



## SHAKER HEIGHTS

**Landmark Commission/Architectural Board of Review Agenda  
Via Video and Audio Conference Due to  
COVID-19 Public Health Emergency  
Wednesday, August 26, 2020, 7 PM  
Zoom webinar ID: 953 5215 6480  
Password: 33553400**

**For the safety of staff and residents, in-person attendance is not permitted. Join the Zoom meeting from a PC, Mac, iPad, iPhone or Android device.** Join online to listen and watch at <https://zoom.us/j/95352156480?pwd=UXRlbnNmdEtuU1RtN3FOdDNVakRxUT09>, Password: 33553400; Description: Landmark Commission Meeting; or join by phone to listen at 833-548-0282 (toll free); Webinar ID: 953 5215 6480, Password: 33553400.

Residents may submit comments/questions regarding items on the agenda at least 6 hours in advance of the meeting by emailing Cameron Roberts at [cameron.roberts@shakeronline.com](mailto:cameron.roberts@shakeronline.com); staff will respond prior to the meeting.

1. Approval of Minutes from the June 24, 2020 meeting.

Documents:

[2. LC MINUTES\\_6-24-20 MEETING.PDF](#)

2. Certificate of Appropriateness: 3756 Lee Road (Lee-Scottsdale Building) - Wireless Antennae.  
Ronald Gainar, representing T-Mobile.

Documents:

[3. 3756 LEE\\_RD\\_MEMO\\_08-26-20.PDF](#)

[4. 3756 LEE RD APPLICATION MATERIALS.PDF](#)

3. Preliminary Review: 2540 North Moreland Boulevard - Rooftop Pergola.  
Bruce Rose, tenant.

Documents:

[5. 2540 NORTH MORELAND PRELIMINARY REVIEW MATERIALS.PDF](#)

4. Staff Approvals.

Documents:

[6. STAFF APPROVAL REPORT AUGUST 2020.PDF](#)

5. Other Business.

*To request an accommodation for a person with a disability, call the City's ADA Coordinator at 216-491-1440, or Ohio Relay Service at 711 for TTY users.*



**Landmark Commission Minutes**  
**Wednesday, July 24, 2020**  
**7 P.M.**  
**Via Zoom Webinar**

Members Present: Nancy Moore, Landmark Commission, Chair  
Clifford Brown, Landmark Commission, Member  
Meghan Hays, Landmark Commission, Member  
Crystal Montgomery, Landmark Commission, Member  
Ron Reed, Landmark Commission, Member  
Stephanie Ryberg-Webster, Landmark Commission, Member

Others Present: Cameron Roberts, Planner  
Daniel Feinstein, Senior Planner

The meeting was called to order by Chair Moore at 7:00 p.m.

\* \* \* \*

Approval of the January 29, 2020 Meeting Minutes

It was moved by Ms. Hays and seconded by Mr. Brown to approve the minutes.

Ayes: All  
Nays: None

Motion Carried

\* \* \* \*

**2020 Preservation Award Nominations Presentation**

Mr. Roberts said the purpose of the Commission meeting is to review nominations that were received for the 2020 Preservation Awards program. The City received nine nominations in total. The purpose of the Commission’s review is to determine whether a nominated project is worthy of an award based on its design and sensitivity to historical character. There is no limit to how many awards can be given.

Mr. Roberts briefly shared the history of the awards program. The Preservation Awards Program was established by the Landmark Commission in 1998 as a way to honor individuals that preserve and improve their properties. The awards program occurs every two years and over 130 awards have been given since its establishment.

Mr. Roberts presented the nomination categories that were available for submissions: Retention of Original Materials, Exterior Restoration, Excellence in Stewardship, Distinguished Landscape,

**CITY OF SHAKER HEIGHTS**

3400 Lee Road Shaker Heights, Ohio 44120 P 216.491.1400 F 216.491.1465 Ohio Relay Service 711  
**shakeronline.com www.shaker.life**

Architecturally Appropriate Addition, and Other. Nominees were required to choose one category; however, the Commission can change the category if a project fits better under a different category than the one that was proposed.

Mr. Roberts said he would provide a brief presentation with before and after photos for each project.

#### 2834 Courtland Boulevard

Mr. Roberts said that this project was the conversion of two single garage doors into one double garage door. The purpose of this conversion was to improve accessibility for the homeowner. The new garage door was specifically designed to match the original doors, including the same materials, color, and matching leaded windows.

#### 2911 Paxton Road

Mr. Roberts said this nomination was for a project to replace all of the original exterior millwork with hand-milled vinyl. He read the nomination narrative, which stated that the original millwork was crumbling due to several poor restorations, water intrusion, insect damage, and sun damage. Because vinyl was not offered in the exact moldings original to the homes, the contractor hand-milled flat stock vinyl to match every historic detail. The narrative claims that the homeowners now have a maintenance-free and rot proof product that looks exactly like the original trim.

#### 3320 Grenway Road

Mr. Roberts shared this nomination, which was for a residential home that had all of the paint stripped from its original wood shingle siding and then the shingles were re-stained a different color. This was done using paint shaver technology. Mr. Roberts shared that in their narrative; the homeowners stated that after the project was complete their neighbors thought they had completely replaced their siding.

#### 3637 Winchell Road

Mr. Roberts said that this nomination was for an extensive list of exterior renovation and restoration projects, including: replacement of rotten half-timbering trim boards; repainting of the entire house; refinishing of the original oak front door; fabrication of a Tudor-style overhang above the side door; repair of the original sandstone front porch steps; a full foundation excavation and repair on 3 sides of the house; replacement of most of their concrete driveway; and much more.

#### 17650 Parkland Drive

Mr. Roberts shared that this nomination was for the like-for-like replacement of wave-coursed cedar shake shingles on this residential home. After purchasing the house, the homeowner quickly learned that no local contractors were capable of the steam-bending method required to mold new wood shingles into the desired shape. After much searching, they found Huber & Associates out of Lake City, Florida, which is one of the country's leading companies for the creation and installation of wave-coursed roofing. In addition, the homeowner replaced all of the house's cedar shake siding and left them unpainted to age and color over time, which is assumed to be how the side shingles were when the property was originally built.

#### 18432 Lynton Road

Mr. Roberts said this is a garage restoration and enhancement project. It was submitted by homeowner Don Czapski, whom has received several preservation awards in the past for his homemade projects. This nomination includes replacement of several area of rotted wood with new wood shingle and roof slate, two repurposed leaded glass windows were installed on the sides of the garage, and garage doors

were enhanced by adding a handmade solid wood top panel to each and installing 12 handmade leaded glass windows to the doors.

#### 18520 Winslow Road

Mr. Roberts said that like the Winchell property, this nomination was for an extensive list of exterior renovation projects. This property was suffering from severe deterioration and possibly threatened by demolition before being transferred from the City to the Cleveland Restoration Society in order to be saved. Over the period of about a year and a half, the Cleveland Restoration Society completely rehabilitated the exterior by installing a new roof and gutter system, rebuilding the chimneys from the roofline up, rebuilding the front porch, replacing 30% of the cedar shake siding, replacing many windows that were in poor condition, and constructing a new garage to replace the original garage that was deemed structurally unsafe.

#### 18801 South Park Boulevard

Mr. Roberts said he would read the narrative for this nominated project, which includes a stone garage addition and rear porch and trellis renovations. The homeowners added a third garage space to the existing 2-car garage by creating an addition that matches the home's existing stone and copper details. The rear patio and open trellis on the rear of the house were also significantly updated.

#### 19100 South Woodland Road

Mr. Roberts also read the narrative for this nominated project, which included a side addition to the house and a new rear entrance. Because the brick addition was directly adjacent to the existing brick façade, extensive time was spent matching the brick and mortar color for a seamless transition. A window tucked away on the rear of the house was converted into a door opening that follows a cascade of stairs to the existing stone patio. The new stone steps and iron railing match the existing stone and ironwork on the home.

### **2020 Preservation Award Nominations Discussion**

Mr. Roberts asked Commission members to provide their thoughts on each project and whether it is worthy of a preservation award.

#### 2834 Courtland Boulevard

The Landmark Commission agreed that the project was well done and historically sensitive given the landmark status of the property. However, they felt a renovation to a garage door did not elevate to the level necessary for receiving a preservation award. It was decided to not award this project.

#### 2911 Paxton Road

The majority of Landmark Commission members were pleasantly surprised by the hand-milled vinyl work and agreed that the project was a great example of how to modernize homes while still keeping the architectural character. It was also described as a creative way to reduce long-term maintenance on a historic home. An award for Exterior Restoration will be given to the project.

#### 3320 Grenway Road

Landmark Commission members gave the homeowners credit for taking the time to preserve the original siding material when it would have been much easier to replace it, especially since it is not a landmark property. They could have completely changed the character of the house, but actively chose to do otherwise. Commission members agreed to award the project for Retention of Original Materials.

3637 Winchell Road

The Landmark Commission felt that the homeowners showed a significant amount of care for their property with this project. They were particularly impressed by the refinished original oak front door. An award for Exterior Restoration will be given to the project.

17650 Parkland Drive

Landmark Commission members were very impressed by the roof replacement project, especially given the unique detail of the shingles and the efforts put forth by the homeowner in order to have the project done appropriately. Commission Members discussed whether the award should be changed from Exterior Restoration to Excellence in Stewardship in order to highlight this effort and the deep caring of the property’s historic elements that went into the project. After much discussion, the Commission decided to stick with Exterior Restoration but ensure that the significance of the project is highlighted when it is presented at the ceremony. An award for Exterior Restoration will be given.

18432 Lynton Road

Landmark Commission members discussed that Excellence in Stewardship may be a better category for this project as some elements are new to the garage, and in that case, it is not necessarily a restoration. Members eventually agreed that Stewardship was the best category as it appropriately reflects the amount of dedication that the homeowner has put into their house over time. An award for Excellence in Stewardship will be given to the project.

18520 Winslow Road

The Landmark Commission was grateful of the Cleveland Restoration Society’s efforts to restore this house and saw the project as a great example of a partnership between them and the City. There was discussion on whether the award should be changed from Exterior Restoration to Excellence in Stewardship. However, it was determined that while the work was necessary to save the home, it did not elevate to the level of a stewardship award. An award for Exterior Restoration will be given.

18801 South Park Boulevard

Landmark Commission members decided that they could not determine whether to give the project an award based on the photos provided. They requested that staff reach out to the architect and ask for a photo that specifically shows the garage door side of the new garage addition. Staff will follow up over email for further discussion on this nomination. It was noted that if an award were to be given, it would specifically be for the stone garage addition and not the new trellis as it does not meet the criteria for a preservation-specific award.

19100 South Woodland Road

The Landmark Commission members were particular impressed by the new rear and stone stairway; however, several members were underwhelmed by the side addition. There was discussion on whether the project should be split in order to only award the rear stairway. After a vote, Commission Members ultimately decided to split the project. An award for Exterior Restoration will be given to new rear entrance portion of the project.

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### Staff Approvals

Ms. Moore asked whether there were any questions on the staff approvals provided in the packet. There were none. She asked staff whether the signage for the new Shaker Heights Nutrition tenant space conformed to the rest of the signage on the Kingsbury Building.

Mr. Roberts confirmed that it did.

Mr. Feinstein explained that signage on the building can be staff approved if it meets the agreed upon sign plan for the building.

There were no other questions.

\* \* \* \*

There being no further business, the meeting was adjourned at 8:33 p.m. The next meeting will be July 22, 2020.

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Cameron R. Roberts, Secretary  
Landmark Commission



# SHAKER HEIGHTS

## Memorandum

To: Members of the Landmark Commission  
Members of the Architectural Board of Review

From: Cameron Roberts, Planner  
Daniel Feinstein, Senior Planner

Date: August 19, 2020

Re: **Certificate of Appropriateness: 3756 Lee Road (Lee-Scottsdale Building)—Wireless Antennae.** Ronald Gainar, representing T-Mobile.

Meeting: August 26, 2020

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*3756 Lee Road (August 2019 Photo)*

### **Background**

The Lee-Scottsdale Building was designated a local landmark in 1998. Designed by Fox, Duthie & Foose, construction was completed in 1930. The building previously housed the office of the First Catholic Slovak Ladies Union, a fraternal benefit insurance society. It is stylistically noteworthy for its combination of Romanesque and Renaissance motifs on an early 20th century brick commercial structure.

In 2003, the Commission granted a Certificate of Appropriateness for a penthouse addition to house cellular antennae on the building. In subsequent years, the Commission has approved further cellular-related equipment, as well as façade enhancements, site improvements, signage, and a fence.

T-Mobile seeks to remove four existing antennas, relocate one antenna, and add seven new antennas to the site, as well as other related equipment. Submitted plans indicate that the antennas are to be wrapped in a brick-pattern vinyl to match the penthouse and all associated equipment will be painted to match the color of the penthouse.

### **Landmark Commission Design Guidelines and Precedent**

The Shaker Heights Landmark Commission Design Guidelines state:

“New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.”

Antennas, with vinyl wraps, stealth housing, or painting intended to hide their presence, have previously been approved for this building and other landmark buildings, including the First Baptist Church bell tower and South Park Manor in the Shaker Square Historic District.

Most recently for the Lee-Scottsdale building, the Landmark Commission approved the installation of four new antennas and associated equipment for T-Mobile at their July 26, 2017 meeting. The new antennas were unanimously approved with the condition that cabling remain near the bottom of the existing penthouse in order to reduce visibility.

### **Architectural Board of Review (ABR)**

The ABR design guidelines state that mechanical equipment “...should be screened in a manner that is compatible with the architectural character of the building. Appropriate screening... may include parapet walls or fabricated panels. In some cases painting is sufficient to reduce the visibility of rooftop equipment.” The ABR has approved numerous antennae on buildings including on Tower East and several apartment buildings.

### **Zoning**

The zoning ordinance permits antennas attached to an existing building as an allowable accessory use. The zoning ordinance thereby encourages antennas attached to existing buildings instead of the building of large monopoles.

### **Staff Recommendation**

Staff recommends approval of the Certificate of Appropriateness for additional antennas with the condition that cabling remain near the bottom of the existing penthouse. According to the submitted photo simulations, the increased number of antennas will be more noticeable from north and south views, but the change is not drastic and will not obstruct the historic front façade view of the building.

The proposed antenna installations are also in keeping with previous Landmark Commission decisions allowing construction of the penthouse addition and installation of cellular equipment.

**Property Location:**



CL 20124

LANDMARK COMMISSION APPLICATION FORM

CITY OF SHAKER HEIGHTS

3400 LEE ROAD

SHAKER HEIGHTS, OH 44120

A APPLICATION

Property Address: 3756 Lee Road
Property Owner: TNL Group L.L.C.
Property Owner's Address (if different): SAME
City: Shaker Heights State: OH Zip: 44120

Name of Applicant: T-mobile Phone No: 216 276-3331
Address of Applicant: 2515 Red Fox Pass Fax No:
City: Willoughby Mills State: OH Zip: 44094

Brief description of work to be done: T-mobile removing, replacing and adding equipment to existing rooftop antenna site

Square footage of addition: 200 sq. ft

Name of person(s) who will represent this submission before the board: RONALD A. GAINAR, Esq.
E-Mail Address: gainar@att.net

PROJECT INFORMATION

INFORMATION ACCOMPANYING THIS APPLICATION:

- Site Plan, Floor Plan(s), Foundation Plan(s), Elevation(s), Cross Section(s) & Construction Details, Color Photographs, Material Samples/Manufacturer's Literature, Fee

PLANS SUBMITTED FOR:

- Initial Submission, Resubmission, Preliminary Review, Staff Review

All submissions must be complete and accurate at the time of application. When plans are submitted, staff will inform the applicant of the meeting date and time. Someone qualified to discuss the project must be present at the meeting. The Board will not consider any submission without a representative present.

Signature: Ronald A. Gainar, Esq. Date: 7-8-2020

FOR INTERNAL USE ONLY

Check this box to verify that a pre-application meeting with staff for technical assistance and review of the Landmark Commission Application Procedures document has been completed. The application will not be considered complete without a pre-application meeting.

ZONING REVIEW

ARCHITECTURAL BOARD OF REVIEW

LANDMARK COMMISSION

Approved Not Approved Not Req'd

Approved Not Approved Not Req'd

Approved Not Approved Not Req'd

SIGNATURE DATE

SIGNATURE DATE

SIGNATURE DATE

COMMENTS

COMMENTS

COMMENTS

T: 216.491.1430

F: 216.491.1431

**EXISTING CONDITIONS  
PHOTOS**



04.27.2020 12:36

Northern penthouse wall, looking southwest.



04.27.2020 12:36

Eastern penthouse wall, looking west.



04.27.2020 12:37

Western penthouse wall, looking east.



Looking North at Building



Looking North at Building



Front of Building, Looking West

# **DRAWINGS**

T-MOBILE PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY

**ANTENNA LEVEL:**

- REMOVE (4) EXISTING ANTENNAS
- RELOCATE (1) EXISTING ANTENNAS
- REMOVE (8) EXISTING DIPLEXERS
- REMOVE (4) EXISTING FRJ
- REMOVE (4) EXISTING FHFB
- REMOVE (4) EXISTING FRLB
- INSTALL (7) NEW ANTENNAS
- INSTALL (4) NEW AHLOA
- INSTALL (4) NEW AHFIG
- INSTALL (4) NEW HCS 2.0 HYBRID JUMPERS

**EQUIPMENT ROOM:**

- REMOVE (8) EXISTING MODULES
- REMOVE (1) EXISTING CABINET
- INSTALL (2) NEW HPL3 CABINETS
- INSTALL (2) AMIA
- INSTALL (17) NEW MODULES
- INSTALL (3) NEW HCS 2.0 JUNCTION BOXES
- NO AC ELECTRIC WORK, ALL DC ELECTRIC WORK UNDER 50V

**SCOPE OF WORK**

# T-Mobile

T-MOBILE SITE NUMBER:  
**CL20124A**  
SITE NAME:  
**TNL ROOFTOP ANCHOR PROJECT ROOFTOP SITE**

# T-Mobile

6200 OAK TREE BLVD.  
SUITE 125  
INDEPENDENCE, OH 44131  
OFFICE: (216) 525-6000  
FAX: (216) 525-6120

**HARPER ENGINEERING, INC.**  
TELECOM GROUP

815 Superior Ave. Suite 1514  
Cleveland, OH. 44114

Phone: (216) 344-3855  
Fax: (216) 344-3856

**PROJECT TEAM**

**SITE INFORMATION**

**APPROVALS**

**SHEET INDEX**

**ENGINEER:**  
HARPER ENGINEERING, INC.  
815 SUPERIOR AVE, SUITE 1514  
CLEVELAND, OH. 44114  
(216) 344-3855

**CONTACT PERSON:**  
DAVID W. HARPER  
(216) 344-3855

FACILITY OCCUPANT: T-MOBILE  
LEASE AREA: EXISTING  
EQUIPMENT ENCLOSURE: EXISTING  
APPLICANT ID#: CL20124A  
SITE ADDRESS: 3756 LEE RD.  
CLEVELAND, OH 44128  
GOVERNING CODE: OBC 2011/IBC 2009/NEC 2017  
COUNTY: CUYAHOGA COUNTY  
ZONING JURISDICTION: CITY OF SHAKER HEIGHTS  
APPLICANT: T-MOBILE CENTRAL LLC  
6200 OAK TREE BLVD, SUITE 125  
INDEPENDENCE, OH 44131  
ERIC ROBERTS  
OFFICE: (330) 310-8758

_____	DATE
SITE ACQUISITION	
_____	DATE
ZONING MANAGER	
_____	DATE
CONSTRUCTION MANAGER	
_____	DATE
RF ENGINEER	
_____	DATE
FIELD INSPECTOR	
_____	DATE
OWNER	

SHEET	DESCRIPTION	REV.
T-1	TITLE SHEET	2
A-1	SITE PLAN	2
A-2	ELEVATION	2
RF-1	ANTENNA LAYOUTS	2
RF-2	ANTENNA DIAGRAM & DETAILS	2
E-1	ELECTRICAL DIAGRAM	2
SP-1	ELECTRICAL NOTES	2

**DRAWING REVISIONS**

Rev.	Description:	Date:	Mgr.
A	For Approval	06/05/17	MGM
O	For Construction	06/06/17	MGM
1	For Construction	07/07/17	MAD
B	For Approval	05/13/20	TSB
C	For Approval	06/04/20	TSB
D	For Approval	06/15/20	TSB
E	For Approval	06/22/20	TSB
2	For Construction	07/01/20	TSB



Engineer's Seal

**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

**HANDICAP REQUIREMENTS**

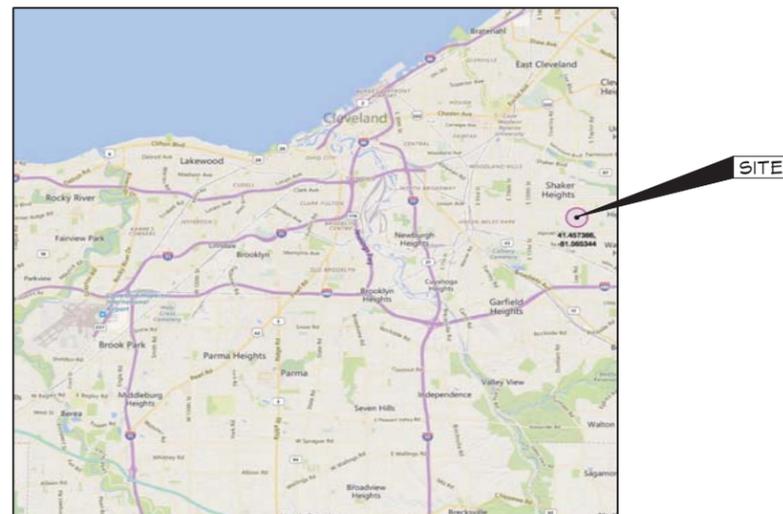
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS NOT REQUIRED

**OTHER REQUIREMENTS**

- FACILITY HAS NO PLUMBING OR PARKING
- NO GRADING WILL BE REQUIRED FOR THIS SITE.

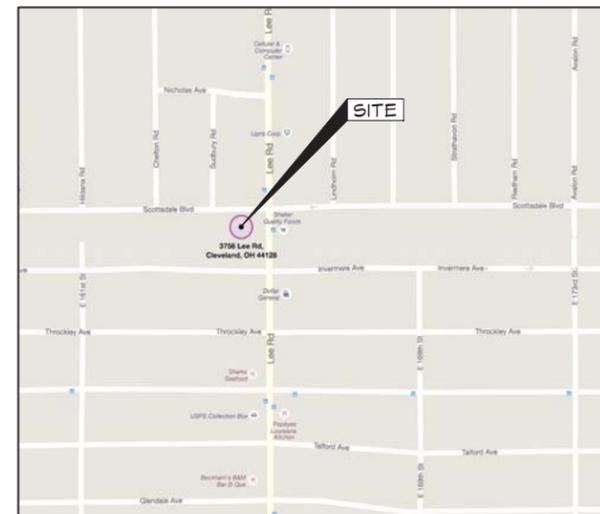
**AREA MAP**

NO SCALE



**VICINITY MAP**

NO SCALE



**TOWER COORDINATES**

LATITUDE: N. 41° 27' 26.889"  
N. 41.45738611  
LONGITUDE: W. 81° 33' 55.2378"  
W. 81.56534440

T-MOBILE  
SITE NUMBER:  
CL20124A  
SITE NAME:  
TNL ROOFTOP  
3756 LEE RD.  
CLEVELAND, OH 44118

SHEET NAME:

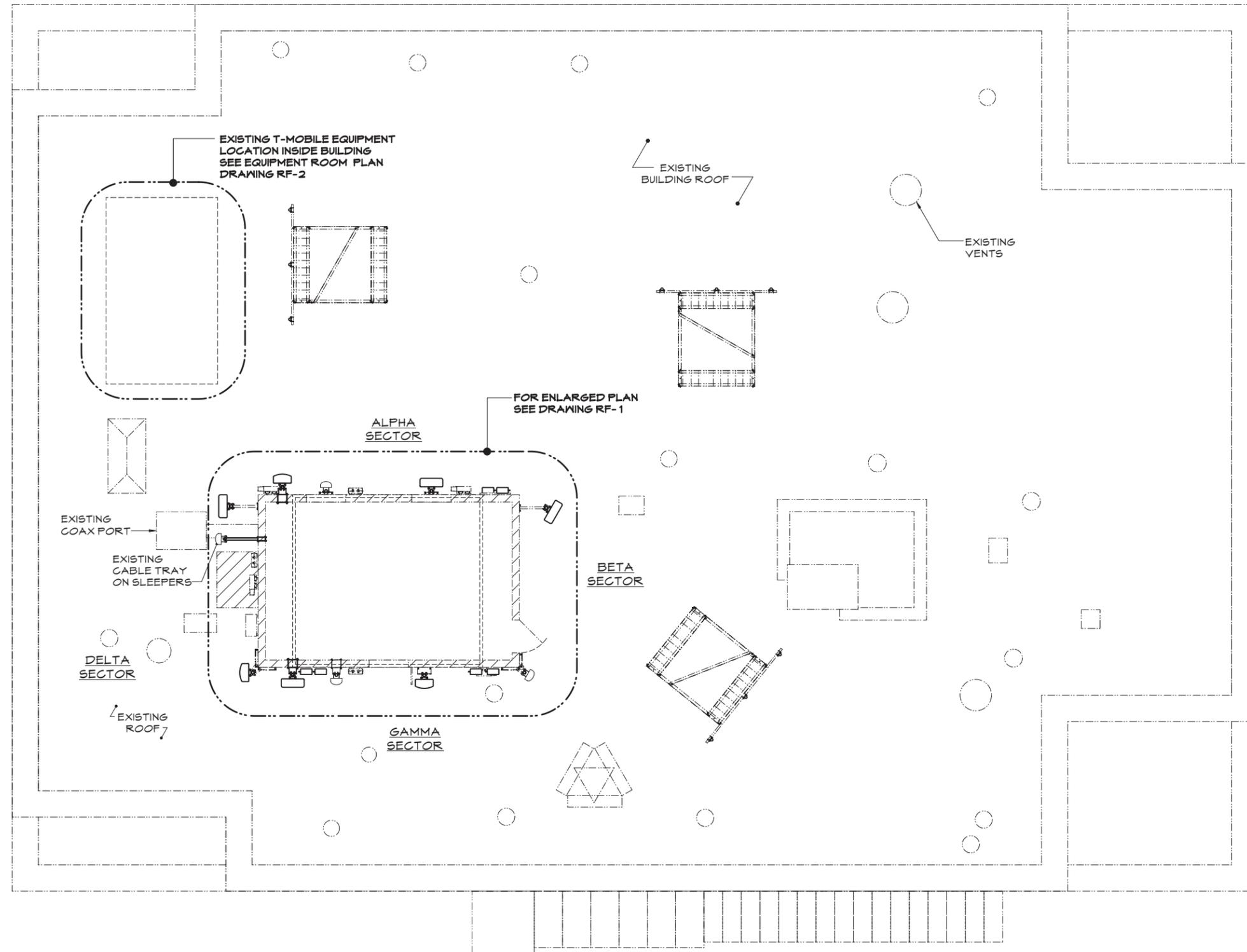
**TITLE SHEET**

SHEET No./Rev.:

**T-1/2**

SCALE: AS NOTED  
DRAWN BY: DA  
CHECKED BY: MGM  
DATE: 03/30/17  
FILE: 14-188-029

SCOTTSDALE BLVD.



**T-Mobile**

6200 OAK TREE BLVD.  
SUITE 125  
INDEPENDENCE, OH 44131  
OFFICE: (216) 525-6000  
FAX: (216) 525-6120

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E	For Approval	06/22/20	TSB
2	For Construction	07/01/20	TSB



Engineer's Seal

T-MOBILE  
SITE NUMBER:  
CL20124A

SITE NAME:  
TNL ROOFTOP

3756 LEE RD.  
CLEVELAND, OH 44118

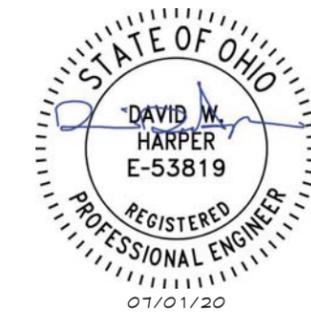
SHEET NAME:

**SITE PLAN**

SHEET No./Rev.:	SCALE: AS NOTED
<b>A-1/2</b>	DRAWN BY: DA
	CHECKED BY: MCM
	DATE: 03/30/17
	FILE: 14-188-029

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Engineer's Seal

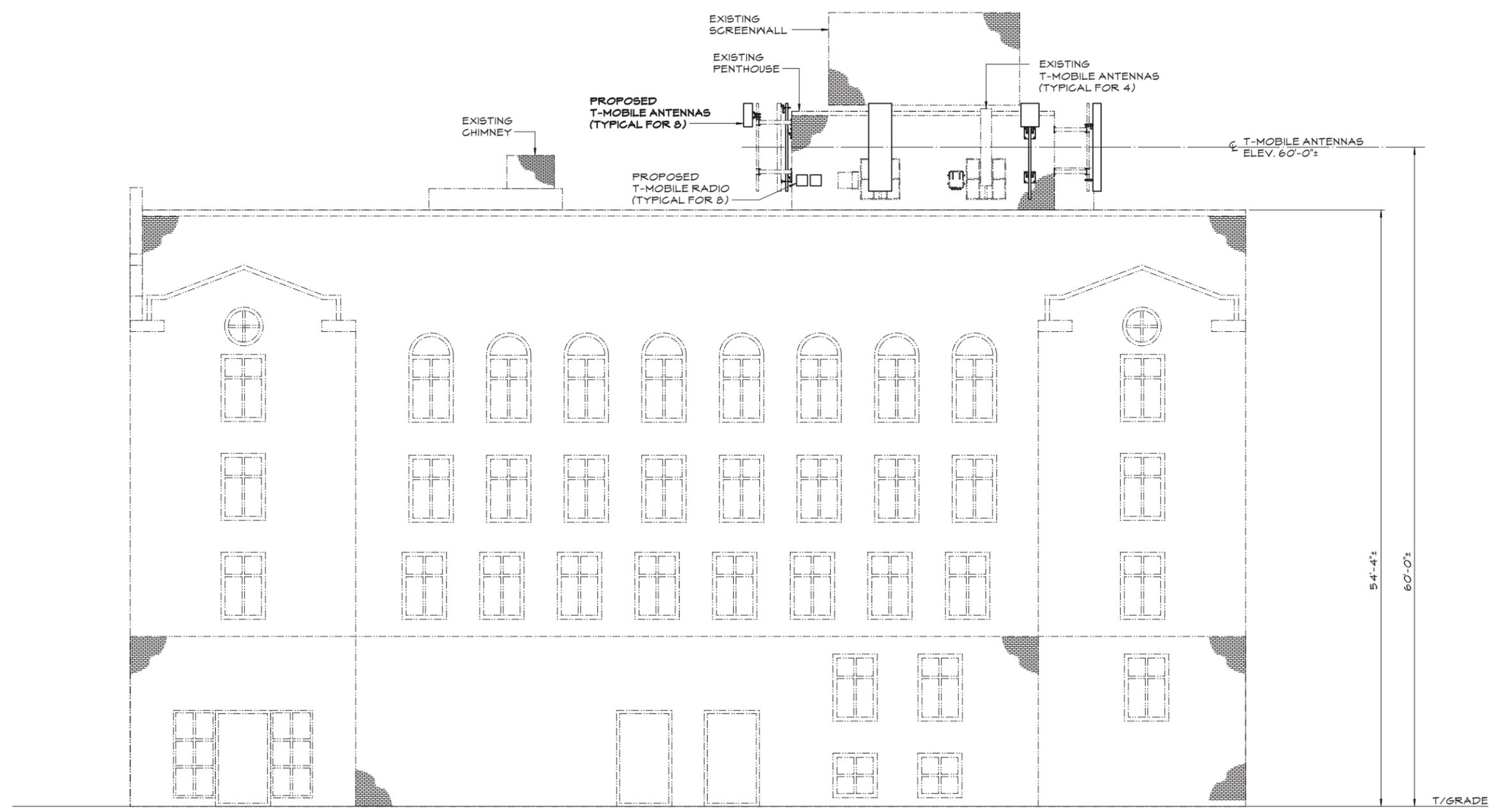
T-MOBILE  
SITE NUMBER:  
CL20124A  
SITE NAME:  
TNL ROOFTOP

3756 LEE RD.  
CLEVELAND, OH 44118

SHEET NAME:

**ELEVATION**

SHEET No./Rev.:	SCALE: AS NOTED
<b>A-2/2</b>	DRAWN BY: DA
	CHECKED BY: MCM
	DATE: 03/30/17
	FILE: 14-188-029



**NORTH ELEVATION**

SCALE: 3/16" = 1'-0"



**ANTENNA REPLACEMENT NOTES:**

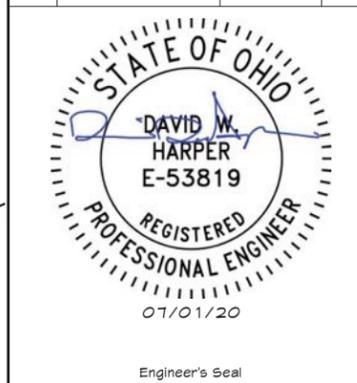
- 1) CONTRACTOR TO INSPECT THE CONDITION OF EXISTING MOUNTING PIPES. CONFIRM THE FOLLOWING:
  - CORROSION; IF MOUNTS ARE FOUND TO BE CORRODED, CONTACT T-MOBILE REF. FOR DIRECTION.
  - CHECK CONDITION OF ATTACHMENT BOLTS. IF FOUND LOOSE, TIGHTEN TO ORIGINAL SPECIFICATIONS (AISC; TURN OF THE NUT METHOD).
  - IF BOLTS ARE MISSING, REPLACE TO SUITE.
  - CONFIRM MOUNTING PIPE IS ADEQUATELY SIZED TO ACCOMMODATE PROPOSED ANTENNA INSTALL.
- 2) ALL WORK DEPICTED ON THIS DRAWING DESIGNED IN ACCORDANCE WITH OBC 2011 AND AMENDMENTS.

**ANTENNA MOUNTING NOTES:**

1. ANTENNA TO BE MOUNTED TO MIN. 2 7/8" SCH. 40 PIPE MAST. CONTRACTOR TO VERIFY PIPE MAST SIZE, LENGTH AND SCH. UPGRADE IF REQUIRED.
2. ANTENNA AND RRU CABLEING TO BE CONNECTED PER RF DATA SHEET, PROVIDED BY RF ENGINEER.
3. ALL NEW ANTENNAS, MOUNTS, CABLEING, ETC. TO BE PAINTED TO MATCH THE COLOR OF THE PENTHOUSE.

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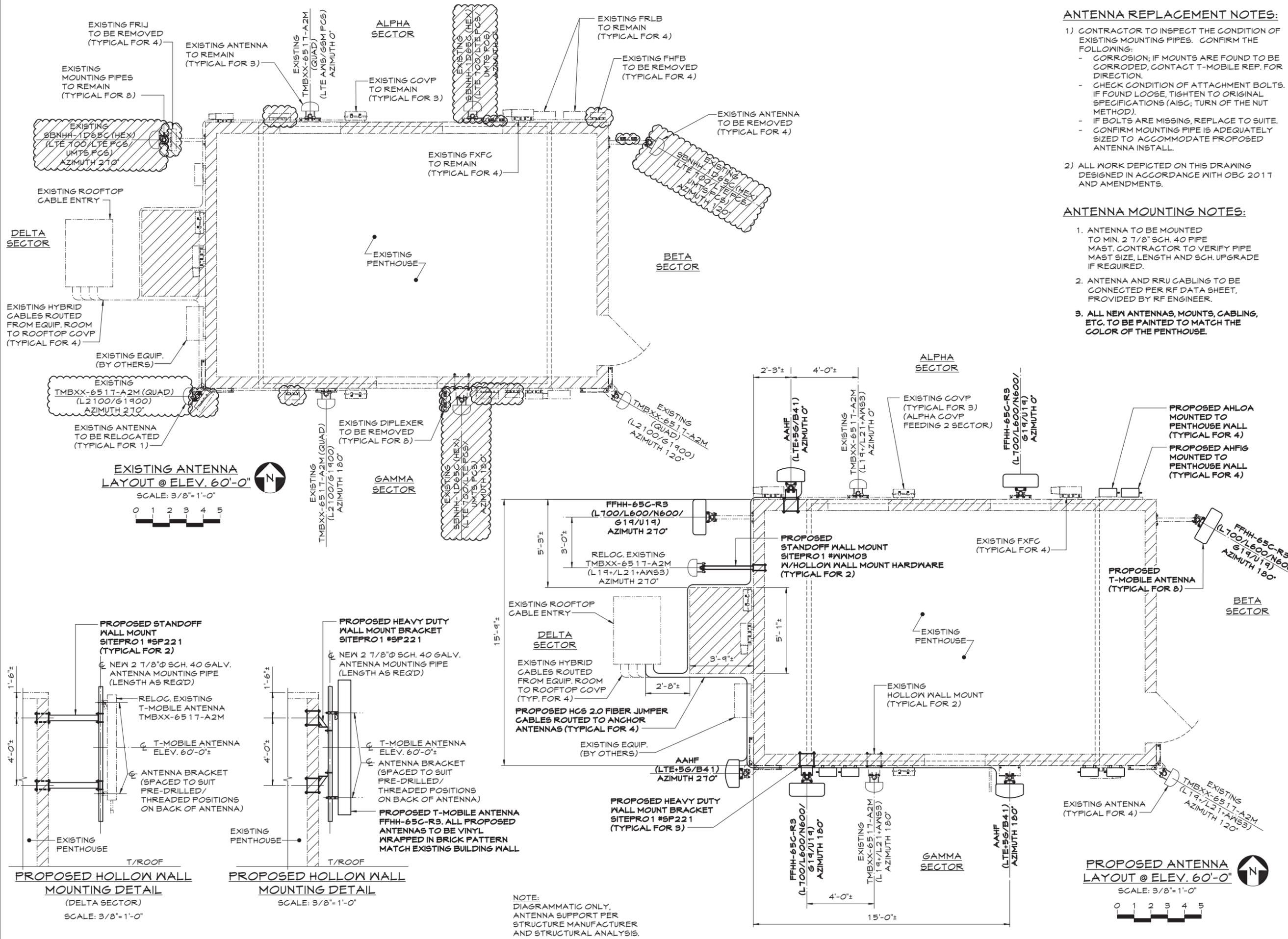


T-MOBILE  
SITE NUMBER:  
CL20124A  
SITE NAME:  
TNL ROOFTOP  
3756 LEE RD.  
CLEVELAND, OH 44118

SHEET NAME:

**ANTENNA LAYOUTS**

SHEET No./Rev.:	SCALE: AS NOTED
RF-1/2	DRAWN BY: DA
	CHECKED BY: MCM
	DATE: 03/30/17
	FILE: 14-188-029



6/8/2020

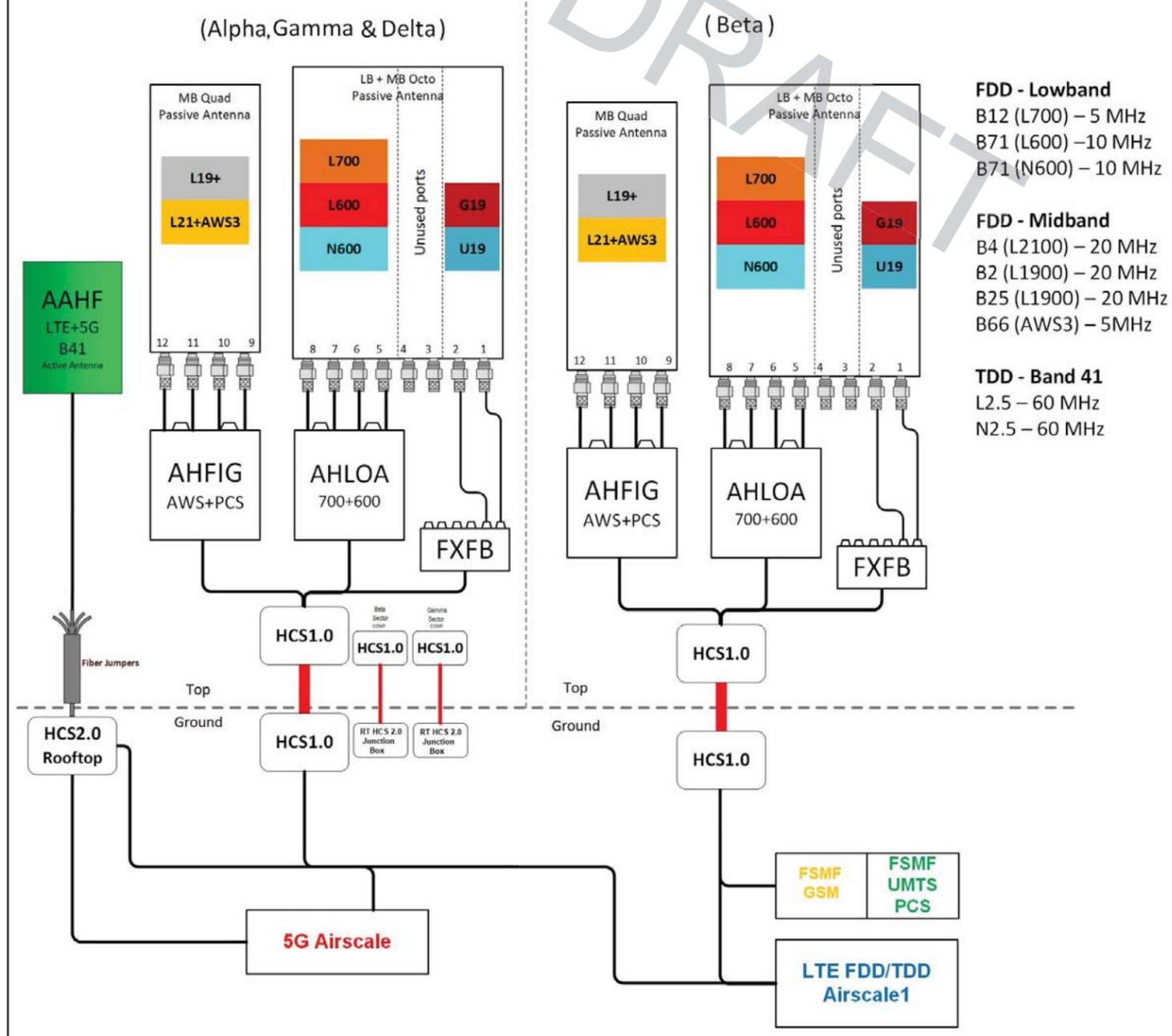
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Section 3 - Proposed Template Images

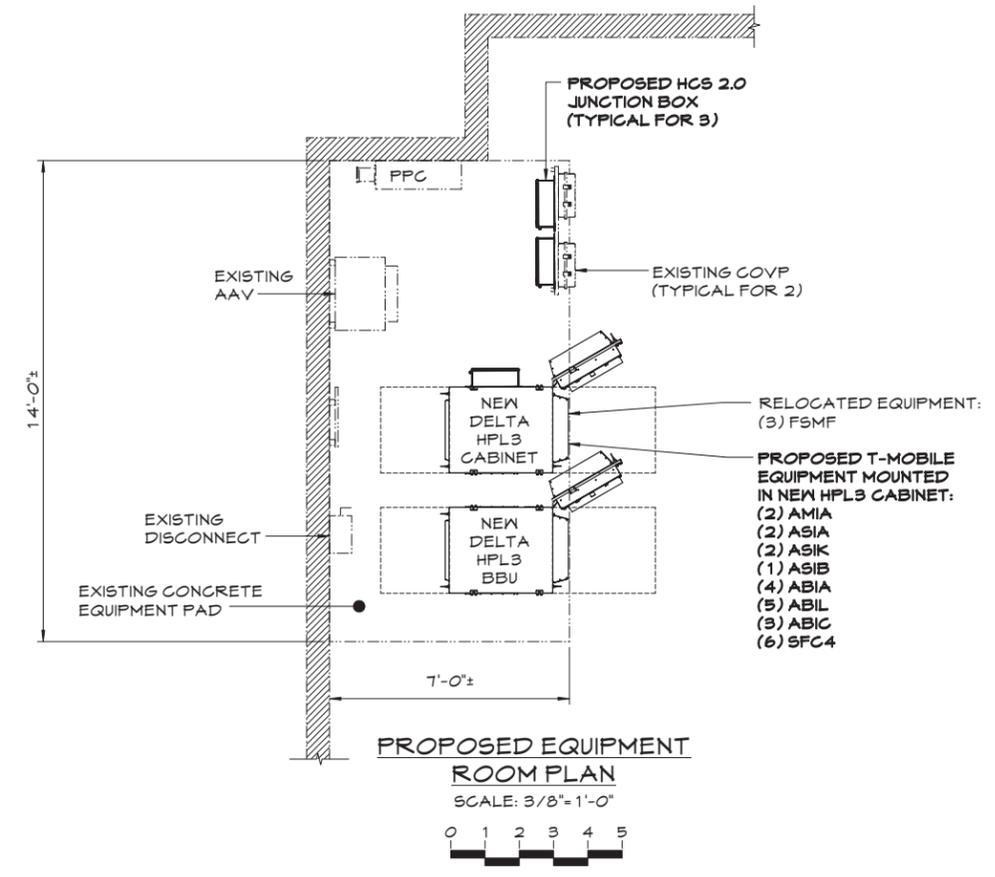
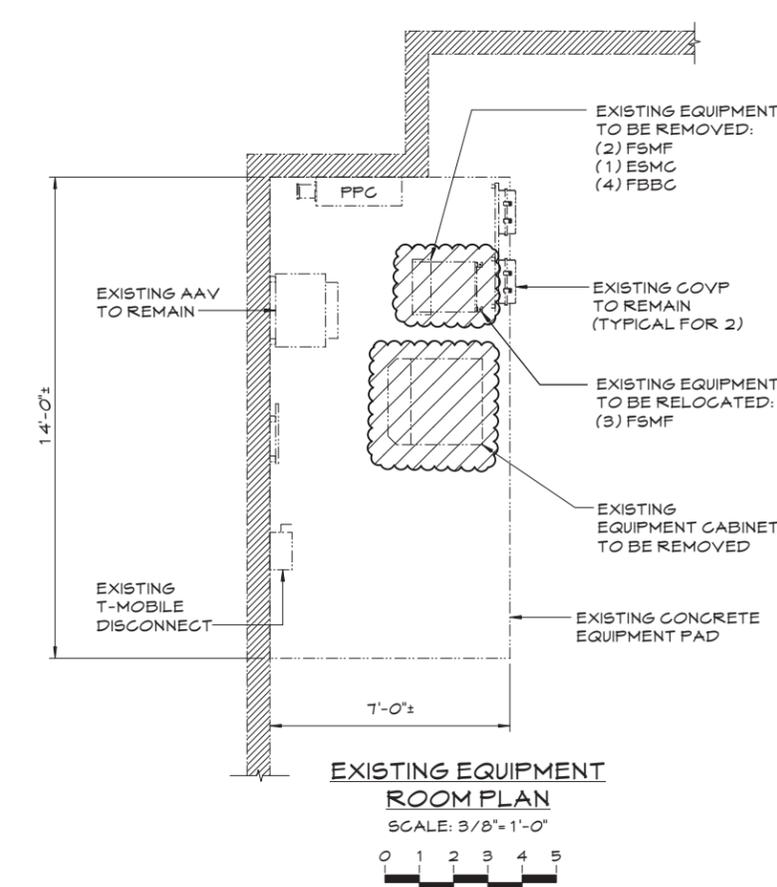
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Configuration 56795Z

\* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.



Notes:



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**DRAWING REVISIONS**

Rev.	Description:	Date:	Mgr.
A	For Approval	06/05/17	MCM
O	For Construction	06/06/17	MCM
1	For Construction	07/07/17	MAD
B	For Approval	05/13/20	TSB
C	For Approval	06/04/20	TSB
D	For Approval	06/15/20	TSB
E	For Approval	06/22/20	TSB
2	For Construction	07/01/20	TSB

**STATE OF OHIO**  
 DAVID W. HARPER  
 E-53819  
 REGISTERED PROFESSIONAL ENGINEER  
 07/01/20

Engineer's Seal

**T-MOBILE**  
 SITE NUMBER:  
 CL20124A  
 SITE NAME:  
 TNL ROOFTOP  
 3756 LEE RD.  
 CLEVELAND, OH 44118

SHEET NAME:  
**ANTENNA DIAGRAM & DETAILS**

SHEET No./Rev.:  
**RF-2/2**

SCALE: AS NOTED  
 DRAWN BY: DA  
 CHECKED BY: MCM  
 DATE: 03/30/17  
 FILE: 14-188-029

**DRAWING REVISIONS**

Rev.	Description:	Date:	Mgr.
E	For Approval	06/22/20	T5B
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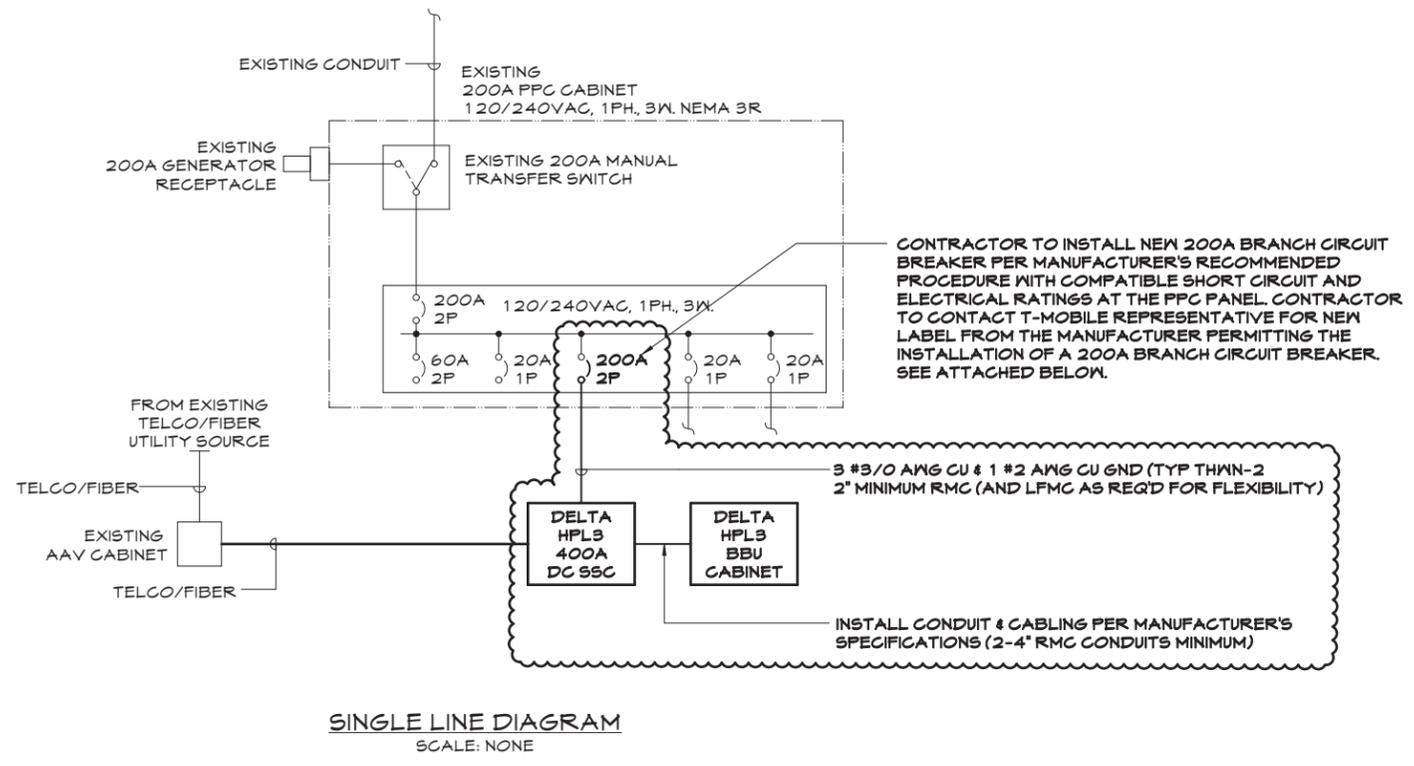
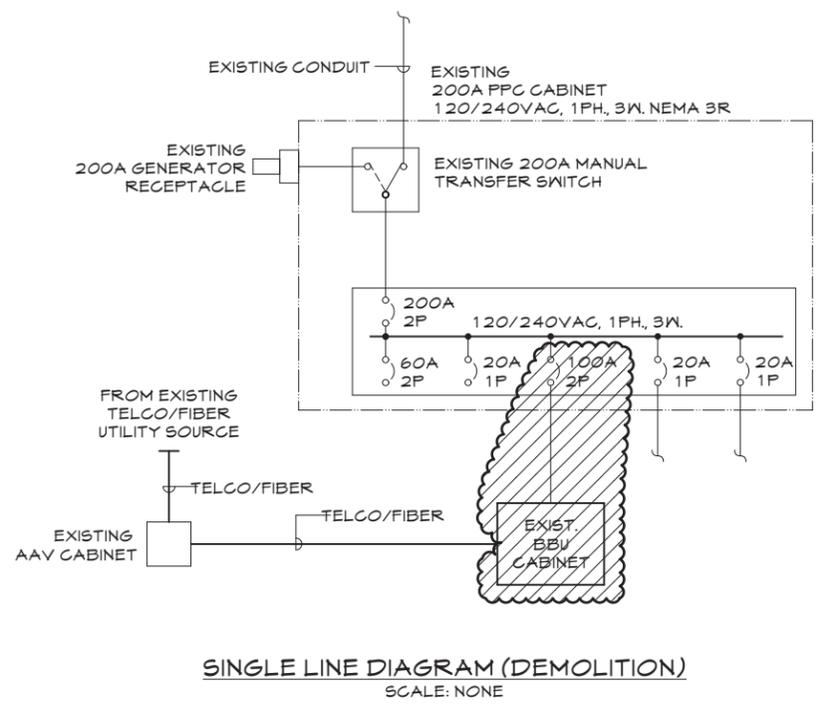
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T-MOBILE  
SITE NUMBER:  
CL20124A  
SITE NAME:  
TNL ROOFTOP  
3756 LEE RD.  
CLEVELAND, OH 44118

SHEET NAME:

**ELECTRICAL  
DIAGRAM**

SHEET No./Rev.:	SCALE: AS NOTED
<b>E-1/2</b>	DRAWN BY: DA
	CHECKED BY: MGM
	DATE: 03/30/17
	FILE: 14-188-029



NEW LABEL FROM MANUFACTURER

MAXIMUM WHEN EQUIPPED WITH:  
LISTED MAIN CIRCUIT BREAKER TYPE  
QGL22100 OR QGL22200  
RATED 100A OR 200A, 240V~, 65kAIC,  
LISTED BRANCH BREAKERS TYPE QO  
RATED 10-200A 120/240V~, 10kAIC  
(UL FILE E209771)

**PPC RATING LABEL DETAIL**

**DIVISION 16 - ELECTRICAL**

**QUALITY ASSURANCE:**

1. ALL CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT SPECIFIED ON THE DRAWINGS SHALL BE NEW AND UNUSED, OF CURRENT MANUFACTURE AND OF THE HIGHEST GRADE.
2. ALL EQUIPMENT, MATERIALS AND INSTALLATION METHODS SPECIFIED ON THE PROJECT DRAWINGS SHALL BE DESIGNED AND FABRICATED IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS, AND APPROPRIATE INDUSTRIAL CONSENSUS STANDARDS AND CODES INCLUDING ANSI, IEEE, NEMA, NFPA AND UL, ALL AS REVISED AS OF THE DATE OF THIS WORK PACKAGE.
3. ALL ELECTRICAL ITEMS BOTH CONTRACTOR AND OWNER FURNISHED SHALL BE CHECKED FOR AGREEMENT WITH THE PROJECT DRAWINGS AND SPECIFICATIONS AND SHALL BE VISUALLY INSPECTED TO ENSURE THAT EQUIPMENT IS UNDAMAGED AND IS IN PROPER ALIGNMENT, INSTALLED PER MANUFACTURER'S INSTRUCTIONS, ELECTRICAL CONNECTIONS ARE TIGHT AND PROPERLY INSULATED WHERE REQUIRED, FUSES ARE OF THE PROPER TYPE AND SIZE, AND ELECTRICAL ENCLOSURES ARE OF THE PROPER NEMA TYPE.
4. NOTIFY OWNER IN WRITING OF ALL DISCREPANCIES BETWEEN DRAWINGS/SPECIFICATIONS AND FIELD INSTALLATIONS, OR IF THE VISUAL INSPECTIONS SHOW DAMAGE OR IMPROPER INSTALLATION.

**GENERAL:**

1. THE EQUIPMENT AND MATERIAL SHALL BE FURNISHED AND INSTALLED TO OPERATE SAFELY AND CONTINUOUSLY OUTDOORS WITH NO PROTECTION FROM THE WEATHER.
2. ELECTRICAL WORK REPRESENTED ON THE PROJECT DRAWINGS IS SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS AND ELEVATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD AND VERIFIED WITH THE OWNER'S REPRESENTATIVE.
3. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF TEMPORARY, IF REQUIRED, AND PERMANENT POWER WITH THE LOCAL UTILITY COMPANY. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
4. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE CIRCUIT BREAKERS. MULTIPLE POLE CIRCUIT BREAKERS SHALL BE SINGLE HANDLE COMMON TRIP. SHORT CIRCUIT INTERRUPTING RATING SHALL BE AS REQUIRED FOR AVAILABLE FAULT CURRENTS. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE A SHORT CIRCUIT INTERRUPTING RATING EQUAL TO OR GREATER THAN THAT SHOWN ON PROJECT DRAWINGS.
5. CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING, BACKFILLING, AND REMOVAL OF DEBRIS IN CONNECTION WITH THE ELECTRICAL WORK IN ACCORDANCE WITH THE PROJECT DRAWINGS. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF UNDERGROUND UTILITIES AND GROUNDING WITH THE FOUNDATION INSTALLATION.
6. CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS FOR EQUIPMENT INSTALLED AS PART OF THIS PROJECT. SUPPORTS SHALL CONSIST OF GALVANIZED STEEL FRAMES, PLATES, BRACKETS, RACKS AND OTHER SHAPES OF ADEQUATE SIZE AND FASTENED WITH BOLTS, SCREWS OR BY WELDING TO PROVIDE RIGID SUPPORT.
7. CONTRACTOR SHALL CALL THE APPROPRIATE UTILITIES PROTECTION SERVICE BEFORE ANY UNDERGROUND WORK IS PERFORMED, SUCH AS TRENCHING, EXCAVATING, AND DRIVING GROUND RODS.
8. CONTRACTOR SHALL SEAL AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RATED WALLS/FLOORS USING APPROVED FIRE STOP MATERIALS TO MAINTAIN THE FIRE RESISTANCE RATING.
9. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENTLY ENGRAVED LAMINATED PHENOLIC NAMEPLATES WITH WHITE ON BLUE BACKGROUND (MINIMUM LETTER HEIGHT SHALL BE 1/2 - INCH). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS.

**RACEWAYS:**

1. CONDUIT AND CONDUIT FITTINGS SHALL MEET ANSI AND NEC STANDARDS FOR MATERIAL AND WORKMANSHIP AND SHALL BE UL LISTED.
  - A. RIGID STEEL CONDUIT (FOR ALL ABOVE GRADE WORK) SHALL CONFORM TO ANSI C80.1 AND THE REQUIREMENTS OF NEC, PARAGRAPH 344 AND BE STANDARD WEIGHT, MILD RIGID STEEL, HOT DIP GALVANIZED WITH INSIDE AND OUTSIDE FINISHED WITH A PROTECTIVE ZINC COATING. COUPLING, ELBOWS AND BENDS SHALL MEET THESE SAME REQUIREMENTS. FITTINGS SHALL BE OF THE GALVANIZED IRON OR STEEL THREADED TYPE.
  - B. PVC CONDUIT (FOR ABOVE GROUND OR UNDERGROUND WORK) SHALL CONFORM TO UL STANDARD 651 AND THE REQUIREMENTS OF NEC, PARAGRAPH 352. CONDUIT SHALL BE HEAVY WALL TYPE, SCHEDULE 40 OR 80, AND SUNLIGHT RESISTANT. FITTINGS SHALL BE OF THE UNTHREADED SOLVENT CEMENT TYPE.
  - C. EMT CONDUIT (FOR EXPOSED AND CONCEALED WORK): ELECTRIC METALLIC TUBING SHALL CONFORM TO ANSI C80.3 AND THE REQUIREMENTS OF NEC, PARAGRAPH 358 AND BE PROTECTED FROM CORROSION SUITABLE FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED. COUPLINGS AND CONNECTORS SHALL BE MADE UP TIGHT AND WHERE INSTALLED IN WET LOCATIONS SHALL COMPLY WITH NEC PARAGRAPH 314.15.
2. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH, SIZES NOT SHOWN ON DRAWINGS SHALL BE PER THE LATEST EDITION OF THE NEC.
3. ALL SPARE CONDUITS SHALL HAVE A METALLIC PULL WIRE.
4. CONDUIT SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC.
5. UNDERGROUND CONDUITS:
  - A. INSTALL WARNING TAPE TWELVE INCHES ABOVE EACH CONDUIT OR SET OF CONDUITS.
  - B. IDENTIFY EACH CONDUIT AT BOTH ENDS.
  - C. INSTALL A MINIMUM OF 36 INCHES BELOW THE FINISHED GRADE, OR DEEPER IF NOTED ON PLAN DRAWINGS.
  - D. SLOPE A MINIMUM OF 4 INCHES PER 100 FEET TO DRAIN AWAY FROM BUILDINGS AND EQUIPMENT.
  - E. USE MANUFACTURED ELECTRICAL PVC ELBOWS AND FITTINGS FOR BELOW GRADE BENDS.
  - F. MAKE JOINTS AND FITTINGS WATERTIGHT ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
  - G. INSTALL A COUPLING BEFORE EACH WALL PENETRATION.
  - H. RESTORE SURFACE FEATURES DISTURBED BY EXCAVATION (AND TRENCHING) IN ALL AREAS.

**CABLE TRAYS:**

1. ALL CABLE TRAYS AND FITTINGS SHALL BE DESIGNED, MANUFACTURED, INSTALLED AND TESTED IN CONFORMANCE WITH NEMA VE 1 AND VE 2.
2. CABLE TRAYS SHALL BE LADDER TYPE WITH 4-INCH SPACING.
3. CABLE TRAYS SHALL BE CAPABLE OF SUPPORTING 15 LBS/LINEAR FOOT.
4. CABLE TRAYS AND FITTINGS SHALL BE MANUFACTURED OF GALVANIZED STEEL.
5. CABLE TRAYS SHALL BE FURNISHED WITH COVERS WHERE SHOWN ON THE PROJECT DWGS.
6. ALL DISCONTINUOUS SECTIONS OF CABLE TRAY SHALL BE BONDED ACROSS JOINTS.

**CONDUCTORS:**

1. ALL POWER, CONTROL AND COMMUNICATION WIRING SHALL MEET NEMA WC, ASTM, UL, AND NEC STANDARDS FOR MATERIAL AND WORKMANSHIP UNLESS OTHERWISE SPECIFIED.
  - A. SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER, 600 VOLT, SUNLIGHT RESISTANT, SUITABLE FOR WET LOCATIONS, TYPE USE-2. THE GROUNDED NEUTRAL CONDUCTOR SHALL BE IDENTIFIED WITH A WHITE MARKING AT EACH TERMINATION.
  - B. CONDUCTORS FOR FEEDER AND BRANCH CIRCUITS SHALL BE COPPER, 600VOLT, TYPE THHN/THWN WITH A MINIMUM SIZE OF # 12 AWG.
2. ALL CONDUCTOR ACCESSORIES INCLUDING CONNECTORS, TERMINATIONS, INSULATING MATERIALS, SUPPORT GRIPS, MARKER AND CABLE TIES SHALL BE FURNISHED AND INSTALLED. SUPPLIER'S INSTALLATION INSTRUCTIONS SHALL BE OBTAINED FOR CABLE ACCESSORIES. THESE INSTRUCTIONS SHALL BE IN THE POSSESSION OF THE CRAFTSMAN WHILE INSTALLING THE ACCESSORIES AND SHALL BE AVAILABLE TO THE COMPANY FOR REFERENCE.
3. WHERE POSSIBLE, #6 AWG AND SMALLER WIRE SHALL BE COLOR CODED BY THE COLOR OF THE INSULATION COVERING. COLOR CODING OF WIRE LARGER THAN #6 AWG MAY BE BY MEANS OF SELF-ADHESIVE WRAP-AROUND TYPE MARKERS, PER NEC.
4. TERMINAL CONNECTORS FOR CONDUCTORS SMALLER THAN #8 AWG SHALL BE COMPRESSION TYPE CONNECTORS SIZED FOR THE CONDUCTOR AND THE TERMINAL. THE CONNECTORS SHALL BE CONSTRUCTED OF FINE GRADE HIGH CONDUCTIVITY COPPER IN ACCORDANCE WITH FEDERAL SPECIFICATION QQ-C-576 AND SHALL BE TIN-PLATED IN ACCORDANCE WITH MILITARY PLATING SPECIFICATION MIL-T-10727. THE INTERIOR SURFACE OF THE CONNECTOR WIRE BARREL SHALL BE SERRATED AND THE EXTERIOR SURFACE OF THE CONNECTOR WIRE BARREL SHALL BE PROVIDED WITH CRIMP GUIDES.
5. TERMINAL CONNECTORS FOR CONDUCTORS #8 AWG AND LARGER SHALL BE PRESSURE OR BOLTED CLAMP, TYPE BURNDY, QUICKLUG, VARILUG OR ACCEPTABLE EQUAL, OR COMPRESSION, TYPE BURNDY TYPE YAV OR YA (LONG BARREL), PANDUIT TYPE LCA OR LCC, OR ACCEPTABLE EQUAL. ACCEPTABLE CONNECTORS INCLUDED WITH COMPANY FURNISHED EQUIPMENT MAY BE USED.
6. TERMINATION PROVISIONS OF EQUIPMENT FOR CIRCUITS RATED 100 AMPERES OR LESS, OR MARKED FOR NOS. 14 THROUGH 1 CONDUCTORS, SHALL BE USED ONLY FOR CONDUCTORS RATED 60°C (140°F). CONDUCTORS WITH HIGHER TEMPERATURE RATINGS SHALL BE PERMITTED, PROVIDED THE AMPACITY OF EACH CONDUCTOR IS DETERMINED BASED ON THE 60°C (140°F) AMPACITY OF THE CONDUCTOR SIZE USED.
7. TERMINATION PROVISIONS OF EQUIPMENT FOR CIRCUITS RATED OVER 100 AMPERES, OR MARKED FOR CONDUCTORS LARGER THAN NO. 1, SHALL BE USED ONLY FOR CONDUCTORS RATED 75°C (167°F). CONDUCTORS WITH HIGHER TEMPERATURE RATINGS SHALL BE PERMITTED, PROVIDED THE AMPACITY OF EACH CONDUCTOR IS DETERMINED BASED ON THE 75°C (167°F) AMPACITY OF THE CONDUCTOR SIZE USED.
8. ALL 600 VOLT OR LESS WIRING, WHERE COMPRESSION TYPE CONNECTORS ARE USED, SHALL BE INSULATED WITH AT LEAST ONE TURN OF "SCOTCHFILL" ELECTRICAL INSULATING PUTTY AND THEN COVERED WITH TWO HALF TURNS OF TAPE SIMILAR TO 3M COMPANY'S "33 PLUS" (33+) PLASTIC TAPE OR 88 OUTDOOR.

**GROUNDING:**

1. ALL BASE TRANSCEIVER SITE EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), THE LATEST EDITION OF LIGHTNING PROTECTION CODE NFPA 780 AND T-MOBILE STANDARDS.
2. THE ELECTRICAL SERVICE TO THE SITE SHALL BE GROUNDED AT THE SERVICE DISCONNECTING MEANS REQUIRED IN ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, AND IN ACCORDANCE WITH ANY LOCAL CODE.
3. ALL UNDERGROUND (BELOW GRADE) GROUNDING CONNECTIONS SHALL BE MADE BY THE CADWELD PROCESS (MECHANICAL LUG ATTACHMENTS BELOW GRADE ARE NOT ACCEPTABLE). CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE SPLICES (TEES, XS, ETC.), ALL CABLE CONNECTIONS TO GROUND RODS, GROUND ROD SPLICES, AND LIGHTNING PROTECTION SYSTEM AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY CADWELD AND INSTALLED PER MANUFACTURER'S RECOMMENDATION AND PROCEDURES.
4. ALL GROUNDING AND BONDING CONDUCTORS THAT ARE CONNECTED ABOVE GRADE OR INTERIOR TO A BUILDING SHALL BE CONNECTED USING TWO HOLED CRIMP TYPE (COMPRESSION) CONNECTIONS FOR #2 & #6 AWG INSULATED COPPER CONDUCTORS.
5. ALL GROUNDING CONNECTIONS, INTERIOR AND EXTERIOR, MADE THROUGHOUT THIS DOCUMENT SHALL BE MADE USING AN ANTI-OXIDATION COMPOUND. THE ANTI-OXIDATION COMPOUND SHALL BE THOMAS AND BETTS KOPR-SHIELD (TM OF JET LUBE INC.), OR BURNDY PENETROX -E, NO SUBSTITUTIONS. COAT ALL WIRES BEFORE LUGGING. COAT ALL SURFACES BEFORE CONNECTING.
6. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. PRIOR TO CADWELD, GALVANIZING SHALL BE REMOVED BY GRINDING SURFACE TO BARE METAL. "SLAG" FROM CADWELD MUST BE REMOVED AND WELD SHALL BE SPRAYED WITH COLD GALVANIZE AFTER COMPLETION.
7. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED. CLIPS OF THE FOLLOWING MATERIALS AND TYPES MAY BE USED TO SUPPORT GROUNDING CONDUCTORS.
  - PLASTIC CLIPS
  - STAINLESS STEEL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTOR
  - FERROUS METAL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTOR

8. ALL BELOW GRADE GROUNDING CONDUCTORS SHALL BE BARE TINNED SOLID COPPER WIRE. ABOVE-GRADE GROUNDING CONDUCTORS MAY BE EITHER:
  - BARE TINNED SOLID COPPER WIRE
  - THWN-INSULATED, CONTINUOUS GREEN COLOR, SOLID COPPER WIRE
  - THWN-INSULATED, CONTINUOUS GREEN COLOR, STRANDED COPPER WIRE
 AS SPECIFIED ON THE GROUNDING DRAWINGS.
  - A. UNDERGROUND GROUND RING SHALL BE A #2 AWG BARE TINNED SOLID COPPER WIRE
  - B. #2 AWG WIRE SHALL BE STRANDED COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET INSTALLATION (SOME ABOVE GROUND APPLICATIONS, I.E. INDOOR GROUND RING).
  - C. #4/0 AWG WIRE SHALL BE STRANDED COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET LOCATIONS (I.E. TO MAIN GROUND, BUILDING STEEL, BETWEEN GROUND BARS, LIGHTNING PROTECTION, MAIN WATER LINE OF THE BUILDING OR EXISTING GROUND ROD).
  - D. #2 AWG WIRE SHALL BE BARE TINNED SOLID COPPER. ALL BURIED WIRE SHALL MEET THIS CRITERIA, INCLUDING CABLE TRAY GROUNDING WIRES AND OTHER WIRES AS INDICATED ON THE DRAWINGS.
  - E. FENCE GATE BONDING JUMPER SHALL BE 4/0 WIRING CABLE THAT HAS BEEN CRIMPED ON EACH END WITH A CAP FOR THE CADWELD PROCESS.
  - F. THE MINIMUM BEND RADIUS IS 8 INCHES FOR #6 AWG AND SMALLER; 12 INCHES FOR WIRE LARGER THAN #6 AWG.
9. ALL HARDWARE, BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL. EVERY CONNECTION SHALL BE BOLT-FLAT WASHER-BUSS-LUG-FLAT WASHER-LOCK WASHER-NUT IN THAT EXACT ORDER, WITH NUT FACING OUTWARD. BACK-TO-BACK LUGGING, BOLT-FLAT WASHER-LUG-FLAT WASHER-BUSS-LUG-LOCK WASHER-NUT, IN THAT EXACT ORDER IS ACCEPTED WHERE NECESSARY TO CONNECT MANY LUGS TO A BUSS BAR. STACKING OF LUGS, BUSS-LUG-LUG, IS NOT ACCEPTABLE.
10. COMPRESSION GROUND LUGS FOR GROUNDING CONDUCTORS SHALL BE BURNDY TYPE YAXX-27C38 OR APPROVED EQUAL.
  11. THE DEPTH OF THE GROUND RING, WHEN SPECIFIED, SHALL BE EITHER 3'-6" BELOW FINAL GRADE OR IT SHALL BE INSTALLED TO THE MINIMUM DEPTH REQUIRED BY LOCALLY ENFORCED CODES, REGULATIONS AND ORDINANCES, WHICHEVER IS DEEPER.
  12. THE GROUND RING, WHEN SPECIFIED, SHALL BE A MINIMUM OF 24 INCHES FROM THE EQUIPMENT SHELTER FOUNDATION, PLATFORM OR CONCRETE PAD.
  13. GROUND RODS, WHEN SPECIFIED, SHALL BE 5/8 INCH STEEL, CLAD WITH A PURE COPPER JACKET OF NOT LESS THAN 0.0012 INCHES THICK, 8 FEET LONG (MIN.). GROUND RODS SHALL BE DRIVEN TO THE FULL VERTICAL LENGTH IN UNDISTURBED EARTH.
  14. SPACING BETWEEN GROUND RODS, WHEN SPECIFIED, SHALL BE A MINIMUM OF 6 FEET PER THE NATIONAL ELECTRICAL CODE.
  15. XIT RODS, WHEN SPECIFIED, SHALL BE MIN. 2" ID TYPE "K" COPPER TUBE WITH A MINIMUM WALL THICKNESS OF 0.083" AND SHALL BE A MINIMUM OF 8 FEET IN LENGTH. THE XIT COPPER PIPE/ROD SHALL BE FILLED WITH NON-HAZARDOUS METALLIC SALTS. THE BACKFILL MATERIAL SHALL BE NATURAL CLAY LYNGONITE II. THE COVER SHALL BE FIBERLYTE CAST IRON, LYNGOLE MODEL XB-12F, FOR LIGHT TRAFFIC AREAS, XB-12 FOR MEDIUM TRAFFIC AREAS AND XB-22, FOR HEAVY TRAFFIC OR PAVED AREAS.
  16. PFC BONDING. PFC UNITS ARE SHIPPED WITH A NEUTRAL-GROUND BONDING JUMPER INSTALLED (SERVICE ENTRANCE RATED). AT SITES WHERE THE PFC IS NOT SERVICE ENTRANCE RATED EQUIPMENT (AS DEFINED BY THE NEC), THIS BONDING JUMPER SHALL BE REMOVED. NOTE: AT SITES WHERE THE PFC IS NOT SERVICE ENTRANCE RATED EQUIPMENT, THE CONTRACTOR SHALL VERIFY THAT THE SERVICE ENTRANCE NEUTRAL IS GROUNDED PRIOR TO REMOVAL OF THE BONDING JUMPER IN THE PFC.
  17. THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWEST POINT OF VERTICAL RUN. THE ANTENNA CABLE SHIELD SHALL BE GROUNDED JUST BEFORE ENTERING THE BTS CABINET. GROUNDING KITS ON COAX CABLE SHALL HAVE A MINIMUM BEND OF 6" AND SHALL BE KEPT AS CLOSE TO VERTICAL AS POSSIBLE. FLAT WASHER SENT WITH GROUND KITS MUST BE REPLACED WITH SMALLER STAINLESS FLAT WASHERS. WASHERS MUST REMAIN FLAT AGAINST GROUND BAR. ALL FASTENERS MUST BE STAINLESS STEEL AND KOPR-SHIELD MUST BE USED ON BOTH SIDES OF GROUND BAR.

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DRAWING REVISIONS			
Rev.	Description:	Date:	Mgr.
E	For Approval	06/22/20	T5B
2	For Construction	07/01/20	T5B

07/01/20

Engineer's Seal

**T-MOBILE SITE NUMBER:**  
CL20124A

**SITE NAME:**  
TNL ROOFTOP

3756 LEE RD.  
CLEVELAND, OH 44118

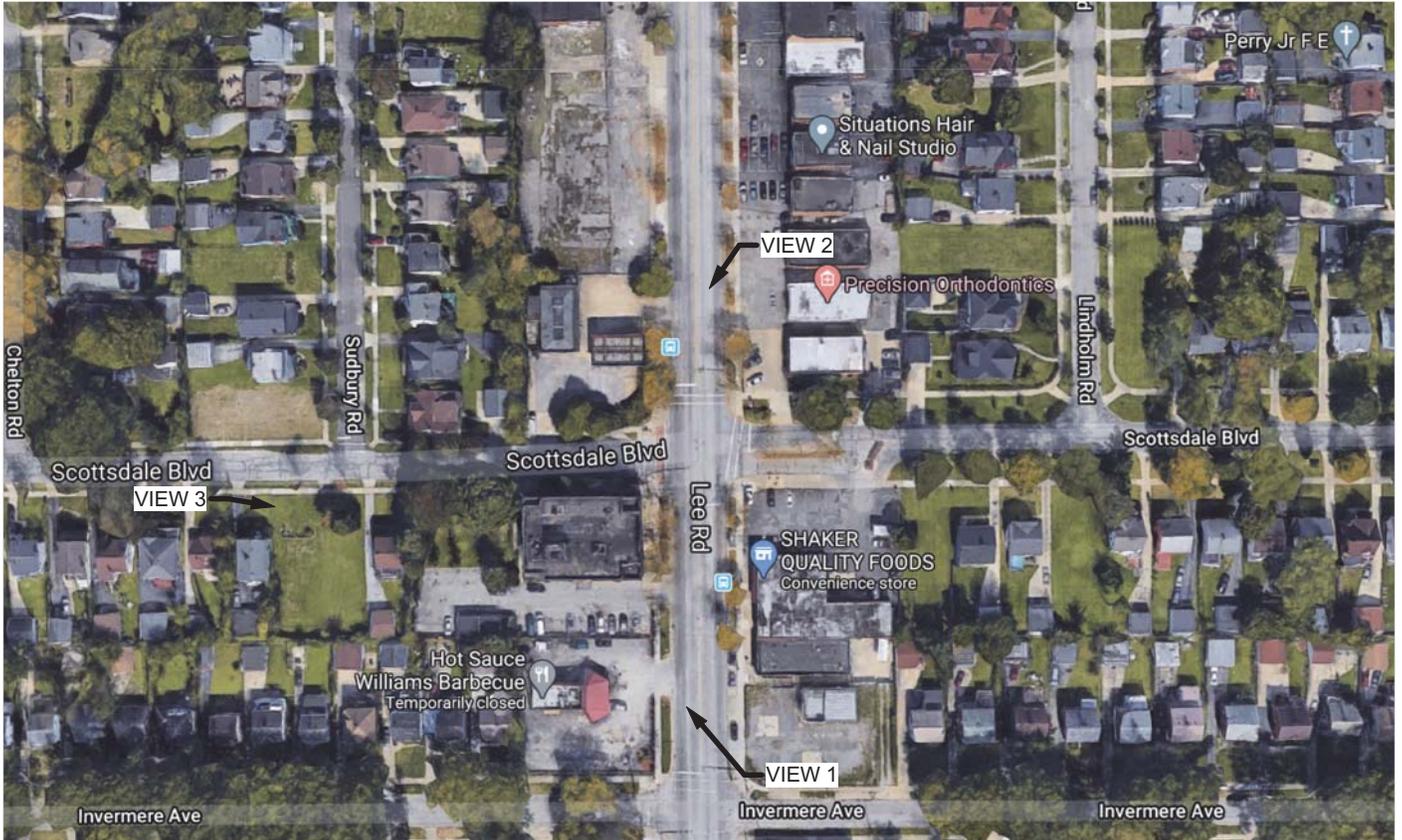
**SHEET NAME:**

**ELECTRICAL NOTES**

<b>SHEET No./Rev.:</b>	SCALE: AS NOTED
	DRAWN BY: DA
	CHECKED BY: MGM
	DATE: 03/30/17
	FILE: 14-188-029

**SP-1/2**

# **PHOTO SIMULATIONS**



CL20124A - TNL Rooftop  
(Scottsdale Apts) Map

PHOTO SIM REVISIONS			
Rev.	Description:	Date:	Mgr.
A	For Approval	08/11/20	MAD

FILE:14-188-029



This is a photo simulation, not an exact representation. It is simply a tool used to give a visual sense of scale and placement



CL20124A - TNL Rooftop (Scottsdale Apts)  
View 1 Before



CL20124A - TNL Rooftop  
(Scottsdale Apts)  
View 1 After

PHOTO SIM REVISIONS			
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CL20124A - TNL Rooftop (Scottsdale Apts)  
View 2 Before



CL20124A - TNL Rooftop  
(Scottsdale Apts)  
View 2 After



PHOTO SIM REVISIONS			
Rev.	Description:	Date:	Mgr.
A	For Approval	08/11/20	MAD

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CL20124A - TNL Rooftop (Scottsdale Apts)  
View 3 Before



CL20124A - TNL Rooftop  
(Scottsdale Apts)  
View 3 After



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# **ENGINEER'S STRUCTURAL EVALUATION**

# HARPER ENGINEERING, Inc.

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Ph: 216.344.3855  
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## STRUCTURAL EVALUATION LETTER

### SITE INFORMATION

Site Name: TNL Rooftop  
Site Type: Roof Top Mount  
Site Address: 3756 Lee Road, Cleveland, OH 44128  
T-Mobile Site No.: CL20124A  
HPE Site No.: 14-188-029



6/12/20

### CURRENT WIND CRITERIA

1. Meets Ohio Building Code 2017/IBC 2015.
2. ANSI/TIA/EIA-222-H- Code.

### DATA SOURCES

1. T-Mobile RF information sheet dated 05/21/2020.
2. Site photos dated 04/07/2020.

### PROPOSED MODIFICATIONS

1. Remove four (4) existing SBNHH-1D65C panel antennas (1 per sector) from penthouse wall mounts.
2. Install three (3) new AAHF panel antennas and four (4) new FFHH-65C-R3 panel antennas (1 per sector) on wall mounts at 60 ft. elevation.
3. Remove eight (8) existing diplexers (2 per sector), four (4) existing RRU FRIJ, four (4) existing RRU FRLB and four (4) existing RRU FHFB from penthouse wall mounts.
4. Install four (4) new AHFIG and four (4) new AHLOA on the penthouse wall mounts.

### ASSUMPTIONS

1. Existing building structure and antenna pipe mounts are in good condition and without any structural defects.
2. The original structural design was performed in accordance with the Telecommunication Industry Association standard TIA/EIA 222 and governing building code.

### CONCLUSION

Harper Engineering, Inc. performed structural evaluation of new pipe mount antenna and equipment support. Based on the results, Harper Engineering can conclude that the new pipe mount antenna and equipment support, including building structure meets the design criteria listed above and are structurally adequate to support the proposed T-Mobile modifications.

### ATTACHMENTS

1. Harper Engineering Inc. structural analysis.

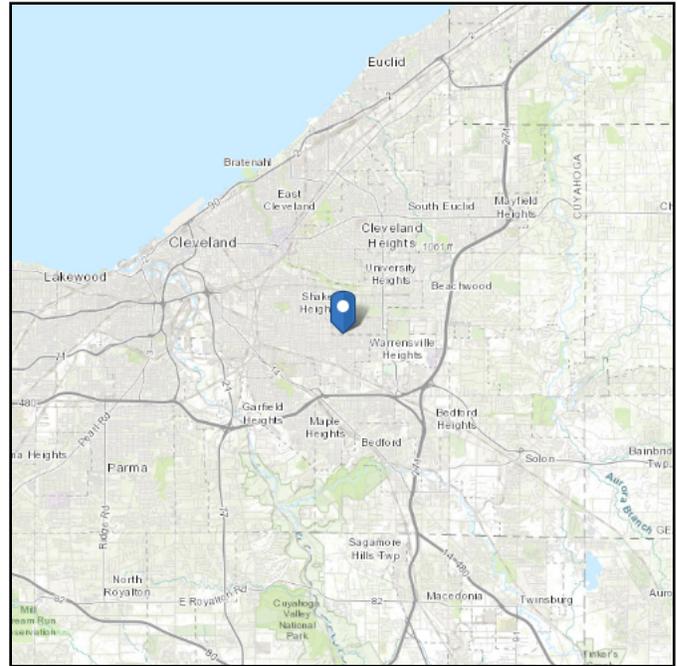


# ASCE 7 Hazards Report

**Address:**  
3756 Lee Rd  
Cleveland, Ohio  
44128

**Standard:** ASCE/SEI 7-16  
**Risk Category:** II  
**Soil Class:** D - Default (see Section 11.4.3)

**Elevation:** 993.74 ft (NAVD 88)  
**Latitude:** 41.457328  
**Longitude:** -81.564956



## Wind

### Results:

Wind Speed:	109 Vmph
10-year MRI	75 Vmph
25-year MRI	82 Vmph
50-year MRI	86 Vmph
100-year MRI	93 Vmph

**Data Source:** ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4

**Date Accessed:** Tue Jun 09 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.



## Ice

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### Results:

Ice Thickness: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed: 40 mph

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Tue Jun 09 2020

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

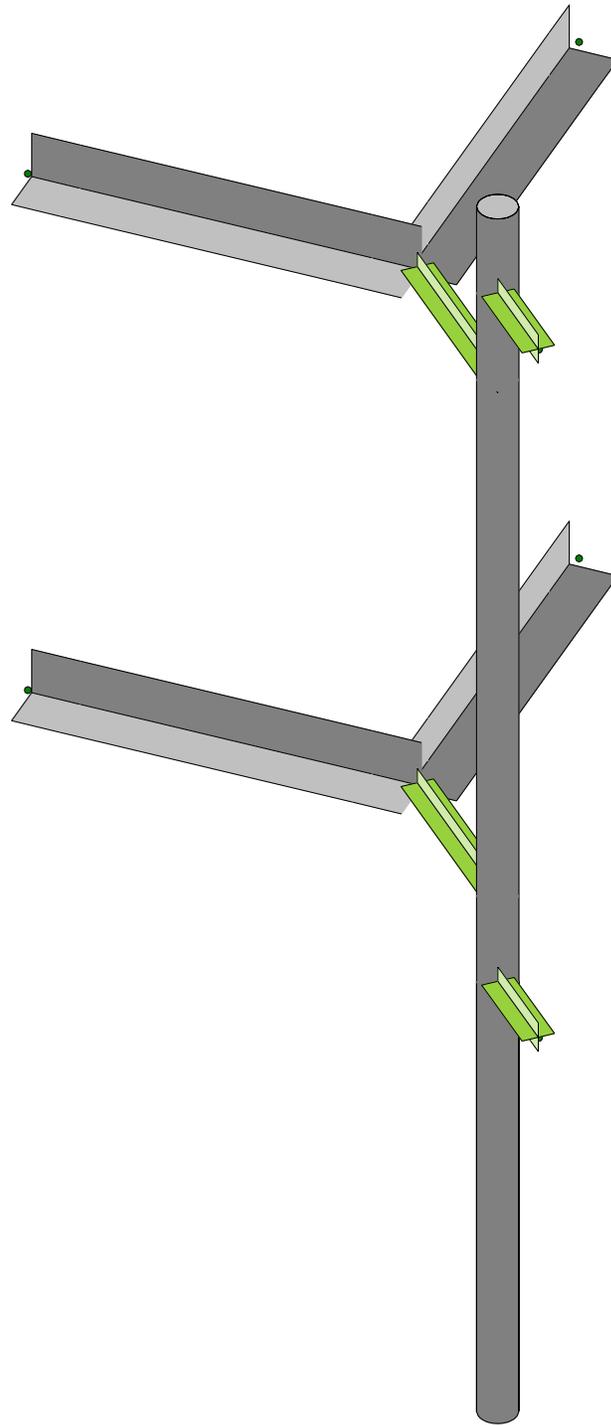
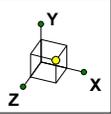
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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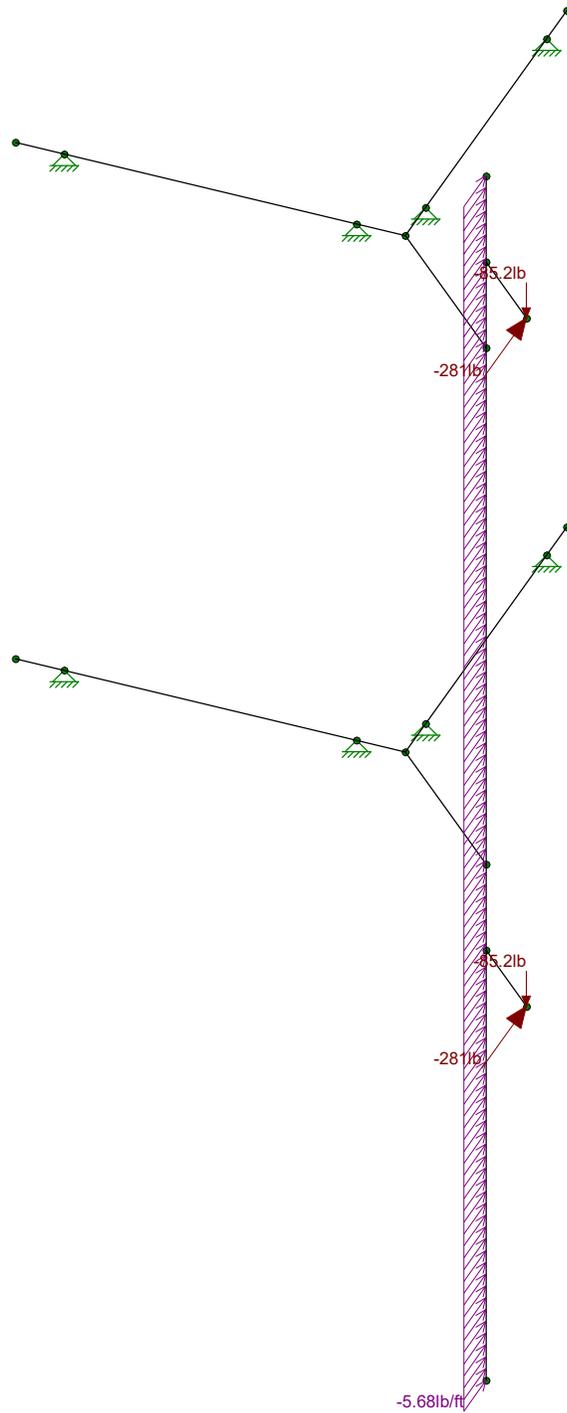
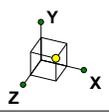
14-188-029

CL20124A Mount Analysis (corner)

SK - 2

June 11, 2020 at 7:14 PM

14-188-029 corner.r3d

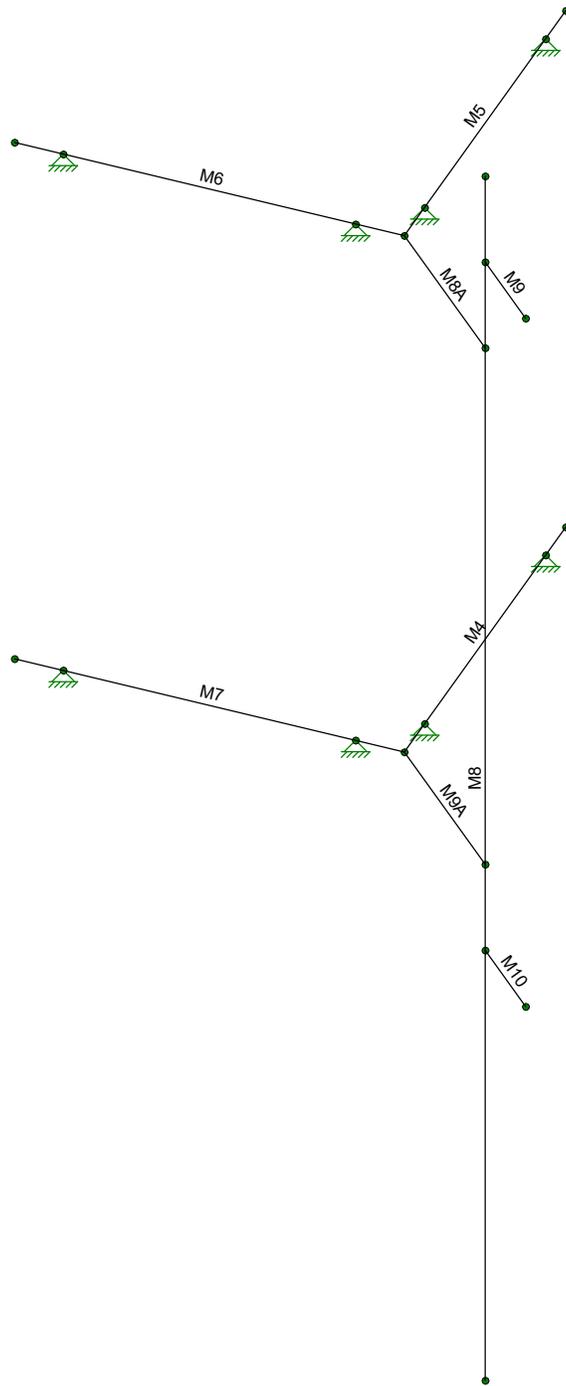
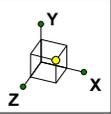


Loads: LC 1, 1.2 D + 1.0 Dg + 1.0 Wo (front)

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14-188-029

CL20124A Mount Analysis (corner)

SK - 3
June 11, 2020 at 7:16 PM
14-188-029 corner.r3d



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14-188-029

CL20124A Mount Analysis (corner)

SK - 4

June 11, 2020 at 7:17 PM

14-188-029 corner.r3d



### Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[ft]	LC	Shear	Loc[ft]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn	phi*Mn	Cb	Eqn	
1	M5	L3X3X4	.139	0	1	.039	0	z	9	42699.8...	46656	1.688	3.756	2...	H2-1
2	M6	L3X3X4	.139	0	9	.039	0	y	1	42699.8...	46656	1.688	3.756	2...	H2-1
3	M8	PIPE 2.0	.128	5.979	10	.091	2.99	9	17855.0...	32130	1.872	1.872	1...	H1-1b	
4	M7	L3X3X4	.117	.25	10	.037	0	y	9	42699.8...	46656	1.688	3.756	1...	H2-1
5	M4	L3X3X4	.117	.25	2	.037	0	z	1	42699.8...	46656	1.688	3.756	1...	H2-1

### Load Combinations

Description	So...	S...	BLCFac.											
1	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2	OL2	1					
2	1.2D + 1.0 Dg + 1.0D...	Yes	Y	DL	1.2	OL1	1.2	OL3	1	OL4	1			
3	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2							
4	1.4 D	Yes	Y	DL	1.4	OL1	1.4							
5	1.2 D + 1.5 LM (1) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL7	1.5	W...	1			
6	1.2 D + 1.5 LM (2) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL8	1.5	W...	1			
7	1.2 D + 1.5 LM (3) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL9	1.5	W...	1			
8	1.2 D + 1.5 LM (4) + 1...	Yes	Y	DL	1.2	OL1	1.2	O...	1.5	W...	1			
9	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2	OL5	1					
10	1.2D + 1.0 Dg + 1.0D...	Yes	Y	DL	1.2	OL1	1.2	OL3	1	OL6	1			
11	1.2 D + 1.5 LM (1) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL7	1.5	W...	1			
12	1.2 D + 1.5 LM (2) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL8	1.5	W...	1			
13	1.2 D + 1.5 LM (3) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL9	1.5	W...	1			
14	1.2 D + 1.5 LM (4) + 1...	Yes	Y	DL	1.2	OL1	1.2	O...	1.5	W...	1			
15														
16	1.2 D + 1.5 LV (1)	Yes	Y	DL	1.2	OL1	1.2	NL	1.5					
17	1.2 D + 1.5 LV (2)	Yes	Y	DL	1.2	OL1	1.2	NLX	1.5					
18	1.2 D + 1.5 LV (3)	Yes	Y	DL	1.2	OL1	1.2	NLY	1.5					
19	1.2 D + 1.5 LV (4)	Yes	Y	DL	1.2	OL1	1.2	NLZ	1.5					
20														

### Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N18	max	89.655	2	-32.504	9	0	19	0	19	0	19
2		min	15.401	9	-147.814	2	0	1	0	1	0	1
3	N14	max	522.345	1	424.967	1	840.837	1	0	19	0	19
4		min	-589.861	9	-129.392	9	-596.855	9	0	1	0	1
5	N15A	max	840.838	9	424.968	9	522.345	9	0	19	0	19
6		min	-596.856	1	-129.391	1	-589.86	1	0	1	0	1
7	N19	max	0	19	-32.505	1	89.655	10	0	19	0	19
8		min	0	1	-147.815	10	15.401	1	0	1	0	1
9	N20	max	0	19	-23.651	1	90.525	10	0	19	0	19
10		min	0	1	-149.291	10	8.165	1	0	1	0	1
11	N16	max	830.161	9	365.955	2	494.729	9	0	19	0	19
12		min	-499.191	1	-165.297	9	-502.944	1	0	1	0	1
13	N13A	max	494.729	1	365.951	10	830.16	1	0	19	0	19
14		min	-502.945	9	-165.299	1	-499.19	9	0	1	0	1
15	N17	max	90.525	2	-23.651	9	0	19	0	19	0	19
16		min	8.165	9	-149.29	2	0	1	0	1	0	1
17	Totals:	max	601.76	9	746.515	2	601.76	1				
18		min	0	1	250.405	3	0	4				

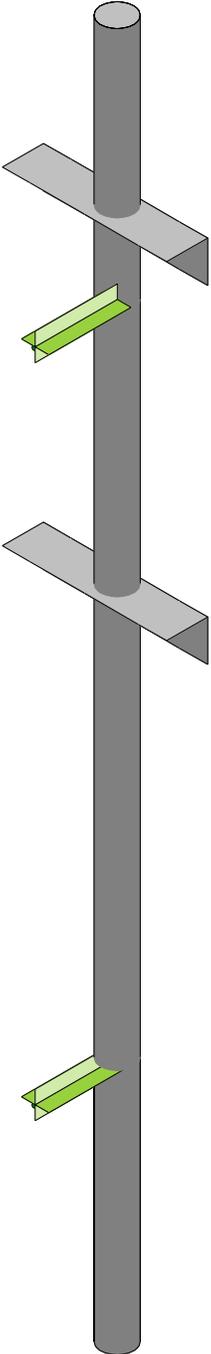
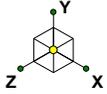


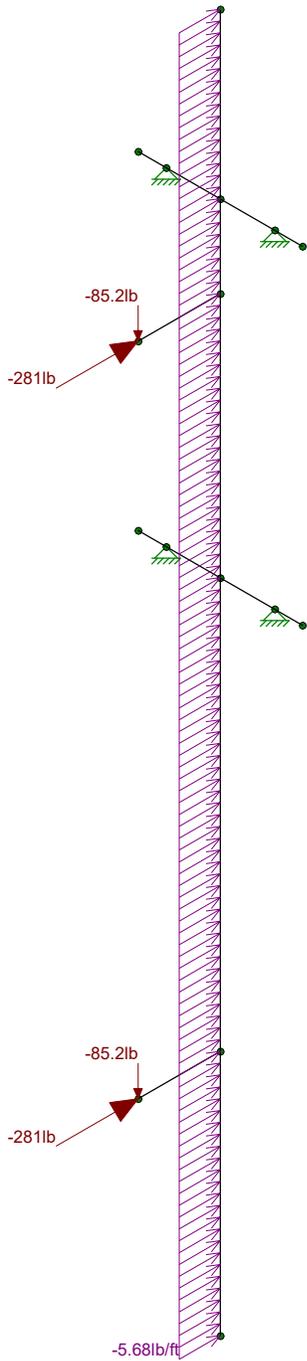
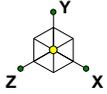
Company : Harper Engineering  
 Designer : SFM  
 Job Number : 14-188-029  
 Model Name : CL20124A Mount Analysis (corner)

June 11, 2020  
 7:18 PM  
 Checked By: \_\_\_\_\_

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M4	N5A	N30			B 3"x3"	Beam	Single Angle	A36 Gr.36	Typical
2	M5	N10	N9			B 3"x3"	Beam	Single Angle	A36 Gr.36	Typical
3	M6	N10	N12		270	B 3"x3"	Beam	Single Angle	A36 Gr.36	Typical
4	M7	N5A	N11		270	B 3"x3"	Beam	Single Angle	A36 Gr.36	Typical
5	M8	N23	N22			A 2" Pipe	Column	Pipe	A53 Gr.B	Typical
6	M9	N25	N27			RIGID	None	None	RIGID	Typical
7	M10	N26	N28			RIGID	None	None	RIGID	Typical
8	M8A	N10	N24			RIGID	None	None	RIGID	Typical
9	M9A	N5A	N21			RIGID	None	None	RIGID	Typical





Loads: LC 1, 1.2 D + 1.0 Dg + 1.0 Wo (front)

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SFM

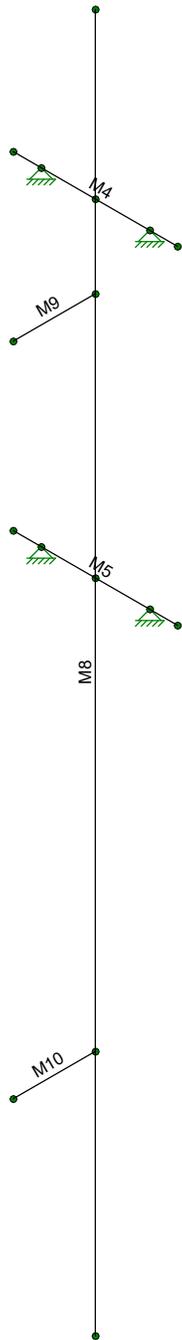
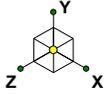
14-188-029

CL20124A Mount Analysis (dbl angles)

SK - 3

June 11, 2020 at 7:26 PM

14-188-029 dbl angles.r3d





### Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[ft]	LC	Shear	Loc[ft]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn	phi*Mn	Cb	Eqn	
1	M8	PIPE 2.0	.423	4.01	1	.116	3.938	9	17855.0...	32130	1.872	1.872	1	H1-1b	
2	M5	L3X3X4	.224	.5	9	.069	.823	z	9	45633.8...	46656	1.688	3.756	1...	H2-1
3	M4	L3X3X4	.049	.5	9	.013	.5	y	9	45633.8...	46656	1.688	3.756	1...	H2-1

### Load Combinations

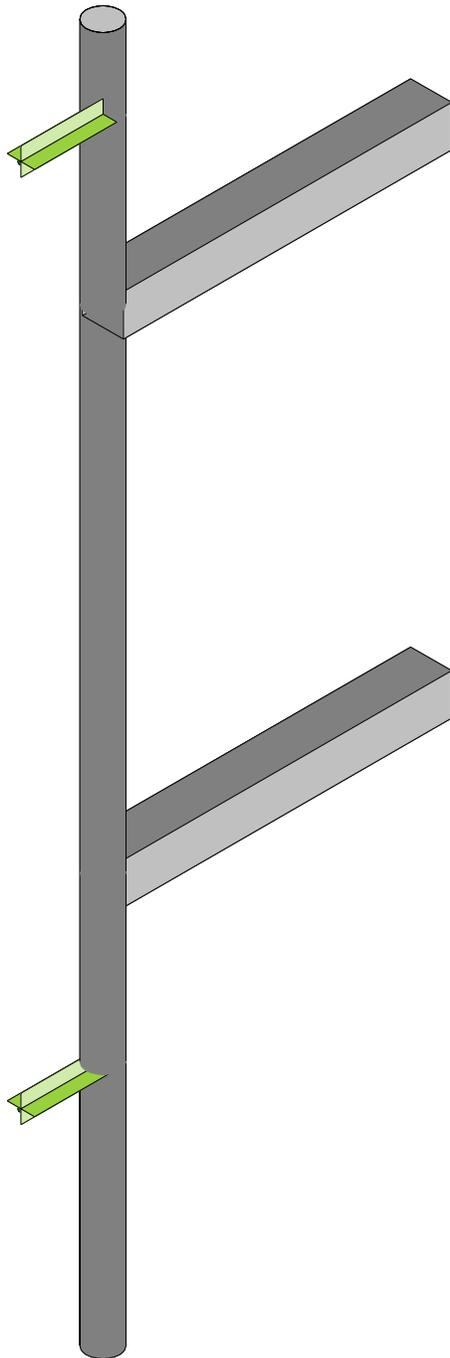
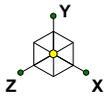
Description	So...	P...	S...	BLCFac.										
1	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2	OL2	1					
2	1.2D + 1.0 Dg + 1.0 D...	Yes	Y	DL	1.2	OL1	1.2	OL3	1	OL4	1			
3	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2							
4	1.4 D	Yes	Y	DL	1.4	OL1	1.4							
5	1.2 D + 1.5 LM (1) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL7	1.5	W...	1			
6	1.2 D + 1.5 LM (2) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL8	1.5	W...	1			
7	1.2 D + 1.5 LM (3) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL9	1.5	W...	1			
8	1.2 D + 1.5 LM (4) + 1...	Yes	Y	DL	1.2	OL1	1.2	O...	1.5	W...	1			
9	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2	OL5	1					
10	1.2D + 1.0 Dg + 1.0 D...	Yes	Y	DL	1.2	OL1	1.2	OL3	1	OL6	1			
11	1.2 D + 1.5 LM (1) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL7	1.5	W...	1			
12	1.2 D + 1.5 LM (2) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL8	1.5	W...	1			
13	1.2 D + 1.5 LM (3) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL9	1.5	W...	1			
14	1.2 D + 1.5 LM (4) + 1...	Yes	Y	DL	1.2	OL1	1.2	O...	1.5	W...	1			
15														
16	1.2 D + 1.5 LV (1)	Yes	Y	DL	1.2	OL1	1.2	NL	1.5					
17	1.2 D + 1.5 LV (2)	Yes	Y	DL	1.2	OL1	1.2	NLX	1.5					
18	1.2 D + 1.5 LV (3)	Yes	Y	DL	1.2	OL1	1.2	NLY	1.5					
19	1.2 D + 1.5 LV(4)	Yes	Y	DL	1.2	OL1	1.2	NLZ	1.5					
20														

### Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N13	max	87.881	9	135.063	10	152.292	9	0	19	0	19	0	19
2		min	0	1	-13.541	1	-96.299	1	0	1	0	1	0	1
3	N15	max	87.881	9	146.286	10	-21.256	19	0	19	0	19	0	19
4		min	0	1	-13.541	1	-194.804	9	0	1	0	1	0	1
5	N14	max	212.999	9	223.586	2	397.179	1	0	19	0	19	0	19
6		min	0	1	-883.086	9	21.256	3	0	1	0	1	0	1
7	N16	max	212.999	9	1010.803	9	397.179	1	0	19	0	19	0	19
8		min	0	1	63.859	3	-230.955	9	0	1	0	1	0	1
9	Totals:	max	601.76	9	709.471	2	601.76	1						
10		min	0	1	213.361	3	0	3						

### Member Primary Data

Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M8	N23	N22		A 2" Pipe	Column	Pipe	A53 Gr.B	Typical
2	M9	N25	N27		RIGID	None	None	RIGID	Typical
3	M10	N26	N28		RIGID	None	None	RIGID	Typical
4	M4	N10	N12	90	B 3"x3" Angle	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N9	N11	90	B 3"x3" Angle	Beam	Single Angle	A36 Gr.36	Typical



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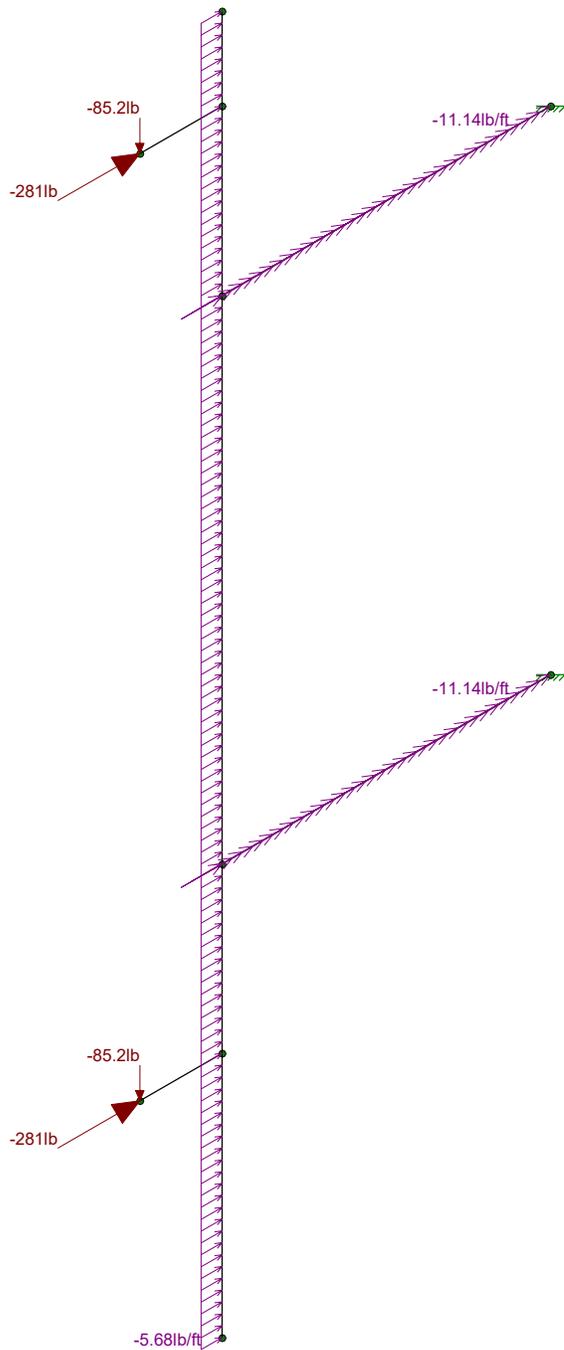
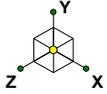
14-188-029

CL20124A Mount Analysis (standoff)

SK - 4

June 11, 2020 at 7:37 PM

14-188-029 standoff.r3d

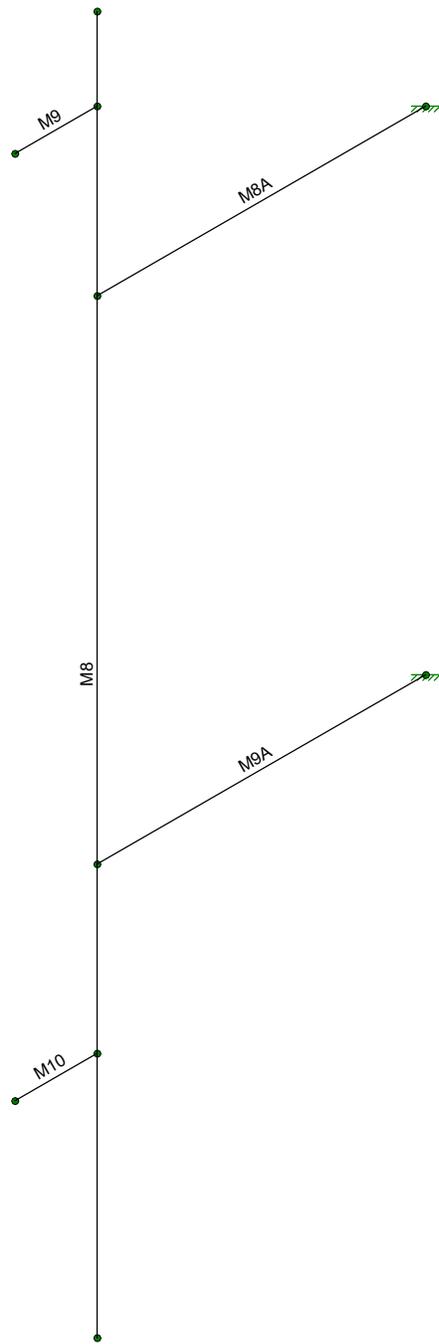
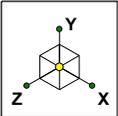


Loads: LC 1, 1.2 D + 1.0 Dg + 1.0 Wo (front)

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14-188-029

CL20124A Mount Analysis (standoff)

SK - 5
June 11, 2020 at 7:38 PM
14-188-029 standoff.r3d





### Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[ft]	LC	Shear	Loc[ft]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn	phi*Mn	Cb	Eqn
1	M8	PIPE 2.0	.181	2,479	1	.115	2,479	9	17855.0...	32130	1.872	1.872	1	H1-1b
2	M9A	HSS3X3X4	.114	0	9	.042	0	z 9	97902.6...	101016	8.556	8.556	1...	H1-1b
3	M8A	HSS3X3X4	.112	0	9	.041	0	z 9	97902.6...	101016	8.556	8.556	1...	H1-1b

### Load Combinations

Description	So...	P...	S...	BLCFac..										
1	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2	OL2	1					
2	1.2D + 1.0 Dg + 1.0 D...	Yes	Y	DL	1.2	OL1	1.2	OL3	1	OL4	1			
3	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2							
4	1.4 D	Yes	Y	DL	1.4	OL1	1.4							
5	1.2 D + 1.5 LM (1) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL7	1.5	W...	1			
6	1.2 D + 1.5 LM (2) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL8	1.5	W...	1			
7	1.2 D + 1.5 LM (3) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL9	1.5	W...	1			
8	1.2 D + 1.5 LM (4) + 1...	Yes	Y	DL	1.2	OL1	1.2	O...	1.5	W...	1			
9	1.2 D + 1.0 Dg + 1.0 ...	Yes	Y	DL	1.2	OL1	1.2	OL5	1					
10	1.2D + 1.0 Dg + 1.0 D...	Yes	Y	DL	1.2	OL1	1.2	OL3	1	OL6	1			
11	1.2 D + 1.5 LM (1) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL7	1.5	W...	1			
12	1.2 D + 1.5 LM (2) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL8	1.5	W...	1			
13	1.2 D + 1.5 LM (3) + 1...	Yes	Y	DL	1.2	OL1	1.2	OL9	1.5	W...	1			
14	1.2 D + 1.5 LM (4) + 1...	Yes	Y	DL	1.2	OL1	1.2	O...	1.5	W...	1			
15														
16	1.2 D + 1.5 LV (1)	Yes	Y	DL	1.2	OL1	1.2	NL	1.5					
17	1.2 D + 1.5 LV (2)	Yes	Y	DL	1.2	OL1	1.2	NLX	1.5					
18	1.2 D + 1.5 LV (3)	Yes	Y	DL	1.2	OL1	1.2	NLY	1.5					
19	1.2 D + 1.5 LV(4)	Yes	Y	DL	1.2	OL1	1.2	NLZ	1.5					
20														

### Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N10	max	319.306	9	430.688	2	273.68	1	-.199	19	.758	9	0	19
2		min	0	1	122.956	3	-154.695	10	-.689	2	0	1	-.211	9
3	N5A	max	327.014	9	399.645	10	372.64	1	-.083	1	.772	9	.219	9
4		min	0	1	-70.633	1	44.93	3	-.669	10	0	1	0	1
5	Totals:	max	646.32	9	798.529	10	646.32	1						
6		min	0	1	246.019	1	0	10						

### Member Primary Data

Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M8	N23	N22		A 2" Pipe	Column	Pipe	A53 Gr.B	Typical
2	M9	N25	N27		RIGID	None	None	RIGID	Typical
3	M10	N26	N28		RIGID	None	None	RIGID	Typical
4	M8A	N10	N24		B HSS3x3	Beam	SquareTube	A500 Gr.B...	Typical
5	M9A	N5A	N21		B HSS3x3	Beam	SquareTube	A500 Gr.B...	Typical

Hilti Bolt Capacities (HIT HY 70 Hybrid)

Multi-Wythe Brick Wall

Scr = Smin = 16" minimum

Edge distance = 16" minimum

Combined Shear and Tension  
Loading:

$$F_{comb} = \frac{N_d}{N_{rec}} + \frac{V_d}{V_{rec}}$$

Bolt Design Values

Bolt Diameter = 5/8 inch 6" embedment  
Hilti Threaded Rods in brick wall

$V_{rec} = 1405$  lbs

Allowable shear force  
(adhesive bond)

$N_{rec} = 1025$  lbs

Allowable tension force  
(adhesive bond)

$V_d = 698$  LBS

Design shear force per bolt

$N_d = 387$  LBS

Design tension force per bolt

$F_{comb} = 0.87$

5/8" bolt is OK

Masonry pull out analysis

Length of brick  
included

$L = 8$  in

Height of brick

$H = 2.5$  in

Depth of brick  
included

$D = 6$  in

Surface area of  
grout

$A_p = 2 \cdot (L + H) \cdot D$

$A_p = 126$  in<sup>2</sup>

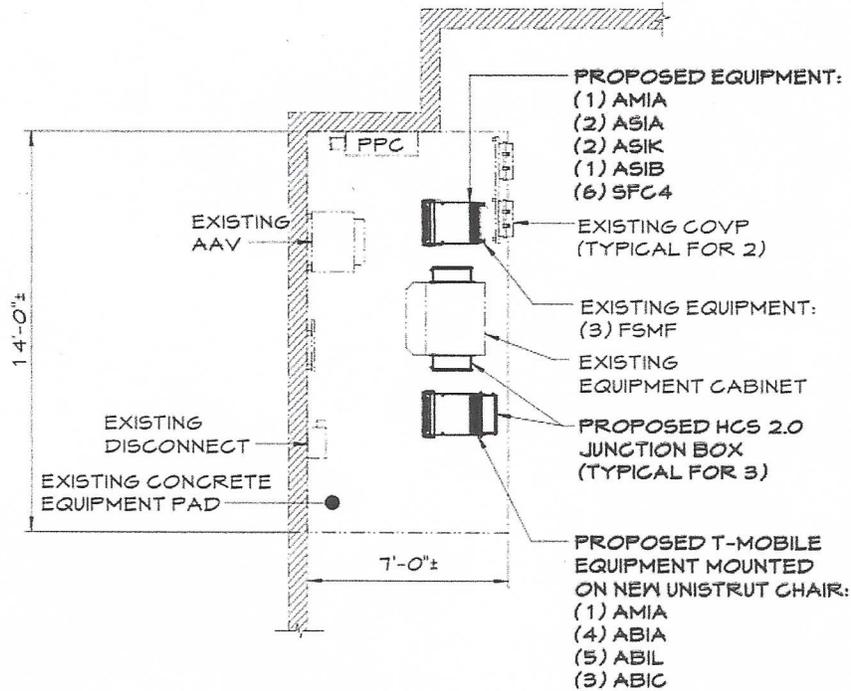
Pull out force

$T = 640$  LBS

$$V_{pullout} = \frac{T}{A_p}$$

$V_{pullout} = 5.08$  PSI

$V_{pullout} < 15$  psi allowable; therefore mortar is O.K.



**PROPOSED EQUIPMENT  
ROOM PLAN**

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



Proposed equipment weight = 300 lbs  
 CONC. SLAB area supporting the proposed equipment = 8 sqft  
 Load on the CONC. SLAB = 38 lbs/sqft  
 Designed live load of the CONC. SLAB = 40 lbs/sqft

CONC. SLAB O.K. for the proposed load (within original design limits).

# ARCHITECTURAL BOARD OF REVIEW APPLICATION

CITY OF SHAKER HEIGHTS

3400 LEE ROAD

SHAKER HEIGHTS, OH 44120

# A

APPLICATION

Property Address: 2540 North Moreland Zip Code: 44120 Receipt No: \_\_\_\_\_  
Property Owner: Capitol Property Management Phone No: 216 941 3057  
Property Owner's Address (if different): 12924 Shaker Blvd  
City: Cleve State: OH Zip: \_\_\_\_\_  
Owner E-Mail Address: mlaubacher @ cpm - ltd. com

Name of Applicant: Bruce Rose Phone No: 216 621 3907  
Address of Applicant: 2540 N. Moreland #502 Fax No: \_\_\_\_\_  
City: Shaker HTB State: OH Zip: 44120  
Brief description of work to be done: I want to place a pergola on a rooftop patio. It will be free standing but anchored.  
Square footage of addition: \_\_\_\_\_  
Name of person(s) who will represent this submission before the board: Bruce Rose  
Representative E-Mail Address: BruceRose @ gmail . com

## PROJECT INFORMATION

### INFORMATION ACCOMPANYING THIS APPLICATION:

- |   |  |
|---|--|
| <input type="checkbox"/> Site Plan          | <input type="checkbox"/> Cross Section(s) & Construction Details               |
| <input type="checkbox"/> Floor Plan(s)      | <input checked="" type="checkbox"/> Color Photographs                          |
| <input type="checkbox"/> Foundation Plan(s) | <input checked="" type="checkbox"/> Material Samples/Manufacturer's Literature |
| <input type="checkbox"/> Elevation(s)       | <input type="checkbox"/> Fee   |

### PLANS SUBMITTED FOR:

- |  |
|--|
| <input checked="" type="checkbox"/> Initial Submission |
| <input type="checkbox"/> Resubmission                  |
| <input type="checkbox"/> Preliminary Review            |
| <input type="checkbox"/> Staff Review                  |

All submissions must be complete and accurate at the time of application. When plans are submitted, ABR staff will inform the applicant of the meeting date and time. Someone qualified to discuss the project must be present at the meeting. The Board will not consider any submission without a representative present.

Bruce Rose 7/27/20  
SIGNATURE | DATE

### PLANNING DEPARTMENT STAFF REVIEW

Approved

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
COMMENTS

T: 216.491.1430

F: 216.491.1431

A1-ABR/LCR

Try gas stations, ATMs



B

Takeout

Delivery

Gas

G

Shaker Park Apartments

Home

N Moreland Blvd

N Moreland Blvd



GO

Google

Explore

Comm...

Saved

Contrib...

Updates



Try gas stations, ATMs



B

Takeout

Delivery

Gas

G



Google

Explore

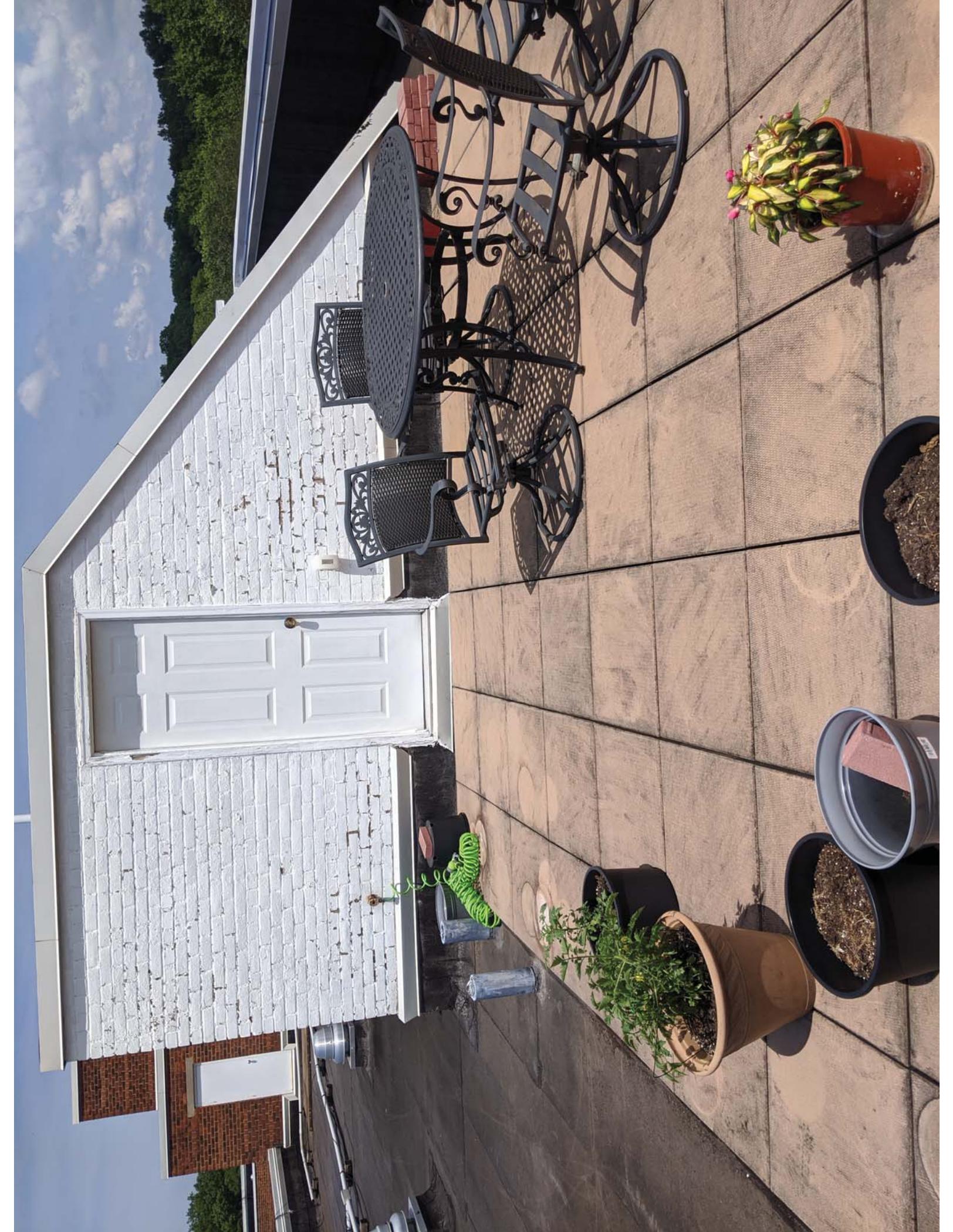
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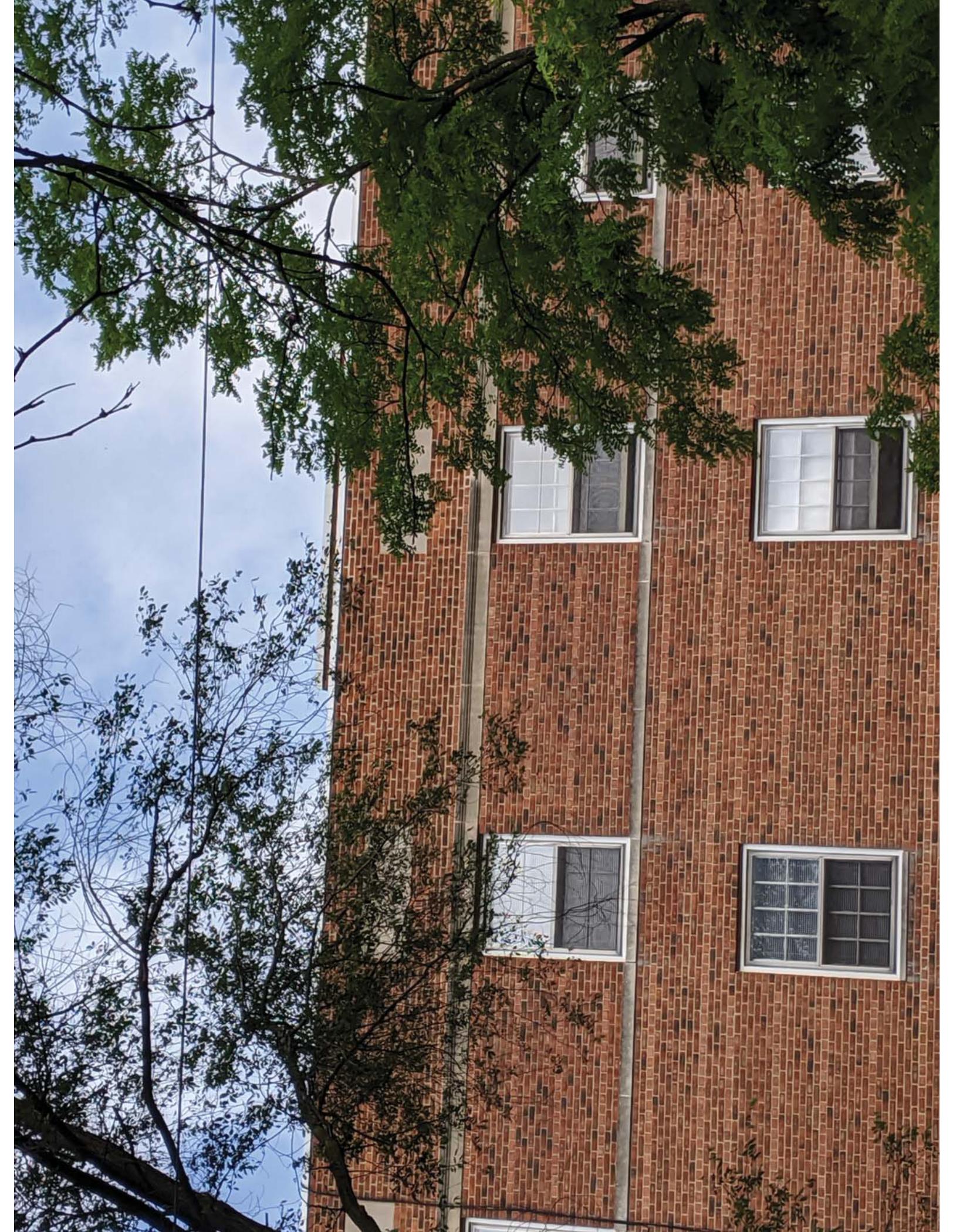
Contrib...

Updates



















## 13' x 11' Cedar Room with Aluminum Louvered Roof

Item 1333257

★★★★★ 4.8 (10)

Your Price

\$2,999.99

Curbside Delivery Included ⓘ

### Features:

- Built with 100% FSC Certified Premium Cedar Lumber
- Louvered Roof to Control Sun/Shade Exposure
- Gutter System Around Roof

—  +

Add to Cart

☰ Add to List

Arrives approximately 3 - 4 weeks from time of order.

Compare Product

↪ Share Print

Product Details

**Specifications**

Shipping & Returns

Reviews

## Product Details

Attention: As the purchaser and/or installer of this product, you are advised to consult your local city, municipality and applicable HOA guidelines for guidance on building codes and/or zoning requirements for your area before purchase. This structure may require a permit.

Extend your outdoor living space with Yardistry's Cedar and Aluminum Louvered Room. This outdoor room adds character to any area, creating the perfect setting for all your outdoor entertainment needs. Yardistry's unique louvered roof design allows you to control the amount of sun or shade you receive. Open both sides of the louvered roof for full sun exposure, close both sides to provide full shade, or do a mix- the possibilities are endless. This room is also designed to provide protection from the rain when the louvers are closed. It includes a full gutter system around the roof and down spouts in two of the posts to direct water flow. Built with 100% FSC Certified cedar lumber and quality aluminum, the Cedar and Aluminum Room is designed to last. The illustrated step-by-step instruction and the helpful hints video will guide you through every step of the installation process. Yardistry's Cedar and Aluminum Louvered Room is a multi-functional product that will add a sophisticated and modern look to your outdoor space.

### Features:

- Built with 100% FSC Certified Premium Cedar Lumber
- Stunning White Aluminum Roof
- Finished in a beautiful Mocha Brown stain
- Unique Louvered roof allows you to control the sun/shade exposure
- Gutter system around the roof and down spouts in two of the posts provides protection from the rain

### Dimensions:

- Overall Dimensions: 13' 3 1/2" x 11' 1 1/2" x 8' 3"
- Base Dimensions (outside of posts): 13' x 11'

### Assembly:

- Product comes as a ready to assemble kit with all wood pre-cut, pre-drilled, and pre-stained and includes all hardware and metal components
- Online helpful hints assembly video available at [www.yardistrystructures.com](http://www.yardistrystructures.com)
- Simple step by step illustrated instructions are included to ensure ease of assembly
- Dedicated Customer Experience Team to help you with any assembly questions

## Specifications

Brand	Yardistry
Shape	Rectangle



**Memorandum**

To: Members of the Landmark Commission  
From: Cameron Roberts, Planner  
Date: 08/19/2020  
Re: Landmark Commission Staff Approval Report: June 18, 2020 – August 19, 2020  
Meeting: 08/26/2020

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**Staff Approvals**

Landmark Commission has the authority to direct some approvals to staff for administrative review. The following staff approvals occurred since the previous staff approval report in June 2020.

Date	Address	Type	Color	Manufacturer	Material	Notes
6/29/2020	18520 Winslow Road	Fence			Wood	Board-on-Board fence
7/6/2020	3439 Lee Road (Kingsbury Building)	Signage	Match existing tenants	Fast Signs	Maxmetal	Fascia band
7/24/2020	12800 Fairhill Boulevard (Fairhill Gardens)	Garage door	Brown (match existing)	Wayne Dalton	Steel	23 garage doors; wood to steel material change
8/12/2020	13800 Fairhill Boulevard	Roof	Pewter	Certainteed	Asphalt shingle	Replacing existing asphalt shingles