dual	33	75 DUAL	38-J	1	1	X
	95	41-100	F	Classroom TV	28	75 TOUCH	41	1	1	NA
	96	41-101	E	Classroom Projector	27			1		NA
	97	41-108	F	Conference TV	31	85		1		NA
	98	41-116	E	Classroom Projector & Hyflex	27 HF			1		X
	99	41-117	N/A	wiring only	Keynote 38			1		X
6	100	41-145	F	Conference TV	31	85		1		X
	101	42-001	B	Classroom TV Dual	29	98 DUAL	42	1	1	NA
2	102	42-101	E	Classroom Projector	27			1		NA
1	103	43-415	F	Main Gym	Special		43	1	1	NA
	104	52-562	E	Conference Projector	32		52	0	1	
	105	52-570	E	Classroom Projector	27			0		
3	106	52-571	E	Classroom Projector	27			0		
GC PAGE 3	107	53-538	E	Classroom Projector	27			1		X

	108	53-539	E	Classroom Projector	27		53	1	1	X
	109	53-541	E	Classroom Projector	27			1		X
	110	53-542	E	Classroom Projector	27			1		X
	111	53-543	E	Classroom Projector	27			1		X
	112	53-544B	E	Classroom Projector & Hyflex	27 HF			1		X
	113	53-547	E	Classroom Projector	27			1		X
	114	53-548	E	Classroom Projector	27			1		X
	115	53-550	E	Classroom Projector	27			1		X
	116	53-551A	E	Classroom Projector & Hyflex	27 HF			1		X
	117	53-551B	E	Classroom Projector	27			1		X
	118	53-552	E	Classroom Projector	27			1		X
	119	53-553	E	Classroom Projector	27			1		X
	120	53-554	E	Classroom Projector	27			1		X
	121	53-555A	E	Classroom Projector	27			1		X
16	122	53-555B	E	Classroom Projector	27			1		X
1	123	54-500	E	Classroom Projector	27		54	1	1	NA
1	124	57-107	F	Classroom TV	31	75	57	1	1	X
	125	60-102	E	Conference Projector	32	special	60	1	1	NA
	126	60-116	F	Conference TV	31	?		1		X
	127	60-122	E	Conference Projector	32			1		NA
	128	60-146	E	Conference Projector	32			1		X
	129	60-170	E	Classroom Projector & Hyflex Record	27 HFR			1		X
	130	60-173	E	Classroom Projector & Hyflex Record	27 HFR			1		X
7	131	60-207	E	Conference Projector	32			1		X
	132	70-066	E	Classroom Projector	27		70	1	1	NA
	133	70-103	E	Classroom Projector	27			1		NA
	134	70-104	E	Classroom Projector & Hyflex	27 HF			1		X
	135	70-113	E	Classroom Projector	27			1		NA
	136	70-122	E	Classroom Projector	27			1		NA
	137	70-126	E	Classroom Projector & Hyflex	27 HF			1		X
	138	70-131	E	Classroom Projector	27			1		NA
	139	70-134	E	Classroom Projector & Hyflex	27 HF			1		X
	140	70-135	E	Classroom Projector	27			1		NA
	141	70-162	G	Conference TV Dual	33	75 DUAL		1		X
	142	70-173	F	Conference TV	31	75		1		NA
12	143	70-267	E	Classroom Projector & Hyflex	27 HF			1		X
	144	80-851	G	Conference Touch TV Dual	35	75 TOUCHDUAL	80	1	1	X
	ASI 02	80-857d	F	Conference	31	65		1		X
3	145	80-860	G	Conference TV Dual	33	75 DUAL		1		NA
1	146	80B-Conference	H	Conference TV	31	65	80B	1	1	NA
	147	86-800	F	Conference TV	31	75	86	1	1	X
	148	86-802	F	Conference Touch TV	34	86 TOUCH		1		X
GC PAGE 4	149	86-805	F	Conference TV	31	75		1		X

	ASI 02	86-806a		Chancellor's office			86	1		X
5	150	86-826	F	Conference TV	31	65		1		X
	151	100-102A	H	Classroom Projector Dual	30		Portable 102A	1	1	X
	152	100-102B	H	#N/A	30		Portable 102B	1	1	X
	153	100-103A	E	#N/A	27		Portable 103A	1	1	X
	154	100-106	E	#N/A	27		Portable 106	1	1	X
	155	100-109	N/A	wiring only	Keynote 38		Portable 109	1	1	X
	156	100-110	H	#N/A	30		Portable 110	1	1	X
	157	100-111	E		27		Portable 111	1	1	X
	158	100-114	H	#N/A	30		Portable 114	1	1	X
	159	100-115	E	Classroom Projector & Hyflex	27 HF		Portable 115	1	1	X
	160	100-116	E	Classroom Projector	27		Portable 116	1	1	X
	161	100-117	E	Classroom Projector	27		Portable 117	1	1	X
	162	100-120A	E	Classroom Projector	27		Portable 120A	1	1	X
	163	100-121A	H	Classroom Projector Dual	30		Portable 121A	1	1	X
	164	100-123A	H	Classroom Projector	27		Portable 123A	1	1	X
	165	100-123B	E	Classroom Projector	27		Portable 123B	1	1	X
	166	100-125	H	Classroom Projector Dual	30		Portable 125	1	1	X
	167	100-126	H	Classroom Projector Dual	30		Portable 126	1	1	X
	168	100-127	H	Classroom Projector Dual	30		Portable 127	1	1	X
	169	100-128	H	Classroom Projector Dual	30		Portable 128	1	1	X
	170	100-129	H	Classroom Projector Dual	30		Portable 129	1	1	X
	171	100-130	E	Classroom Projector	27		Portable 130	1	1	X
	172	17-100	H	Classroom Projector Dual	30		Portable 17	1	1	X
	173	18-100	H	Classroom Projector Dual	30		Portable 18	1	1	X
24	174	19-100	H	Classroom Projector Dual	30		Portable 19	1	1	X
	Total room Qty							Rooms completed	Buildings Completed	
176	**176**							*176*	*51*	

AS of 6/21

7/20/2023	**Progress Percentage**
100.00%	Percent complete by Room
100.00%	Percent complete by Building

Summa

Rooms that installation

Buildings completed

Buildings 100%

UPDATED ON

7/26/2023

PROGRESS LEGEND (CUYAMACA COLLEGE)

X	= Work Performed
/	= In Progress
?	= Pending District review
Blank	= No work noted
PST	= Pending GC Submission (Southland)
NA	= Not Applicable

Activity 10

Rms per Bldg	Project Room Quantity	ROOM #	Room Layout	Room Type	Equip. Type	TV's	Building #	Rooms Complete = 1 Not Complete = 0	Building equipment installed Completed = 1 Not Completed = 0	Hyflex spaces, cameras respond to controls from touch panel. Audio and Video appear correctly on the PC (zoom). Confirm Dante routing is correctly set.
	1	B154	B	Classroom	01			1		X
	2	B159	B	Classroom	01			1		X
	3	B160 - Special	B	Classroom	01			1		X
	4	B162 - Special	D	Conference	26			1		X
	5	B164 - Special	B	Classroom	01			1		X
	6	B167	B	Classroom	01			1		X
	7	B172	B	Classroom	01			1		X
	8	B171	B	Classroom	01			1		X
	9	B258	A	Classroom	03			1		X
	10	B268	A	Classroom	03			1		X
	11	B269	A	Classroom	03			1		X
	12	B270	A	Classroom	03		B	1	1	X
	13	B271	A	Classroom	03			1		X
	14	B352 - Special	D	Conference	26			1		X
	15	B360	B	Classroom	05			1		X
	16	B363	B	Classroom	05			1		X
	17	B368	B	Classroom	05			1		X
	18	B371	B	Classroom	05			1		X

	19	B373	B	Classroom	05			1		X	
	20	B376	B	Classroom	05			1		X	
	21	B120 - Special	C	Classroom	02			1		X	
	22	B-209 - Special	A	Classroom	04			1		X	
23	23	B312 - Special	B	Classroom	06			1		X	
1	24	C145 - Special	D	Conference	07		C	1	1	X	
1	25	D205 - Special	B	Aerobics (Dance room)	08		D	1	1	X	
	26	E106 - Special	D	Conference	12			1		X	1
	27	E120 - Special	B	Classroom (Computer Lab)	11			1		X	2
	28	E204	A	Classroom (Addendum 2)	11			1		X	
	29	E205	A	Classroom (Addendum 2)	11			1		X	3
	30	E206	A	Classroom (Addendum 2)	11			1		X	4
	31	E207	A	Classroom (Addendum 2)	11		E	1	1	X	5
	32	E211	A	Classroom (Addendum 2)	11			1		X	6
	33	E212	A	Classroom (Addendum 2)	11			1		X	7
	34	E213	A	Classroom (Addendum 2)	11			1		X	8
	35	E222	A	Classroom (Addendum 2)	11			1		X	9
	36	E223	A	Classroom (Addendum 2)	11			1		X	10
	37	E224	A	Classroom (Addendum 2)	11			1		X	11
	38	E227	B	Classroom (Addendum 2)	11			1		X	12
	39	E228	A	Classroom (Addendum 2)	11			1		X	13
	40	E229	B	Classroom (Addendum 2)	11			1		X	14
	41	E230	A	Classroom (Addendum 2)	11			1		X	15
17	42	E231	B	Classroom (Addendum 2)	11			1		X	16
	43	F301 - Special	A	Classroom	12			1		X	
CC PAGE 2	44	F606 - Special	A	Classroom	14		F	1	1	X	
3	45	F601 - Special	A	Classroom	13			1		X	

	46	H113	B	Classroom	15		H	1	1	X
	47	H114	B	Classroom	15			1		X
	48	H118	B	Classroom	15			1		X
	49	H119	B	Classroom	15			1		X
	50	H127	B	Classroom	15			1		X
	51	H128	B	Classroom	15			1		X
	52	H133	B	Classroom	15			1		X
	53	H134	B	Classroom	15			1		X
	54	H138	B	Classroom	15			1		X
	55	H139	B	Classroom	15			1		X
	56	H202	B	Classroom	16			1		X
	57	H204	B	Classroom	16			1		X
	58	H205	B	Classroom	16			1		X
	59	H206	B	Classroom	17			1		X
15	60	H221	B	Classroom	16			1		X
	61	H - Annex #1 - H401	B	Biology Classroom (West)	18		H Portables	1	1	X
	62	H - Annex #2 - H403	B	Chemistry Classroom (East)	18			1		X
	63	K101	C	Classroom	20		K	1	1	X
	64	K104	C	Classroom	19			1		X
		K110	C	Classroom	21			0		NA
	65	K113	C	Classroom	23			1		X
	66	K114	C	Classroom	22			1		X
	67	K121	C	Classroom	19			1		X
	68	K122	C	Classroom	19			1		X
8	69	K130	C	Classroom	19			1		X
	70	L 101	C	Classroom (Math Tutoring)	23		L	1	1	X
	71	L 102	A	Classroom (Comp Lab)	23			1		X
CC PAGE 3	72	L 103	C	Classroom (Math Lab (North))	23			1		X
4	73	L 104	C	Classroom (Math Lab (South))	23			1		X

17

18

19

20

	74	M 101	C	Classroom (West)	24		M	1	1	X
	75	M 104	C	Classroom (Middle)	24			1		X
3	76	M 111	C	Classroom (East)	24			1		X
	Total room Qty							Rooms completed	Buildings Completed	
	76							*76*	*10*	

	7/26/2023	**Progress Percentage**	**Summa**
	100.00%	Percent complete by Room	Rooms that installation
	100.00%	Percent complete by Building	Buildings completed
	100.00%	Percent complete by building that have all equipment serial logs submitted and Campus accepted.	*Buildings 100%*
CC PAGE 4			

MOU between GCCCD
and
AFT Guild Local 1931

MEMORANDUM OF UNDERSTANDING (MOU)
BETWEEN THE
GROSSMONT-CUYAMACA COMMUNITY COLLEGE DISTRICT
AND THE
AFT GUILD, LOCAL 1931

The parties agree to the following provisions regarding the installment and use of cameras within the District. These provisions shall take effect as of the date of this fully executed MOU.

1. Recognizing the need to maintain a safe and secure environment, the District and AFT agree that the purpose for the installation of video surveillance cameras on District property is to promote and ensure the safety and security of students, staff, and District property and is not intended for employee discipline. The District and AFT agree that surveillance cameras are not intended to replace or circumvent the supervisory or managerial responsibilities associated with employee supervision, evaluation, and discipline.

2. Video cameras may only be installed in public spaces that would be considered public forums in which the public has access to and will not be installed within internal work spaces.

3. The camera feeds and records can only be accessed by the necessary safety personnel in the course of their regular work duties except as required by court order or part of an internal disciplinary investigation concerning allegations of immoral conduct, sexual misconduct, violation of BP 3410/3430, or as part of an internal investigation regarding alleged criminal activity.

4. The parties agree that the intended purpose and use of the cameras are for safety surveillance and not be used to replace or circumvent supervisory or managerial responsibilities. If as a result of a review of the video recording, unrelated to any type of disciplinary issue, a surveillance camera incidentally records an employee committing a crime or violating a District policy that would generally give rise to disciplinary action, the District may use that video recording as evidence in disciplinary proceedings.

5. In no cases may any video recording be used to initiate or substantiate performance issues.

6. The District will provide the AFT Guild, upon request, with a report on camera access including the date and time the camera or recording was accessed and by whom the camera or recording was accessed.

Aimee Gallagher, Interim Vice Chancellor,
Human Resources

Date: 8-4-22

Jim Mahler, President,
AFT Guild, Local 1931

Date: 8-4-22

MOU between GCCCD and AA

MOU between GCCCD and AA
(to be provided at a later date)

MOU between
GCCCD and CSEA and its Chapter 707

MOU BETWEEN THE
GROSSMONT-CUYAMACA COMMUNITY COLLEGE DISTRICT
AND THE
CALIFORNIA SCHOOL EMPLOYEES ASSOCIATION AND ITS CHAPTER 707

The parties agree to the following provisions regarding the installment and use of cameras within the District. These provisions shall take effect on the date of this fully executed MOU.

1. Recognizing the need to maintain a safe and secure environment, the District and CSEA agree that the purpose for the installation of video surveillance cameras on District property is to promote and ensure the safety and security of students, staff, and District property and is not intended for employee discipline. The District and CSEA agree that surveillance cameras are not intended to replace or circumvent the supervisory or managerial responsibilities associated with employee supervision, evaluation, and discipline.

2. Video cameras may only be installed in public spaces that would be considered public forums in which the public has access to and will not be installed within internal workspaces.

3. No cameras will utilize audio recording at any time. If the District determines that audio recordings will be utilized at a later date, it will notify CSEA who may then initiate negotiations regarding audio recordings.

4. Signage will be placed in clearly visible areas on District property to ensure proper notification of the presence of cameras.

5. The camera feeds and records can only be accessed by the necessary safety personnel in the course of their regular work duties except as required by court order or part of an internal disciplinary investigation concerning allegations of immoral conduct, sexual misconduct, violation of BP 3410/3430, or as part of an internal investigation regarding alleged criminal activity. All District personnel who have been provided with access to the District's video recordings, including administrators and technical personnel pertinent to the implementation of the video surveillance procedures, shall sign a confidentiality agreement.

6. If as a result of a review of the video recording, unrelated to any type of disciplinary issue, a surveillance camera incidentally records an employee committing a crime or violating a District policy that would generally give rise to disciplinary action, the District may use that video recording as evidence in disciplinary proceedings. CSEA will be notified and afforded the right to also have equal access to camera footage being used in any discipline issue.

7. In no cases may any video recording be used to initiate or substantiate performance issues.

8. The District will provide the CSEA, upon request, with a report on camera access including the date and time the camera or recording was accessed and by whom the camera or recording was accessed. Recordings will not be kept longer than 30 days. If the District decides to retain recordings for more than 30 days it will notify the union.

9. In the event of the installation of additional cameras or if the location of a camera is moved, the District will notify CSEA of the placement of additional cameras or changed placement within 10 business days.

10. This agreement is subject to both parties' internal approval process, shall not expire, and shall be placed in the appendices of the Collective Bargaining Agreement (CBA) during the subsequent available successor negotiations. This agreement is subject to the grievance process within the CBA.

Aimee Gallagher
Aimee Gallagher (Jan 23, 2023 12:40 PST)

Aimee Gallagher, GCCCD

Date: Jan 23, 2023

Colleen Parsons (Jan 9, 2023 09:57 PST)

Colleen Parsons, CSEA and its Chapter 707

Date: Jan 9, 2023

Craig Leedham
Craig Leedham (Jan 12, 2023 10:03 PST)

Craig Leedham, GCCCD

Date: Jan 12, 2023

Kyler Miller, CSEA

Date: Jan 9, 2023

Hyflex Specification Sheets

AVer

TR333V2

AI Auto Tracking

30X 4K PTZ Streaming Camera

4K ULTRAHD

ClickShare Conference

intel UNITE

NDI|HX Upgradable

zoom Certified

TAA NDAA COMPLIANT

AVerCare Pro AV Guarantee 24 Hour Replacement 5 Year Warranty

Professional PTZ Camera Provider

Great Video. No Compromises.

The AVer TR333V2 AI Auto Tracking Camera delivers professional-grade lectures, sermons, trainings or whatever you need to stream! The 30X optical zoom, powerful 8MP camera and 4K resolution offer the range and picture quality to produce the highest quality productions. The advanced artificial intelligence (AI) technology allows you to track your speaker (full or half body) or pre-set shoot zone without a dedicated camera operator.

With 3G-SDI/HDMI/IP/USB output, PoE+, Visca control, and compatibility with all popular video platforms, you have all you need to connect with ease in any environment. Includes a ceiling mount to keep clear of live audiences below.

Our industry-leading AVerCare warranty program offers 5 years protection and 24-hour replacement to give you total peace of mind.

3 Auto Tracking Modes

30X Optical Zoom

3G-SDI, HDMI, IP, USB Output

4K Resolution

8MP Picture

Wide Dynamic Range

Presenter Tracking

- Capture every interaction
- Either track full body or half body
- Simple click to track and manually follow an additional presenter via remote control or Web UI

Zone Tracking

- Establish preset zones
- Create video focused on content
- Enhance the capture of content on multiple displays

Hybrid Mode

- Camera auto switch between Presenter vs Zone mode
- Combines the best features of Presenter and Zone mode
- Flexibility of tracking presenter freely or fixed content

Voice Tracking

With the aid of PTZ Link and select microphones, you can easily turn AVer PTZ camera to a voice tracking camera through setting preset points. Accomplish all this without having to hire expensive programmers!

Wide Dynamic Range

The Wide Dynamic Range (WDR) of the camera uses special algorithms to balance dark or bright lighting for one clear image.

Tally Light

Simplify multi-camera live video productions with an illuminated red light on the active camera.

Free Software for Users and AV Managers

Whether you need a simple tool to control your PTZ or TR camera, or manage over a hundred on your network, AVer has great options. [illegible] and PTZ Management for desktop and AVer PTZ Control Panel for iPad have you covered. For new voice tracking features, look to PTZ Link. Visit our support page for easy download of our desktop software.

Compatible Software

CRESTRON · echo 360 · Extron · Panopto · KALTURA · vMix · zoom · telestream · NewTek

Product Specifications

Camera	Sensor Size	1/2.8" CMOS
	Pixel	5MP
	Output Resolution	Resolution: 4K*/1080p/720p Frame Rate: 60/59.94/50/30/29.97/25 *So far 4K can only support 30/29.97/25
	TV Line	1200 (center/wide)
	Focal Length	f=4.3 ~ 129mm
	Iris	F=1.6 (Wide) ~ 4.7 (Tele)
	Optical Zoom	30X
	Digital Zoom	12X
	Total Zoom	360X
	D FOV	72.9° (wide) ~ 2.64° (Tele)
	H FOV	65.1° (wide) ~ 2.34° (Tele)
	V FOV	38.4° (wide) ~ 1.36° (Tele)
	Minimum Illumination	0.6 lux (50 IRE, F1.6, Max. AGC, 1/30, 30fps)
	Minimum Working Distance	Wide 0.01 m, Tele 1.2m
	Focus	Auto/Manual/One Push
	White Balance	Auto/Manual
	Gain	Auto/Manual
	Shutter Speed	1/1 s to 1/10,000 s
	BLC (Back Light Compensation)	Yes
	Exposure	Auto, Manual, Priority AE (Shutter, IRIS), BLC, WDR
	Noise Reduction	2D/3D NR
	Frequency	50Hz & 60Hz
	S/N Ratio	≥50dB
	Image Effect	Mirror/Flip Freeze/WDR/BLC
	WDR (Wide Dynamic Range)	Yes
Parameter	Pan Angle	-170° ~ +170°
	Tilt Angle	-30° ~ +90°
	Pan Control Speed	0.1 ~ 100°/Sec
	Tilt Control Speed	0.1 ~ 100°/Sec
	Preset Speed	Pan: 200°/Sec, Tilt: 200°/Sec
	Preset Number	10 Locations by Remote, 256 via RS232
IP Streaming	Resolution (Max)	4K (30PFS)
	Video Compression	H.264, H.265 MJPEG
	Audio Compression	AAC, PCM
	Protocol	IPv6, IPv4, TCP, UDP, ARP, IMCP, IGMP, HTTP, DHCP, RTP/RTCP, RTSP, RTMP, VISCA over IP
	Bitrate	512Kbps ~ 32Mbps
	Bitrate Control Mode	VBR/CBR
	Multi-stream Capability	4K mode: 4K30*1, 1080P30*1, 720P10*1 1080P60 mode: 1080P60*1, 1080P60*1, 720P10*1
	NDI Protocol	Upgradable
	SRT Protocol	Yes

I/O Interface	Video Output	3G-SDI, HDMI, IP, USB
	Audio Output	3G-SDI, HDMI, IP, USB
	Audio Input	MIC in/Line in
	Baud Rate	2400, 4800, 9600, 38400
	Control Interface	RS232/RS422/IP
	Control Protocol	VISCA/PELCO-D (RS232/RS422/IP), CGI (IP)
	Network Interface	10/100/1000 Base - T
	USB	3.0
	POE+	PoE+ (IEEE802.3at)
	Power Requirements	12V
USB	Connector	USB3.0 (typeB)
	Video Format	MJPG, YUV
	Resolution (Max)	2160P
	Video Class	UVC 1.1
	Audio Class	UAC 1.0
Audio	Channel	2ch (stereo)
	Codec	AAC-LC(48K)/PCM(8K)
	Sample Rate	48Khz
System	IR Remote Control	Yes
	Tally	Yes
	Kensington Lock	Yes
	Power Consumption	18W
	Operating Temperature	0°C ~ +40°C
	Operating Humidity	20%~80%
	Storage Temperature	-20°C ~ +60°C
	Storage Humidity	20% ~ 95%
	Dimensions	W180*D145*H192mm
	Net Weight	2.0 kg (+/-0.1) (4.4 lbs)
	Application	Indoor
	Accessory	Remote control, 12V power adapter, power cable, Din8 to D-Sub9 cable, RS232 in/out cable, screw for mount, ceiling mount, cable fixing plates, quick guide.
	Software Tools	PTZ Management, PTZ Link, OBS Plug in, Control panel, CaptureShare.
Warranty	Camera	5 Years
	Accessories	1 Year
Tracking	Mode	Presenter, Zone, Hybrid
	Mechanism	Human detection (half or full body)
Ordering Info	Part Number	PATR333V2

AVer Information Inc. Americas
668 Mission Court, Fremont, CA 94539
Toll free 1.877.528.7824 T 408.263.3828 F 408.263.8132

pro.averusa.com

AVer

PTZ310W
PTZ330W

Professional
12X/30X PTZ Camera

SRT READY

ClickShare

NDI | HX
Upgradable

TAA NDAA COMPLIANT

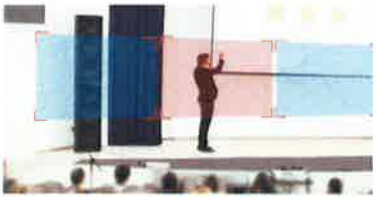
AVerCare Pro AV Guarantee 24 Hour Replacement 3 Year Warranty

Professional PTZ Camera Provider

Capture Your Events in True-to-life Video Quality

AVer PTZ310W / PTZ330W Professional PTZ Cameras provide the superior video quality and versatility you need to record and share events around the world! Available in white to suit your hospital, classroom, or wedding atmospheres.

12X/30X Optical Zoom Camera | PTZ | HDMI/IP/USB 3G-SDI | Full HD 1080p60 | IP Streaming | 3-Year Warranty



Seamless Content Capture with SmartShoot

- Optimize your camera controls for automatic content capturing between preset areas
- Create a multi-camera feel across all your preset zones
- Save time and effort with a variety of shooting ranges

One-Touch Face Targeting with SmartFrame

- Instantly adjusts your FOV to fit everyone on-screen at stunning speed
- Start recording presentations, lectures, and more with no hassle
- Easily capture multiple people with one camera

Advanced Motion Control

- Achieve precise camera movement during recording
- Pan/tilt rotation maneuvers as small as 0.1° per step and as fast as 200°
- Customizable speed controls allow you to optimize your recording

Prepare for any Angle

- Up to 255 different preset locations through VISCA via RS232 and RS422 functionality
- Simplified IR remote and the ability to set 10 preprogrammed preset locations
- Easy manual control of the recording view with outstanding preset locations

Compatible Software

CRESTRON · echo 360 · Extron · KALTURA · vMix · telestream · zoom · Panopto · NewTek · Microsoft Teams

Product Specifications

		PTZ310W	PTZ330
Camera	Image Sensor	1/2.8" 1080p 60fps Exmor CMOS	
	Effective Picture Elements	Approx 2.1 megapixels	
	Output Resolution	Auto, 1080p/60, 1080p/59.94, 1080p/50, 1080i/60, 1080i/59.94, 1080p/50, 1080p/30, 1080p/29.97, 1080p/25, 720p/60, 720p/59.94, 720p/50	
	Minimum Illumination	IRE50 0.47 lux (F1.6, 30fps)	0.43 lux (IRE50, F1.6, 30fps)
	S/N Ratio	> 50dB	
	Gain	Auto / Manual	
	TV Line	800 (Center/Wide)	800 (Corner/Wide)
	Shutter Speed	1/1s to 1/32,000s	
	Exposure Control	Auto, Manual, Priority AE(Shutter, IRIS), BLC	
	White Balance	Auto / Indoor / Outdoor / One-push / Manual (2500 ~ 10000)	
	Optical Zoom	12X	30X
	Digital Zoom	12X	
	Horizontal Viewing Angle	72.1° (Wide) ~ 6.6° (Tele)	67° (Wide) ~ 2.3° (Tele)
	Focal Length	f = 3.9mm (Wide) ~ 46.8mm (Tele)	f = 4.3mm (Wide) ~ 129mm (Tele)
	Aperture (Iris)	F = 1.6 (Wide) ~ 2.8 (Tele)	F = 1.6 (Wide) ~ 4.7 (Tele)
	Minimum Working Distance	0.3m (Wide), 1.5m (Tele)	0.01m (Wide), 1.2m (Tele)
	Pan/Tilt Angle	Pan : +-170°, Tilt : +90°/-30°	
	Pan/Tilt Speed (Manual)	Pan 0.1 ~ 100° /Sec, Tilt 0.1 ~ 100° /Sec	
	Preset Speed	Pan : 200° /Sec, Tilt : 200° /Sec	
	Preset Position	10 (IR), 255 (RS232)	
	Camera Control - Interface	RS232 (DIN8) / RS422 (RJ45)	
	Camera Control - Protocol	VISCA (RS232/RS422/IP), CGI (IP)	
	Image Processing	Noise Reduction (2/3D), Flip, Mirror	
	Power Frequency	Auto / 50Hz / 60Hz	
Audio	Audio - Channel	2ch (Stereo)	
	Audio - Codec	AAC-LC (48/44.1/32/24K), G.711/PCM (16K/8K)	
	Audio - Sample Rate	48 / 44.1 / 32 / 24 / 16 / 8Khz	
Interface	Video Output	3G-SDI, HDMI, IP, USB	
	Audio Output	3G-SDI, HDMI, IP, USB	
	Audio Input	MIC / Line-in	
General	Power Requirement	AC100V-AC240V to DC12V/5A	
	PoE	POE+ (IEEE 802.3at), Class 4	
	Operating Condition	Temperature : 0°C ~ +40°C ; Humidity : 20% ~ 80%	
	Storage Condition	Temperature : -20°C ~ +60°C , Humidity : 20% ~ 95%	
	Dimensions	L = 180mm, W = 145mm, H = 183.5mm	
	Weight	1.743 kg	1.62kg
	Application	Indoor	
	Security	Kensington Slot	
	Remote Control	Infrared	
	Accessory	Remote control, 12V/5A power adapter	
IP Streaming	Resolution	1920x1080, 1280x720, 960x540, 640x480	
	Network Video Compress Format	H.264 (High Profile), MJPEG	
	Maximum Frame Rate	H.264 60fps (1920x1080), MJPEG 30fps (1920x1080)	
	Bit-rate Control Mode	VBR / CBR (Selectable)	
	Range of Bit-rate Setting	512Kbps ~ 32Mbps	
	Network Interface	10 / 100 / 1000Base-T	
	Multi-stream Capability	2	
	Network Protocol	IPv4, TCP, UDP, ARP, IMCP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP	
	NDI Protocol	Upgradable	
	STR Protocol	Yes	
USB	Connector	Micro-USB 3.0	
	Video Format	YUV, MJPEG	
	Maximum Video Resolution	Up to 1080p	
	USB Video Class	UVC1.1	
	USB Audio Class	UAC1.0	
WebUI	Live Video Preview	Yes	
	Camera PTZ Control	Pan / Tilt / Zoom / Focus / Preset Control	
	Camera/Image Adjustment	Exposure / WhiteBalance / Picture	
	Network Configuration	DHCP / IP Addr / Gateway / Netmask / DNS	
Software Tools		AVer PTZ Management, CaptureShare	
Warranty	Camera	3 Years with AVerCare	
	Accessories	1 Year	
Ordering Info	Part Number	PAVPTZ310W (White Color)	PAVPTZ330W (White Color)

Hardware Specifications

AVer Information Inc. Americas
668 Mission Court, Fremont, CA 94539
Toll free 1.877.528.7824 T 408.263.3828 F 408.263.8182

pro.averusa.com

4K dual lens camera

Capture a complete view of the room with wide-angle clarity. The CAM550 is equipped with two 4K lenses. The first is a PTZ camera with 12X optical zoom (24X total zoom) to clearly frame meeting participants in medium and large rooms. The second is an AI lens with 95 ° FOV to provide a panoramic view of the room. Picture-in-picture functions to simultaneously view the speaker and a panoramic view of the room.

Highlight participants with Smart Gallery

Clearly capture attendees with Smart Gallery, which enables AI technology to crop participant's faces and make sure everyone is looking great. You can choose between headshot and half body mode to adapt to any meeting situation. Great for collaboration or video calling.

Headshot Mode

Half-body Mode

Eliminate touchpoints with gesture control

Camera can easily be controlled and enable AI functions by holding up one finger on either side of your face. Take advantage of built-in AI gesture recognition to operate the camera and eliminates touchpoints to increases meeting safety.

*Gesture controls are switched off by default. Please enable gesture controls via PTZApp 2.

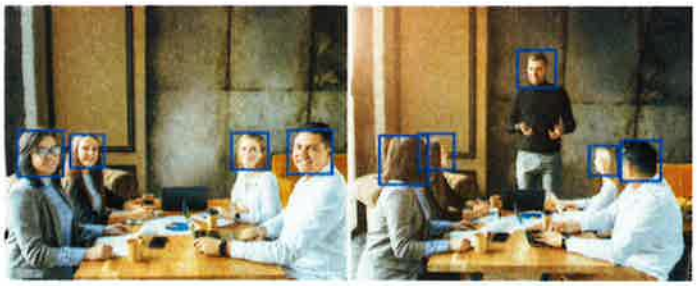
Turn On/Off Tracking

Zoom In

Zoom Out

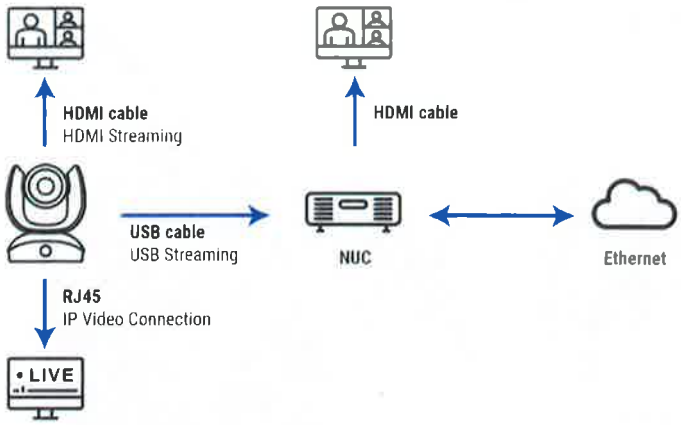
Enhance meetings with dynamic framing

Enhance meeting efficiency with dynamic framing. When newcomers walk in, the secondary AI lens springs to action to detect them, then the PTZ camera automatically re-frames participants for perfect video calling. Through fully automatic operation, this dynamic framing optimizes meetings and protects the safety of participants.



HDMI enables dual display and 3-way output

The CAM550 features an HDMI connection so you can enable a second display for virtual meetings. Simultaneously connect HDMI, USB, and IP streaming broadcasting. Simultaneous connections allow you to easily monitor your stream during recording use a local recording service to watch recordings later.



Specifications

Dual Camera

PTZ optical zoom lens

- Image sensor: Sony 4K EXMOR, crystal clear in any lighting
- Frame rates: (16:9) 4K 30fps; 1920 x 1080, 1600 x 900, 1280 x 720, 960 x 540, 848 x 480, 800 x 448, 640 x 360, at 60, 30, 15fps; (4:3) 1280 x 960, 800 x 600, 640 x 480 at 60, 30, 15fps
- 24X Zoom*: 12X optical; 2X digital zoom
- Wide field of view: DFOV 85°; HFOV 76°; VFOV 46°
- Lens focal length: 3.9mm (wide) ~ 47.3mm (tele)
- Lens F#: 1.8 (wide) ~ 2.8 (tele)
- AE, white balance: auto, manual override via PTZApp 2
- Minimum focus distance: 1.5m
- Motorized Pan & tilt: Pan: ±170°;Tilt: +90° (up) -30° (down)
- Preset number: 10 via IR remote, 128 via RS232

Secondary fixed lens (AI lens)

- Image sensor: Sony 4K EXMOR
- Frame rates and resolution set according to PTZ lens settings
- Wide field of view: DFOV 95°; HFOV 78°; VFOV 50°

*Use PTZApp 2 to set up 24X zoom.
*Don't put the CAM550 on the table. This will block the view of AI lens and the AI detection function will malfunction. The suggested installation height is 1.5m away from the floor.

Innovative features

- Dynamic auto framing: secondary AI lens detects all participants, new participants trigger PTZ lens to dynamically frame all participants.
- Preset framing tracks both preset area and speaker *
- Simultaneous 3-way output: USB, HDMI and IP connections
- Gesture control provides intuitive camera controls
- HDMI Picture in Picture (PIP) function
- Smart gallery** offers visibility for individual participant in the meeting room
- Cableless access to meetings: Get rid of USB cable connections with AVer virtual USB streaming technology** (One RJ45 cable transfers IP streaming to USB.)
- Audio tracking support: Integration with 3rd party ceiling microphone (Shure/Sennheiser) via AVer Preset Link* * function.

*Make sure preset areas are within AI lens' view.
**Download PTZApp 2 to set up Smart gallery, USB virtual streaming and Preset Link functionality.

Connectivity

- USB type-B 3.1 connector, backward compatible with USB 2.0
- 12V/2A DC jack power adapter
- Mini DIN9 for RS232 in & out connection (VISCA control panel and camera daisy-chain)
- IP (RJ45)
- HDMI

HDMI & PoE

- HDMI 1.3: 1080p 30fps/ 60fps
- PoE+: 802.3at

Video Format

- YUV, YUY2, MJPEG
- Network video compression format: H.264, H.265
- Network protocol: RTSP, RTMP

USB

- 3.1 Gen 1, backward compatible with USB 2.0
- UVC 1.1 (USB video), UVC1.5*

*UVC1.5 utilizes a different platform environment and requires an extra FW upgrade. Please contact technical support for more details.

Control

- IR remote control
- VISCA/pelco P/pelco D via RS232 (128 preset points via VISCA command)
- Remote side: VISCA over IP, IP (RJ45)
- UVC plug and play
- WebUI: Browser IP access via Chrome. (Not support IE)
- OSD setting: HDMI out to TV monitor
- PTZApp 2

Power Supply

- AC 100V–240V, 50/60 Hz; Consumption: 12V, 2A
- PoE+: 802.3at

Free Applications for Meeting Collaboration (For Windows® and Mac® computers)

EZManager 2: Camera Central Management Software

- Remotely group FW/SW upgrades, control the camera, and manage settings

PTZApp 2: Camera Settings Software

- Smart gallery/Virtual USB streaming/Preset Link
- View live video, participant metrics, and meeting-interval information
- Enable Skype for Business far-end control
- Upgrade firmware automatically/manually
- Control the camera
- Set parameters and adjust the camera image
- View operation status, diagnose issues

EZLive: Broadcasting Software

- Multi-camera real-time streaming, annotating, image capturing, and video recording

Environment Data

- Operation temperature: 0 to 40°C
- Operation humidity: 20% to 80%
- Storage temperature: -20 to 60°C
- Storage humidity: 20% to 80%

Dimensions

- Package dimensions: 253(L)*253(W)*271(H) mm
- Package weight: 4.8KG
- Camera: 170.8 (L) X 190.5 (H) X 173 (D) mm/ 2.1kg
- Remote control: 200 x 50 x 121mm/90g

Package Contents

- CAM550 unit
- Power adapter (10 ft/3 m)
- USB 3.1 type-B to type-A cable (3m)
- Remote control
- Mini DIN9 to mini DIN8 RS232 adapter cable
- HDMI cable (3 m)
- Wall mount bracket and screws
- QR code card
- Tripod screw
- Drill paper

Optional Accessories

- Mini DIN8 to D-Sub9 cable
- Ceiling mount*
- Foldable TV mount
- USB 2.0 type-B to type-A cable (5 m)
- 1-Port POE+ Injector

*CAM550 is a dual lens camera and doesn't support upside-down installation. For ceiling mounting, please purchase the AVer ceiling mount.

Security and Mount

- Kensington lock
- 1/4" tripod mounting screw
- Camera wall-mount bracket included
- Optional foldable TV mount
- Optional ceiling mount

System Requirements

- Windows® 7/10
- MacOS X 10.7 or later
- Google Chromebook™ version 29.0.1547.70 or higher

Hardware Specs

- 3.2 GHz Intel® Core™ i5-4460 processor
- 4 GB RAM or more
- USB 3.1 port, backward compatible with USB 2.0

Warranty

- Camera: 3 years
- Accessories: 1 year

Compatible Applications

Zoom, Microsoft® Teams, Skype, Skype for Business, Google Meet, RingCentral, BlueJeans , Intel ® Unite™, Fuze, Adobe ® Connect™, CyberLink U Meeting®, Cisco WebEx® GoToMeeting™, LiveOn, Microsoft ® Lync™, TrueConf, V-Cube, Vidyo, vMix, WebRTC, Wirecast, XSplit

*For 4K UHD support, please check system/hardware requirements with your software application provider.
**Specifications may vary depending on countries and are subject to change without notice.

Front

1	PTZ lens: 12X optical zoom
2	IR sensor
3	AI lens
4	LED indicator

Back

1	Kensington lock
2	HDMI out
3	USB 3.1 type-B
4	RS232 in/out
5	LAN for IP streaming and Power over Ethernet (PoE)
6	DC 12V

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Distributor/Dealer

Bosch Specification Sheets

DIVAR IP all-in-one 7000 2U (gen 3)

- RAID-5 protected (standard configuration), all-in-one video management solution for up to 256 channels
- Out-of-the-box IP video management solution with up to 96 TB storage capacity
- Instantly find what you are looking for
- Advanced user and alarm management
- 3 years hardware warranty, including next business day services

The DIVAR IP all-in-one 7000 family is an affordable, simple and reliable all-in-one recording, viewing and management solution for network surveillance systems of up to 256 channels (with 8 channels pre-licensed).
DIVAR IP all-in-one 7000 2U is a 2U rack mount unit that combines advanced management and state-of-the-art recording management into a single cost-effective, plug-and-play IP recording appliance for IT-minded customers.

System overview

The DIVAR IP all-in-one 7000 family utilizes an energy efficient, embedded design which reduces possible points of failure and boasts Bosch quality through-and-through. Utilizing "enterprise-rated" hard drives in a fault tolerant RAID-5 configuration, dual port Gigabit Ethernet network interface, 16 GB system memory and an Intel Xeon Hexa Core Processor, the device delivers high-end performance at a very affordable price.
Easy to install and operate, the system features wizard-based set-up and centralized configuration. Simply connect to the network and power the unit up - DIVAR IP all-in-one 7000 is ready to begin recording straight out of the box.
BVMS manages all IP and digital video and audio, plus all the security data being transmitted across your IP network. It seamlessly combines IP cameras and encoders, provides system-wide event and alarm management, system health monitoring, user and priority management.

Functions

The DIVAR IP all-in-one 7000 2U units feature highly energy-efficient hot-swap redundant power supplies, as well as front-swappable SATA-3 hard drives providing up to 96 TB of gross storage capacity. The DIVAR IP all-in-one 7000 2U units utilize Microsoft Windows Server IoT 2019 for Storage Standard.

Instant real time access to video
View high quality HD and even UHD video despite low or limited bandwidth connections.
Dynamic Transcoding technology ensures you can view your video immediately - anytime, anywhere.
The built-in transcoder supports up to 2 x UHD resolution video streams in parallel.

Management
DIVAR IP Software Center provides a central user interface for software setup, upgrade and operation mode selection, which reduces installation and training requirements and keeps ongoing system management costs low.

Remote viewing
For remote viewing of a single DIVAR IP all-in-one 7000 system, BVMS Operator Client is included. For multiple systems, add them to BVMS Enterprise Management Server.
Alternatively, use Video Security Client for viewing video from a separate workstation or mobile device.

IT Management
Microsoft Windows Server IoT 2019 for Storage Standard provides a simple, intuitive user interface for system configuration and unified appliance management. Administrators and IT professionals will appreciate the ability to manage DIVAR IP all-in-one 7000 systems using the built-in Microsoft Windows Admin Center. The ability to use one central tool for configuration and operations management reduces installation and training requirements, and helps keep ongoing system management costs low. In addition, the DIVAR IP all-in-one 7000 system offers advanced monitoring and management options using the Intelligent Platform Management Interface (IPMI).

Monitoring
The DIVAR IP all-in-one 7000 family provides SNMP, Remote Desktop and HTTP monitoring support for the system's hardware and for the video management applications.
Increased reliability of high-availability hardware, embedded design as well as system-wide monitoring and management ensure maximum uptime.

Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	DIVAR IP all-in-one 7000

Installation/configuration notes

Notice
Environmental conditions
Install the system in a clean, dust-free, dry and weather-protected area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.The standard warranty coming with the system will be void if evidence is seen that the system was exposed to conditions contradicting the environmental conditions mentioned here.

System status
DIVAR IP all-in-one 7000 units come fully loaded and fully functional with Microsoft Operating System and DIVAR IP Software Center.

Third-party hard drives
DIVAR IP all-in-one 7000 units without pre-installed hard drives:
The RAID configuration of third-party data hard drives must be set up manually via the pre-installed RAID management utility. Only after this manual RAID configuration the DIVAR IP all-in-one 7000 system provides full functionality.

RAID configuration
DIVAR IP all-in-one 7000 2U units come pre-configured in a RAID-5 standard configuration with iSCSI LUNs (fully populated system only) and provide the following specifications:

RAID-5 configuration

Gross Capacity	Net Capacity	Bandwidth*	IP Cameras
w/o HDD	n/a	550 Mbit/s	256 max.
8 x 4 TB	26068 GB	550 Mbit/s	256 max.
8 x 8 TB	52136 GB	550 Mbit/s	256 max.
8 x 12 TB	78204 GB	550 Mbit/s	256 max.

*Performance only warranted with hard drive models tested and qualified by Bosch.

These values refer to the BVMS recording engine; Net capacity for a RAID-5 configuration without hot spare; 256 connected IP cameras indicate the number of concurrent recordable cameras plus 8 sessions for replay.
Optional supported RAID configurations are RAID-5 with 1 x hot spare or RAID-6 without hot spare. The optional RAID configurations will not come pre-configured but must be set up manually via the pre-installed RAID configuration utility.

RAID-5 plus hot spare configuration

Gross Capacity	Net Capacity	Bandwidth*	IP Cameras
w/o HDD	n/a	550 Mbit/s	256 max.
8 x 4 TB	22344 GB	550 Mbit/s	256 max.
8 x 8 TB	44688 GB	550 Mbit/s	256 max.
8 x 12 TB	67032 GB	550 Mbit/s	256 max.

*Performance only warranted with hard drive models tested and qualified by Bosch.

RAID-6 configuration

Gross Capacity	Net Capacity	Bandwidth*	IP Cameras
w/o HDD	n/a	550 Mbit/s	256 max.
8 x 4 TB	22344 GB	550 Mbit/s	256 max.
8 x 8 TB	44688 GB	550 Mbit/s	256 max.
8 x 12 TB	67032 GB	550 Mbit/s	256 max.

*Performance only warranted with hard drive models tested and qualified by Bosch.

Operation modes
DIVAR IP all-in-one 7000 units can operate in three different modes:

- Full video recording and management system, utilizing the BVMS and Video Recording Manager core components and services. This mode allows for advanced video management features such as event and alarm handling.
  A base license with 8 included camera channels is

already pre-licensed.
You can expand the system up to 32 channels with a MBV-BPLU-DIP license and further up to 256 channels with additional 1-channel licenses.
The recorded video streams need to be configured in a way that the maximum bandwidth of the system (BVMS/Video Recording Manager base system plus iSCSI storage expansions) is not exceeded.

- Pure video recording system, utilizing the Video Recording Manager core components and services. In this mode 64 Video Recording Manager camera-recording channels are already pre-licensed. You can expand the system up to 256 channels. The recorded video streams need to be configured in a way that the maximum bandwidth of the system (BVMS/Video Recording Manager base system plus iSCSI storage expansions) is not exceeded.
- iSCSI storage expansion for a BVMS or Video Recording Manager system, which runs on a different hardware. Up to four of these iSCSI storage expansions can be added to a BVMS or Video Recording Manager system running on a DIVAR IP all-in-one 7000 unit.

License limitations
For the BVMS licenses applied on DIVAR IP all-in-one 7000 units, please note the upper limit of each:

License type	Pre-licensed	Upper limit
Workstation clients	2	10
DVR/BRS systems	1	10
CCTV keyboards	2	10
Mobile Video Service	1*	4*
Intrusion Panels	1	10

*Mobile Video Service needs to run on separate hardware

For further details, see the BVMS documentation.

Notice

Uninterruptable Power Supply (UPS). We strongly recommend using an "Online UPS" with an always active battery. The UPS must support Microsoft Windows Storage Server 2016 and must be sufficient to allow time to bring an auxiliary power source on line, or to properly shut down the DIVAR IP disk array(s).

Notice

Bosch is not liable for system failures of units equipped with third-party hard drives if the third-party hard drives are source of the issues. Such drives are not covered by the 3 years warranty.

Notice
Hardware warranty
The next business day on-site service level can only be provided if the respective system has been registered immediately after receipt and installation. Otherwise, service will be provided based on best effort basis.Information about registration details is available in every shipment (registration form) or from the Bosch online product catalog. Next business day services cannot be provided in every country everywhere. For limitations and exceptions see the registration details in the registration form.

Notice
Software maintenance
Maintenance of software components is not included in this product.
A separate maintenance agreement needs to be purchased, in order to receive updates and technical support for the installed software.

Technical specifications

Electrical

Type of power supply	VAC
Operating voltage (VAC)	100 - 240 VAC
Maximum output power (W)	800 W
Power frequency	50 Hz; 60 Hz

120 VAC input (DIP-738C-8HD)

Rated input current (A)	2.1 A
Actual output wattage from power supply (W)	228.8 W
Efficiency of power supply (%)	94%
Power consumption* (W)	243.4 W
Maximum heat loss (BTU/h)	830.7 BTU/h
Power factor	0.98
System AC input VA requirement	248.3 VA

*System power consumption may vary based on workload and environment.

240 VAC input (DIP-738C-8HD)

Rated input current (A)	1.0 A
Actual output wattage from power supply (W)	228.8 W

Efficiency of power supply (%)	96%
Power consumption* (W)	238.3 W
Maximum heat loss (BTU/h)	813.4 BTU/h
Power factor	0.96
System AC input VA requirement	248.2 VA

*System power consumption may vary based on workload and environment.

Mechanical

Dimension (H x W x D mm)	89 x 437 x 648 mm
Dimension (H x W x D in)	3.5 x 17.2 x 25.5 in
Mounting type	rack-mounted
Rack unit (U)	2 U
	DIP-7380-00N Management appliance, 2U w/o HD 3rd gen
Weight (kg)	16.50 kg
Weight (lb)	36.39 lb
	DIP-7384-8HD Management appliance, 2U 8X4TB 3rd gen
Weight (kg)	21.90 kg
Weight (lb)	48.39 lb
	DIP-7388-8HD Management appliance, 2U 8X8TB 3rd gen
Weight (kg)	22.70 kg
Weight (lb)	50.15 lb
	DIP-738C-8HD Management appliance, 2U 8X12TB 3rd gen
Weight (kg)	22.10 kg
Weight (lb)	48.79 lb

Environmental

Operating temperature (°C)	10 - 35 °C
Operating temperature (°F)	50 - 95 °F
Storage temperature (°C)	-40 - 70 °C
Storage temperature (°F)	40 - 158 °F
Operating relative humidity, non-condensing (%)	8 - 90 %
Storage relative humidity (%)	5 - 95 %

Operation

Processor	Intel® Xeon® E-2226GE
Processor base frequency	3.40 GHz
Cache	12 MB Intel® Smart Cache
Installed memory	16GB DDR4-2666 2Rx8 ECC UDIMM
Memory protection	ECC unbuffered
Operating system	Microsoft Windows Server IoT 2019 for Storage Standard
Processor graphics	Intel HD onboard graphics (three digital outputs: 1 DVI-I port, 2 DisplayPort ports), VGA disabled
SAS RAID Card	12Gb/s Eight-Port
Software compatibility	Web browser; Bosch Configuration Manager; Bosch Video Management System; Video Recording Manager; Video Security App

Storage

Internal storage	HDD
HDD connectivity	SATA3
HDD dimension	3.5 inch
Maximum internal hard drives	8
HDD rotation speed (rpm)	7200 rpm
Optical drive type	DVD double layer
OS storage	2 x 240 GB SSD RAID-1 configuration

Connectivity

Number of USB ports	6 Front: 2 USB 2.0 ports Rear: 3 USB 3.1 ports and 1 USB-C port
Number of Ethernet ports	2 RJ45 Gigabit Ethernet LAN ports (teamed)

Network port	1 IPMI BMC port

Ordering information

DIP-7380-00N Management appliance, 2U w/o HD 3rd gen
All-in-one recording, viewing and management solution for network surveillance systems.
Without HDD.
Order number **DIP-7380-00N | F.01U.385.539**

EWE-7180S0N-IW DIP-7180-00N SRV Ext. 12 Mths IW
12-month hardware service extension next business day for DIP-7180-00N or DIP-7280-00N, available for a 4th or a 4th and 5th year as a standard.
Order number **EWE-7180S0N-IW | F.01U.341.235**

DIP-7384-8HD Management appliance, 2U 8X4TB 3rd gen
All-in-one recording, viewing and management solution for network surveillance systems.
With 8 x 4 TB storage capacity.
Order number **DIP-7384-8HD | F.01U.385.540**

EWE-7184S8H-IW DIP-7184-8HD SRV Ext. 12 Mths IW
12-month hardware service extension next business day for DIP-7184-8HD or DIP-7284-8HD, available for a 4th or a 4th and 5th year as a standard.
Order number **EWE-7184S8H-IW | F.01U.341.239**

DIP-7388-8HD Management appliance, 2U 8X8TB 3rd gen
All-in-one recording, viewing and management solution for network surveillance systems.
With 8 x 8 TB storage capacity.
Order number **DIP-7388-8HD | F.01U.385.541**

EWE-7188S8H-IW DIP-7188-8HD SRV Ext. 12 Mths IW
12-month hardware service extension next business day for DIP-7188-8HD, DIP-7288-8HD or DIP-728C-8HD, available for a 4th or a 4th and 5th year as a standard.
Order number **EWE-7188S8H-IW | F.01U.341.241**

DIP-738C-8HD Management appliance, 2U 8X12TB 3rd gen
All-in-one recording, viewing and management solution for network surveillance systems.
With 8 x 12 TB storage capacity.
Order number **DIP-738C-8HD | F.01U.385.542**

EWE-7188S8H-IW DIP-7188-8HD SRV Ext. 12 Mths IW
12-month hardware service extension next business day for DIP-7188-8HD, DIP-7288-8HD or DIP-728C-8HD, available for a 4th or a 4th and 5th year as a standard.
Order number **EWE-7188S8H-IW | F.01U.341.241**

Accessories

DIP-AIO4-HDD 4TB HDD DIVAR IP all-in-one
Hard disk storage expansion for DIVAR IP all-in-one appliances with a capacity of 4 TB.
Order number **DIP-AIO4-HDD | F.01U.362.421**

DIP-AIO8-HDD 8TB HDD DIVAR IP all-in-one
Hard disk storage expansion for DIVAR IP all-in-one appliances with a capacity of 8 TB.
Order number **DIP-AIO8-HDD | F.01U.362.420**

DIP-AIO12-HDD 12TB HDD DIVAR IP all-in-one
Hard disk storage expansion for DIVAR IP all-in-one appliances with a capacity of 12 TB.
Order number **DIP-AIO12-HDD | F.01U.362.419**

KBD-UXF Keyboard, USB CCTV-oriented
USB CCTV-oriented keyboard for use with BVMS, BIS - Video Engine, or DIVAR IP systems.
Order number **KBD-UXF | F.01U.279.328**

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NDE-8513-RX Fixed dome 4MP HDR X 4.4-10mm PTRZ IP66

FLEXIDOME IP starlight 8000i

- Motorized Pan, Tilt, Roll, and Zoom (PTRZ) to set the required field of view, without having to touch the camera or lens allows for remote configuration and commissioning
- Starlight X technology with 1/1.8" 4.1MP sensor for next level low-light performance with maximum detail
- HDR X - High Dynamic Range to see every detail in both bright and dark areas of the scene without motion artefacts
- Built-in Intelligent Video Analytics with object detection to trigger alerts and quickly retrieve data with the highest levels of reliability
- Camera Trainer to train the camera to recognize user-specified target objects for both moving and non-moving objects

The FLEXIDOME IP starlight 8000i - 4MP X series camera offers a 1/1.8" sensor, starlight X and HDR X technology at 4.1MP resolution. It provides the perfect balance between high resolution and extreme low-light sensitivity with starlight X technology, ensuring highly detailed images even in the most challenging situations.
HDR X enables the camera to capture video with a wide dynamic range across different light levels and without HDR motion blur and artefacts on moving objects. Fast moving objects are easily captured with frame rates of up to 60 frames per second at the same 4.1 MP resolution.
The camera's remote commissioning functionality makes sure installation and commissioning can be done in very little time. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.

Functions

Full Remote Commissioning
Installing a professional IP video surveillance camera has never been so easy. In fact, as an installer, you'll never want to go back to the old methods of installing cameras again. We've simplified the installation and commissioning stages to such a degree that they can be done in very little time.
With the FLEXIDOME IP starlight 8000i camera's remote commissioning functionality there's no need to go up and down ladders. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens. Remote configuration and commissioning can also be done at a later stage once all cameras have been installed. Simply connect to the camera remotely via the network using the Bosch Project Assistant app, the camera's web interface, or the Bosch Configuration Manager.

Fast performance
The 60 frames per second mode provides for optimum performance in fast action scenes and makes sure no critical data is lost. In combination with the high 4.1MP resolution, it allows for high detail video capture of fast moving objects while at the same time providing situational awareness.

Starlight X - Next level starlight performance
Starlight X technology combines the latest high performance, large pixel sensors, optics, improved image processing and noise suppression, resulting in a 5.5x improved sensitivity compared to the standard starlight camera.

HDR X - High Dynamic Range
HDR X is a new technology that combines unique sensor functionality and advanced algorithms. It is a huge leap forward in capturing high quality video of moving objects in scenes with a large dynamic range. It also allows HDR imaging at lower light levels in which traditional HDR technologies are non-functional. This is possible because the HDR X - Motion optimized mode takes two different readouts from one exposure to capture details in both the highlights and shadows of the scene, instead of blending multiple exposures like standard HDR technologies. Blending multiple exposures reduces sharpness and creates unwanted imaging artefacts on moving objects. HDR X resolves these issues, providing a crisp image with improved dynamic range.
In case an even larger dynamic range is required, HDR X - Optimized DR or HDR X - Extreme DR will further increase performance to an absolute maximum by adding another fast exposure. This combines the benefits from HDR X - Motion optimized and traditional HDR.

Scene modes
Nine configurable modes are provided with the best settings for a variety of applications. In one click fully optimized image settings can be selected to suit the conditions. Different scene modes can be selected for different situations such as traffic or retail environments.

Intelligent streaming
Smart encoding capabilities, together with Intelligent Dynamic Noise Reduction technology and analytics, reduce the bandwidth consumption to extremely low levels. Only relevant information in the scene, like motion, or objects found with the analytics, need to be encoded.
The camera is capable of quad streaming which allows the camera to deliver independent, configurable streams for live viewing, recording, or remote monitoring via constrained bandwidths.
Each of these streams can be adapted independently to deliver high quality video, perfectly tailored to purpose, while reducing bit rate by up to 90% compared to a standard camera.

H.265 high-efficiency video encoding
The camera is designed on the most efficient and powerful H.264 and H.265/HEVC encoding platform. The camera is capable of delivering high-quality and high-resolution video with very low network load. With a doubling of encoding efficiency, H.265 is the compression standard of choice for IP video surveillance systems.

Bitrate optimized profile
The average bitrate for the bitrate optimized profile using H.265 encoding in kbps for different frame rates can be found in the table provided below.

FPS at 4.1MP	Low activity	Medium activity	High activity
60	1287	1765	4239
30	776	1054	2536
25	680	1124	2218
15	471	710	1528
10	352	534	1140
5	215	329	693
3	150	231	482
1	70	108	222

Notice

Actual bitrate values may vary depending on scene complexity/activity and picture settings.

Recording and storage management
Recording management can be controlled by the Bosch Video Recording Manager application, or the camera can use local storage and iSCSI targets directly without any recording software.
Local storage can be used for recording "at the edge" or for Automatic Network Replenishment (ANR) technology to improve the overall recording reliability. Pre-alarm recording in RAM reduces bandwidth consumption on the network and extends the effective life of the memory card.

Advanced edge recording
Advanced edge recording provides the most reliable storage solution possible due to the combination of the following functionalities:
- Dual SD cards that can be set up as either:
  - Mirrored, for redundant storage
  - Failover, for extended service intervals
  - Extended, for maximum retention time
- Industrial SD card support allows for extreme lifetime
- Health monitoring of industrial SD cards provide early service indications

Intelligent Video Analytics on the edge
The camera includes the latest release of the Intelligent Video Analytics application from Bosch. Specifically designed for the most demanding environments. It delivers the highest levels of accuracy for mission-critical applications such as perimeter protection of airports, critical infrastructures and government buildings, border patrol, ship tracking and traffic monitoring (e.g. wrong-way detection, traffic counts, monitoring roadsides for parked cars).
Intelligent Video Analytics is extremely resistant to false triggers caused by challenging environments with snow, wind (moving trees), rain, hail, and water reflections. It is ideal for providing automatic object detection over large distances.
The set-up of Bosch's video analytics is also second to none, which is great news for installers. Should your customer decide to use Intelligent Video Analytics, configuration and calibration couldn't be easier. Simply enter the height of the camera and the rest of the calibration is carried out by the video analytics itself based on information provided by the camera's built-in gyro sensor.

Camera Trainer
Based on examples of target objects and non-target objects, the Camera Trainer program uses machine learning to allow the user to define objects of interest and generate detectors for them. In contrast to the moving objects that the Intelligent Video Analytics application detects, the Camera Trainer program detects both moving and non-moving objects and classifies them immediately. Using Configuration Manager, you can configure the Camera Trainer program using both live video as well as recordings available through the respective camera. The resulting detectors can be downloaded and uploaded for distribution to other cameras.
A free of charge license is required to activate the Camera Trainer program.

DORI coverage
DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The maximum distance at which a camera/lens combination can meet these criteria is shown below:

4MP camera with 4.4 mm - 10 mm lens or 12 mm - 40 mm lens

DORI	DORI definition	Distance 4.4 mm / 10 mm	Distance 12 mm / 40 mm	Horizontal width
Detect	25 px/m 8 px/ft	38 m / 121 m 118 ft / 377 ft	162 m / 479 m 505 ft / 1498 ft	108 m 336 ft
Observe	63 px/m 19 px/ft	15 m / 48 m 50 ft / 159 ft	64 m / 190 m 213 ft / 631 ft	43 m 142 ft
Recognize	125 px/m 38 px/ft	8 m / 24 m 25 ft / 79 ft	32 m / 96 m 106 ft / 315 ft	22 m 71 ft
Identify	250 px/m 76 px/ft	4 m / 12 m 12 ft / 40 ft	16 m / 48 m 53 ft / 158 ft	11 m 35 ft

Data security
Special measures ensure the highest level of security for device access and data transport. On initial setup, the camera is only accessible over secure channels and enforces a password. Web browser and viewing client access can be protected using HTTPS or other secure protocols that support state-of-the-art TLS 1.2 with updated cipher suites including AES encryption with 256 bit keys. No software can be installed in the camera, and only authenticated firmware can be uploaded. A three-level password protection with security recommendations allows users to customize device access.
Network and device access can be protected using 802.1x network authentication with EAP/TLS.
Superior protection from malicious attacks is guaranteed by the Embedded Login Firewall, on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support.
The advanced certificate handling offers:
- Self-signed unique certificates automatically created when required
- Client and server certificates for authentication
- Client certificates for proof of authenticity
- Certificates with encrypted private keys

System integration and ONVIF conformance
The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, and ONVIF Profile T specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer.
Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Universal accessories
A full line of universal accessories are available that allow a consistent design across different platforms and a wide range of installation possibilities.

Several dedicated accessories are available that seamlessly fit to the camera and expand the different installation options over previous generations. Available options include: a paintable cover, an on-camera weather protector, a clear or tinted replacement bubble, in-ceiling mounting kits, a surveillance cabinet with power and fiber optic options and different mounting options.

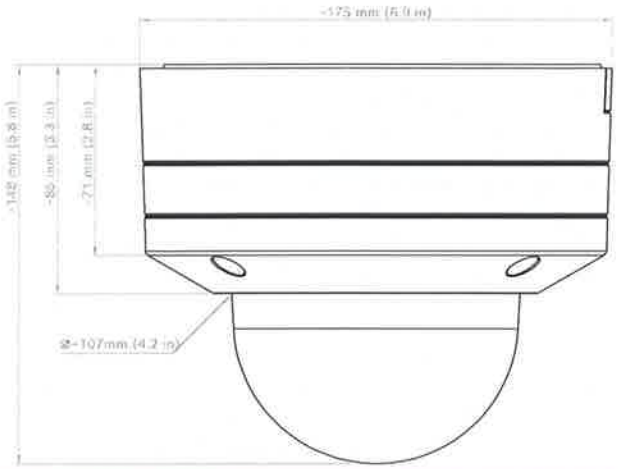
Regulatory information

Standards	Type
Emission	EN 301 489-1, EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), CFR 47 FCC, part 15, Class B, AS/NZS CISPR 32
Immunity	EN 301 489-1, EN 50130-4 (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6)
Environmental	EN 50130-5 Class IVA (EN 60068-2-2, EN 60068-2-5, EN 60068-2-6, EN 60068-2-18, EN 60068-2-27, EN 60068-2-30, EN 60068-2-42, EN 60068-2-52, EN 60068-2-75, EN 60068-2-78, EN 60529), UL 2043 when combined with NDA-8001-PLEN, Nema TS 2 Section 2
Safety	EN 62368-1, EN 60950-22, UL 62368-1, UL 60950-22, CSA C22.2 No. 62368-1-14, CAN/CSA-C22.2 No. 60950-22:07
Image performance	IEC 62676-5
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709-6
ONVIF conformance	EN 50132-5-2, EN 62676-2
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP66), ISO 20653 (IP6K9K), UL50E (Type 4X), UL 60950-22
Environment	2011/65/EU RoHS (EN 50581 and EN IEC 63000), 1999/45/EC and 1907/2006 REACH, 2012/19/EU WEEE, 94/62/EC Packaging
Marks	CE, cULus, WEEE, RCM, China RoHS, Cmim, UKCA

Region	Regulatory compliance/quality marks	
Great Britain	UKCA	FLEXIDOME IP startlight 8000i
Europe	CE	FLEXIDOME IP starlight 8000i

Installation/configuration notes

Dimensions



Parts included

Quantity	Component
1	FLEXIDOME IP 8000i camera
1	T-20 security Torx bit
1	Quick installation guide
1	Safety information
2	Rubber grommet for the Ethernet cable
1	Network patch cable 50 cm
1	10-pin I/O connector
1	2-pin power connector
1	Cable conduit for side entry
1	Washer for cable conduit
1	Adapter plate for cable conduit (Ø 3/4" / M25)
1	Adapter plate for cable conduit (Ø 1/2" / M20)
3	Identification label

Technical specifications

Power	
Input voltage	PoE IEEE 802.3af / 802.3at Type 1, Class 3; 24 VAC ±10%; 12-26 VDC ±10%; PoE and auxiliary power can be connected simultaneously for redundant operation

Power	
Power Consumption (typical / maximum)	PoE: 7 W / 12.95 W; 24 VAC: 7.1 W - 12 VA / 13 W - 25 VA; 12-26 VDC: 7.5 W / 16 W

Sensor

Total sensor pixels (MP)	4.10 MP
Sensor type	1/1.8 inch CMOS
Effective picture elements (H x V px)	2688 px x 1520 px

Optical

Zoom/focus control	Motorized zoom/focus
Iris control	P-iris
Field of View wide (°)	48° – 110°
Field of View tele (°)	27° – 56°
Lens focal length (mm)	4.40 mm – 10 mm
Lens aperture (/F)	1.3 /F – 1.97 /F

Video functions

Camera functionality	Mirror image; Rotation 90°; Rotation 180°; Rotation 270° including upright mode; Backlight compensation (BLC); Intelligent dynamic noise reduction; Contrast enhancement; Sharpness enhancement; Intelligent defog; Pixel counter; Tamper detection; Saturation; Brightness
Minimum illumination in color (lx) (starlight sensitivity measured according to IEC 62676 Part 5)	0.0078 lx
Minimum illumination in monochrome (lx) (starlight sensitivity measured according to IEC 62676 Part 5)	0.0008 lx
Low light technology	starlight X
Number of privacy masks	8
Sensitivity	1/25; F1.3
White balance modes	Basic; Standard; Dominant color; Manual mode; Hold mode; 4 automatic modes; Sodium lamp
White balance (K)	2500 K – 10000 K
ALC	Mode (standard, fluorescent), Level, Average vs. peak, Speed, Maximum gain; Adjustable
Day/night modes	Auto (adjustable switch points); Color; Monochrome
Scene modes with scheduler	Traffic; Night optimized; Vibrant; Low bitrate; Sports & gaming; Retail; Intelligent AE; Indoor; Outdoor; License plate recognition
Shutter modes	Automatic Electronic Shutter (AES); 1/25 min; 1/15.000 max; Default shutter
Wide Dynamic Range (WDR) (dB)	141 dB
Display stamping	Name; Logo; Date/time; Alarm message
Measured according to IEC 62676 Part 5 (dB)	108 dB

Video streaming

Camera processing latency	<67ms
Frame rate (fps)	1 fps – 60 fps
GOP structure	IBBP
Number of encoder output streams	Multiple configurable streams in H.265; H.264 and M-JPEG; Configurable framerate and bandwidth; Region of Interest (ROI); Bosch Intelligent Streaming
Resolution	1920 x 1080; 1280 x 1024; 1280 x 720; 768 x 432; 640 x 480; 1536 x 864; 1920 x 1440; 720 x 480; 2688 x 1520; 2560 x 1440
Video compression	H.264 (ISO/IEC 14496-10); M-JPEG; H.265/HEVC
Sensor modes	25 fps, HDR X, 2688 x 1520 (4.1 MP) 30 fps, HDR X, 2688 x 1520 (4.1 MP) 50 fps, 2688 x 1520 (4.1 MP) 60 fps, 2688 x 1520 (4.1 MP)
Video stream signal-to-noise ratio (dB)	>55 dB

Video content analysis

Alarm triggers	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Idle / removed object; Counting; Occupancy; Crowd density estimation; Condition change; Similarity search; Flow / counter flow
Calibration	Automatic self-calibrating when height is set
Configurations	Silent VCA; Profile 1; Profile 2; Scheduled; Event triggered
Object filters	Duration; Size; Aspect ratio; Speed; Direction; Color; Object classes (4)
Tracking modes	Standard (2D) tracking; 3D tracking; 3D people tracking; Ship tracking; Museum mode
Analysis type	Intelligent Video Analytics; Camera trainer
Additional functionalities	Face detection

Capacity

Alarm inputs	2
Alarm outputs	1
Host interface	Ethernet

Audio

Audio streaming	Full duplex; Half duplex
Compression and sampling rate	G.711 8 kHz; L16 16 kHz; AAC-LC 80kbps 16 kHz; AAC-LC 48kbps 16 kHz

Storage

Internal storage	RAM
Recording mode	Pre-alarm
Memory card slot	SDHC; SD; Dual SDXC, up to 2TB
Dual SD-card slot configurations	Mirror (redundant storage); Failover (extended service interval); Extend (maximum retention time); Automatic Network Replenishment
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication

Data security

Crypto coprocessor (TPM)	RSA 2048 bit; AES/CBC 256 bit
Encryption	TLS 1.2; TLS 1.0; AES 256; AES 128; local storage: XTS-AES
Video authentication	MD5; SHA-1; SHA-256; Checksum

Firmware

Common Product Platform	CPP7.3

Network

Cloud services	Remote Portal
Ethernet type	10/100BASE-T; Auto-sensing; Full / half duplex
Ethernet	Shielded RJ45
Surge protection	Ethernet: 1 kV, 2 kA to ground (8/20 µs pulse)
Fiber optics (sold separately)	The Fiber Optic Ethernet Media Converter kit (VG4-SFPSCKT) installed inside a Surveillance Cabinet (NDA-U-PAO, NDA-U-PA1 or NDA-U-PA2) provides the fiber optic interface to the mounted camera

System integration

Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; Auto-MDIX; ONVIF Profile M
Protocols / standards	IPv4; IPv6; UDP; TCP; HTTP; HTTPS; RTP/RTCP; IGMP V2/V3; ICMPv6; RTSP; FTP; ARP; DHCP; APIPA (Auto-IP, link local address); NTP (SNTP); SNMP (V1, MIBII); SNMP (V3, MIBII); 802.1x, EAP/TLS; DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; UPnP (SSDP); DiffServ (QoS); LLDP; SOAP; CHAP; Digest authentication; IGMP

Mechanical

Bubble material	Polycarbonate, clear with UV blocking anti-scratch coating

Color	White
Color in RAL	RAL 9003 Signal white
Material	Housing: Aluminum, with dehumidifying membranes and waterproof connection area
Mounting type	Surface-mounted
Tilt range (°)	-3° – 81°
Pan range (°)	0° – 361°
Roll range (°)	-95° – 95°
Weight (kg)	2.30 kg
Weight (lb)	5.07 lb
Dimension (Ø x H) (mm)	148 mm x 175 mm
Dimension (Ø x H) (in)	6.9 in x 5.7 in

Environmental

Operating temperature (°C)	-50 °C – 60 °C; Up to +74 °C according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Operating temperature (°F)	-58 °F – 140 °F; Up to +165 °F according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Storage temperature (°C)	-30 °C – 70 °C
Storage temperature (°F)	-22 °F – 158 °F
Operating relative humidity, non-condensing (%)	5% – 93%
Operating relative humidity, condensing (%)	5% – 100%
Storage relative humidity (%)	0% – 98%
IP rating	IP66; IP6K9K
Impact protection (EN 50102)	IK10+ (50 joules)
Degree of protection (UL 50 NEMA)	4X

Camera installation

Camera LED	Auto disable/ Enable/ Disable
Positioning	Mounting height; Coordinates
Field of view adjustment	Motorized pan, tilt, roll; Zoom; Autofocus

Ordering information

NDE-8513-RX Fixed dome 4MP HDR X 4.4-10mm PTRZ IP66
Fixed dome.
NDAA compliant
Order number **NDE-8513-RX | F.01U.404.129**

Accessories

NDA-8000-PC Paintable cover, 4 pcs
Paintable cover (4 pieces) for FLEXIDOME IP 8000i.
Order number **NDA-8000-PC | F.01U.324.966**

NDA-8000-CBL Clear replacement bubble
Clear replacement bubble.
Order number **NDA-8000-CBL | F.01U.324.934**

NDA-8000-TBL Tinted Bubble
Tinted bubble for FLEXIDOME IP 8000i.
Order number **NDA-8000-TBL | F.01U.324.973**

NDA-8001-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-IC | F.01U.398.407**

NDA-8001-PLEN Plenum-rated mount kit
Plenum-rated in-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-PLEN | F.01U.398.393**

NDA-8000-SP In-ceiling mount support kit
Soft ceiling support for in-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-SP | F.01U.324.937**

NDA-8000-WP On-camera weather protector
On-camera weather protector for FLEXIDOME IP 8000i.
Order number **NDA-8000-WP | F.01U.324.929**

NDA-8000-PIP Pendant interface plate, indoor
Pendant interface plate for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIP | F.01U.324.938**

NDA-8000-PIPW Pendant interface plate, outdoor
Pendant interface plate including weather protector for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIPW | F.01U.324.967**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT | F.01U.324.939**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT | F.01U.324.940**

NDA-U-PMTS Pendant pipe mount, 4" (11 cm)
Universal pendant pipe mount for dome cameras, 11 cm (4"), white
Order number **NDA-U-PMTS | F.01U.385.046**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE | F.01U.324.941**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB | F.01U.324.942**

NDA-U-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA0 | F.01U.324.947**

NDA-U-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66
Order number **NDA-U-PA1 | F.01U.324.948**

NDA-U-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA2 | F.01U.324.949**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL | F.01U.324.944**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS | F.01U.324.943**

NDA-U-RMT Pendant parapet mount
Universal roof mount for dome cameras, white
Order number **NDA-U-RMT | F.01U.324.945**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-WMTG | F.01U.358.358**

NDA-U-PMTG Pendant pipe mount, gang box
Universal pipe mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-PMTG | F.01U.358.359**

VG4-SFPSCKT Ethernet to SFP interface kit
Ethernet media converter video transmitter/data receiver fiber optic kit for AUTODOME cameras, for MIC-IP-PSU for MIC analog cameras and for the Surveillance cabinets (NDA-U-PA0, NDA-U-PA1 and NDA-U-PA2).
Order number **VG4-SFPSCKT | F.01U.142.529**

SFP-2 Fiber module, multimode, 1310nm, 2LC
SFP Fiber Optic Module, 2 km (1.2 miles), 2 LC connectors.
Multi-mode
1310 mm
Order number **SFP-2 | F.01U.136.537**

SFP-3 Fiber module, single-mode, 1310nm, 2LC
SFP Fiber Optic Module, 20 km (12.4 miles), 2 LC connectors.
Single-mode
1310 nm
Order number **SFP-3 | F.01U.136.538**

SFP-25 Fiber module, 1310/1550nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1310/1550 nm
Order number **SFP-25 | F.01U.136.541**

SFP-26 Fiber module, 1550/1310nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1550/1310 nm
Order number **SFP-26 | F.01U.136.542**

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www.boschsecurity.com

NDE-8513-R Fixed dome 6MP HDR 3.9-10mm PTRZ IP66

FLEXIDOME IP starlight 8000i

H.265 HDR IVA 6MP PTRZ

- Motorized Pan, Tilt, Roll, and Zoom (PTRZ) to set the required field of view, without having to touch the camera or lens allows for remote configuration and commissioning
- 1/1.8" 6MP sensor and starlight technology to provide detailed images even in extreme low-light situations
- High Dynamic Range to see every detail in both bright and dark areas of the scene
- Built-in Intelligent Video Analytics with object detection to trigger alerts and quickly retrieve data with the highest levels of reliability
- Camera Trainer to train the camera to recognize user-specified target objects for both moving and non-moving objects

The FLEXIDOME IP starlight 8000i - 6MP performance line camera offers a 1/1.8" sensor, starlight performance and High Dynamic Range with 6 megapixel resolution to provide crisp and highly detailed images even in extreme low-light situations. The camera's remote commissioning functionality makes sure installation and commissioning can be done in very little time. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.

Functions

Full Remote Commissioning
Installing a professional IP video surveillance camera has never been so easy. In fact, as an installer, you'll never want to go back to the old methods of installing cameras again. We've simplified the installation and commissioning stages to such a degree that they can be done in very little time.

With the FLEXIDOME IP starlight 8000i camera's remote commissioning functionality there's no need to go up and down ladders. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens. Remote configuration and commissioning can also be done at a later stage once all cameras have been installed. Simply connect to the camera remotely via the network using the Bosch Project Assistant app, the camera's web interface, or the Bosch Configuration Manager.

Fast performance
The high sensor resolution together with a frame rate of 30 frames per second makes this camera an ideal solution for capturing fast moving objects in high detail and, at the same time, providing situational awareness.

Starlight performance
The latest sensor technology combined with the sophisticated image processing and noise suppression results in an exceptional sensitivity in color. The low-

light performance is so good that the camera continues to provide excellent color performance even with a minimum of ambient light.

High Dynamic Range
The high dynamic range mode is based on a multiple-exposure process that captures more details in the highlights and in the shadows even in the same scene. The result is that you can easily distinguish objects and features, for example, faces with bright backlight. The actual dynamic range of the camera is measured using Opto-Electronic Conversion Function (OECF) analysis according to IEC 62676 Part 5.

Scene modes
Nine configurable modes are provided with the best settings for a variety of applications. In one click fully optimized image settings can be selected to suit the conditions. Different scene modes can be selected for different situations such as traffic or retail environments.

Intelligent streaming
Smart encoding capabilities, together with Intelligent Dynamic Noise Reduction technology and analytics, reduce the bandwidth consumption to extremely low levels. Only relevant information in the scene, like motion, or objects found with the analytics, need to be encoded.
The camera is capable of quad streaming which allows the camera to deliver independent, configurable streams for live viewing, recording, or remote monitoring via constrained bandwidths.
Each of these streams can be adapted independently to deliver high quality video, perfectly tailored to purpose, while reducing bit rate by up to 90% compared to a standard camera.

H.265 high-efficiency video encoding
The camera is designed on the most efficient and powerful H.264 and H.265/HEVC encoding platform. The camera is capable of delivering high-quality and high-resolution video with very low network load. With a doubling of encoding efficiency, H.265 is the compression standard of choice for IP video surveillance systems.

Bitrate optimized profile
The average bitrate for the bitrate optimized profile using H.265 encoding in kbps for different frame rates can be found in the table provided below.

FPS at 6MP	Low activity	Medium activity	High activity
30	1632	2438	5335
25	1430	2143	4666
15	990	1494	3214
10	741	1123	2397
5	453	692	1458
3	316	485	1014
1	146	227	468

Notice

Actual bitrate values may vary depending on scene complexity/activity and picture settings.

Recording and storage management
Recording management can be controlled by the Bosch Video Recording Manager application, or the camera can use local storage and iSCSI targets directly without any recording software.
Local storage can be used for recording "at the edge" or for Automatic Network Replenishment (ANR) technology to improve the overall recording reliability. Pre-alarm recording in RAM reduces bandwidth consumption on the network and extends the effective life of the memory card.

Advanced edge recording
Advanced edge recording provides the most reliable storage solution possible due to the combination of the following functionalities:
- Dual SD cards that can be set up as either:
  - Mirrored, for redundant storage
  - Failover, for extended service intervals
  - Extended, for maximum retention time
- Industrial SD card support allows for extreme lifetime
- Health monitoring of industrial SD cards provide early service indications

Intelligent Video Analytics on the edge
The camera includes the latest release of the Intelligent Video Analytics application from Bosch. Specifically designed for the most demanding environments. It delivers the highest levels of accuracy for mission-critical applications such as perimeter protection of airports, critical infrastructures and government buildings, border patrol, ship tracking and traffic monitoring (e.g. wrong-way detection, traffic counts, monitoring roadsides for parked cars).
Intelligent Video Analytics is extremely resistant to false triggers caused by challenging environments with snow, wind (moving trees), rain, hail, and water reflections. It is ideal for providing automatic object detection over large distances.
The set-up of Bosch's video analytics is also second to none, which is great news for installers. Should your customer decide to use Intelligent Video Analytics, configuration and calibration couldn't be easier. Simply enter the height of the camera and the rest of the calibration is carried out by the video analytics itself based on information provided by the camera's built-in gyro sensor.

Camera Trainer

Based on examples of target objects and non-target objects, the Camera Trainer program uses machine learning to allow the user to define objects of interest and generate detectors for them. In contrast to the moving objects that the Intelligent Video Analytics application detects, the Camera Trainer program detects both moving and non-moving objects and classifies them immediately. Using Configuration Manager, you can configure the Camera Trainer program using both live video as well as recordings available through the respective camera. The resulting detectors can be downloaded and uploaded for distribution to other cameras.
A free of charge license is required to activate the Camera Trainer program.

DORI coverage

DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The maximum distance at which a camera/lens combination can meet these criteria is shown below:

6 MP Camera with 3.9 mm - 10 mm lens or 12 mm - 40 mm lens

DORI	DORI definition	Distance 3.9 mm / 10 mm	Distance 12 mm / 40 mm	Horizontal width
Detect	25 px/m 8 px/ft	40 m / 162 m 125 ft / 505 ft	201 m / 591 m 628 ft / 1848 ft	131 m 408 ft
Observe	63 px/m 19 px/ft	16 m / 64 m 53 ft / 213 ft	80 m / 235 m 264 ft / 778 ft	52 m 172 ft
Recognize	125 px/m 38 px/ft	8 m / 32 m 26 ft / 106 ft	40 m / 118 m 132 ft / 389 ft	26 m 86 ft
Identify	250 px/m 76 px/ft	4 m / 16 m 13 ft / 53 ft	20 m / 59 m 66 ft / 195 ft	13 m 43 ft

Data security

Special measures ensure the highest level of security for device access and data transport. On initial setup, the camera is only accessible over secure channels and enforces a password. Web browser and viewing client access can be protected using HTTPS or other secure protocols that support state-of-the-art TLS 1.2 with updated cipher suites including AES encryption with 256 bit keys. No software can be installed in the camera, and only authenticated firmware can be uploaded. A three-level password protection with security recommendations allows users to customize device access.
Network and device access can be protected using 802.1x network authentication with EAP/TLS.
Superior protection from malicious attacks is guaranteed by the Embedded Login Firewall, on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support.
The advanced certificate handling offers:

- Self-signed unique certificates automatically created when required
- Client and server certificates for authentication
- Client certificates for proof of authenticity
- Certificates with encrypted private keys

System integration and ONVIF conformance

The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, and ONVIF Profile T specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer.
Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Universal accessories

A full line of universal accessories are available that allow a consistent design across different platforms and a wide range of installation possibilities.
Several dedicated accessories are available that seamlessly fit to the camera and expand the different installation options over previous generations.
Available options include: a paintable cover, an on-camera weather protector, a clear or tinted replacement bubble, in-ceiling mounting kits, a surveillance cabinet with power and fiber optic options and different mounting options.

Regulatory information

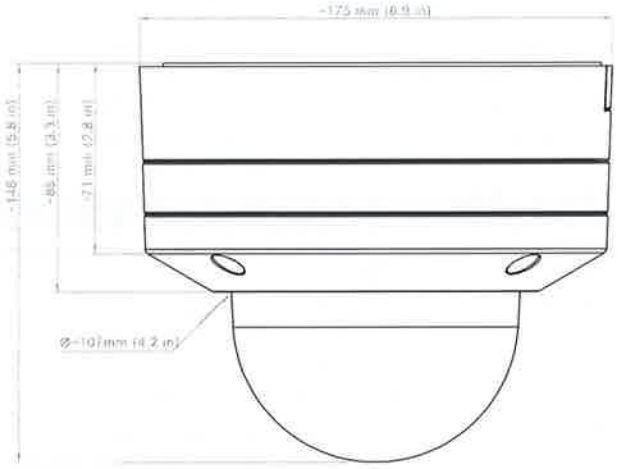
Standards	Type
Emission	EN 301 489-1, EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), CFR 47 FCC, part 15, Class B, AS/NZS CISPR 32
Immunity	EN 301 489-1, EN 50130-4 (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6)
Environmental	EN 50130-5 Class IVA (EN 60068-2-2, EN 60068-2-5, EN 60068-2-6, EN 60068-2-18, EN 60068-2-27, EN 60068-2-30, EN 60068-2-42, EN 60068-2-52, EN 60068-2-75,

Standards	Type
	EN 60068-2-78, EN 60529), UL 2043 when combined with NDA-8001-PLEN, Nema TS 2 Section 2
Safety	EN 62368-1, EN 60950-22, UL 62368-1, UL 60950-22, CSA C22.2 No. 62368-1-14, CAN/CSA-C22.2 No. 60950-22:07
Image performance	IEC 62676-5
HD	SMPTE 296M-2001 (Resolution: 1280x720)
	SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709-6
ONVIF conformance	EN 50132-5-2, EN 62676-2
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP66), ISO 20653 (IP6K9K), UL50E (Type 4X), UL 60950-22
Environment	2011/65/EU RoHS (EN 50581 and EN IEC 63000), 1999/45/EC and 1907/2006 REACH, 2012/19/EU WEEE, 94/62/EC Packaging
Marks	CE, cULus, WEEE, RCM, China RoHS, Cmim, UKCA

Region	Regulatory compliance/quality marks	
Great Britain	UKCA	FLEXIDOME IP startlight 8000i
Europe	CE	FLEXIDOME IP starlight 8000i

Installation/configuration notes

Dimensions



Parts included

Quantity	Component
1	FLEXIDOME IP 8000i camera
1	T-20 security Torx bit
1	Quick installation guide
1	Safety information
2	Rubber grommet for the Ethernet cable
1	Network patch cable 50 cm
1	10-pin I/O connector
1	2-pin power connector
1	Cable conduit for side entry
1	Washer for cable conduit
1	Adapter plate for cable conduit (Ø 3/4" / M25)
1	Adapter plate for cable conduit (Ø 1/2" / M20)
3	Identification label

Technical specifications

Power	
Input voltage	PoE IEEE 802.3af / 802.3at Type 1, Class 3; 24 VAC ±10%; 12-26 VDC ±10%; PoE and auxiliary power can be connected simultaneously for redundant operation
Power Consumption (typical / maximum)	PoE: 7 W / 12.95 W; 24 VAC: 7.1 W - 12 VA / 13 W - 25 VA; 12-26 VDC: 7.5 W / 16 W

Sensor

Total sensor pixels (MP)	6 MP
Sensor type	1/1.8 inch CMOS
Effective picture elements (H x V px)	3264 px x 1840 px

Optical

Zoom/focus control	Motorized zoom/focus
Iris control	P-iris
Field of View wide (°)	44° – 117°
Field of View tele (°)	24° – 62°
Lens focal length (mm)	3.90 mm – 10 mm
Lens aperture (/F)	1.6 /F – 2.7 /F

Video functions

Camera functionality	Mirror image; Rotation 90°; Rotation 180°; Rotation 270° including upright mode; Backlight compensation (BLC); Intelligent dynamic noise reduction; Contrast enhancement; Sharpness enhancement; Intelligent defog; Pixel counter; Tamper detection; Saturation; Brightness
Minimum illumination in color (lx)	0.04 lx
Minimum illumination in monochrome (lx)	0.0059 lx
Low light technology	starlight
Number of privacy masks	8
Sensitivity	F1.6; 1/25
White balance modes	Basic; Standard; Dominant color; Manual mode; Hold mode; 4 automatic modes; Sodium lamp
White balance (K)	2500 K – 10000 K
ALC	Mode (standard, fluorescent), Level , Average vs. peak, Speed, Maximum gain; Adjustable
Day/night modes	Auto (adjustable switch points); Color; Monochrome
Scene modes with scheduler	Traffic; Night optimized; Vibrant; Low bitrate; Sports & gaming; Retail; Intelligent AE; Indoor; Outdoor; License plate recognition
Shutter modes	Automatic Electronic Shutter (AES); 1/25 min; 1/15.000 max; Default shutter
Wide Dynamic Range (WDR) (dB)	120 dB
Display stamping	Name; Logo; Date/time; Alarm message
Measured according to IEC 62676 Part 5 (dB)	107 dB

Video streaming

Camera processing latency	<120ms
Frame rate (fps)	1 fps – 30 fps
GOP structure	IP
Number of encoder output streams	Multiple configurable streams in H.265; H.264 and M-JPEG; Configurable framerate and bandwidth; Region of Interest (ROI); Bosch Intelligent Streaming
Resolution	1920 x 1080; 1280 x 1024; 1280 x 720; 704 x 480; 854 x 480; 3072 x 1728; 1920 x 1440; 3264 x 1840
Video compression	H.264 (ISO/IEC 14496-10); M-JPEG; H.265/HEVC
Sensor modes	25 fps, HDR, 3072 x 1728 (5.3 MP) 30 fps, HDR, 3072 x 1728 (5.3 MP) 25 fps, 3264 x 1840 (6 MP) 30 fps, 3264 x 1840 (6 MP)
Video stream signal-to-noise ratio (dB)	>55 dB

Video content analysis

Alarm triggers	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Idle / removed object; Counting; Occupancy; Crowd density estimation; Condition change; Similarity search; Flow / counter flow
Calibration	Automatic self-calibrating when height is set
Configurations	Silent VCA; Profile 1; Profile 2; Scheduled; Event triggered
Object filters	Duration; Size; Aspect ratio; Speed; Direction; Color; Object classes (4)
Tracking modes	Standard (2D) tracking; 3D tracking; 3D people tracking; Ship tracking; Museum mode
Analysis type	Intelligent Video Analytics; Camera trainer
Additional functionalities	Face detection

Capacity

Alarm inputs	2
Alarm outputs	1
Host interface	Ethernet

Audio

Audio streaming	Full duplex; Half duplex
Compression and sampling rate	G.711 8 kHz; L16 16 kHz; AAC-LC 80kbps 16 kHz; AAC-LC 48kbps 16 kHz

Storage

Internal storage	RAM
Recording mode	Pre-alarm
Memory card slot	SDHC; SD; Dual SDXC, up to 2TB
Dual SD-card slot configurations	Mirror (redundant storage); Failover (extended service interval); Extend (maximum retention time); Automatic Network Replenishment
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication

Data security

Crypto coprocessor (TPM)	RSA 2048 bit; AES/CBC 256 bit
Encryption	TLS 1.2; TLS 1.0; AES; local storage: XTS-AES
Video authentication	MD5; SHA-1; SHA-256; Checksum

Firmware

Common Product Platform	CPP7.3

Network

Cloud services	Remote Portal
Ethernet type	10/100BASE-T; Auto-sensing; Full / half duplex
Ethernet	Shielded RJ45
Surge protection	Ethernet: 1 kV, 2 kA to ground (8/20 µs pulse)
Fiber optics (sold separately)	The Fiber Optic Ethernet Media Converter kit (VG4-SFPSCKT) installed inside a Surveillance Cabinet (NDA-U-PAO, NDA-U-PA1 or NDA-U-PA2) provides the fiber optic interface to the mounted camera

System integration

Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; Auto-MDIX; ONVIF Profile M
Protocols / standards	IPv4; IPv6; UDP; TCP; HTTP; HTTPS; RTP/RTCP; IGMP V2/V3; ICMPv6; RTSP; FTP; ARP; DHCP; APIPA (Auto-IP, link local address); NTP (SNTP); SNMP (V1, MIBII); SNMP (V3, MIBII); 802.1x, EAP/TLS; DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; UPnP (SSDP); DiffServ (QoS); LLDP; SOAP; CHAP; Digest authentication; IGMP

Mechanical

Bubble material	Polycarbonate, clear with UV blocking anti-scratch coating
Color	White
Color in RAL	RAL 9003 Signal white
Material	Housing: Aluminum, with dehumidifying membranes and waterproof connection area
Mounting type	Surface-mounted
Tilt range (°)	-3° – 85°
Pan range (°)	0° – 361°
Roll range (°)	-95° – 95°
Weight (kg)	2.30 kg
Weight (lb)	5.07 lb
Dimension (Ø x H) (mm)	175 mm x 148 mm
Dimension (Ø x H) (in)	6.9 in x 5.7 in

Environmental

Operating temperature (°C)	-50 °C – 60 °C; Up to +74 °C according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Operating temperature (°F)	-58 °F – 140 °F; Up to +165 °F according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile

Storage temperature (°C)	-30 °C – 70 °C
Storage temperature (°F)	-22 °F – 158 °F
Operating relative humidity, non-condensing (%)	5% – 93%
Operating relative humidity, condensing (%)	5% – 100%
Storage relative humidity (%)	0% – 98%
IP rating	IP66; IP6K9K
Impact protection (EN 50102)	IK10+ (50 joules)
Degree of protection (UL 50 NEMA)	4X

Camera installation

Camera LED	Auto disable/ Enable/ Disable
Positioning	Mounting height; Coordinates
Field of view adjustment	Motorized pan, tilt, roll; Zoom; Autofocus

Ordering information

NDE-8513-R Fixed dome 6MP HDR 3.9-10mm PTRZ IP66
Fixed dome.
NDAA compliant
Order number **NDE-8513-R | F.01U.404.123**

Accessories

NDA-8000-PC Paintable cover, 4 pcs
Paintable cover (4 pieces) for FLEXIDOME IP 8000i.
Order number **NDA-8000-PC | F.01U.324.966**

NDA-8000-CBL Clear replacement bubble
Clear replacement bubble.
Order number **NDA-8000-CBL | F.01U.324.934**

NDA-8000-TBL Tinted Bubble
Tinted bubble for FLEXIDOME IP 8000i.
Order number **NDA-8000-TBL | F.01U.324.973**

NDA-8001-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-IC | F.01U.398.407**

NDA-8001-PLEN Plenum-rated mount kit
Plenum-rated in-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-PLEN | F.01U.398.393**

NDA-8000-SP In-ceiling mount support kit
Soft ceiling support for in-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-SP | F.01U.324.937**

NDA-8000-WP On-camera weather protector
On-camera weather protector for FLEXIDOME IP 8000i.
Order number **NDA-8000-WP | F.01U.324.929**

NDA-8000-PIP Pendant interface plate, indoor
Pendant interface plate for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIP | F.01U.324.938**

NDA-8000-PIPW Pendant interface plate, outdoor
Pendant interface plate including weather protector for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIPW | F.01U.324.967**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT | F.01U.324.939**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT | F.01U.324.940**

NDA-U-PMTS Pendant pipe mount, 4" (11 cm)
Universal pendant pipe mount for dome cameras, 11 cm (4"), white
Order number **NDA-U-PMTS | F.01U.385.046**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE | F.01U.324.941**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB | F.01U.324.942**

NDA-U-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA0 | F.01U.324.947**

NDA-U-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66
Order number **NDA-U-PA1 | F.01U.324.948**

NDA-U-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA2 | F.01U.324.949**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL | F.01U.324.944**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS | F.01U.324.943**

NDA-U-RMT Pendant parapet mount
Universal roof mount for dome cameras, white
Order number **NDA-U-RMT | F.01U.324.945**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-WMTG | F.01U.358.358**

NDA-U-PMTG Pendant pipe mount, gang box
Universal pipe mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-PMTG | F.01U.358.359**

VG4-SFPSCKT Ethernet to SFP interface kit
Ethernet media converter video transmitter/data receiver fiber optic kit for AUTODOME cameras, for MIC-IP-PSU for MIC analog cameras and for the Surveillance cabinets (NDA-U-PA0, NDA-U-PA1 and NDA-U-PA2).
Order number **VG4-SFPSCKT | F.01U.142.529**

SFP-2 Fiber module, multimode, 1310nm, 2LC
SFP Fiber Optic Module, 2 km (1.2 miles), 2 LC connectors.
Multi-mode
1310 mm
Order number **SFP-2 | F.01U.136.537**

SFP-3 Fiber module, single-mode, 1310nm, 2LC
SFP Fiber Optic Module, 20 km (12.4 miles), 2 LC connectors.
Single-mode
1310 nm
Order number **SFP-3 | F.01U.136.538**

SFP-25 Fiber module, 1310/1550nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1310/1550 nm
Order number **SFP-25 | F.01U.136.541**

SFP-26 Fiber module, 1550/1310nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1550/1310 nm
Order number **SFP-26 | F.01U.136.542**

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NDE-8512-RX Fixed dome 2MP HDR X 4.4-10mm PTRZ IP66

FLEXIDOME IP starlight 8000i

H.265 | HD 1080 | HDR X | IVA | PTRZ

- Motorized Pan, Tilt, Roll, and Zoom (PTRZ) to set the required field of view, without having to touch the camera or lens allows for remote configuration and commissioning
- Starlight X technology with 1/1.8" HD 1080p sensor for next level low-light performance with maximum detail
- HDR X - High Dynamic Range to see every detail in both bright and dark areas of the scene without HDR motion blur and artefacts
- Built-in Intelligent Video Analytics with object detection to trigger alerts and quickly retrieve data with the highest levels of reliability
- Camera Trainer to train the camera to recognize user-specified target objects for both moving and non-moving objects

The FLEXIDOME IP starlight 8000i - 2MP X series camera offers a 1/1.8" sensor, starlight X and HDR X technology at HD 1080p resolution. It provides the perfect balance between high resolution and extreme low-light sensitivity with starlight X technology, ensuring highly detailed images even in the most challenging situations.
HDR X enables the camera to capture video with a wide dynamic range across different light levels and without HDR motion blur and artefacts on moving objects. Fast moving objects are easily captured with frame rates of up to 60 frames per second.
The camera's remote commissioning functionality makes sure installation and commissioning can be done in very little time. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.

Functions

Full Remote Commissioning
Installing a professional IP video surveillance camera has never been so easy. In fact, as an installer, you'll never want to go back to the old methods of installing cameras again. We've simplified the installation and commissioning stages to such a degree that they can be done in very little time.
With the FLEXIDOME IP starlight 8000i camera's remote commissioning functionality there's no need to go up and down ladders. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens. Remote configuration and commissioning can also be done at a later stage once all cameras have been installed. Simply connect to the camera remotely via the network using the Bosch Project Assistant app, the camera's web interface, or the Bosch Configuration Manager.

Fast performance
The 60 frames per second mode provides for optimum performance in fast action scenes that makes sure no critical data is lost and video is captured with excellent detail.

Starlight X - Next level starlight performance
Starlight X technology combines the latest high performance, large pixel sensors, optics, improved image processing and noise suppression, resulting in a 70% improved sensitivity compared to the standard starlight camera.

HDR X - High Dynamic Range
HDR X is a new technology that combines unique sensor functionality and advanced algorithms. It is a huge leap forward in capturing high quality video of moving objects in scenes with a large dynamic range. It also allows HDR imaging at lower light levels in which traditional HDR technologies are non-functional. This is possible because the HDR X - Motion optimized mode takes two different readouts from one exposure to capture details in both the highlights and shadows of the scene, instead of blending multiple exposures like standard HDR technologies. Blending multiple exposures reduces sharpness and creates unwanted imaging artefacts on moving objects. HDR X resolves these issues, providing a crisp image with improved dynamic range.
In case an even larger dynamic range is required, HDR X - Optimized DR or HDR X - Extreme DR will further increase performance to an absolute maximum by adding another fast exposure. This combines the benefits from HDR X - Motion optimized and traditional HDR.

Scene modes
Nine configurable modes are provided with the best settings for a variety of applications. In one click fully optimized image settings can be selected to suit the conditions. Different scene modes can be selected for different situations such as traffic or retail environments.

Intelligent streaming
Smart encoding capabilities, together with Intelligent Dynamic Noise Reduction technology and analytics, reduce the bandwidth consumption to extremely low levels. Only relevant information in the scene, like motion, or objects found with the analytics, need to be encoded.
The camera is capable of quad streaming which allows the camera to deliver independent, configurable streams for live viewing, recording, or remote monitoring via constrained bandwidths.
Each of these streams can be adapted independently to deliver high quality video, perfectly tailored to purpose, while reducing bit rate by up to 90% compared to a standard camera.

H.265 high-efficiency video encoding
The camera is designed on the most efficient and powerful H.264 and H.265/HEVC encoding platform. The camera is capable of delivering high-quality and high-resolution video with very low network load. With a doubling of encoding efficiency, H.265 is the compression standard of choice for IP video surveillance systems.

Bitrate optimized profile
The average bitrate for the bitrate optimized profile using H.265 encoding in kbps for different frame rates can be found in the table provided below.

FPS at 2.1MP	Low activity	Medium activity	High activity
60	836	1261	2753
30	504	753	1647
25	441	661	1440
15	306	461	992
10	229	347	740
5	140	214	450
3	97	150	313
1	45	70	144

Notice

Actual bitrate values may vary depending on scene complexity/activity and picture settings.

Recording and storage management
Recording management can be controlled by the Bosch Video Recording Manager application, or the camera can use local storage and iSCSI targets directly without any recording software.
Local storage can be used for recording "at the edge" or for Automatic Network Replenishment (ANR) technology to improve the overall recording reliability. Pre-alarm recording in RAM reduces bandwidth consumption on the network and extends the effective life of the memory card.

Advanced edge recording
Advanced edge recording provides the most reliable storage solution possible due to the combination of the following functionalities:

- Dual SD cards that can be set up as either:
  - Mirrored, for redundant storage
  - Failover, for extended service intervals
  - Extended, for maximum retention time
- Industrial SD card support allows for extreme lifetime

- Health monitoring of industrial SD cards provide early service indications

Intelligent Video Analytics on the edge
The camera includes the latest release of the Intelligent Video Analytics application from Bosch. Specifically designed for the most demanding environments. It delivers the highest levels of accuracy for mission-critical applications such as perimeter protection of airports, critical infrastructures and government buildings, border patrol, ship tracking and traffic monitoring (e.g. wrong-way detection, traffic counts, monitoring roadsides for parked cars).
Intelligent Video Analytics is extremely resistant to false triggers caused by challenging environments with snow, wind (moving trees), rain, hail, and water reflections. It is ideal for providing automatic object detection over large distances.
The set-up of Bosch's video analytics is also second to none, which is great news for installers. Should your customer decide to use Intelligent Video Analytics, configuration and calibration couldn't be easier. Simply enter the height of the camera and the rest of the calibration is carried out by the video analytics itself based on information provided by the camera's built-in gyro sensor.

Camera Trainer
Based on examples of target objects and non-target objects, the Camera Trainer program uses machine learning to allow the user to define objects of interest and generate detectors for them. In contrast to the moving objects that the Intelligent Video Analytics application detects, the Camera Trainer program detects both moving and non-moving objects and classifies them immediately. Using Configuration Manager, you can configure the Camera Trainer program using both live video as well as recordings available through the respective camera. The resulting detectors can be downloaded and uploaded for distribution to other cameras.
A free of charge license is required to activate the Camera Trainer program.

DORI coverage
DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The maximum distance at which a camera/lens combination can meet these criteria is shown below:

2MP camera with 4.4 mm - 10 mm lens or 12 mm - 40 mm lens

DORI	DORI definition	Distance 4.4 mm / 10 mm	Distance 12 mm / 40 mm	Horizontal width
Detect	25 px/m 8 px/ft	27 m / 86 m 84 ft / 270 ft	115 m / 342 m 361 ft / 1070 ft	77 m 240 ft
Observe	63 px/m 19 px/ft	11 m / 34 m 35 ft / 114 ft	46 m / 136 m 152 ft / 451 ft	31 m 101 ft
Recognize	125 px/m 38 px/ft	5 m / 17 m 18 ft / 57 ft	23 m / 69 m 76 ft / 225 ft	15 m 50 ft
Identify	250 px/m 76 px/ft	3 m / 9 m 9 ft / 28 ft	12 m / 34 m 38 ft / 113 ft	8 m 25 ft

Data security
Special measures ensure the highest level of security for device access and data transport. On initial setup, the camera is only accessible over secure channels and enforces a password. Web browser and viewing client access can be protected using HTTPS or other secure protocols that support state-of-the-art TLS 1.2 with updated cipher suites including AES encryption with 256 bit keys. No software can be installed in the camera, and only authenticated firmware can be uploaded. A three-level password protection with security recommendations allows users to customize device access.
Network and device access can be protected using 802.1x network authentication with EAP/TLS.
Superior protection from malicious attacks is guaranteed by the Embedded Login Firewall, on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support.
The advanced certificate handling offers:
- Self-signed unique certificates automatically created when required
- Client and server certificates for authentication
- Client certificates for proof of authenticity
- Certificates with encrypted private keys

System integration and ONVIF conformance
The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, and ONVIF Profile T specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer.
Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Universal accessories

A full line of universal accessories are available that allow a consistent design across different platforms and a wide range of installation possibilities. Several dedicated accessories are available that seamlessly fit to the camera and expand the different installation options over previous generations. Available options include: a paintable cover, an on-camera weather protector, a clear or tinted replacement bubble, in-ceiling mounting kits, a surveillance cabinet with power and fiber optic options and different mounting options.

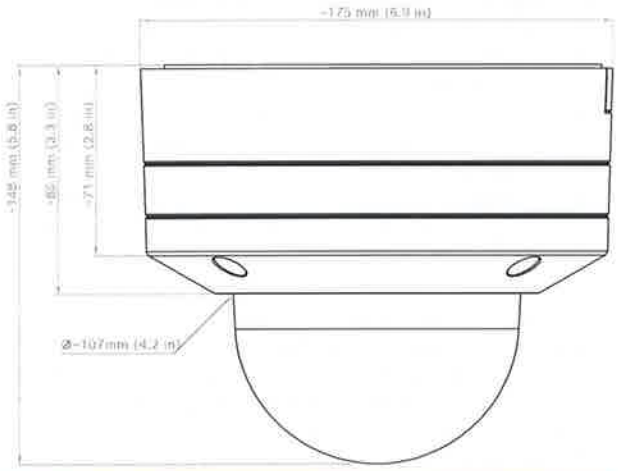
Regulatory information

Standards	Type
Emission	EN 301 489-1, EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), CFR 47 FCC, part 15, Class B, AS/NZS CISPR 32
Immunity	EN 301 489-1, EN 50130-4 (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6)
Environmental	EN 50130-5 Class IVA (EN 60068-2-2, EN 60068-2-5, EN 60068-2-6, EN 60068-2-18, EN 60068-2-27, EN 60068-2-30, EN 60068-2-42, EN 60068-2-52, EN 60068-2-75, EN 60068-2-78, EN 60529), UL 2043 when combined with NDA-8001-PLEN, Nema TS 2 Section 2
Safety	EN 62368-1, EN 60950-22, UL 62368-1, UL 60950-22, CSA C22.2 No. 62368-1-14, CAN/CSA-C22.2 No. 60950-22:07
Image performance	IEC 62676-5
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709-6
ONVIF conformance	EN 50132-5-2, EN 62676-2
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP66), ISO 20653 (IP6K9K), UL50E (Type 4X), UL 60950-22
Environment	2011/65/EU RoHS (EN 50581 and EN IEC 63000), 1999/45/EC and 1907/2006 REACH, 2012/19/EU WEEE, 94/62/EC Packaging
Marks	CE, cULus, WEEE, RCM, China RoHS, Cmim, UKCA

Region	Regulatory compliance/quality marks	
Great Britain	UKCA	FLEXIDOME IP startlight 8000i
Europe	CE	FLEXIDOME IP starlight 8000i

Installation/configuration notes

Dimensions



Parts included

Quantity	Component
1	FLEXIDOME IP 8000i camera
1	T-20 security Torx bit
1	Quick installation guide
1	Safety information
2	Rubber grommet for the Ethernet cable
1	Network patch cable 50 cm
1	10-pin I/O connector
1	2-pin power connector
1	Cable conduit for side entry
1	Washer for cable conduit
1	Adapter plate for cable conduit (Ø 3/4" / M25)
1	Adapter plate for cable conduit (Ø 1/2" / M20)
3	Identification label

Technical specifications

Power	
Input voltage	PoE IEEE 802.3af / 802.3at Type 1, Class 3; 24 VAC ±10%; 12-26 VDC ±10%; PoE and auxiliary power can be connected simultaneously for redundant operation

Power	
Power Consumption (typical / maximum)	PoE: 7 W / 12.95 W; 24 VAC: 7.1 W - 12 VA / 13 W - 25 VA; 12-26 VDC: 7.5 W / 16 W

Sensor

Total sensor pixels (MP)	2.10 MP
Sensor type	1/1.8 inch CMOS
Effective picture elements (H x V px)	1920 px x 1080 px

Optical

Zoom/focus control	Motorized zoom/focus
Iris control	P-iris
Field of View wide (°)	48° – 110°
Field of View tele (°)	27° – 56°
Lens focal length (mm)	4.40 mm – 10 mm
Lens aperture (/F)	1.3 /F – 1.97 /F

Video functions

Camera functionality	Mirror image; Rotation 90°; Rotation 180°; Rotation 270° including upright mode; Backlight compensation (BLC); Intelligent dynamic noise reduction; Contrast enhancement; Sharpness enhancement; Intelligent defog; Pixel counter; Tamper detection; Saturation; Brightness
Minimum illumination in color (lx) (starlight sensitivity measured according to IEC 62676 Part 5)	0.0061 lx
Minimum illumination in monochrome (lx) (starlight sensitivity measured according to IEC 62676 Part 5)	0.0007 lx
Low light technology	starlight X
Number of privacy masks	8
Sensitivity	1/25; F1.3
White balance modes	Basic; Standard; Dominant color; Manual mode; Hold mode; 4 automatic modes; Sodium lamp
White balance (K)	2500 K – 10000 K
ALC	Mode (standard, fluorescent), Level , Average vs. peak, Speed, Maximum gain; Adjustable
Day/night modes	Auto (adjustable switch points); Color; Monochrome
Scene modes with scheduler	Traffic; Night optimized; Vibrant; Low bitrate; Sports & gaming; Retail; Intelligent AE; Indoor; Outdoor; License plate recognition
Shutter modes	Automatic Electronic Shutter (AES); 1/25 min; 1/15.000 max; Default shutter
Wide Dynamic Range (WDR) (dB)	144 dB
Display stamping	Name; Logo; Date/time; Alarm message
Measured according to IEC 62676 Part 5 (dB)	108 dB

Video streaming

Camera processing latency	<67 ms
Frame rate (fps)	1 fps – 60 fps
GOP structure	IBBP
Number of encoder output streams	Multiple configurable streams in H.265; H.264 and M-JPEG; Configurable framerate and bandwidth; Region of Interest (ROI); Bosch Intelligent Streaming
Resolution	1920 x 1080; 1280 x 1024; 1280 x 720; 768 x 432; 640 x 480; 1536 x 864; 720 x 480
Video compression	H.264 (ISO/IEC 14496-10); M-JPEG; H.265/HEVC
Sensor modes	25 fps, HDR X, 1920 x 1080 (2.1 MP) 30 fps, HDR X, 1920 x 1080 (2.1 MP) 50 fps, 1920 x 1080 (2.1 MP) 60 fps, 1920 x 1080 (2.1 MP)
Video stream signal-to-noise ratio (dB)	>55 dB

Video content analysis

Alarm triggers	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Idle / removed object; Counting; Occupancy; Crowd density estimation; Condition change; Similarity search; Flow / counter flow
Calibration	Automatic self-calibrating when height is set
Configurations	Silent VCA; Profile 1; Profile 2; Scheduled; Event triggered
Object filters	Duration; Size; Aspect ratio; Speed; Direction; Color; Object classes (4)
Tracking modes	Standard (2D) tracking; 3D tracking; 3D people tracking; Ship tracking; Museum mode
Analysis type	Intelligent Video Analytics; Camera trainer
Additional functionalities	Face detection

Capacity

Alarm inputs	2
Alarm outputs	1
Host interface	Ethernet

Audio

Audio streaming	Full duplex; Half duplex
Compression and sampling rate	G.711 8 kHz; L16 16 kHz; AAC-LC 80kbps 16 kHz; AAC-LC 48kbps 16 kHz

Storage

Internal storage	RAM
Recording mode	Pre-alarm
Memory card slot	SDHC; SD; Dual SDXC, up to 2TB
Dual SD-card slot configurations	Mirror (redundant storage); Failover (extended service interval); Extend (maximum retention time); Automatic Network Replenishment
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication

Data security

Crypto coprocessor (TPM)	RSA 2048 bit; AES/CBC 256 bit
Encryption	TLS 1.2; TLS 1.0; AES 256; AES 128; local storage: XTS-AES
Video authentication	MD5; SHA-1; SHA-256; Checksum

Firmware

Common Product Platform	CPP7.3

Network

Cloud services	Remote Portal
Ethernet type	10/100BASE-T; Auto-sensing; Full / half duplex
Ethernet	Shielded RJ45
Surge protection	Ethernet: 1 kV, 2 kA to ground (8/20 µs pulse)
Fiber optics (sold separately)	The Fiber Optic Ethernet Media Converter kit (VG4-SFPSCKT) installed inside a Surveillance Cabinet (NDA-U-PAO, NDA-U-PA1 or NDA-U-PA2) provides the fiber optic interface to the mounted camera

System integration

Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; Auto-MDIX; ONVIF Profile M
Protocols / standards	IPv4; IPv6; UDP; TCP; HTTP; HTTPS; RTP/RTCP; IGMP V2/V3; ICMPv6; RTSP; FTP; ARP; DHCP; APIPA (Auto-IP, link local address); NTP (SNTP); SNMP (V1, MIBII); SNMP (V3, MIBII); 802.1x, EAP/TLS; DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; UPnP (SSDP); DiffServ (QoS); LLDP; SOAP; CHAP; Digest authentication; IGMP

Mechanical

Bubble material	Polycarbonate, clear with UV blocking anti-scratch coating

Color	White
Color in RAL	RAL 9003 Signal white
Material	Housing: Aluminum, with dehumidifying membranes and waterproof connection area
Mounting type	Surface-mounted
Tilt range (°)	-3° – 81°
Pan range (°)	0° – 361°
Roll range (°)	-95° – 95°
Weight (kg)	2.20 kg
Weight (lb)	4.85 lb
Dimension (Ø x H) (mm)	148 mm x 175 mm
Dimension (Ø x H) (in)	6.9 in x 5.7 in

Environmental

Operating temperature (°C)	-50 °C – 60 °C; Up to +74 °C according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Operating temperature (°F)	-58 °F – 140 °F; Up to +165 °F according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Storage temperature (°C)	-30 °C – 70 °C
Storage temperature (°F)	-22 °F – 158 °F
Operating relative humidity, non-condensing (%)	5% – 93%
Operating relative humidity, condensing (%)	5% – 100%
Storage relative humidity (%)	0% – 98%
IP rating	IP66; IP6K9K
Impact protection (EN 50102)	IK10+ (50 joules)
Degree of protection (UL 50 NEMA)	4X

Camera installation

Camera LED	Auto disable/ Enable/ Disable
Positioning	Mounting height; Coordinates
Field of view adjustment	Motorized pan, tilt, roll; Zoom; Autofocus

Ordering information

NDE-8512-RX Fixed dome 2MP HDR X 4.4-10mm PTRZ IP66
Fixed dome.
NDAA compliant
Order number **NDE-8512-RX | F.01U.404.127**

Accessories

NDA-8000-PC Paintable cover, 4 pcs
Paintable cover (4 pieces) for FLEXIDOME IP 8000i.
Order number **NDA-8000-PC | F.01U.324.966**

NDA-8000-CBL Clear replacement bubble
Clear replacement bubble.
Order number **NDA-8000-CBL | F.01U.324.934**

NDA-8000-TBL Tinted Bubble
Tinted bubble for FLEXIDOME IP 8000i.
Order number **NDA-8000-TBL | F.01U.324.973**

NDA-8001-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-IC | F.01U.398.407**

NDA-8001-PLEN Plenum-rated mount kit
Plenum-rated in-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-PLEN | F.01U.398.393**

NDA-8000-SP In-ceiling mount support kit
Soft ceiling support for in-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-SP | F.01U.324.937**

NDA-8000-WP On-camera weather protector
On-camera weather protector for FLEXIDOME IP 8000i.
Order number **NDA-8000-WP | F.01U.324.929**

NDA-8000-PIP Pendant interface plate, indoor
Pendant interface plate for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIP | F.01U.324.938**

NDA-8000-PIPW Pendant interface plate, outdoor
Pendant interface plate including weather protector for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIPW | F.01U.324.967**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT | F.01U.324.939**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT | F.01U.324.940**

NDA-U-PMTS Pendant pipe mount, 4" (11 cm)
Universal pendant pipe mount for dome cameras, 11 cm (4"), white
Order number **NDA-U-PMTS | F.01U.385.046**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE | F.01U.324.941**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB | F.01U.324.942**

NDA-U-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA0 | F.01U.324.947**

NDA-U-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66
Order number **NDA-U-PA1 | F.01U.324.948**

NDA-U-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA2 | F.01U.324.949**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL | F.01U.324.944**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS | F.01U.324.943**

NDA-U-RMT Pendant parapet mount
Universal roof mount for dome cameras, white
Order number **NDA-U-RMT | F.01U.324.945**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-WMTG | F.01U.358.358**

NDA-U-PMTG Pendant pipe mount, gang box
Universal pipe mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-PMTG | F.01U.358.359**

VG4-SFPSCKT Ethernet to SFP interface kit
Ethernet media converter video transmitter/data receiver fiber optic kit for AUTODOME cameras, for MIC-IP-PSU for MIC analog cameras and for the Surveillance cabinets (NDA-U-PA0, NDA-U-PA1 and NDA-U-PA2).
Order number **VG4-SFPSCKT | F.01U.142.529**

SFP-2 Fiber module, multimode, 1310nm, 2LC
SFP Fiber Optic Module, 2 km (1.2 miles), 2 LC connectors.
Multi-mode
1310 mm
Order number **SFP-2 | F.01U.136.537**

SFP-3 Fiber module, single-mode, 1310nm, 2LC
SFP Fiber Optic Module, 20 km (12.4 miles), 2 LC connectors.
Single-mode
1310 nm
Order number **SFP-3 | F.01U.136.538**

SFP-25 Fiber module, 1310/1550nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1310/1550 nm
Order number **SFP-25 | F.01U.136.541**

SFP-26 Fiber module, 1550/1310nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1550/1310 nm
Order number **SFP-26 | F.01U.136.542**

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NDE-8513-RXT Fixed dome 4MP HDR X 12-40mm PTRZ IP66

FLEXIDOME IP starlight 8000i

H.265 HDR X IVA PTRZ

- Motorized Pan, Tilt, Roll, and Zoom (PTRZ) to set the required field of view, without having to touch the camera or lens allows for remote configuration and commissioning
- Starlight X technology with 1/1.8" 4.1MP sensor for next level low-light performance with maximum detail
- HDR X - High Dynamic Range to see every detail in both bright and dark areas of the scene without motion artefacts
- Built-in Intelligent Video Analytics with object detection to trigger alerts and quickly retrieve data with the highest levels of reliability
- Camera Trainer to train the camera to recognize user-specified target objects for both moving and non-moving objects

The FLEXIDOME IP starlight 8000i - 4MP X series camera offers a 1/1.8" sensor, starlight X and HDR X technology at 4.1MP resolution. It provides the perfect balance between high resolution and extreme low-light sensitivity with starlight X technology, ensuring highly detailed images even in the most challenging situations.
HDR X enables the camera to capture video with a wide dynamic range across different light levels and without HDR motion blur and artefacts on moving objects. Fast moving objects are easily captured with frame rates of up to 60 frames per second at the same 4.1 MP resolution.
The camera's remote commissioning functionality makes sure installation and commissioning can be done in very little time. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.

Functions

Full Remote Commissioning
Installing a professional IP video surveillance camera has never been so easy. In fact, as an installer, you'll never want to go back to the old methods of installing cameras again. We've simplified the installation and commissioning stages to such a degree that they can be done in very little time.
With the FLEXIDOME IP starlight 8000i camera's remote commissioning functionality there's no need to go up and down ladders. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens. Remote configuration and commissioning can also be done at a later stage once all cameras have been installed. Simply connect to the camera remotely via the network using the Bosch Project Assistant app, the camera's web interface, or the Bosch Configuration Manager.

Fast performance
The 60 frames per second mode provides for optimum performance in fast action scenes and makes sure no critical data is lost. In combination with the high 4.1MP resolution, it allows for high detail video capture of fast moving objects while at the same time providing situational awareness.

Starlight X - Next level starlight performance
Starlight X technology combines the latest high performance, large pixel sensors, optics, improved image processing and noise suppression, resulting in a 5.5x improved sensitivity compared to the standard starlight camera.

HDR X - High Dynamic Range
HDR X is a new technology that combines unique sensor functionality and advanced algorithms. It is a huge leap forward in capturing high quality video of moving objects in scenes with a large dynamic range. It also allows HDR imaging at lower light levels in which traditional HDR technologies are non-functional. This is possible because the HDR X - Motion optimized mode takes two different readouts from one exposure to capture details in both the highlights and shadows of the scene, instead of blending multiple exposures like standard HDR technologies. Blending multiple exposures reduces sharpness and creates unwanted imaging artefacts on moving objects. HDR X resolves these issues, providing a crisp image with improved dynamic range.
In case an even larger dynamic range is required, HDR X - Optimized DR or HDR X - Extreme DR will further increase performance to an absolute maximum by adding another fast exposure. This combines the benefits from HDR X - Motion optimized and traditional HDR.

Scene modes
Nine configurable modes are provided with the best settings for a variety of applications. In one click fully optimized image settings can be selected to suit the conditions. Different scene modes can be selected for different situations such as traffic or retail environments.

Intelligent streaming
Smart encoding capabilities, together with Intelligent Dynamic Noise Reduction technology and analytics, reduce the bandwidth consumption to extremely low levels. Only relevant information in the scene, like motion, or objects found with the analytics, need to be encoded.
The camera is capable of quad streaming which allows the camera to deliver independent, configurable streams for live viewing, recording, or remote monitoring via constrained bandwidths.
Each of these streams can be adapted independently to deliver high quality video, perfectly tailored to purpose, while reducing bit rate by up to 90% compared to a standard camera.

H.265 high-efficiency video encoding
The camera is designed on the most efficient and powerful H.264 and H.265/HEVC encoding platform. The camera is capable of delivering high-quality and high-resolution video with very low network load. With a doubling of encoding efficiency, H.265 is the compression standard of choice for IP video surveillance systems.

Bitrate optimized profile
The average bitrate for the bitrate optimized profile using H.265 encoding in kbps for different frame rates can be found in the table provided below.

FPS at 4.1MP	Low activity	Medium activity	High activity
60	1287	1765	4239
30	776	1054	2536
25	680	1124	2218
15	471	710	1528
10	352	534	1140
5	215	329	693
3	150	231	482
1	70	108	222

Notice

Actual bitrate values may vary depending on scene complexity/activity and picture settings.

Recording and storage management
Recording management can be controlled by the Bosch Video Recording Manager application, or the camera can use local storage and iSCSI targets directly without any recording software.
Local storage can be used for recording "at the edge" or for Automatic Network Replenishment (ANR) technology to improve the overall recording reliability. Pre-alarm recording in RAM reduces bandwidth consumption on the network and extends the effective life of the memory card.

Advanced edge recording
Advanced edge recording provides the most reliable storage solution possible due to the combination of the following functionalities:
- Dual SD cards that can be set up as either:
  - Mirrored, for redundant storage
  - Failover, for extended service intervals
  - Extended, for maximum retention time
- Industrial SD card support allows for extreme lifetime
- Health monitoring of industrial SD cards provide early service indications

Intelligent Video Analytics on the edge
The camera includes the latest release of the Intelligent Video Analytics application from Bosch. Specifically designed for the most demanding environments. It delivers the highest levels of accuracy for mission-critical applications such as perimeter protection of airports, critical infrastructures and government buildings, border patrol, ship tracking and traffic monitoring (e.g. wrong-way detection, traffic counts, monitoring roadsides for parked cars).
Intelligent Video Analytics is extremely resistant to false triggers caused by challenging environments with snow, wind (moving trees), rain, hail, and water reflections. It is ideal for providing automatic object detection over large distances.
The set-up of Bosch's video analytics is also second to none, which is great news for installers. Should your customer decide to use Intelligent Video Analytics, configuration and calibration couldn't be easier. Simply enter the height of the camera and the rest of the calibration is carried out by the video analytics itself based on information provided by the camera's built-in gyro sensor.

Camera Trainer
Based on examples of target objects and non-target objects, the Camera Trainer program uses machine learning to allow the user to define objects of interest and generate detectors for them. In contrast to the moving objects that the Intelligent Video Analytics application detects, the Camera Trainer program detects both moving and non-moving objects and classifies them immediately. Using Configuration Manager, you can configure the Camera Trainer program using both live video as well as recordings available through the respective camera. The resulting detectors can be downloaded and uploaded for distribution to other cameras.
A free of charge license is required to activate the Camera Trainer program.

DORI coverage
DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The maximum distance at which a camera/lens combination can meet these criteria is shown below:

4MP camera with 4.4 mm - 10 mm lens or 12 mm - 40 mm lens

DORI	DORI definition	Distance 4.4 mm / 10 mm	Distance 12 mm / 40 mm	Horizontal width
Detect	25 px/m 8 px/ft	38 m / 121 m 118 ft / 377 ft	162 m / 479 m 505 ft / 1498 ft	108 m 336 ft
Observe	63 px/m 19 px/ft	15 m / 48 m 50 ft / 159 ft	64 m / 190 m 213 ft / 631 ft	43 m 142 ft
Recognize	125 px/m 38 px/ft	8 m / 24 m 25 ft / 79 ft	32 m / 96 m 106 ft / 315 ft	22 m 71 ft
Identify	250 px/m 76 px/ft	4 m / 12 m 12 ft / 40 ft	16 m / 48 m 53 ft / 158 ft	11 m 35 ft

Data security
Special measures ensure the highest level of security for device access and data transport. On initial setup, the camera is only accessible over secure channels and enforces a password. Web browser and viewing client access can be protected using HTTPS or other secure protocols that support state-of-the-art TLS 1.2 with updated cipher suites including AES encryption with 256 bit keys. No software can be installed in the camera, and only authenticated firmware can be uploaded. A three-level password protection with security recommendations allows users to customize device access.
Network and device access can be protected using 802.1x network authentication with EAP/TLS.
Superior protection from malicious attacks is guaranteed by the Embedded Login Firewall, on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support.
The advanced certificate handling offers:
- Self-signed unique certificates automatically created when required
- Client and server certificates for authentication
- Client certificates for proof of authenticity
- Certificates with encrypted private keys

System integration and ONVIF conformance
The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, and ONVIF Profile T specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer.
Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Universal accessories
A full line of universal accessories are available that allow a consistent design across different platforms and a wide range of installation possibilities.

Several dedicated accessories are available that seamlessly fit to the camera and expand the different installation options over previous generations. Available options include: a paintable cover, an on-camera weather protector, a clear or tinted replacement bubble, in-ceiling mounting kits, a surveillance cabinet with power and fiber optic options and different mounting options.

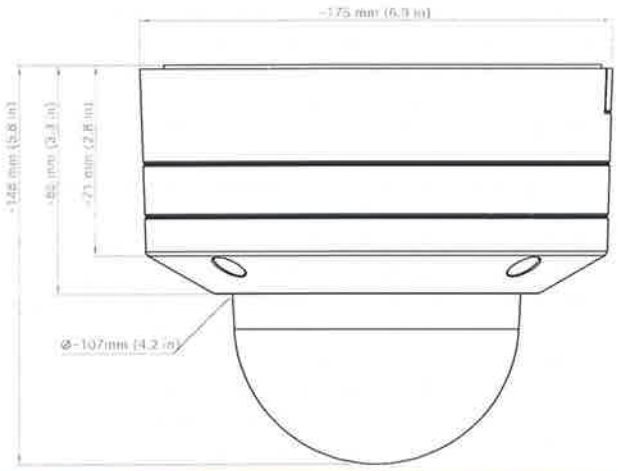
Regulatory information

Standards	Type
Emission	EN 301 489-1, EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), CFR 47 FCC, part 15, Class B, AS/NZS CISPR 32
Immunity	EN 301 489-1, EN 50130-4 (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6), EN 50121-4 (EN 55016-2-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6)
Environmental	EN 50130-5 Class IVA (EN 60068-2-2, EN 60068-2-5, EN 60068-2-6, EN 60068-2-18, EN 60068-2-27, EN 60068-2-30, EN 60068-2-42, EN 60068-2-52, EN 60068-2-75, EN 60068-2-78, EN 60529), UL 2043 when combined with NDA-8001-PLEN, Nema TS 2 Section 2
Safety	EN 62368-1, EN 60950-22, UL 62368-1, UL 60950-22, CSA C22.2 No. 62368-1-14, CAN/CSA-C22.2 No. 60950-22:07
Image performance	IEC 62676-5
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709-6
ONVIF conformance	EN 50132-5-2, EN 62676-2
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP66), ISO 20653 (IP6K9K), UL50E (Type 4X), UL 60950-22
Environment	2011/65/EU RoHS (EN 50581 and EN IEC 63000), 1999/45/EC and 1907/2006 REACH, 2012/19/EU WEEE, 94/62/EC Packaging
Marks	CE, cULus, WEEE, RCM, China RoHS, Cmim, UKCA

Region	Regulatory compliance/quality marks	
Great Britain	UKCA	FLEXIDOME IP startlight 8000i
Europe	CE	FLEXIDOME IP starlight 8000i

Installation/configuration notes

Dimensions



Parts included

Quantity	Component
1	FLEXIDOME IP 8000i camera
1	T-20 security Torx bit
1	Quick installation guide
1	Safety information
2	Rubber grommet for the Ethernet cable
1	Network patch cable 50 cm
1	10-pin I/O connector
1	2-pin power connector
1	Cable conduit for side entry
1	Washer for cable conduit
1	Adapter plate for cable conduit (Ø 3/4" / M25)
1	Adapter plate for cable conduit (Ø 1/2" / M20)
3	Identification label

Technical specifications

Power	
Input voltage	PoE IEEE 802.3af / 802.3at Type 1, Class 3; 24 VAC ±10%; 12-26 VDC ±10%; PoE and auxiliary power can be connected simultaneously for redundant operation

Power	
Power Consumption (typical / maximum)	PoE: 7 W / 12.95 W; 24 VAC: 7.1 W - 12 VA / 13 W - 25 VA; 12-26 VDC: 7.5 W / 16 W

Sensor	
Total sensor pixels (MP)	4.10 MP
Sensor type	1/1.8 inch CMOS
Effective picture elements (H x V px)	2688 px x 1520 px

Optical	
Zoom/focus control	Motorized zoom/focus
Iris control	P-iris
Field of View wide (°)	12.80° – 36.80°
Field of View tele (°)	7.30° – 20.30°
Lens focal length (mm)	12 mm – 40 mm
Lens aperture (/F)	2.3 /F2.3

Video functions	
Camera functionality	Mirror image; Rotation 90°; Rotation 180°; Rotation 270° including upright mode; Backlight compensation (BLC); Intelligent dynamic noise reduction; Contrast enhancement; Sharpness enhancement; Intelligent defog; Pixel counter; Tamper detection; Saturation; Brightness
Minimum illumination in color (lx) (starlight sensitivity measured according to IEC 62676 Part 5)	0.0247 lx
Minimum illumination in monochrome (lx) (starlight sensitivity measured according to IEC 62676 Part 5)	0.0030 lx
Low light technology	starlight X
Number of privacy masks	8
Sensitivity	1/25; F2.3
White balance modes	Basic; Standard; Dominant color; Manual mode; Hold mode; 4 automatic modes; Sodium lamp
White balance (K)	2500 K – 10000 K
ALC	Mode (standard, fluorescent), Level , Average vs. peak, Speed, Maximum gain; Adjustable
Day/night modes	Auto (adjustable switch points); Color; Monochrome
Scene modes with scheduler	Traffic; Night optimized; Vibrant; Low bitrate; Sports & gaming; Retail; Intelligent AE; Indoor; Outdoor; License plate recognition
Shutter modes	Automatic Electronic Shutter (AES); 1/25 min; 1/15.000 max; Default shutter
Wide Dynamic Range (WDR) (dB)	141 dB
Display stamping	Name; Logo; Date/time; Alarm message
Measured according to IEC 62676 Part 5 (dB)	108 dB

Video streaming	
Camera processing latency	<67ms
Frame rate (fps)	1 fps – 60 fps
GOP structure	IBBP
Number of encoder output streams	Multiple configurable streams in H.265; H.264 and M-JPEG; Configurable framerate and bandwidth; Region of Interest (ROI); Bosch Intelligent Streaming
Resolution	1920 x 1080; 1280 x 1024; 1280 x 720; 768 x 432; 640 x 480; 1536 x 864; 1920 x 1440; 720 x 480; 2688 x 1520; 2560 x 1440
Video compression	H.264 (ISO/IEC 14496-10); M-JPEG; H.265/HEVC
Sensor modes	25 fps, HDR X, 2688 x 1520 (4.1 MP) 30 fps, HDR X, 2688 x 1520 (4.1 MP) 50 fps, 2688 x 1520 (4.1 MP) 60 fps, 2688 x 1520 (4.1 MP)
Video stream signal-to-noise ratio (dB)	>55 dB

Video content analysis

Alarm triggers	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Idle / removed object; Counting; Occupancy; Crowd density estimation; Condition change; Similarity search; Flow / counter flow
Calibration	Automatic self-calibrating when height is set
Configurations	Silent VCA; Profile 1; Profile 2; Scheduled; Event triggered
Object filters	Duration; Size; Aspect ratio; Speed; Direction; Color; Object classes (4)
Tracking modes	Standard (2D) tracking; 3D tracking; 3D people tracking; Ship tracking; Museum mode
Analysis type	Intelligent Video Analytics; Camera trainer
Additional functionalities	Face detection

Capacity

Alarm inputs	2
Alarm outputs	1
Host interface	Ethernet

Audio

Audio streaming	Full duplex; Half duplex
Compression and sampling rate	G.711 8 kHz; L16 16 kHz; AAC-LC 80kbps 16 kHz; AAC-LC 48kbps 16 kHz

Storage

Internal storage	RAM
Recording mode	Pre-alarm
Memory card slot	SDHC; SD; Dual SDXC, up to 2TB
Dual SD-card slot configurations	Mirror (redundant storage); Failover (extended service interval); Extend (maximum retention time); Automatic Network Replenishment
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication

Data security

Crypto coprocessor (TPM)	RSA 2048 bit; AES/CBC 256 bit
Encryption	TLS 1.2; TLS 1.0; AES 256; AES 128; local storage: XTS-AES
Video authentication	MD5; SHA-1; SHA-256; Checksum

Firmware

Common Product Platform	CPP7.3

Network

Cloud services	Remote Portal
Ethernet type	10/100BASE-T; Auto-sensing; Full / half duplex
Ethernet	Shielded RJ45
Surge protection	Ethernet: 1 kV, 2 kA to ground (8/20 µs pulse)
Fiber optics (sold separately)	The Fiber Optic Ethernet Media Converter kit (VG4-SFPSCKT) installed inside a Surveillance Cabinet (NDA-U-PAO, NDA-U-PA1 or NDA-U-PA2) provides the fiber optic interface to the mounted camera

System integration

Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; Auto-MDIX; ONVIF Profile M
Protocols / standards	IPv4; IPv6; UDP; TCP; HTTP; HTTPS; RTP/RTCP; IGMP V2/V3; ICMPv6; RTSP; FTP; ARP; DHCP; APIPA (Auto-IP, link local address); NTP (SNTP); SNMP (V1, MIBII); SNMP (V3, MIBII); 802.1x, EAP/TLS; DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; UPnP (SSDP); DiffServ (QoS); LLDP; SOAP; CHAP; Digest authentication; IGMP

Mechanical

Bubble material	Polycarbonate, clear with UV blocking anti-scratch coating

Color	White
Color in RAL	RAL 9003 Signal white
Material	Housing: Aluminum, with dehumidifying membranes and waterproof connection area
Mounting type	Surface-mounted
Tilt range (°)	-3° – 89°
Pan range (°)	0° – 361°
Roll range (°)	-95° – 95°
Weight (kg)	2.30 kg
Weight (lb)	5.07 lb
Dimension (Ø x H) (mm)	148 mm x 175 mm
Dimension (Ø x H) (in)	6.9 in x 5.7 in

Environmental

Operating temperature (°C)	-50 °C – 60 °C; Up to +74 °C according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Operating temperature (°F)	-58 °F – 140 °F; Up to +165 °F according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Storage temperature (°C)	-30 °C – 70 °C
Storage temperature (°F)	-22 °F – 158 °F
Operating relative humidity, non-condensing (%)	5% – 93%
Operating relative humidity, condensing (%)	5% – 100%
Storage relative humidity (%)	0% – 98%
IP rating	IP66; IP6K9K
Impact protection (EN 50102)	IK10+ (50 joules)
Degree of protection (UL 50 NEMA)	4X

Camera installation

Camera LED	Auto disable/ Enable/ Disable
Positioning	Mounting height; Coordinates
Field of view adjustment	Motorized pan, tilt, roll; Zoom; Autofocus

Ordering information

NDE-8513-RXT Fixed dome 4MP HDR X 12-40mm PTRZ IP66
Fixed dome with tele lens.
NDAA compliant
Order number **NDE-8513-RXT | F.01U.404.130**

Accessories

NDA-8000-PC Paintable cover, 4 pcs
Paintable cover (4 pieces) for FLEXIDOME IP 8000i.
Order number **NDA-8000-PC | F.01U.324.966**

NDA-8000-CBL Clear replacement bubble
Clear replacement bubble.
Order number **NDA-8000-CBL | F.01U.324.934**

NDA-8000-TBL Tinted Bubble
Tinted bubble for FLEXIDOME IP 8000i.
Order number **NDA-8000-TBL | F.01U.324.973**

NDA-8001-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-IC | F.01U.398.407**

NDA-8001-PLEN Plenum-rated mount kit
Plenum-rated in-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-PLEN | F.01U.398.393**

NDA-8000-SP In-ceiling mount support kit
Soft ceiling support for in-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-SP | F.01U.324.937**

NDA-8000-WP On-camera weather protector
On-camera weather protector for FLEXIDOME IP 8000i.
Order number **NDA-8000-WP | F.01U.324.929**

NDA-8000-PIP Pendant interface plate, indoor
Pendant interface plate for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIP | F.01U.324.938**

NDA-8000-PIPW Pendant interface plate, outdoor
Pendant interface plate including weather protector for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIPW | F.01U.324.967**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT | F.01U.324.939**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT | F.01U.324.940**

NDA-U-PMTS Pendant pipe mount, 4" (11 cm)
Universal pendant pipe mount for dome cameras, 11 cm (4"), white
Order number **NDA-U-PMTS | F.01U.385.046**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE | F.01U.324.941**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB | F.01U.324.942**

NDA-U-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA0 | F.01U.324.947**

NDA-U-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66
Order number **NDA-U-PA1 | F.01U.324.948**

NDA-U-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA2 | F.01U.324.949**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL | F.01U.324.944**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS | F.01U.324.943**

NDA-U-RMT Pendant parapet mount
Universal roof mount for dome cameras, white
Order number **NDA-U-RMT | F.01U.324.945**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-WMTG | F.01U.358.358**

NDA-U-PMTG Pendant pipe mount, gang box
Universal pipe mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-PMTG | F.01U.358.359**

VG4-SFPSCKT Ethernet to SFP interface kit
Ethernet media converter video transmitter/data receiver fiber optic kit for AUTODOME cameras, for MIC-IP-PSU for MIC analog cameras and for the Surveillance cabinets (NDA-U-PA0, NDA-U-PA1 and NDA-U-PA2).
Order number **VG4-SFPSCKT | F.01U.142.529**

SFP-2 Fiber module, multimode, 1310nm, 2LC
SFP Fiber Optic Module, 2 km (1.2 miles), 2 LC connectors.
Multi-mode
1310 mm
Order number **SFP-2 | F.01U.136.537**

SFP-3 Fiber module, single-mode, 1310nm, 2LC
SFP Fiber Optic Module, 20 km (12.4 miles), 2 LC connectors.
Single-mode
1310 nm
Order number **SFP-3 | F.01U.136.538**

SFP-25 Fiber module, 1310/1550nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1310/1550 nm
Order number **SFP-25 | F.01U.136.541**

SFP-26 Fiber module, 1550/1310nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1550/1310 nm
Order number **SFP-26 | F.01U.136.542**

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