

**Boston Architectural College**  
**Interim Progress Report for Year Five**

**Instructions and Template**

Due by November 30, 2023

## **Contents**

1. Instructions and Template Guidelines
2. Executive Summary of the Most Recent Visit
3. Template
  - a. Progress in Addressing Not-Met Conditions and Student Performance Criteria identified in the review of the previous Interim Progress Report.
  - b. Changes or Planned Changes in the Program
  - c. Summary of Preparations for Adapting to 2020 NAAB Conditions
  - d. Appendix (Include revised curricula and syllabi. Syllabi shall reference which NAAB SPC a course addresses and which 2020 PC and SC it will address: samples of required student work).
4. Requirements for the Use of Digital Content in Interim Progress Reports

# 1. INSTRUCTIONS AND TEMPLATE GUIDELINES

## Purpose

Continuing accreditation is subject to the submission of interim progress reports at defined intervals after an eight-year or four-year term of continuing accreditation is approved.

This narrative report, supported by documentation, covers three areas:

1. The program's correction of not-met Conditions or Student Performance Criteria from the previous Interim Progress Report.
2. Significant changes to the program or the institution since the last visit.
3. Summary of preparations for adapting to 2020 NAAB Conditions.

## Supporting Documentation

1. Evidence must be provided for each Condition and SPC "not met," including detailed descriptions of changes to the curriculum that have been made in response to not-met SPC that were identified in the review of the previous Interim Progress Report. Identify any specific outcomes expected to student performance. Attach new or revised annotated syllabi identifying changes for required courses that address unmet SPC.
2. Provide information regarding changes in leadership or faculty membership. Identify the anticipated contribution to the program for new hires and include either a narrative biography or one-page CV.
3. **Evidence of student work is required for SPCs 'not met' in the most recent VTR.**
  - **Provide three examples of minimum-pass work for each deficiency** and submit student work evidence to NAAB in electronic format. (Refer to the "Requirements for the Use of Digital Content in Interim Progress Reports" for the required format and file organization.)
  - All student work evidence must be labeled and clearly annotated so that each example cross-references the specific SPC being evaluated and shows compliance with that SPC.
4. Provide additional information that may be of interest to the NAAB team at the next accreditation visit.

## Outcomes

IPRs are reviewed by a panel of three: one current NAAB director, one former NAAB director, and one experienced team chair.<sup>1</sup> The panel may make one of three recommendations to the Board regarding the interim report:

1. Accept the interim fifth-year report as having demonstrated satisfactory progress toward addressing deficiencies identified in the most recent VTR;
2. Reject the fifth-year interim report as having not demonstrated sufficient progress toward addressing deficiencies and advance the next accreditation sequence by at least one but not more than three calendar years. In such cases, the chief academic officer of the institution will be notified with copies to the program administrator and a schedule will be determined so that the program has at least six months to prepare an APR.
3. The annual statistical report (See Section 9 of the 2015 Procedures)) is still required in either case.

## Deadline and Contacts

**IPRs are due on November 30.** They shall be submitted as bookmarked PDFs sent to accreditation@naab.org. As described in Section 10 of the 2015 NAAB Procedures for Accreditation "...the program will be assessed a fine of \$100.00 per calendar day until the IPR is submitted." If the IPR is not received by January 15, the program will automatically receive Outcome 3 described above. Email questions to accreditation@naab.org.

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## **Instructions**

- 1. Reports shall be succinct and are limited to 40 pages/20 MBs, including supporting documentation.**
2. Type all responses in the designated text areas.
3. Reports must be submitted as a single PDF following the template format. Pages should be numbered.
4. Supporting documentation should be included in the body of the report.
5. Remove the #4 "Requirements for the Use of Digital Content in Interim Progress Reports" pages before submitting the interim progress report.

## 2. EXECUTIVE SUMMARY OF 2018 NAAB VISIT

### CONDITIONS NOT MET

2018 VTR	Requires Update on Progress in 5-Yr. IPR
N/A	<input type="checkbox"/>

### STUDENT PERFORMANCE CRITERIA NOT MET

2018 VTR	Requires Update on Progress in 5-Yr. IPR
B.9 Building Service Systems	<input checked="" type="checkbox"/>

### 3. TEMPLATE

## Interim Progress Report

**Boston Architectural College**

School of Architecture

**Bachelor of Architecture** (high school diploma + 150 credits + 3000 practice hours)

**Master of Architecture** (undergraduate degree + 90 credits + 3000 practice hours)

*Year of the previous visit: 2018*

*Please update contact information as necessary since the last APR was submitted.*

#### **Chief administrator for the academic unit in which the program is located:**

**Name:** Karen Nelson

**Title:** Dean and Faculty, School of Architecture

**Email Address:** karen.nelson@the-bac.edu

**Physical Address:** 320 Newbury Street, 208, Boston, MA 02115

**Any questions pertaining to this submission will be directed to the chief administrator for the academic unit in which the program is located.**

#### **Chief academic officer for the Institution:**

**Name:** Kellie H Bean

**Title:** Vice President, Academic Affairs

**Email Address:** kellie.bean@the-bac.edu

**Physical Address:** 320 Newbury Street, 209, Boston, MA 02115

Text from the VTR and IPR Year 3 review is in the gray text boxes. Type your response in the designated text boxes.

## I. Progress in Addressing Not-Met Conditions and Student Performance Criteria

### a. Progress in Addressing Not-Met Conditions

N/A

### b. Progress in Addressing Not-Met Student Performance Criteria

**B.9 Building Service Systems:** Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

**2018 Visiting Team Assessment:** For both the B. Arch. and M. Arch., evidence of student achievement at the prescribed level was not found for specialty building service systems (communication, security, and fire protection systems) in student work. Additional student work for the team's review was provided by the program upon request, but it did not provide enough evidence for the team to find this criterion met. Evidence of student achievement at the prescribed level was found for MEP systems.

**Boston Architectural College, 2021 Response:** We took very seriously this condition immediately after receiving the VTR. We asked our faculty that spring to directly address these building service systems with their students. The following fall we determined how to address these issues in required classes in both the B. Arch and the M. Arch (online and onsite). The student evidence is primarily shown in Reflected Ceiling Plans; RCPs are now required in *TSM2006 Detailing and Construction Documents*, *ARC1004/ARC3309 Architecture Studio 4*, *TSM2002 Building Systems*, and *ARC1012 Degree Project Studio 2*. Fire Protection systems are typically sprinklers (dry-pipe in unconditioned areas and wet-pipe in conditioned spaces) are shown in large scale section drawings, primarily in *TSM2006 Detailing and Construction Documents* and *ARC1004/ARC3309 Architecture Studio 4*.

**Boston Architectural College, 2023 Response:** The BAC has endeavored to meet these conditions through the required classes in both the Bachelor of Architecture and the Master of Architecture degree program. Enclosed please find the examples of syllabi and accompanying student work with highlights to the areas that were found wanting in 2018.

## II. Changes or Planned Changes in the Program

*Please report such changes as the following: faculty retirement/succession planning; administration changes (dean, department chair, provost); changes in enrollment (increases, decreases, new external pressures); new opportunities for collaboration; changes in financial resources (increases, decreases, external pressures); significant changes in educational approach or philosophy; changes in physical resources (e.g., deferred maintenance, new building planned, cancellation of plans for new building).*

**Boston Architectural College, 2023 Response:** We have a new Vice President of Academic Affairs, Kellie H. Bean, PhD who joined the BAC in November 2022. While Dr. Bean is new to design education, she brings considerable experience from open-access institutions (see enclosed c.v.). Dr. Bean has proved herself to be a capable collaborator and manager who helps strengthen the programs' focus on design excellence and building new partnerships. Dr. Bean leads our effort to improve retention and graduation rates across the college. We are pleased to report that since 2018 our undergraduate retention has improved 134% to 39% (a challenge in an open access program) and our graduate retention to 83%. Since Fall 2022, the School of Architecture's enrollment is up 29%. The most growth

has been in our graduate degree program. We attribute much of this growth to our being a very successful Integrated Path to Architectural Licensure (IPAL) program. We have the most IPAL graduates in the nation! While the core faculty member most responsible for the BAC's recent IPAL successes, Mark Rukamathu, took a teaching job in Colorado, we hired a BAC alumnus and frequent instructor, architect Michael Chavez, as an adjunct to meet student needs. We intend to replace this role with a full-time faculty member in the coming academic year. We further support paths to licensure with free access to Black Spectacles exam preparation software to all eligible students. As you may be aware, our practice faculty help evaluate student practice experiences qualitatively and quantitatively at significant milestones in a student's career. These faculty help outline for students the next steps to garner the requisite competencies to succeed. To encourage beginning students to discover their practice capacities before they are ready to engage in practice full-time, we have begun partnering with local firms for weeklong externships between semesters. We promote community design onsite and online through our re-invigorated Gateway projects where students work on a team with peers on a real-world challenge for a nonprofit, civic organization, municipal agency, or other organization. Academically, we foster an ongoing partnership with Academie van Bouwkunst Amsterdam in the Netherlands to conduct research design studios on climate resilience and sea level rise as we have since 2017. Recently, we developed a new Memoranda of Understanding with Anant University in Ahmedabad, India and we began conversations with Bilkent University in Ankara, Turkey. This year we established an articulation agreement with Humber College in Toronto, Canada. While our educational approach has not changed significantly since 2018, the issues of diversity, equity, and inclusion serve as a guiding inspiration for our curriculum and programs. We keep making strides to include more black, indigenous, and other people of color (BIPOC) designers and architects in our courses and in our lecture series. We also feature design firms that conduct community-oriented design processes such as MASS Design and Elemental. Our public programs in social reckoning through design have been exemplified by our lecture series: Just Space 2020-2021, Just Design 2021-2022, Just Environments 2022-2023, and Just Communities 2023-2024 and by our complementary exhibits of excellent BIPOC designers. Most recently, Architecture is Within Us: Balkrishna Doshi and SLOWNESS: Tata Consultancy Services Campus, Mumbai by TWBTA Partner Billie Tsien in charge. The emphasis on socially just space speaks of creating an inclusive built environment that makes all community members welcome and confers upon us a sense of belonging and well-being. Our lecture series, our exhibits, and our evolving curriculum aim to critique the current conditions to engender and design justice. To increase diversity in the professions, we have renewed our connection to the Boston Department of Planning and Development to augment a summer program for high school students interested in design, architecture, and planning where many undergraduates serve as assistant teachers. The BAC attracts students from many countries and states with a diverse set of intellectual and cultural backgrounds. Our students bring to their thesis projects, the social concerns of the world as they experience them – including how to design for people who have experienced the trauma of warfare or sexual abuse, how to design for those who are visually impaired, and how to design for refugees. The presence of such a diverse student body animates the classroom experience where students are genuinely interested in learning about and from one another. The incredible diversity of our student body is reflected in our commitment to building student leadership roles. Particularly for our students of color, we found that membership dues in NOMAS and AIAS were a barrier – so we have defrayed the costs of participation. We have also supported the founding and vitality of a series of student groups that add to the sense of belonging on campus. As a commuter school for most of our 134 years, the BAC's Office of Student Life nurtures tight communities – including supporting 30 beds at a new nearby residence hall. In terms of our physical campus, we have been successful in garnering grants to help refurbish our historic structures. We plan to restore the facade as soon as nearby street improvements are completed. In terms of the online campus infrastructure, we have invested significantly in the past few years to emerge from the pandemic with a more unified experience for



students whether they are online or onsite. We also created a stronger virtual campus and redoubled our commitment to providing resources for all. During the pandemic, we launched a comprehensive online platform that extends the resources of the physical campus to all through the BAC Cloud Canopy™. The Cloud Canopy provides student access to online softwares and empowers modest computers to act as though they have supercomputing capacities. The Library, the Learning Resource Center (free tutoring), and the Cloud Canopy all offer opportunities for students to engage from afar and onsite. The exigencies of the pandemic have had a unifying effect on BAC curricula. All courses now use the same learning management platform to host syllabi, student work, instructor feedback, and grades. Beginning the online track of the Master of Architecture degree program in January 2007 gave us deep experience teaching design online with small cohorts of students. We have been able to build upon our considerable experience teaching design in online environments and learning how to use the advantages learned in online design critiques and reviews to all our students' benefit. Throughout the pandemic, we reinforced how to build in success for all types of learners including those for whom English is a second language. Across our programs, course expectations are now more explicit as are written instructions for weekly assignments.

### **III. Summary of Preparations for Adapting to [2020 NAAB Conditions](#)**

*Please provide a brief description of actions taken or plans for adapting your curriculum/ classes to engage the 2020 Conditions.*

**Boston Architectural College, 2023 Response:** To prepare for meeting the conditions of the 2020 NAAB conditions, we have engaged with our faculty and our students in several ways. In 2021, the core faculty developed the first School of Architecture learning outcomes which have evolved with subsequent and ongoing conversations. In 2023, we held meetings with adjunct faculty to discuss and refine these outcomes (which include: 1. Ethically engage, understand, analyze, probe, synthesize, and enhance the world; 2. Design civic spaces to recognize, support, and create inclusive communities; 3. Question, collaborate, and discover through written, verbal, and investigative visual/physical/digital means; and 4. Create resilient works of architecture). Next, we met with our faculty to identify the courses that best answer the program and student criteria. We developed and shared our B. Arch and M. Arch matrices with our faculty. We have shared the learning outcomes with all entering students in an orientation this year and last year. We have been meeting this fall – both in person and a second time online to discuss how to weave the learning goals and aspirations along with NAAB criteria into the spring 2024 syllabi template. We continue to hold semesterly meetings to discuss how we are meeting our standards. We will meet again in late January to see how our matrix aligns with the evidence produced by the fall courses. We redoubled our efforts to include adjunct faculty in the conversation so that they feel invested in the NAAB standards.

**IV. Appendix** (include revised curricula, syllabi, and one-page CVs or bios of new administrators and faculty members; syllabi should reference which NAAB SPC a course addresses. Provide three examples of minimum-pass student work for each SPC 'not met' in the most recent VTR.)

**Boston Architectural College, 2023 Response:** See enclosed files 3 of 4 and 4 of 4.

#### **4. Requirements for the Use of Digital Content in Interim Progress Reports**

**Dr. Kellie Bean**  
[Kellie.beam@the-bac.edu](mailto:Kellie.bean@the-bac.edu)

**Professional Experience**

Boston Architectural College, Vice President, Academic Affairs	Nov 2022 – Present
Rio Grande University/Rio Grande Community College, Provost/VPAA	Sept 2021 – Nov 2022
Hartwick College, Assistant Vice President for Academic Affairs	Oct 2015 - Oct 2021
Lyndon State College, Provost & Dean of Faculty	June 2013 - Dec 2014
Marshall University, Associate Dean, College of Liberal Arts	May 2010 - June 2013
Marshall University, Professor, English	Aug 1994 - June 2013

**Scholarship (selected)**

*Post-Backlash Feminism: Women and the Media Since Reagan/Bush*  
McFarland & Company, 2007

“Backlash.” The Wiley-Blackwell Encyclopedia of *Gender and Sexuality Studies*.  
Wiley-Blackwell, 2015

“Keeping it (hyper)Real: Anchoring in the Age of Fake News.” *The Ultimate Daily Show and Philosophy*. Wiley-Blackwell, 2013

“Twenty-Four Notes on Appalachian Women Blogging.” *Race/Ethnicity* 4.1 (2010): 117-12

“Scenes From a Marriage: Lyotard, Pinter, and the Theater of Gender” in *Gender after Lyotard*, ed. Margret Grebowicz. NYU Press, 2006

**Education**

Ph.D., English	University of Delaware Dissertation: <i>Vision and Gender: Looking Relationships in Plays and Teleplays of Harold Pinter</i>	August, 1994
M.A., English	The Ohio State University Thesis: <i>The Gender of Sex: Language in “The Country Wife”</i>	March, 1988
B.A., English	The Ohio State University Thesis: <i>A Study of “Sir Gawain and the Green Knight”</i>	August, 1986

Context



**B.9 Building Service Systems:** Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

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# Basis for Assessment

## **B.9 Building Service Systems:**

*Understanding* of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, *communication*, vertical transportation, *security*, and *fire protection systems*.

### **NAAB 2014:**

The criteria encompass two levels of accomplishment:

- **Understanding**—The capacity to classify, compare, summarize, explain, and/or interpret information.
- **Ability**— Proficiency in using specific information to accomplish a task, correctly selecting the appropriate information, and accurately applying it to the solution of a specific problem, while also distinguishing the effects of its implementation.

Sample Student Assignment and Work

Team-based (3-4 students)

Course: TSM2002 Building Systems

(core curriculum for all M.Arch. Degree students)



# Sample Assignment Rubric

**Workshop 7 Rubric**

number	letter	Word	Definition
65	D	<b>Poor -</b>	<b>Meets minimum requirements, no detail</b> join breakout room
75	C	<b>Fair -</b>	<b>Meets most requirements, little detail</b> Coordinate roles & communication Discuss the workshop problem Download the files of the sketch design Post questions to instructors for clarification
85	B	<b>Good -</b>	<b>Meets all requirements, some detail</b> Common Area Plan: Locate electric transformer on site Size and locate electric room for primary switchgear Size and locate water room for domestic and fire water service Locate service entrance and room for communications wiring Tenant Space Plan Locate electric closet for a tenant space Locate communications closet for a tenant space Reflected Ceiling Do a dimensioned sketch of a reflected ceiling section for a common area hallway Allowance for structure HVAC ductwork based on WS 6 Lighting Fire protection piping Do a dimensioned sketch of a reflected ceiling section for a tenant space Allowance for structure HVAC ductwork based on WS 6 Lighting Fire protection piping
100	A	<b>Excellent -</b>	<b>Exceeds requirements, creative solution</b> Propose a reflected ceiling strategy that creates the most ceiling height at the outside wall Do a dimensioned sketch of a reflected ceiling plan for a common area hallway HVAC ductwork and register locations based on WS 6 Lighting design for 30 footcandles at 30 inch high work surface Fire protection sprinkler head locations Architectural ceiling finish Exit signs Do a dimensioned sketch of a reflected ceiling plan for a tenant space HVAC ductwork and register locations based on WS 6 Lighting design for 30 footcandles at 30 inch high work surface Fire protection sprinkler head locations Architectural ceiling finish

# Sample Student Work

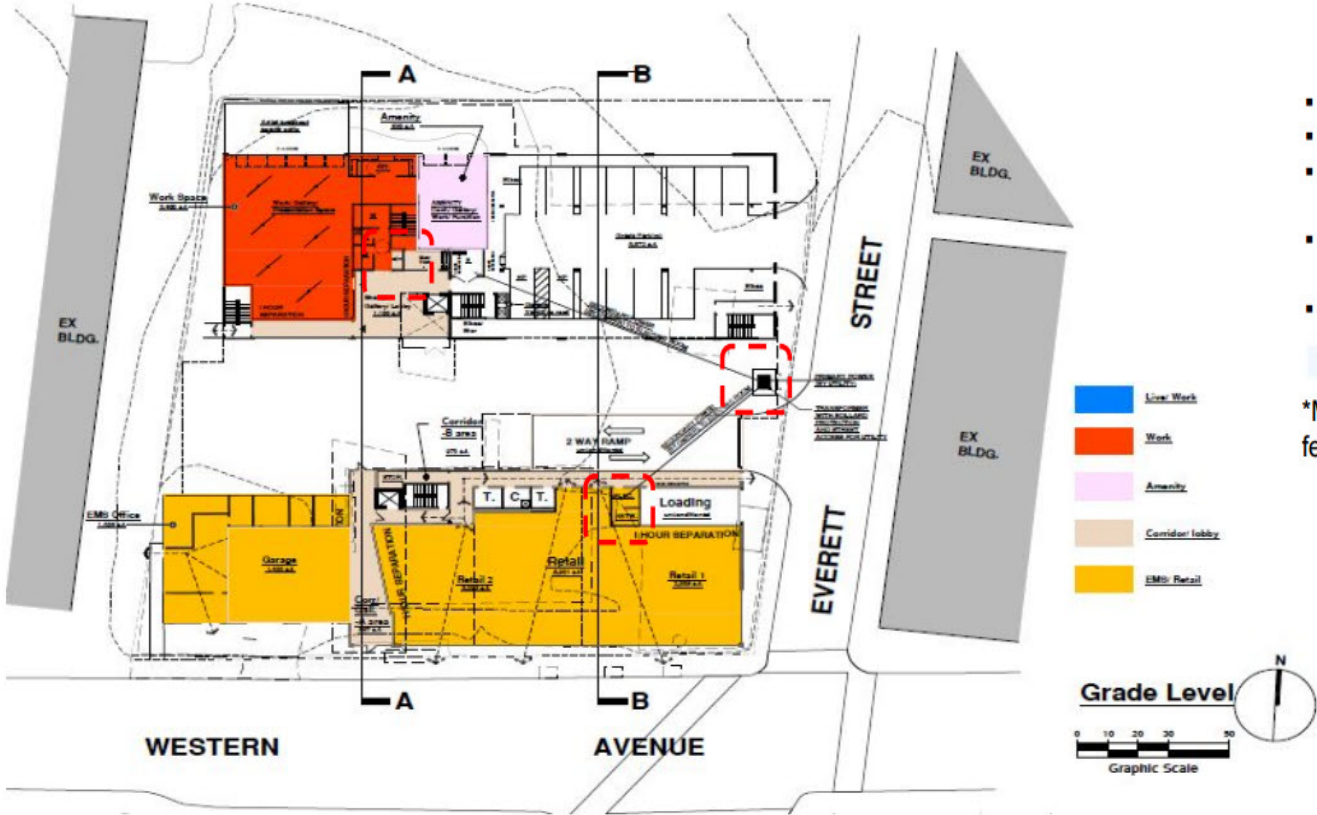
student cohort: **Bachelor of Architecture**

# The following slides show:

- **FIRE SUPPRESSION:** Location of Room for *Building* **Fire suppression equipment** and controls
- **COMMUNICATIONS:** Location of Room for *Building* **Communications equipment** and controls
- **SECURITY:** Location of Room for *Building* **Electrical**

# Transformer and service locations

**Student Team 1:**  
 R. Alaani  
 R. Mickle  
 M. Mulenga  
 R. Ricciarelli



- Electric transformer located between Buildings A & B
- Electric Rooms indicated:
  - a. Building A – off common corridor
  - b. Building B – In garage area adjacent lobby entry
- Building A electric/ Network room - 9' x 14' \*
- Building B Electric room 10' x 11'\*
- Building B Network Room off toilet core corridor
- Service entry for Bldg. A off Everett St adjacent to loading bay
- Service entry for Bldg. B

\*Main switchgear may be locate din Bldg. B with subpanel feed to Bldg. A

# Common Area Plan

## Student Team 2





M. Shadid  
D. Nguyen  
U. Kalathiya  
S. Patel  
P. Dammu

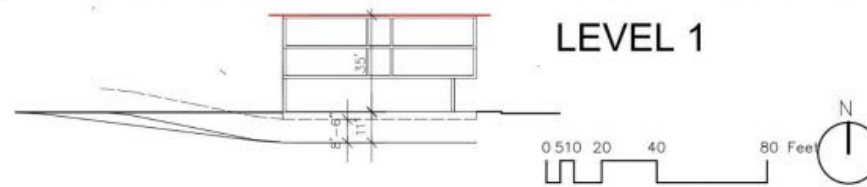


10' x 11'

12' x 13'

7' x 15'

-  Electric room for primary switchgear
-  Tel / Data Communications wiring
-  Fire Water Service / Fire Pump
-  Water Main



### Student Team 3

C. Rodriguez

M. Socorro

A. Kotadiya

E. Silva



ROOFTOP AIR SOURCE HEAT PUMP



ERV

ERV

CONDENSATE TO GREY WATER OR SANITARY

SUPPLY

RETURN

EXHAUST

HEAT PUMP

SUPPLY/RETURN

ELECTRICAL CLOSET 2'x3'

EXIT SIGN

SPRINKLER HEAD

PARKING AREA = 11,772.59 sq ft  
 MINIMUM SPRINKLERS: 90 heads  
 TOTAL SPRINKLERS: 91 heads

OCCUPANCY HAZARD: Ordinary Hazard (Auto Parking)  
 SQUARE FOOT PER HEAD: 130 SF per head  
 MAXIMUM SPACING BETWEEN SPRINKLERS: 15ft

Maximum Distance from Wall: half (1/2) of the maximum distance between sprinkler heads.

Minimum Distance Between Sprinklers: typically 6'-0".

Distance from Ceiling: minimum 1", maximum 12" for unobstructed construction. The minimum 1" is typical; however, concealed, recessed, and flush sprinklers may be mounted less than 1" from the ceiling and shall be installed based on their listing.



# The following slides show:

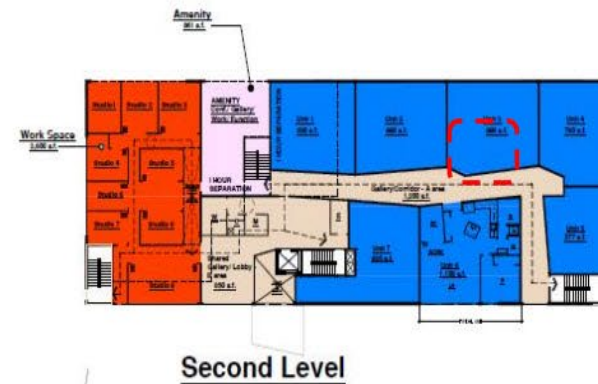
- **COMMUNICATIONS:** *Tenant Communications equipment closets*
- **SECURITY:** *Tenant Electrical equipment closets*



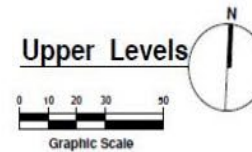
## Electric Room For Tenant Space



Third Level



Second Level



### Student Team 1:






R. Alaani  
R. Mickle  
M. Mulenga  
R. Ricciarelli

- Electric Rooms for residences Stacked off lobby
- Shared with Communications Room
- Rooms are 6' x 10'

**Student Team 2**

M. Shadid  
D. Nguyen  
U. Kalathiya  
S. Patel  
P. Dammu



-  Electric Closet
  -  Communications closet
  -  Proposed lighting location
  -  Proposed Sprinkler head location
  -  HVAC
- Architectural Ceiling: Alpine white Ceiling Tile

### Student Team 3

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M. Socorro

A. Kotadiya

E. Silva



ROOFTOP AIR SOURCE HEAT PUMP

ERV

ERV

CONDENSATE TO GREY WATER OR SANITARY

SUPPLY

RETURN

EXHAUST

HEAT PUMP SUPPLY/RETURN

ELECTRICAL CLOSET 2'x3'

EXIT SIGN

SPRINKLER HEAD

EMS AREA = 2,902.86 sq ft  
MINIMUM SPRINKLERS: 15 heads  
TOTAL SPRINKLERS: 22 heads

OCCUPANCY HAZARD: Light Hazard (Hospital)  
SQUARE FOOT PER HEAD: 130-200 SF per head  
MAXIMUM SPACING BETWEEN SPRINKLERS: 15ft

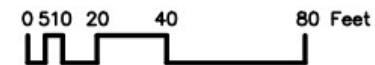
RETAIL AREA = 17,810.82 sq ft  
MINIMUM SPRINKLERS: 135 heads  
TOTAL SPRINKLERS: 145 heads

OCCUPANCY HAZARD: Ordinary Hazard  
SQUARE FOOT PER HEAD: 130 SF per head  
MAXIMUM SPACING BETWEEN SPRINKLERS: 15ft

Maximum Distance from Wall: half (1/2) of the maximum distance between sprinkler heads.

Minimum Distance Between Sprinklers: typically 8'-0".

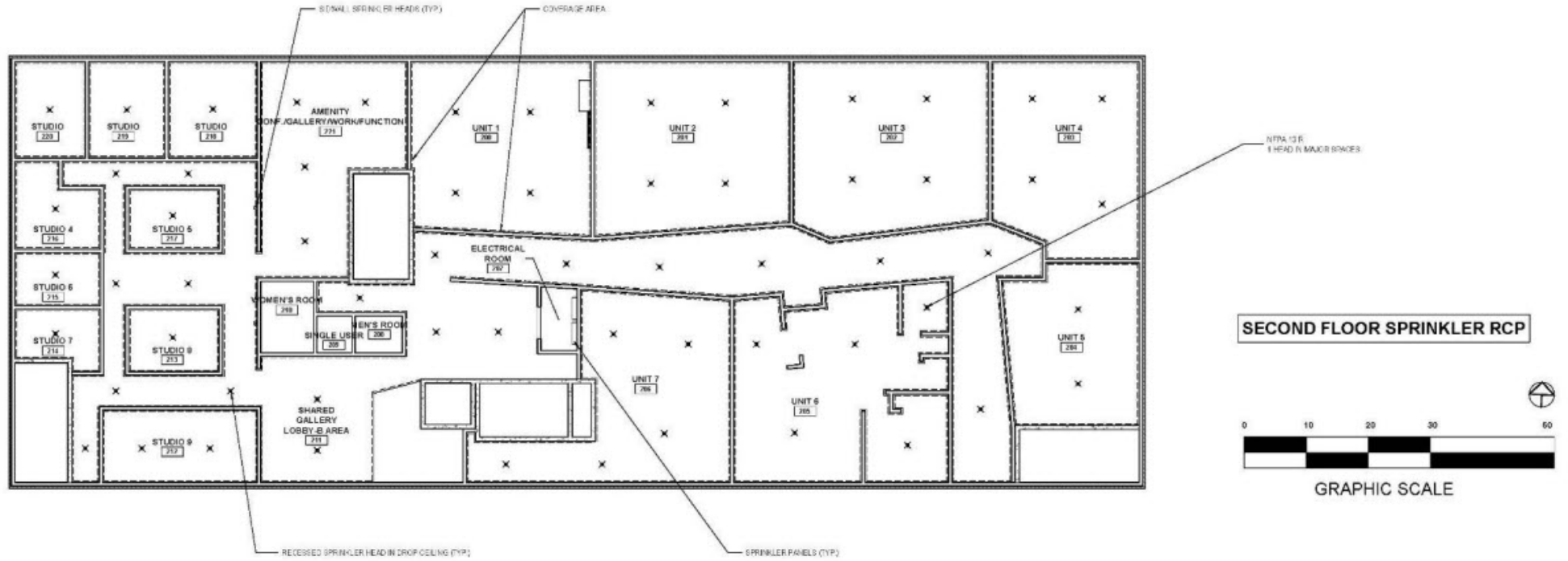
Distance from Ceiling: minimum 1", maximum 12" for unobstructed construction. The minimum 1" is typical; however, concealed, recessed, and flush sprinklers may be mounted less than 1" from the ceiling and shall be installed based on their listing.



# The following slides show:

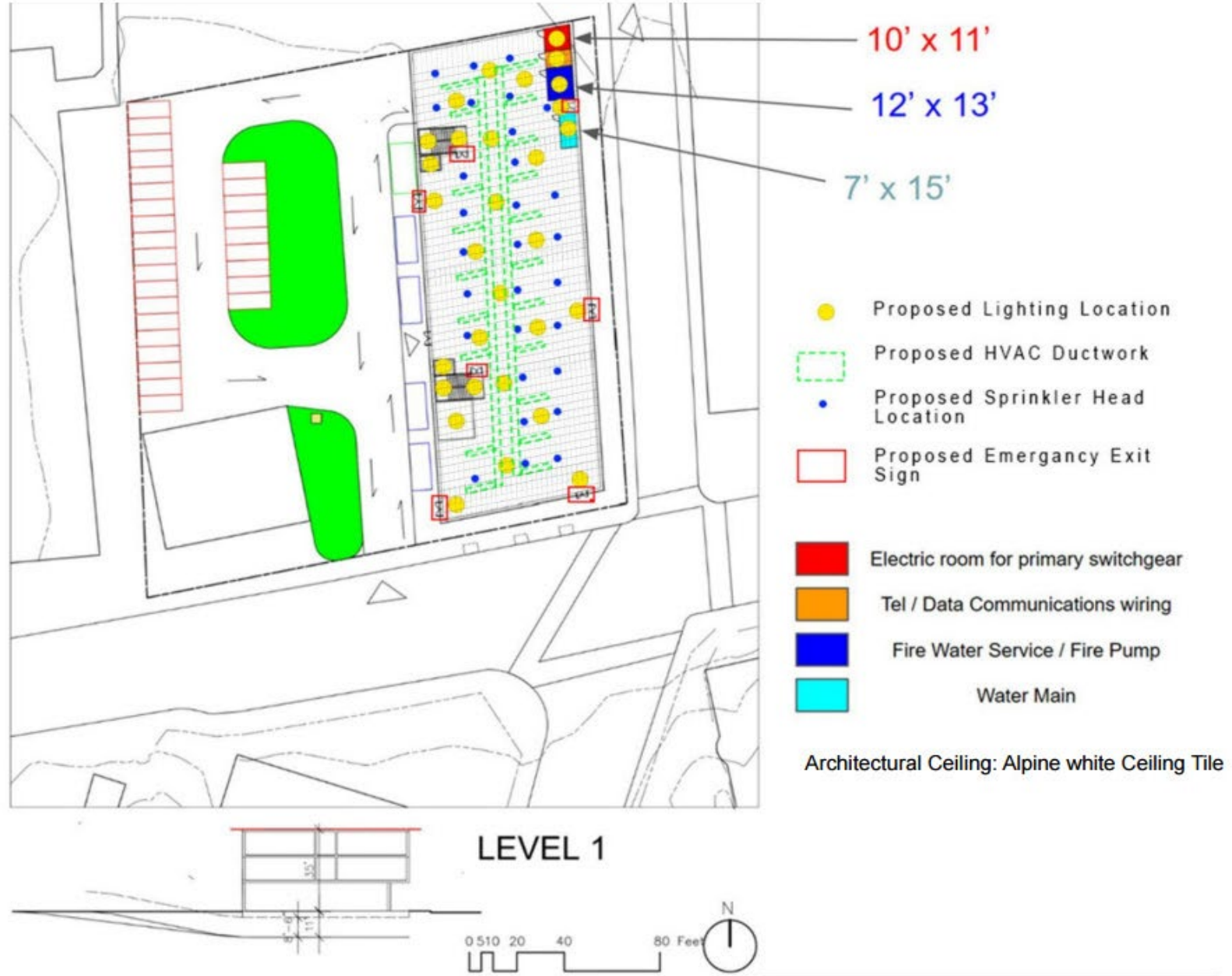
- **SECURITY:** *Exit Signs* Locations

**Student Team 1:**  
R. Alaani  
R. Mickle  
M. Mulenga  
R. Ricciarelli



**Student Team 2**

M. Shadid  
D. Nguyen  
U. Kalathiya  
S. Patel  
P. Dammu



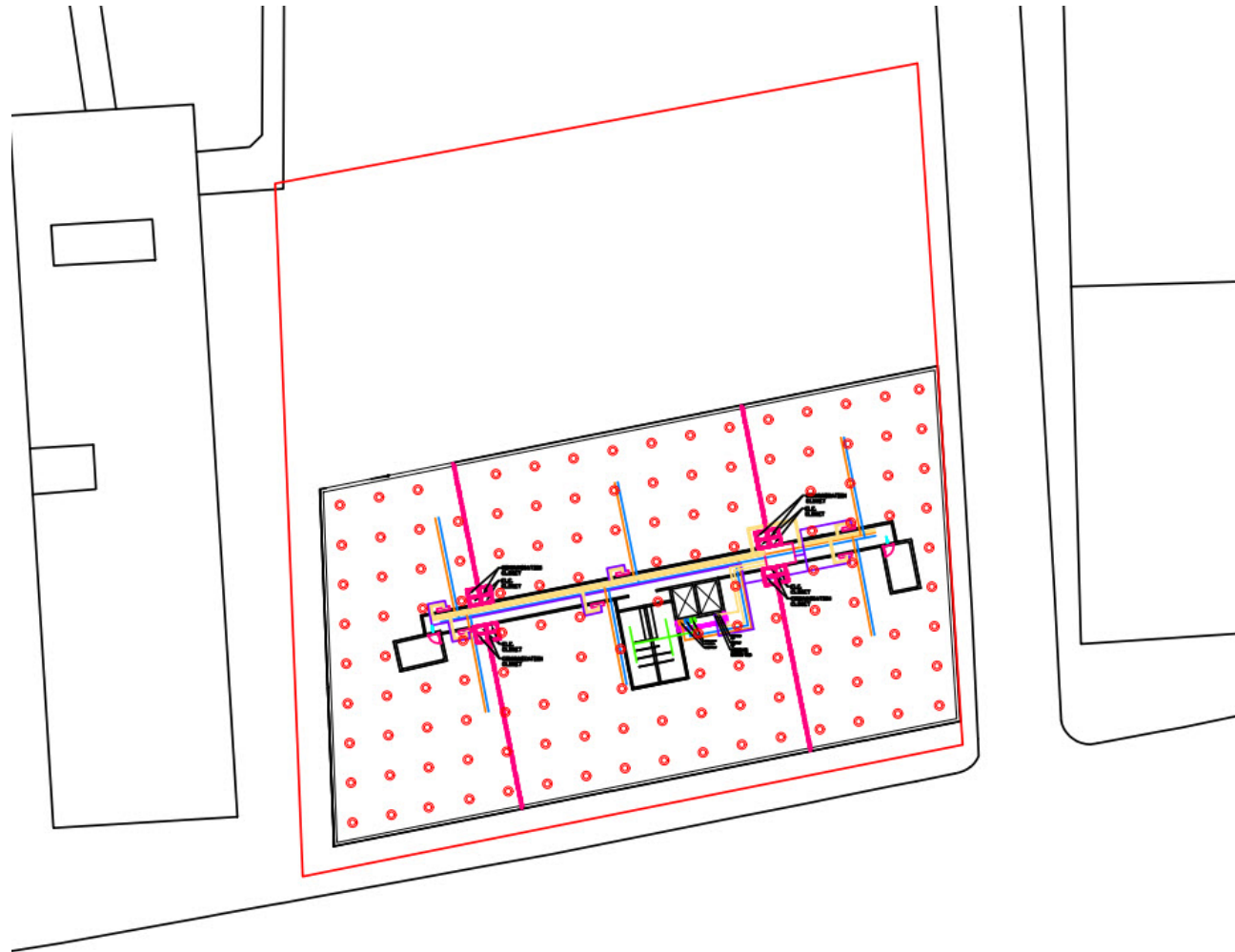
### Student Team 3

C. Rodriguez

M. Socorro

A. Kotadiya

E. Silva



● SPRINKLER HEAD

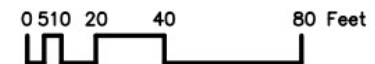
OFFICES AREA = 20,355,18 sq ft  
 MINIMUM SPRINKLERS: 102 heads  
 TOTAL SPRINKLERS: 132 heads

OCCUPANCY HAZARD: Light Hazard (Office, Hospital)  
 SQUARE FOOT PER HEAD: 130-200 SF per head  
 MAXIMUM SPACING BETWEEN SPRINKLERS: 15ft

Maximum Distance from Wall: half (1/2) of the maximum distance between sprinkler heads.

Minimum Distance Between Sprinklers: typically 6'-0".

Distance from Ceiling: minimum 1", maximum 12" for unobstructed construction. The minimum 1" is typical; however, concealed, recessed, and flush sprinklers may be mounted less than 1" from the ceiling and shall be installed based on their listing.

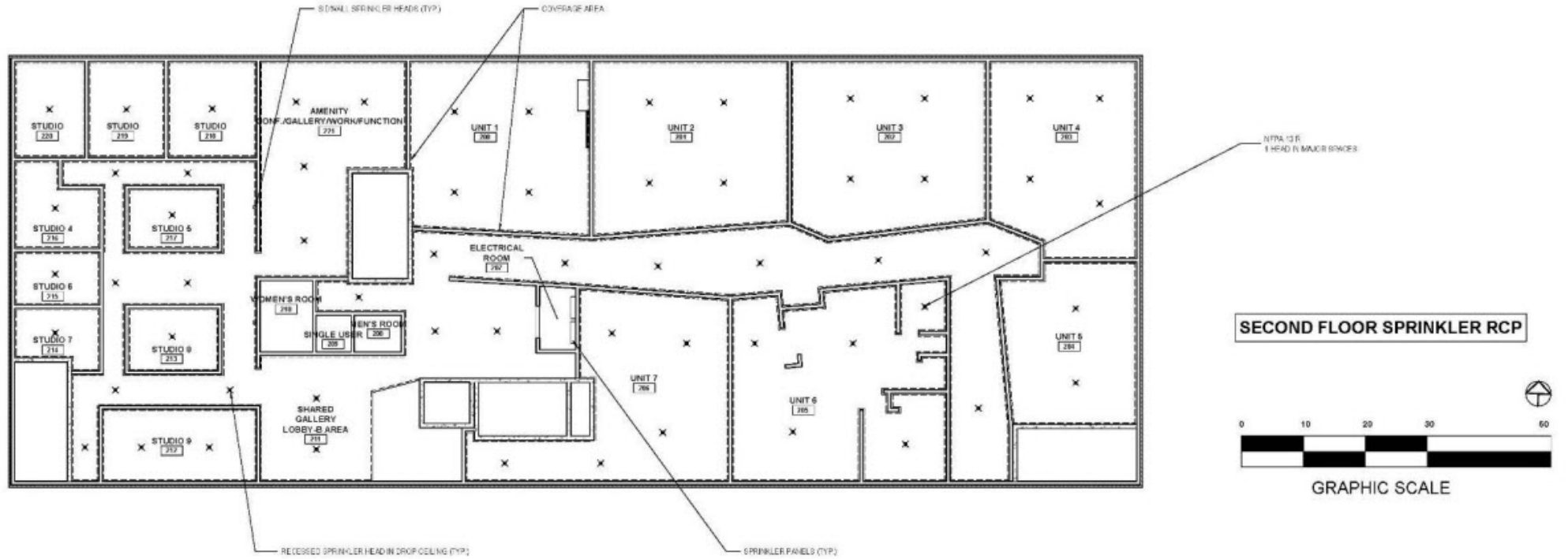


# The following slides show:

- **FIRE SUPPRESSION:** Reflected Ceiling Plan: **Fire suppression** sprinkler head layout

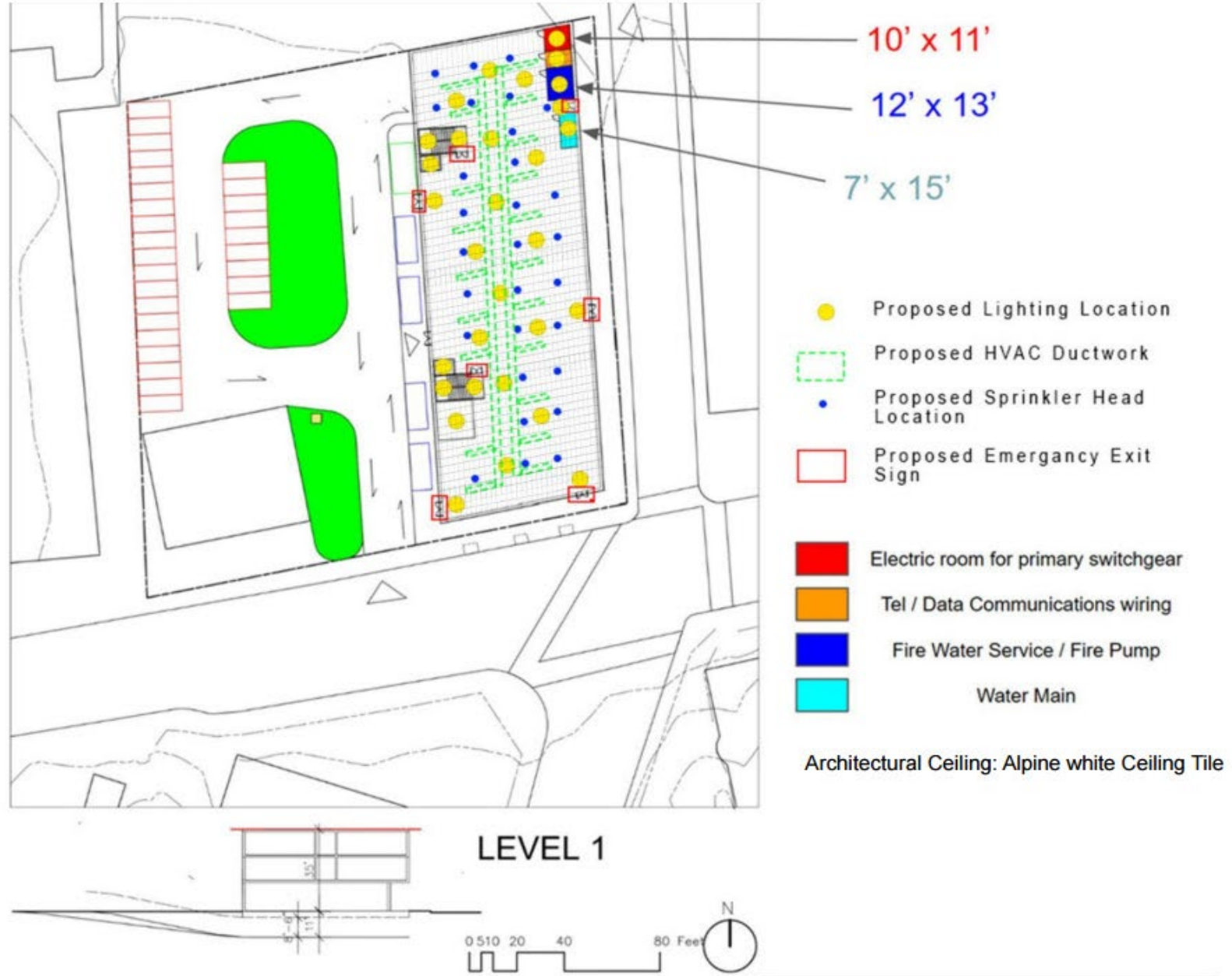


**Student Team 1:**  
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**Student Team 2**

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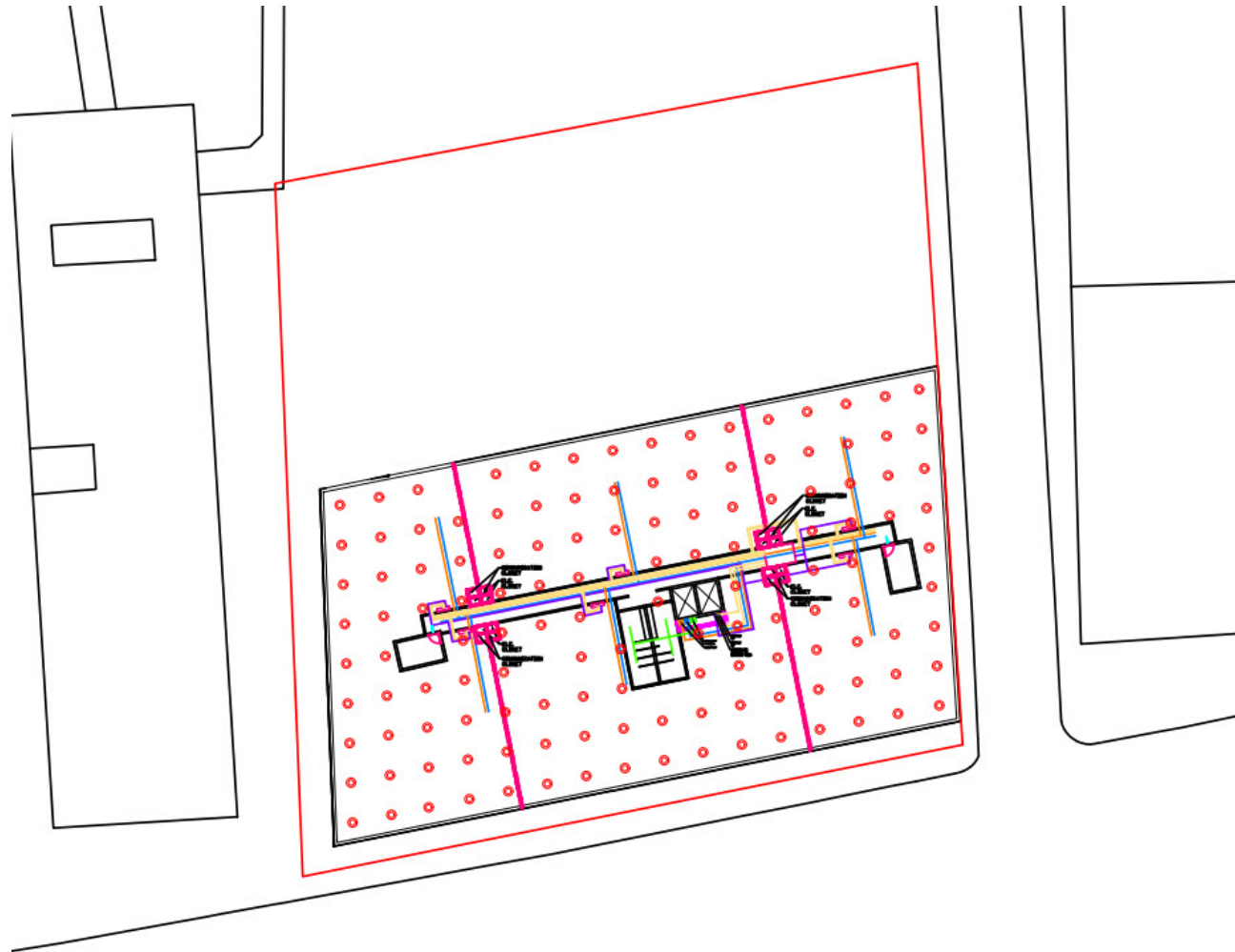
### Student Team 3

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E. Silva



CONDENSATE TO GREY WATER OR SANITARY  
 SUPPLY  
 RETURN  
 EXHAUST  
 HEAT PUMP  
 SUPPLY/RETURN

ELECTRICAL CLOSET 2'x3'  
 EXIT SIGN

SPRINKLER HEAD

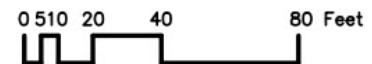
OFFICES AREA = 20,355,18 sq ft  
 MINIMUM SPRINKLERS: 102 heads  
 TOTAL SPRINKLERS: 132 heads

OCCUPANCY HAZARD: Light Hazard (Office, Hospital)  
 SQUARE FOOT PER HEAD: 130-200 SF per head  
 MAXIMUM SPACING BETWEEN SPRINKLERS: 15ft

Maximum Distance from Wall: half (1/2) of the maximum distance between sprinkler heads.

Minimum Distance Between Sprinklers: typically 6'-0".

Distance from Ceiling: minimum 1", maximum 12" for unobstructed construction. The minimum 1" is typical; however, concealed, recessed, and flush sprinklers may be mounted less than 1" from the ceiling and shall be installed based on their listing.



- Sample Student Assigned Readings

individual

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(core curriculum for all B.Arch. and M.Arch. Degree students)

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**Communications Systems**  
**Building Security Systems**

**SEND YOUR CURRENT WUFI FILE TO ME VIA EMAIL**

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**FIRE RATINGS and STRATEGIES**

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Context



**B.9 Building Service Systems:** Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

**2018 Visiting Team Assessment:** For both the B. Arch. and M. Arch., evidence of student achievement at the prescribed level was not found for specialty building service systems (communication, security, and fire protection systems) in student work. Additional student work for the team's review was provided by the program upon request, but it did not provide enough evidence for the team to find this criterion met. Evidence of student achievement at the prescribed level was found for MEP systems.

**Boston Architectural College, 2021 Response:** We took very seriously this condition immediately after receiving the VTR. We asked our faculty that spring to directly address these building service systems with their students. The following fall we determined how to address these issues in required classes in both the B. Arch and the M. Arch (online and onsite). The student evidence is primarily shown in Reflected Ceiling Plans; RCPs are now required in TSM2006 Detailing and Construction Documents, ARC1004/ARC3309 Architecture Studio 4, TSM2002 Building Systems, and ARC1012 Degree Project Studio 2. Fire Protection systems are typically sprinklers (dry-pipe in unconditioned areas and wet-pipe in conditioned spaces) are shown in large scale section drawings, primarily in TSM2006 Detailing and Construction Documents and ARC1004/ARC3309 Architecture Studio 4

# Basis for Assessment



## **B.9 Building Service Systems:**

*Understanding* of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, *communication*, vertical transportation, *security*, and *fire protection systems*.

### **NAAB 2014:**

The criteria encompass two levels of accomplishment:

- **Understanding**—The capacity to classify, compare, summarize, explain, and/or interpret information.
- **Ability**— Proficiency in using specific information to accomplish a task, correctly selecting the appropriate information, and accurately applying it to the solution of a specific problem, while also distinguishing the effects of its implementation.

Sample Student Assignment and Work  
Team-based (3-4 students)

Course: TSM2002 Building Systems

(core curriculum for all M.Arch. Degree students)

# Sample Assignment Rubric

**Workshop 7 Rubric**

number	letter	Word	Definition
65	D	<b>Poor -</b>	<b>Meets minimum requirements, no detail</b> join breakout room
75	C	<b>Fair -</b>	<b>Meets most requirements, little detail</b> Coordinate roles & communication Discuss the workshop problem Download the files of the sketch design Post questions to instructors for clarification
85	B	<b>Good -</b>	<b>Meets all requirements, some detail</b> Common Area Plan: Locate electric transformer on site Size and locate electric room for primary switchgear Size and locate water room for domestic and fire water service Locate service entrance and room for communications wiring Tenant Space Plan Locate electric closet for a tenant space Locate communications closet for a tenant space Reflected Ceiling Do a dimensioned sketch of a reflected ceiling section for a common area hallway Allowance for structure HVAC ductwork based on WS 6 Lighting Fire protection piping Do a dimensioned sketch of a reflected ceiling section for a tenant space Allowance for structure HVAC ductwork based on WS 6 Lighting Fire protection piping
100	A	<b>Excellent -</b>	<b>Exceeds requirements, creative solution</b> Propose a reflected ceiling strategy that creates the most ceiling height at the outside wall Do a dimensioned sketch of a reflected ceiling plan for a common area hallway HVAC ductwork and register locations based on WS 6 Lighting design for 30 footcandles at 30 inch high work surface Fire protection sprinkler head locations Architectural ceiling finish Exit signs Do a dimensioned sketch of a reflected ceiling plan for a tenant space HVAC ductwork and register locations based on WS 6 Lighting design for 30 footcandles at 30 inch high work surface Fire protection sprinkler head locations Architectural ceiling finish

# Sample Student Work

student cohort: **Master of Architecture**

# The following slides show:

- **FIRE SUPPRESSION:** Location of Room for *Building Fire suppression equipment* and controls
- **COMMUNICATIONS:** Location of Room for *Building Communications equipment* and controls
- **SECURITY:** Location of Room for *Building Electrical*

# Common Area Plan - Service Rooms



Basement Plan

## Service Rooms

The cadre of service rooms are sited beneath the loading dock and accessed through the adjacent stairwell.

## Student Team 1:

J. Shuber

P. Tonissi

J. Ranjitkar






R. Qadoumi

# Common Area Plan

**Student Team 2**  
C. Fitzsimmons  
H. Casey



## KEY

- Electric Transformer (52"x 44") 
- Electrical Room (30' x 30' x 11') 
- Water Room 
- Communications Room 
- Service Entrance 



**Student Team 3**  
M. Pierson  
K. Verrault  
S. Riley

## Common Area Plan

52 x 50 in. Pad  
Mounted Transformer

(2)8' x 12' water room  
for fire suppression  
and domestic water

10' x 12' service  
entrance room for  
communications

RED = BLDG COMMUNICATION ROOM  
LIGHT BLUE = BLDG FIRE SUPPRESSION CHASE ROOM  
BLUE = BLDG WATER CHASE ROOM

RED = TENANT COMMUNICATION CLOSET  
GREEN = TENANT ELECTRIC CLOSET / PANEL



# The following slides show:

- **COMMUNICATIONS:** *Tenant Communications equipment closets*
- **SECURITY:** *Tenant Electrical equipment closets*

# Tenant Space Plan

## Student Team 1:

J. Shuber  
P. Tonissi  
J. Ranjitkar  
R. Qadoumi



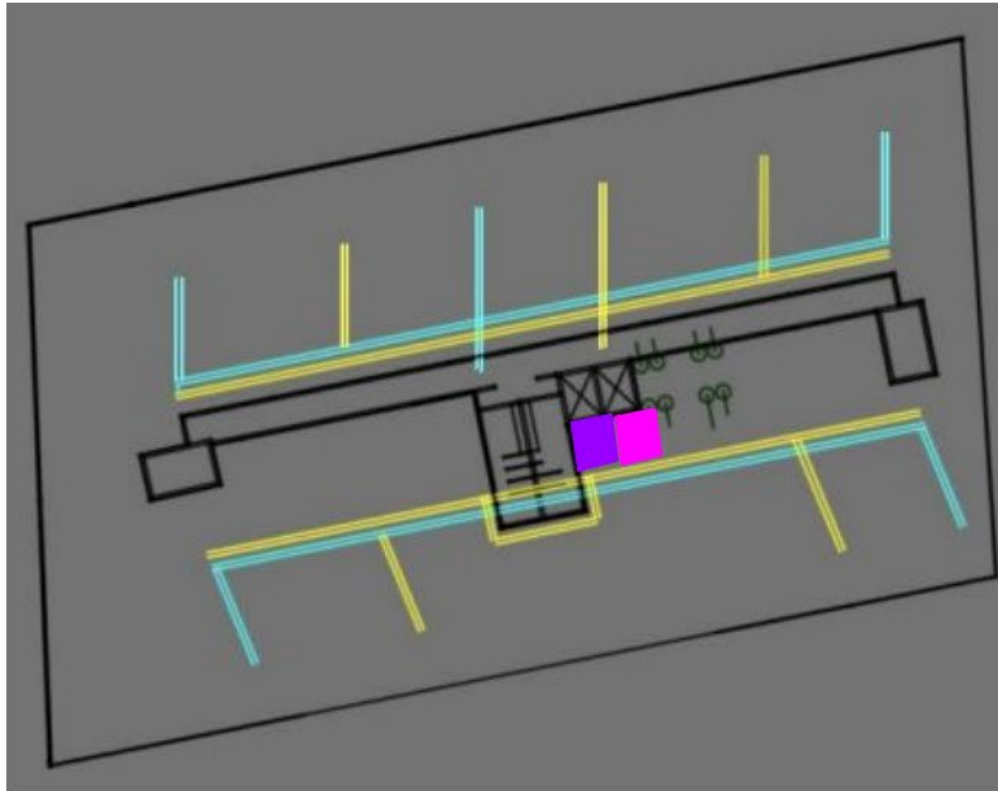
## Electric & Communications Closets

Because the tenant spaces are so close together, and to make the rooms easier to access in case of maintenance, we decided to use a single electric room and a single communications room for the tenant spaces.

The electric room is located near the elevators for easy access and visibility. The communications room is in a more secluded space because visibility is not as vital.

# Tenant Space Plan

**Student Team 2**  
C. Fitzsimmons  
H. Casey



## KEY

Electrical Room   
Communications Room 

**Student Team 3**  
M. Pierson  
K. Verrault  
S. Riley

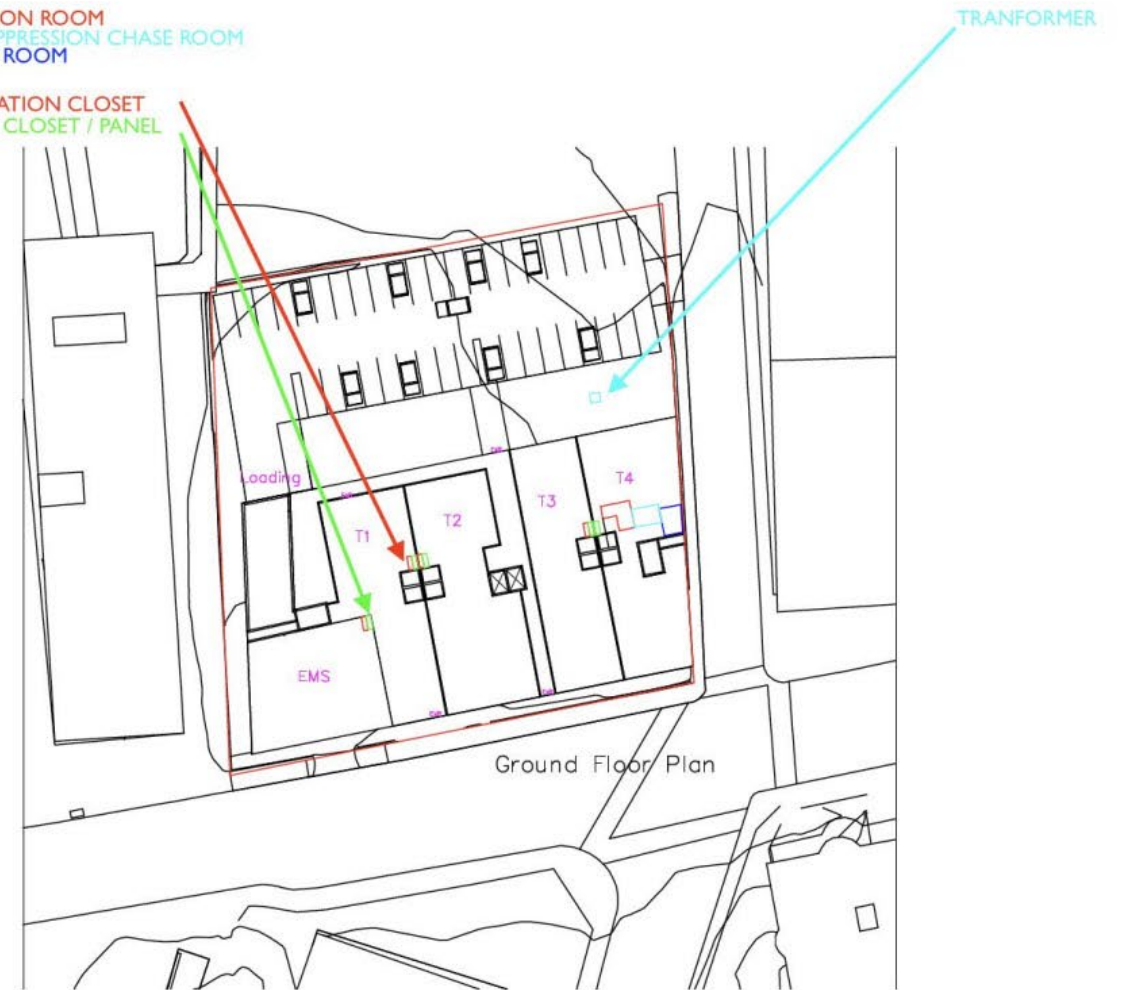
## Tenant Space Plan

6' x 2' tenant  
communication closet

6' x 2' tenant electrical  
closet or breaker panel  
space

RED = BLDG COMMUNICATION ROOM  
LIGHT BLUE = BLDG FIRE SUPPRESSION CHASE ROOM  
BLUE = BLDG WATER CHASE ROOM

RED = TENANT COMMUNICATION CLOSET  
GREEN = TENANT ELECTRIC CLOSET / PANEL



# The following slides show:

- **SECURITY:** *Exit Signs* Locations

# Ceiling Plan: Common Area Hallway and Tenant Space

## Student Team 1:

J. Shuber  
P. Tonissi  
J. Ranjitkar  
R. Qadoumi



### Architectural Ceiling plan of Lights:

Blue area-Common area Hallway

Red area-Tenant Area

Workplane -2.5 ft

Height of rooms- 14 ft

Ceiling Type-2 ft x2 ft

Lighting Type: CPANL 2x2 24/33/44LM 35K - 24LM

Distance between Lights: 8-10 ft

Distance from Walls: 5-7 ft

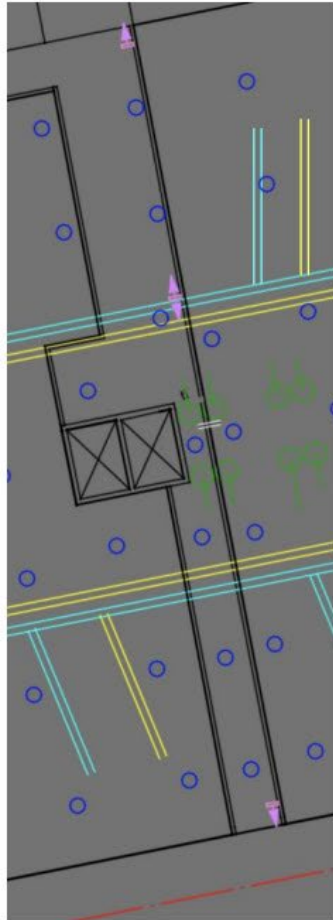
Green dots-Exit signs

Max Distance between Exit signs - in excess of the sign's rated viewing distance or 100-feet, whichever is less.

*The Occupational Safety and Health Administration (OSHA) standard at 29 CFR [1910.37(b)(7)] requires exit signs to be [not less than 6 inch (15.2 cm) high, with the principal strokes of the letters in the word "Exit" not less than 3/4 of an inch (1.9 cm) wide]. This standard was adopted from NFPA 101-1970, the Life Safety Code.*

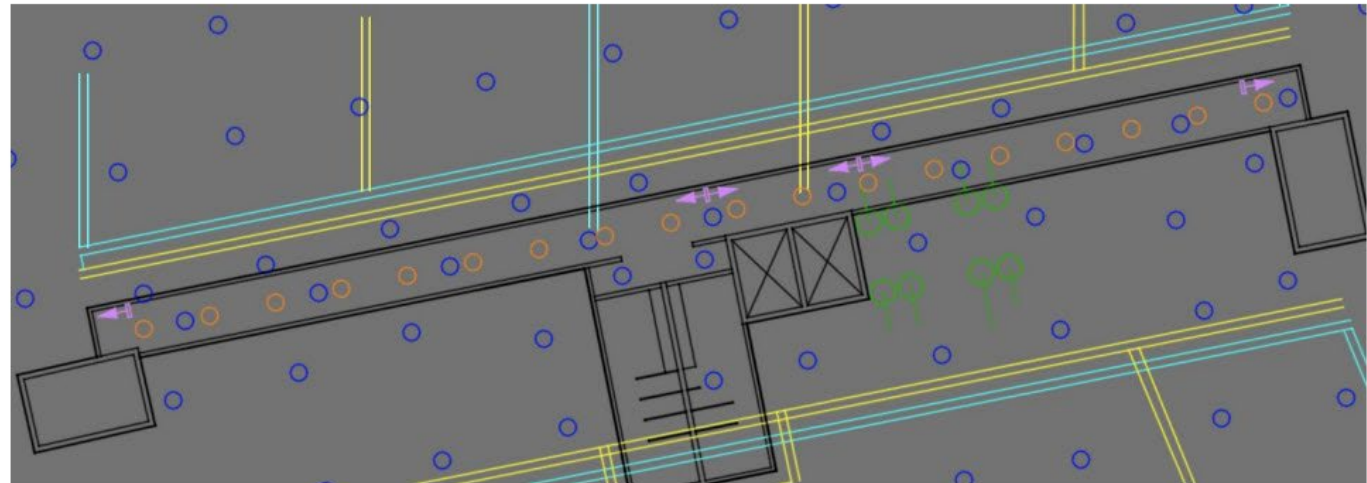
# Reflected Ceiling Plans - Hallways

**Student Team 2**  
C. Fitzsimmons  
H. Casey



GROUND LEVEL

SECOND LEVEL



KEY

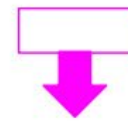
Light Fixtures



Sprinkler Heads



Exit Signs





**Student Team 3**  
M. Pierson  
K. Verrault  
S. Riley

## Tenant Space RCP

6' x 2' tenant  
communication closet

6' x 2' tenant electrical  
closet or breaker panel  
space

### REFLECTED CEILING PLAN - TENANT SPACE

GREY = 7.5' WATER HEAD RADIUS WITH SPRINKLER HEAD AT CENTER

YELLOW = CASSETTES AND BRANCH LEADING TO

GREEN = HANGING LIGHTS

PINK = EXITS LOCATED, SEE PINK

LIGHT BLUE = WATER LINES



# The following slides show:

- **FIRE SUPPRESSION:** Reflected Ceiling Plan: **Fire suppression** sprinkler head layout

# Ceiling Plan: Fire Protection Sprinkler Heads

## Student Team 1:

J. Shuber  
P. Tonissi  
J. Ranjitkar  
R. Qadoumi



### Ceiling plan of Extended Sprinkler Heads:

**Blue circle area** - Water distribution for Extended Coverage Pendant sprinkler  
**Purple dots**- Sprinkler Heads

OCCUPANCY HAZARD: Light (Office, Educational, Religious, Institutional, Hospitals, Restaurants, Clubs, Theaters, etc.)

SQUARE FOOT PER HEAD: 130-200 SF per head (based on obstructions and flow calcs)

MAX SPACING BETWEEN SPRINKLERS: 15ft or 20 ft for extended (that are used in project)

Maximum Distance from Wall: half (1/2) of the maximum distance between sprinkler heads (7 ft or 10 ft for extended)

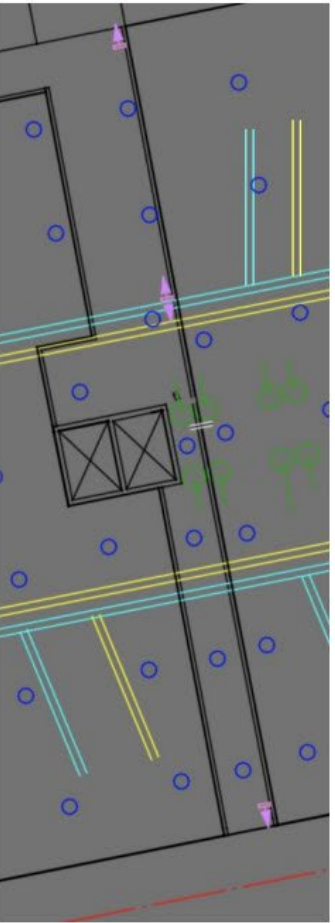
Minimum Distance Between Sprinklers: 6 ft.

Distance from Ceiling: minimum 1", maximum 12" for unobstructed construction.

The distance between the deflector and the top of storage - at least 18 in

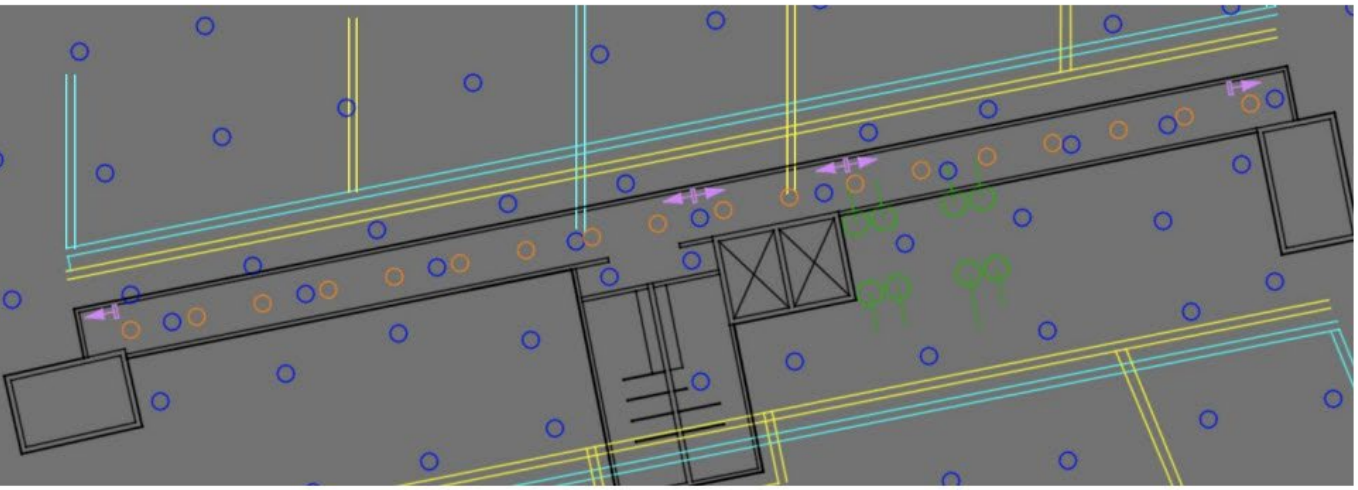
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C. Fitzsimmons  
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
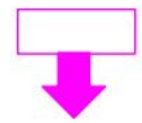


GROUND LEVEL

SECOND LEVEL



## KEY

- Light Fixtures 
- Sprinkler Heads 
- Exit Signs 

## Tenant Space RCP

6' x 2' tenant  
communication closet

6' x 2' tenant electrical  
closet or breaker panel  
space

### Student Team 3

M. Pierson  
K. Verrault  
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