Nature of Project: Install wall mount antennas on penthouse; install equipment platform and shelter on rooftop; install cable trays on rooftop.
Raleigh Historic Development Commission – Certificate of Appropriateness (COA) Application

Development Services
Customer Service Center
One Exchange Plaza
1 Exchange Plaza, Suite 400
Raleigh, North Carolina 27601
Phone 919-996-2495
eFax 919-996-1831

☐ Minor Work (staff review) – 1 copy
☐ Major Work (COA Committee review) – 10 copies
  ☐ Additions Greater than 25% of Building Square Footage
  ☐ New Buildings
  ☐ Demo of Contributing Historic Resource
  ☐ All Other

☒ Post Approval Re-review of Conditions of Approval

For Office Use Only
Transaction # 502558
File # 019-17-CA
Fee 147.00
Amount Paid
Received Date 2/3/17
Received By

Property Street Address 5 West Hargett Street, Raleigh, NC 27601

Historic District Fayetteville Street Historic District

Historic Property/Landmark name (if applicable) Raleigh Banking and Trust Company Building

Owner’s Name The Raleigh Building LLC

Lot size 0.17 acres (width in feet) 114 (depth in feet) 66

For applications that require review by the COA Committee (Major Work), provide addressed, stamped envelopes to owners of all properties within 100 feet (i.e. both sides, in front (across the street), and behind the property) not including the width of public streets or alleys (Label Creator).

<table>
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<tr>
<th>Property Address</th>
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<td>222 W HARGETT ST, RALEIGH NC 27601-1316</td>
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<td>112 N EAST ST, RALEIGH NC 27601-1112</td>
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<td>2912 HIGHWOODS BLVD STE 100, RALEIGH NC 27604-1095</td>
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<td>8428 SMITH RD, APEX NC 27539-8180</td>
<td>PO BOX 1030, RALEIGH NC 27602-1030</td>
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I understand that all applications that require review by the commission’s Certificate of Appropriateness Committee must be submitted by 4:00 p.m. on the application deadline; otherwise, consideration will be delayed until the following committee meeting. An incomplete application will not be accepted.

Type or print the following:

<table>
<thead>
<tr>
<th>Applicant</th>
<th>AT&amp;T Mobility</th>
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<tr>
<td>Mailing Address</td>
<td>Ramsey Development Solutions, LLC 12450 Cleveland Road, Suite 202</td>
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<td>City</td>
<td>Garner</td>
</tr>
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<td>Email Address</td>
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Applicant Signature

Will you be applying for rehabilitation tax credits for this project?  □ Yes  ☒ No

Did you consult with staff prior to filing the application?  ☒ Yes  □ No

Office Use Only

Type of Work

Design Guidelines - Please cite the applicable sections of the design guidelines (www.rhdc.org).

<table>
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<tr>
<th>Section/Page</th>
<th>Topic</th>
<th>Brief Description of Work (attach additional sheets as needed)</th>
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<tr>
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<td>Roofs</td>
<td>Installation of antennas and mechanical equipment</td>
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<td>3.10/46</td>
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<td>Additions to Historic Buildings</td>
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Minor Work Approval (office use only)

Upon being signed and dated below by the Planning Director or designee, this application becomes the Minor Work Certificate of Appropriateness. It is valid until ___________________. Please post the enclosed placard form of the certificate as indicated at the bottom of the card. Issuance of a Minor Work Certificate shall not relieve the applicant, contractor, tenant, or property owner from obtaining any other permit required by City Code or any law. Minor Works are subject to an appeals period of 30 days from the date of approval.

Signature (City of Raleigh) ____________________ Date ____________

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<td>Attach 8-1/2&quot; x 11&quot; or 11&quot; x 17&quot; sheets with written descriptions and drawings, photographs, and other graphic information necessary to completely describe the project. Use the checklist below to be sure your application is complete.</td>
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<td>1. Written description. Describe clearly and in detail the nature of your project. Include exact dimensions for materials to be used (e.g. width of siding, window trim, etc.)</td>
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<td>2. Description of materials (Provide samples, if appropriate)</td>
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<td>3. Photographs of existing conditions are required. Minimum image size 4&quot; x 6&quot; as printed. Maximum 2 images per page.</td>
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<td>4. Paint Schedule (if applicable)</td>
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<td>5. Plot plan (if applicable). A plot plan showing relationship of buildings, additions, sidewalks, drives, trees, property lines, etc., must be provided if your project includes any addition, demolition, fences/walls, or other landscape work. Show accurate measurements. You may also use a copy of the survey you received when you bought your property. Revise the copy as needed to show existing conditions and your proposed work.</td>
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<td>6. Drawings showing existing and proposed work</td>
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<td>☐ Plan drawings</td>
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<td>☐ Elevation drawings showing the façade(s)</td>
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<td>☐ Dimensions shown on drawings and/or graphic scale (required)</td>
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<td>☐ 11&quot; x 17&quot; or 8-1/2&quot; x 11&quot; reductions of full-size drawings. If reduced size is so small as to be illegible, make 11&quot; x 17&quot; or 8-1/2&quot; x 11&quot; snap shots of individual drawings from the big sheet.</td>
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<td>7. Stamped envelopes addressed to all property owners within 100 feet of property not counting the width of public streets and alleys (required for Major Work). Use the Label Creator to determine the addresses.</td>
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<td>8. Fee (See Development Fee Schedule)</td>
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Certificate of Appropriateness: Written Description

To whom it may concern,

AT&T will be installing a telecommunication facility on the rooftop of the historic Raleigh Banking and Trust Company Building. Additions to the existing building include antennas, antenna wall mounts, equipment platform, equipment shelter and cable trays. Below are descriptions of each, including reference drawings and documents.

**Equipment Platform**
A 3'-0" x 11'-7 1/4" x 20'-8 1/4" (H x W x D) steel equipment platform will be installed on eastern side of the rooftop, lined up with existing columns from the building. A 4'-0" x 5'-6" x 3'-0" steel staircase will be attached to the eastern side for access to the platform. See Structural Steel Drawings by TEP dated January 31, 2017 for more details.

**Equipment Shelter**
An 9-3 1/4" x 16'-0" x 11'-5" lightweight equipment shelter painted to match the existing brick finish by Sabre will be installed on top of the equipment platform. See Sabre Lightweight Shelter drawings dated August 21, 2013 for more details.

**Antennas**
Six (6) Andrew SBNHH-1D65B LTE antennas (72.0" x 11.9" x 7.1") will be installed on the penthouse using wall mounts with a radiation centerline of 142'-0" above top of existing building grade line. Antennas will be painted to match the existing brick of each sector of the building. See Construction Drawings by TEP dated January 31, 2017 for more details.

**Cable Tray**
Galvanized steel cable trays (3½" x 96" x 11¼") by Primus (Part No. MT-F1543) will be installed on the rooftop. These will be run from the equipment shelter to the three (3) sectors of antennas. See Construction Drawings by TEP dated January 31, 2017 for more details.

**Wall Mount**
Three (3) Antenna Wall Mounts will be installed on the western side of the rooftop penthouse. See Construction Drawings by TEP dated January 31, 2017 for more details. The components are as follows:

- SitePro bracket wall mounts (Part No. SBWM-312)
- 3" O.D. x 12'-0" mount pipes for antenna mounting
- Standoff Mount (Part No. PM#)
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**DEPT CODES:**
- CONDUIT
- ELECTRICAL
- MECHANICAL
- DOORS
- HVAC
- TILE/FLOORING
- GENERATOR
- MULTI-TASK
- PACKING LIST
- INSTALLATION DEPT
### Optional Components

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**Shelter Requirements**

- Requires one option number from each option listed.

**Note:** Some option numbers are a kit w/ multiple parts. Options are identified on the drawings by the option letter (A), the option number, or by the option tag no. (X). For additional information, please refer to the AT&T Wireless Services list. The drawing is subject to change. Please consult the latest version for the most accurate details.
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Notes:
1. Shelter requires one option number from each option listed.
2. Note that some option numbers are a kit with multiple parts.
3. Options are identified on the drawings by the option letter [X], by option no. [XX], or by the option tag no. [XX].
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**NOTES:**
1. SHELTER REQUIRES ONE OPTION NUMBER FROM EACH
   OPTION LISTED.
2. NOTE THAT SOME OPTION NUMBERS ARE A KIT WITH
   MULTIPLE PARTS.
3. OPTIONS ARE IDENTIFIED ON THE DRAWING BY THE
   OPTION LETTER (L), BY OPTION NO. (K), OR BY
   THE OPTION TAG NO. (K200).

**DEPT. CODES:**
- 30 - CONDUIT
- 40 - ELECTRICAL
- 50 - ELECTRICAL
- 55 - HVAC

**DEPOT:**
- SABRE INDUSTRIES

**CUSTOMER:**
- AT&T WIRELESS

**BUILDING SYSTEMS BY SABRE INDUSTRIES INC.**
- 5033 Hacienda Commons
- P.O. Box 126
- Alhambra, CA 91801-0126
- (626) 814-0888
- Fax: (626) 814-0889

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**NOTES:**
1. Shield requires one option number from each option listed.
2. Note that some option numbers are a kit with multiple parts.
3. Options are identified on the drawing by the letter (OPT) for option number (OPT) OR by the option tag number (OPT).
## Optional Components

<table>
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<tr>
<th>OPT. NO.</th>
<th>OPT. NO.</th>
<th>TAG NO.</th>
<th>QTY</th>
<th>U/M</th>
<th>PART NO.</th>
<th>DEPT.</th>
<th>DESCRIPTION</th>
<th>CUT.</th>
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### Notes:
1. Shelter requires one option number from each option listed.
2. Note that some option numbers are a kit with multiple parts.
3. Options are identified on the drawing by the option letter (A), by option number (8), or by the option tag no. (8X-).
NOTES:
1. INSTALL GFCI IN A VERTICAL POSITION.
2. BOX TO BE POSITIONED WITH KNOCKOUTS AT THE TOP AND BOTTOM.
EXTERIOR ELEVATION "C"

NOTES:
1. INSTALL ONLY AT REQUIRED WAVEGUIDE LOCATION.
2. PLACE GROUND BAR 6" BELOW WAVEGUIDE AND CENTERED.
3. REMOVE FOR SHIPPING.
4. 1" SCH 40 PVC GROUNDING PENETRATION DRILLED @ 45° TYPICAL.
5. INSTALL GFCI IN A VERTICAL POSITION.

SABRE INDUSTRIES (TM) PROPRIETARY DOCUMENT
NOTES:
1. INSTALL ONLY WHEN WAVEGUIDE LOCATION IS REQUIRED.
2. PLACE GROUND BAR 8" BELOW WAVEGUIDE AND CENTERED.
3. REMOVE FOR SHIPMENT.

EXTERIOR ELEVATION "B"
NOTES:
1. INSTALL ONLY WHEN WAVEGUIDE LOCATION IS REQUIRED.
2. PLACE GROUND BAR 6" BELOW WAVEGUIDE AND CENTERED.
3. REMOVE FOR SHIPPING.
NOTES:

1. ALL DIMENSIONS ARE 2HR.

EQUIPMENT LAYOUT
REFLECTED CEILING PLAN

ELECTRICAL (1 HOUR)

F = INTERIOR FINISH START PANEL.

SEE SHEET 3-1 FOR WIREWAY/RECTIFIER LAYOUT DETAILS & DIMENSIONS

82°" 2°" 54°" 33°" 6°-10¾" [82¾"] 6°-2¾" [74¾"] 5°-33½"

1° EMT 1° EMT 3° EMT 3° EMT 3° EMT

S1  S2  S3  S4  S5

Ckt 12  Ckt 12  Ckt 12

1°-1½° 3½° 2°

6° EMT 3° EMT 3° EMT 3° EMT

4½° 3½° 4½°

6°-1½° 3½° 2°

6° EMT 3° EMT 3° EMT 3° EMT

4½° 3½° 4½°

6°-1½° 3½° 2°

6° EMT 3° EMT 3° EMT 3° EMT

4½° 3½° 4½°

6°-1½° 3½° 2°
NOTES:
1. ALL DIMENSIONS ARE 2HR.

Legend:
1. F = FACTORY END OF CABLE TRAY.
2. CABLE TRAY MOUNTED 8'-2 1/2" AFF [2 HOUR]
   CABLE TRAY MOUNTED 8'-1 7/8" AFF [CONCRETE]
3. IF = INTERIOR FINISH START PANEL.
4. SP = CABLE LADDER SPLICE.

REFLECTED CEILING PLAN
MECHANICAL (1 HR)
NOTES:
1. ALL DIMENSIONS ARE 2-HR.

LEGEND:
1. F = FACTORY END OF CABLE TRAY.
2. CABLE TRAY MOUNTED 8'-2½" AFF [2 HOUR]
   CABLE TRAY MOUNTED 8'-1½" AFF [CONCRETE]
3. IF = INTERIOR FINISH START PANEL.
4. + = CABLE LADDER SPLICE.

REFLECTED CEILING PLAN
MECHANICAL (2 HR)
INTERIOR ELEVATION "C"
(ELECTRICAL 1HR)

NOTES:
1. INSTALL ONLY AT REQUIRED WAVEGUIDE LOCATION.
2. INTERIOR TEMP SENSOR IS PART OF DC CONTROLLER.
<table>
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<tr>
<th>ITEM</th>
<th>P/N</th>
<th>ORIGINAL DESCRIPTION</th>
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### INTERIOR ELEVATION "B" (ELECTRICAL 1HR)

1. INSTALL ONLY AT REQUIRED WAVEGUIDE LOCATION.
2. INSTALL ALARM DIRECTORY TO INSIDE COVER OF ALARM BOX

### INTERIOR ELEVATION "B" (ELECTRICAL 2HR)

1. INSTALL ONLY AT REQUIRED WAVEGUIDE LOCATIONS

**NOTES:**

- INSTALL ONLY AT REQUIRED WAVEGUIDE LOCATION.
- INSTALL ALARM DIRECTORY TO INSIDE COVER OF ALARM BOX.
INTERIOR ELEVATION "D"  
(1 HOUR)

INTERIOR ELEVATION "D"  
(2 HOUR)

NOTES:
1. INSTALL ONLY WHEN WAVEGUIDE LOCATION IS REQUIRED.
INTERIOR ELEVATION "C"
(MECHANICAL 1HR/2HR)

NOTES:
1. INSTALL ONLY IF WAVEGUIDE LOCATION IS REQUIRED.
2. ADD LABELS TO BOTH ENDS OF GROUND CONDUCTORS.
3. SEE SHEET 5-4 FOR GROUNDING DETAILS.
NOTES:
1. INSTALL ONLY IF WAVEGUIDE LOCATION IS REQUIRED.
2. ADD LABELS TO BOTH ENDS OF GROUND CONDUCTORS TO MASTER GROUND BAR.
3. SEE SHEET 8-4 FOR GROUNDING DETAILS.
INTERIOR ELEVATION "D"
(MECHANICAL 1HR/2HR)

NOTES:
1. INSTALL ONLY IF WAVEGUIDE LOCATION IS REQUIRED.
2. ADD LABELS TO BOTH ENDS OF GROUND CONDUCTORS TO MASTER GROUND BAR.
3. SEE SHEET 5-4 FOR GROUNDING DETAILS.
1. Halo ground to be #2 green insulated stranded copper wire.
2. Vertical drops to be #2 solid tinned copper wire 17ft long. Pull to 45° penetration and coil additional wire.
3. All bends min. 8" radius.
4. Apply anti-oxidation compound to all connections.
5. Ground cable tray as shown with #6 stranded green copper conductor and 2-hole lug.
6. Grounding of conduit to halo should not exceed 3 conduits per connection.
7. Connect cable rack to halo ground with #2 stranded green copper conductor, C-tap and 2-hole lug.
8. Connect #2 stranded green copper conductor to ground bar in loadcenter and connect to cell reference ground bar.
9. Connect telco ground bar to cell reference ground bar with #2 stranded green copper conductor.
10. To ground exterior metal components, connect #2 solid tinned copper wire w/ 2-hole mechanical lug. Pull to ground and coil 10'-0" extra.
11. All ground drops from the halo to be bi-directional.
12. Each ground conductor terminating on any ground bar shall have an identification tag attached at each end that will identify its origin and destination.
13. Each ground bar to be labeled as shown in quotes.
14. Install ground bar in locations as specified by project manager.
15. Bond all boxes 6" x 6" and larger to the halo ground with #6 stranded green copper conductor.
16. Insulate #2 solid tinned drop as it crosses any metallic item. Use fish paper p/n 5400114 (minimum 2 complete wraps) or heat shrink p/n 400536. Extend insulation material 1" pass the point of contact with metallic surface.
17. Use standoff brackets part # 410343 to support grounding conductors. Supports shall be spaced at 24" C/C max.
19. Install tower light controller boxes at installed waveguide location.
CITY OF RALEIGH
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
NC 2012 BUILDING CODE
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2.)

Name of Project: 368-615
Address: 5 West Hargett Street, Raleigh, NC
Owner or Authorized Agent: Yelina Wood
Phone: (919) 674-5743
Fax: 
Email: yelina.wood@masitec.com

Project Summary:
Building Description:
Cellion 11'-5" X 18' pre-fabricated telecommunications equipment shelter

Scope of Work:
*Construct platform
*Services pre-fabricated equipment shelter

Code Compliance Summary:
*2012 North Carolina Building Code
*2012 North Carolina Electric Code

Alternative Means of Compliance Request:

Lead Design Professional/Project Coordinator: Kimberly S. Martin, P.E.

**DESIGNER** | **FIRM** | **NAME** | **LICENSE** | **TELEPHONE**
---|---|---|---|---
Architectural: | Toner Engineering Professionals | Kimberly S. Martin, P.E. | 037520 (919) 691-0351
Civil: | Toner Engineering Professionals | MARK S. QUANDENG, P.E. | 042109 (919) 681-0351
Electrical: | Toner Engineering Professionals | | | |
Fire Alarm: | | | | |
Mechanical: | | | | |
Sprinkler-Standpipe: | | | | |
Structural: | | | | |
Prewat: | | | | |
Retaining Walls >5' High: | | | | |
Other: | | | | |

Note: Special Inspections and Inspectors to be listed at end of this document.

---

Building Code:
- 2012 North Carolina State Building Code (NCSCB)
- 2012 Chapter 34 (attach summary)
- 2009 NC Rehab
- 1995 Existing Building Code Volume 9

New Building:
- New Building
- Shell Building
- First Time Interior Completion
- Alteration to Shell
- Alteration to Tenant Alteration

Accessibility Compliance Form (when applicable):
- Note: Zoning Review May Be Required for Change of Use or Occupancy

Original Occupancy:
- Undisturbed Rooftop

Proposed Occupancy:
- Telecommunication Facility

**OCCUPANCY INFORMATION**

Primary Occupancies:
- Assembly: A-1
- Business: A-2
- Educational: A-3
- Factory-Industrial: A-4
- High-Hazard: A-5
- Institutional: I-1
- Residential: I-2
- Retail: I-3
- Scientific: I-4
- Storage: S-1
- S-2: High-piled

Special Use Condition:
- S-1 SPECIAL CONDITION: Parking Garage (406.6)
- S-2 SPECIAL CONDITION: Open (406.3)

Other Uses:
- Accessory Uses (Indicate Percentages):
- Incidental Uses:

Special Occupancies:
- 402
- 403
- 404
- 405
- 406
- 407
- 408
- 409
- 410
- 411
- 412
- 413
- 414
- 415
- 416
- 417
- 418
- 419
- 420
- 421

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APPENDIX B
**ALLOWABLE AREA AND HEIGHT CALCULATIONS**

This Section for New, Addition, Change of Use, and Interior Completions

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<th>Actual Length</th>
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<td>Total</td>
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Increase Percent: Spinklers __________ %
Frontage Increase Formula: Allowable Area Formula

\[ I = \frac{100 \times (F - 0.25) \times W}{30} \]

**ALLOWABLE HEIGHT**

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<th>Type of Construction</th>
<th>Type B</th>
<th>Type D</th>
<th>Type E</th>
<th>Type D</th>
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<td>S = 1</td>
<td>S = 1</td>
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**BUILDING DATA**

This Section Required for All Projects

- **Construction Type**: 
  - Tri-A
  - Tri-B
  - Tri-D

- **Sprinklers**: 
  - None
  - Yes
  - NFPA 13
  - NFPA 13R
  - Partially Sprinklered

- **Standpipes**: 
  - None
  - Yes
  - Class I
  - Class II
  - Class III
  - Wet
  - Dry

- **Fire District**: 
  - None
  - Yes
  - Appendix D

Building Height: Months to 1 Story

- **Basement**: 
  - None
  - Yes

- **Mezzanine**: 
  - None
  - Yes

- **High Eave**: 
  - None
  - Yes

Life Safety Plan Sheet # (if provided):

**Gross Building Area**:

- **Floor**: 
  - Ground Floor
  - 1st Floor
  - 2nd Floor
  - 3rd Floor

**Sub-Total**: 183

**TOTAL**: 183

Area:\n- Project Tenant/Alteration/Removal: 650 sq. ft.
- Construction: 183 sq. ft.

**SEAL**:

**DRAWN BY**: CSM, CHECKED BY: KSM

**SHEET NUMBER**: T-4

**REVISION**: 1

**TEP**: 3/27/03, 6/29/02
### FIRE PROTECTION REQUIREMENTS

**THIS SECTION REQUIRED FOR ALL PROJECTS**

<table>
<thead>
<tr>
<th>BUILDING ELEMENT</th>
<th>FIRE PROTECTION DISTANCE (FT)</th>
<th>RATED SHEET</th>
<th>DESIGN # FOR RATED PENETRATION</th>
<th>DESIGN # FOR RATED JOINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing walls Exterior</td>
<td>North</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td></td>
<td>East</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Interior Bearing Walls</td>
<td>North</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td></td>
<td>East</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Interiors Non Bearing Walls</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Structural frame, including columns, piers, masonry</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Floor construction, including supporting beams and joints</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Floor Ceiling Assembly</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Columns Supporting Floors</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Roof construction, including supporting beams and joints</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Roof Ceiling Assembly</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Columns Supporting Roof</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Shaft - Exit Enclosures</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
<tr>
<td>Shells - Other (describe)</td>
<td>1 HR</td>
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<td>1 HR</td>
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<td>Corridor Separation</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
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<tr>
<td>Occupancy Separation</td>
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<td>1 HR</td>
<td>1 HR</td>
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<tr>
<td>Party/Fire Wall Separation</td>
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<tr>
<td>Incidental Use Separation</td>
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<tr>
<td>Dwelling/Storage unit Separation</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
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<tr>
<td>Smoke Barrier Separation</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
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<tr>
<td>Tenant Separation</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
<td>1 HR</td>
</tr>
</tbody>
</table>

* Indicates section number permitting induction
** Indicates if using Table 601 Note C exception

### PERCENTAGE OF WALL OPENING CALCULATIONS

**THIS SECTION REQUIRED FOR ADDITIONS, RENOVATIONS, AND CHANGE OF USE**

Allowable openings per Table 704.8

### WALL LEGENDS

**THIS SECTION REQUIRED FOR ALL PROJECTS**

- Fire Partitions 708
- Fire Walls 708
- Fire Barriers 708
- Smoke Partitions 710
- Smoke Barriers 708
- Shaft Enclosures 707

### LIFE SAFETY SYSTEM REQUIREMENTS

**THIS SECTION REQUIRED FOR ALL PROJECTS**

- Emergency Lighting: **Yes**
- Exit Signs: **Yes**
- Fire Alarm: **Yes**
- Smoke Detection Systems: **Yes**
- Panic Hardware: **Yes**

### EXIT REQUIREMENTS

**NUMBER AND ARRANGEMENT OF EXITS**

**THIS SECTION REQUIRED FOR ALL PROJECTS**

<table>
<thead>
<tr>
<th>FLOOR</th>
<th>ROOM</th>
<th>NUMBER OF EXITS</th>
<th>REQUIRED STROBE LIGHTS</th>
<th>TRAVEL DISTANCE</th>
<th>ALLOCATION OF TRAVEL DISTANCE (SECTION 1012.3)</th>
<th>ALLOCATION OF TRAVEL DISTANCE BETWEEN EXITS</th>
<th>ALLOCATION OF TRAVEL DISTANCE BETWEEN EXITS ON PLAN</th>
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</thead>
<tbody>
<tr>
<td>1st</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>20'</td>
<td>100'</td>
<td>100'</td>
<td>100'</td>
</tr>
</tbody>
</table>

1. Corridor dead ends (Section 1012.3)
2. Single exit (Section 1012.3; Section 1014.2)
3. Common Path of Egress Travel (Sections 1014.3)

### APPENDIX B
### ASSEMBLY OCCUPANCY INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Space</th>
<th>Area - SF</th>
<th>Occupant Load Factor</th>
<th>Occupant Load</th>
<th>Exit Width</th>
<th>Exit Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TOTAL</td>
<td></td>
<td></td>
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</table>

### PLUMBING FIXTURE REQUIREMENTS

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>WATERCLOSETS</th>
<th>URINALS</th>
<th>LAUCERATOR</th>
<th>SHOWERS</th>
<th>DRINKING FOUNTAINS</th>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
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<td>TOTAL REQUIRED</td>
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<tr>
<td>TOTAL PROVIDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Structural Design Loads

Structure Conforms to "Conventional Light Frame Provisions of 2308"

1. Yes, continue. No, Go to Line 9
2. Roof Live Load =
3. Floor Live Load =
4. Ground Snow Load (Ps) =
5. Basic Wind Speed, 3 sec. Gust =
6. Seismic Site Class =
7. Seismic Design Category =
8. Go to Line 44
9. Live Loads =
10. Floor Live Load (indicated area) =
11. Floor Live Load (indicated area) =
12. Floor Live Load (indicated area) =
13. Live Load Reduction used in Design =
14. Roof Live Load =
15. Roof Snow Load Data =
16. Flat Roof Snow Load (Ps) =
17. Snow Exposure Factor (Ce) =
18. Snow Importance Factor (Is) =
19. Thermal Factor (Cc) =
20. Wind Design Data =
21. Basic Wind Speed, 3 sec. Gust =
22. Wind Importance Factor (Iw) =
23. Wind Exposure =
24. Internal Pressure Coefficient =
25. Components and Cladding Loads =
26. Wind Base Shear, Ws =
27. Wind Base Shear, Wys =
28. Earthquake Design Data =
29. Seismic Important Factor (Is) =
30. Occupancy Category =
31. Mapped Spectral Response Acceleration Site =
32. Mapped Spectral Response Acceleration Site =
33. Site Class =
34. Spectral Response Coefficient, Sd(s) =
35. Spectral Response Coefficient, Sd(s) =
36. Seismic Design Category =
37. Building (Structural) System =
38. Base Seismic Force Resisting System =
39. Seismic Response Coefficient (Cs) =
40. Response Modification Factor, R =

Provide soils report if Site Class is not "D"
ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If energy cost budget method, state the annual energy cost budget vs. allowable annual energy cost budget.

THERMAL ENVELOPE

Method of Compliance:

- Prescriptive
- Performance
- Energy Cost Budget

Roof/celling Assembly (each assembly):
- Description of assembly 6" R50 + R13 BATT INSUL. + R13 BATT INSUL. + 18 GA. STEEL STUD + 18 GA. STEEL PANEL

U-Value of total assembly: 0.356

R-Value of insulation: 27.458

Skylights in each assembly:
- U-Value of skylight:
- Total square footage of skylights in each assembly:

Exterior Walls (each assembly):
- Description of assembly 6" FIRE RATED GYPSUM + 6" FIRE RATED GYPSUM + R13 BATT INSUL. + 18 GA. STEEL STUD + 18 GA. STEEL ELOK PANEL + 1/2" WATER RESIST. GYPSUM

U-Value of total assembly: 0.065

R-Value of insulation: 12.808

Openings (windows or doors with glazing):
- U-Value of assembly:
- Shading coefficient:
- Projection factor:
- Low-e required, if applicable
- Door R-Values:

Walls adjacent to unconditioned space (each assembly):
- Description of assembly:

U-Value of total assembly:

R-Value of insulation:
- Openings (windows or doors with glazing):
- U-Value of assembly:
- Low-e required, if applicable
- Door R-Values:

Walls below grade (each assembly):
- Description of assembly:

U-Value of total assembly:

R-Value of insulation:
MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT
THIS SECTION REQUIRED FOR ALL PROJECTS THAT INCLUDE MECHANICAL DESIGN

Method of Compliance:
☑ Prescriptive ☑ Performance ☐ Energy Cost Budget

Thermal zone
Winter dry bulb 19
Summer dry bulb 94

Interior design conditions
Winter dry bulb 69°F
Summer dry bulb 80°F
Relative humidity 50%

Building heating load
Building cooling load
Mechanical Spacing Conditioning System

Unitary
Description of unit Marvair
Heating efficiency -
Cooling efficiency 16.2
Heat output of unit 5 kW
Cooling output of unit 57,500 BTU/hr
Boiler N/A
Total boiler output. If oversized, state reason
Chiller N/A
Total chiller capacity. If oversized, state reason

List equipment efficiencies
Equipment schedules with motors (mechanical systems)
Motor horsepower -
Number of phases -
Minimum efficiency -
Motor type -
# of poles -

---

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT
THIS SECTION REQUIRED FOR ALL PROJECTS THAT INCLUDE ELECTRICAL DESIGN

Method of Compliance:
☑ Prescriptive ☑ Performance ☐ Energy Cost Budget

Lighting Schedule
Lamp type required in fixture 32 Fluorescent
Number of lamps in fixture 2
Ballast type used in the fixture Electrical
Number of ballasts in fixture 1
Total wattage per fixture 71
Total interior wattage specified vs. allowed 1,23 < 1,40 Immitance use repair time only
Total exterior wattage specified vs. allowed 100 < 90 - Motion detector

Equipment schedules with motors (not used for mechanical systems) N/A
Motor horsepower -
Number of phases -
Minimum efficiency -
Motor type -
No. of poles -

---

Revised:02/10/15 09

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APPENDIX B
## Shell Variable Form

**Required for all Shell, Alteration to Shell and Interior Completion Permits**

Check each applicable line to match scope of work. Edit as necessary to provide clear detail of installation. <br>Reproduce on Cover Sheet

### Mechanical
- [x] No work
- [ ] Equipment set with ___ without power
- [ ] Trunk line installed with ___ without outlets
- [ ] Gas Line
- [x] Install complete operational system
- [ ] Other:

### Plumbing
- [ ] No work
- [x] Install water service and sewer
- [ ] Install building drain ___ and ___ or water distribution main ___ with ___ without branches
- [x] Install complete plumbing system
- [ ] Other:

### Sprinkler
- [ ] Install complete sprinkler system

### Building
- [x] Install slab ___ partial ___ complete
- [x] Install dense fill walls
- [ ] Install interior partitioning ___ partial ___ complete
- [x] Install Ceilings
- [x] White box (additional interior completion permits are required for Certificate of Occupancy and power)
- [ ] Other:

### Electrical
- [ ] Service laterals to meter centers/panels located on buildings
- [ ] Demise walls and ceilings only
- [x] Conduit, duct, raceway in slab
- [ ] Power and lighting circuits to "J" Box
- [ ] Install light fixtures
- [ ] Install ___ Heat/Ac ___ Elevator ___ Generator ___ Parking lot lighting
- [x] Install complete system
- [ ] Other:

Please provide full information on any alternate methods and means incorporated into the design of this project. Provide specific details and incorporate into plan submittal any supporting documents or agreement letters.

---

### Special Inspections Chapter 17

SPECIAL INSPECTIONS SHALL BE CONDUCTED ON ALL PROJECTS THAT FALL WITHIN BUILDING CATEGORIES AND/OR CONTAIN ELEMENTS SUBJECT TO SPECIAL INSPECTIONS AS PRESCRIBED BY REVISION 17.

To schedule a required pre-construction meeting with the City of Raleigh, please call Steve Luxton at 919-996-2183. The main line number for the Development Services Customer Service Center is 919-996-2495.

List whom will inspect the required special inspections:

- Fabricator of load bearing components
- Soil tests
- Concrete caissons, pilers, pilers, pre-cast
- Post tension concrete
- Modular construction
- Steel and connections, welds, bolts, anchors
- Fire spray tests
- Smoke control
- Seismic, wind design, Quality Assurance
- Retaining walls
- Masonry
- Wood
- Alternate Methods
- EFP
- Other (describe)
- Other (describe)
- Owner or agent:

---

Revised 02/15/13 - 0B

Revised 02/15/15 - 0B

Revised 02/15/15 - 0B

Revised 02/15/15 - 0B
PROPOSED ANTENNA/CABLE SCHEDULE

<table>
<thead>
<tr>
<th>ANT.</th>
<th>SECTOR</th>
<th>MANUFACTURER (MODEL)</th>
<th>TECH.</th>
<th>MOUNTING HEIGHT</th>
<th>AZIMUTH</th>
<th>ELEC. D-TILT</th>
<th>MECH. D-TILT</th>
<th>RRUS MODEL</th>
<th>RAYCAP MODEL</th>
<th>CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>ALPHA</td>
<td>CONNISCOPES (SNBNH-10508)</td>
<td>LTE 700</td>
<td>LTE AWS</td>
<td>142°-0°</td>
<td>30°</td>
<td>4°</td>
<td>0°</td>
<td>RRUS-11</td>
<td>(1) DC POWER (1) FIBER</td>
</tr>
<tr>
<td>A2</td>
<td>ALPHA</td>
<td>CONNISCOPES (SNBNH-10508)</td>
<td>LTE 700</td>
<td>LTE AWS</td>
<td>142°-0°</td>
<td>30°</td>
<td>1°</td>
<td>0°</td>
<td>RRUS-32</td>
<td>(1) DC POWER (1) FIBER</td>
</tr>
<tr>
<td>B1</td>
<td>BETA</td>
<td>CONNISCOPES (SNBH-10558)</td>
<td>LTE 700</td>
<td>LTE AWS</td>
<td>142°-0°</td>
<td>150°</td>
<td>9°</td>
<td>0°</td>
<td>RRUS-11</td>
<td>(1) DC POWER (1) FIBER</td>
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<tr>
<td>B2</td>
<td>BETA</td>
<td>CONNISCOPES (SNBH-10558)</td>
<td>LTE 700</td>
<td>LTE AWS</td>
<td>142°-0°</td>
<td>150°</td>
<td>3°</td>
<td>0°</td>
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<td>(1) DC POWER (1) FIBER</td>
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<tr>
<td>C1</td>
<td>GAMMA</td>
<td>CONNISCOPES (SNBH-10558)</td>
<td>LTE 700</td>
<td>LTE AWS</td>
<td>142°-0°</td>
<td>270°</td>
<td>7°</td>
<td>0°</td>
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<td>(1) DC POWER (1) FIBER</td>
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<tr>
<td>C2</td>
<td>GAMMA</td>
<td>CONNISCOPES (SNBH-10558)</td>
<td>LTE 700</td>
<td>LTE AWS</td>
<td>142°-0°</td>
<td>270°</td>
<td>1°</td>
<td>0°</td>
<td>RRUS-32</td>
<td>(1) DC POWER (1) FIBER</td>
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</tbody>
</table>

NOTES:
1. PROPOSED AT&T EQUIPMENT MOUNTED TO PENTHOUSE TO BE PAINTED TO MATCH BREEZER FACE.
2. PROPOSED AT&T SHELTER TO BE PAINTED TO MATCH EXISTING BUILDING PENTHOUSE EXTERIOR.
3. CABLES AND CABLES TO BE RUN INSIDE CABLE TRAY ALONG ROOF. CABLES TO BE RUN ALONG PENTHOUSE WALL USING UNSTRUTS TO EACH SECTOR, CABLES AND UNSTRUTS TO BE PAINTED TO MATCH BREEZER FACE.

LANDLORD NOTE:
CONTRACTOR TO INSTALL 3 CYLINDER LOCKS, ONE ON EACH PENTHOUSE DOOR. LOCKS ARE REQUIRED TO BE FUNCTIONAL WITH THE BUILDING MASTER LOCK SYSTEM.

PROPOSED ROOF PROTECTION MATS TO BE INSTALLED AS SHOWN BETWEEN PENTHOUSE DOOR AND SHELTER ENTRANCE. CONTRACTOR TO USE LANDLORD OR ROOF CONTRACTOR APPROVED MATS.

EXISTING FLAG POLE

EXISTING 3" X 3" MOVABLE HVAC SYSTEM (TYPE OF 6)

EXISTING 5" X 3" MOVABLE HVAC UNIT (TYPE OF 6)

EXISTING LEAD ANTENNA BY OTHERS

PROPOSED AT&T MOUNTS THROUGH BOLTED IN PENTHOUSE WALL (TYPE OF 6)

EXISTING 3" X 3" MOVABLE HVAC UNIT (TYPE OF 3)

EXISTING 3" X 3" MOVABLE HVAC UNIT (TYPE OF 3)

EXISTING CABLE TRAY WITH PVC SLEEVE SUPPORT LOCATED ON SOUTH PENTHOUSE WALL (PRIMUS P/N-MT-15143) (TYPE OF 6)

EXISTING 3" X 3" MOVABLE HVAC UNIT (TYPE OF 3)

EXISTING 2" X 4" VENT (TYPE OF 3)

PROPOSED PLATFORM AND EQUIPMENT SHELTER, SEE SHEET C-4 FOR DETAILS.

PROPOSED ANTENNA MOUNTED TO PENTHOUSE (TYPE OF 6). SEE SHEET C-5 FOR DETAILS.

PROPOSED CONNECT IT STANDOFF (MODEL # PM3) WITH MOUNTING CLAMPS (MODEL # PCS5-5). SEE SHEET C-4 FOR DETAIL.

PROPOSED ROOFTOP PLAN

ROOFTOP PLAN

SCALE: 1" = 1'-0"
WALL PENETRATION - LOAD BEARING

SCALE: N.T.S.

U.S. SYSTEM NO. C-BJ-9020
MULTIPLE PENETRATIONS THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

CONDUCT THRU BEARING WALL, SMALL TO U.L. DESIGN NO. U9002

1. FLOOR OR WALL ASSEMBLY -- MINIMUM 4-1/2" THICK REINFORCED LIGHTWEIGHT OR Normal Weight (100-200pcf) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY U.L. CLASSIFIED CONCRETE BLOCKS or MAXIMUM DIAMETER OF OPENING IS 3" SEE CONCRETE BLOCKS (C317) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMED MANUFACTURERS.

2. THROUGH PENETRATIONS -- ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM OR PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNUAL SPACE SHALL BE MINIMUM 2" (POINT CONTACT) TO MAXIMUM 1-1/2". THE FOLLOWING TYPES OF METALLIC PIPES OR CONDUITS MAY BE USED:
   A. STEEL PIPE -- NOMINAL 6" DIAMETER (OR SMALLER) SCHEDULE 40
   B. IRON PIPE -- NOMINAL 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE
   C. CONDUIT -- NOMINAL 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOMINAL 6" DIAMETER (OR SMALLER) STUCCO CONDUIT

3. PACKING MATERIAL -- MINIMUM 4" THICKNESS OF MINIMUM 4.0 PCF MINERAL WOOL BATTING INSULATION TYPE P PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL, TO BE BESSEED FROM TOP SURFACE OF FLOOR OR WALL ASSEMBLY. REQUIRED THICKNESS ON BOTH SIDES.

4. FILL, VOID, OR CAVITY MATERIAL -- SEALANT -- MINIMUM 1/2" THICKNESS OF FULL MATERIAL APPLIED WITHIN THE ANNUAL, FLUSH WITH TOP SURFACE OF FLOOR OR WALL. ANY MINIMUM 2" DIAMETER HOLE TO BE CEMENTED WITH EPOXY CONCRETE OR OTHER NONMELTING MATERIAL.

5. MINIMUM 1-1/2" DEPTH HILT FS-ONE HIGH PERFORMANCE INTUMESCENT 2-HR FIRESTOP SEALANT.

*BEARING THE U.L. CLASSIFICATION MARK

WALL PENETRATION

SCALE: N.T.S.

U.S. SYSTEM NO. W-L-1084

1. WALL ASSEMBLY --
   A. STEEL PIPE -- MINIMUM 2" IN 2" LUMBER SPACED 16" OC.
   B. Gypsum BOARD -- MINIMUM 5/8" THICK GYPSUM WALLBOARD OR EIGHTY LUMBER SPACED 16" OC. LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE.

2. THROUGH PENETRATIONS -- ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM, RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. ANY MINIMUM SPACE MIS.

3. FILL, VOID, OR CAVITY MATERIAL -- SEALANT -- MINIMUM 2" DIAMETER OF FULL MATERIAL APPLIED WITHIN THE ANNUAL, FLUSH WITH BOTH SURFACES OF WALL.

4. ***BEARING THE U.L. CLASSIFICATION MARK

MULTIPLE PENETRATIONS THROUGH CONCRETE/BLOCK FLOOR/WALL

SCALE: N.T.S.

U.S. SYSTEM NO. C-BJ-3610

MULTIPLE PENETRATIONS THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

CONDUCT THRU BEARING WALL, SMALL TO U.L. DESIGN NO. U9002

1. FLOOR OR WALL ASSEMBLY -- MINIMUM 4-1/2" THICK REINFORCED LIGHTWEIGHT OR Normal Weight (100-200pcf) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY U.L. CLASSIFIED CONCRETE BLOCKS or MAXIMUM DIAMETER OF OPENING IS 3" SEE CONCRETE BLOCKS (C317) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMED MANUFACTURERS.

2. THROUGH PENETRATIONS -- ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM OR PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNUAL SPACE SHALL BE MINIMUM 2" (POINT CONTACT) TO MAXIMUM 1-1/2". THE FOLLOWING TYPES OF METALLIC PIPES OR CONDUITS MAY BE USED:
   A. STEEL PIPE -- NOMINAL 6" DIAMETER (OR SMALLER) SCHEDULE 40
   B. IRON PIPE -- NOMINAL 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE
   C. CONDUIT -- NOMINAL 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOMINAL 6" DIAMETER (OR SMALLER) STUCCO CONDUIT

3. PACKING MATERIAL -- MINIMUM 4" THICKNESS OF MINIMUM 4.0 PCF MINERAL WOOL BATTING INSULATION TYPE P PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL, TO BE BESSEED FROM TOP SURFACE OF FLOOR OR WALL ASSEMBLY. REQUIRED THICKNESS ON BOTH SIDES.

4. FILL, VOID, OR CAVITY MATERIAL -- SEALANT -- MINIMUM 1/2" THICKNESS OF FULL MATERIAL APPLIED WITHIN THE ANNUAL, FLUSH WITH TOP SURFACE OF FLOOR OR WALL. ANY MINIMUM 2" DIAMETER HOLE TO BE CEMENTED WITH EPOXY CONCRETE OR OTHER NONMELTING MATERIAL.

5. MINIMUM 1-1/2" DEPTH HILT FS-ONE HIGH PERFORMANCE INTUMESCENT 2-HR FIRESTOP SEALANT.

*BEARING THE U.L. CLASSIFICATION MARK

PENETRATION NOTES:

1. USE GROUND PENETRATING RADAR PRIOR TO CORE DRILLING. NO CUTING/DAMAGING OF EXISTING REBAR IS ALLOWED.
2. MAXIMUM DIAMETER OF OPENING IS 8".
3. ANNUAL SPACE -- MINIMUM 0", MAXIMUM 2"
4. MINIMUM VENT OPENING REQUIRE 1/2" DEPTH OF SEALANT FLUSH WITH BOTH SIDES.
5. IF MINIMUM PIPE SIZE IS 4" NOMINAL DIAMETER, A MINIMUM 3" THICKNESS OF MINERAL WOOL MAY BE REQUIRED.
6. SEE HILT FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS -- HILT, INC. TULSA, OK 1-800-797-3900

WALL PENETRATION

SCALE: N.T.S.

U.S. SYSTEM NO. C-A-1406
METAL PIPE THROUGH CONCRETE FLOOR, WALL, OR BLOCK WALL

CONDUCT THRU BEARING WALL, SMALL TO U.L. DESIGN NO. U9002

1. FLOOR OR WALL ASSEMBLY --
   A. LIGHTWEIGHT OR Normal Weight CONCRETE FLOOR (MINIMUM 4-1/2" THICK).
   B. LIGHTWEIGHT OR Normal Weight CONCRETE WALL (MINIMUM 4-1/2" THICK).
   C. ANY U.L. CLASSIFIED CONCRETE BLOCK WALL.

2. THROUGH PENETRATIONS TO INCLUDE ANY OF THE FOLLOWING:
   A. MAXIMUM 8" NOMINAL DIAMETER STEEL PIPE.
   B. MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE.
   C. MAXIMUM 4" NOMINAL DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" NOMINAL DIAMETER STEEL ELECTRICAL METALLIC TUBING.

3. MINIMUM 1/2" DEPTH HILT FS-ONE HIGH PERFORMANCE INTUMESCENT 2-HR FIRESTOP SEALANT.

4. ***BEARING THE U.L. CLASSIFICATION MARK
THROUGH-PENETRATION FIRESTOP SYSTEM NUMBER: C-AJ-J1224 (UL)

1. FLOOR OF WALL ASSEMBLY: MINIMUM 4 3/8" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PSF) CONCRETE FLOOR OR MINIMUM 5" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAXIMUM DIAMETER OF OPENING IS 18".

2. METALLIC SLEEVE: 4" SCHEDULE 40 STEEL SLEEVE CAST OR GRUOTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES.

3. THROUGH-PENETRATION: ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. A STEEL PIPE 3" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) SHOULD BE USED.

4. FIRESTOP SYSTEM: THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
   A. PACKING MATERIAL: MINIMUM 4 1/2" THICKNESS OF MINIMUM 4 PSF MINERAL WOOL BATT INSULATION.
   B. FILL, VOID OR CAVITY SEALANT: MINIMUM 3/8" THICKNESS OF FILL MATERIAL (APPLIED WHEN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL ASSEMBLY ADEQUATE TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL).

5. THROUGH-PENETRATION: FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
   A. FIRESTOP DEVICE: THROUGH PENETRATION DEVICE, INCLUDING FLAT WASHERS SECURED BY THREADED COUPLERS. DEVICE SHALL BE INSTALLED AROUND CABLES IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. DEVICE PROVIDED IN 12" AND 4" SQUARE SIZES. MAXIMUM DIAMETER OF OPENING IN WALL FOR 12" AND 4" SQUARE SIZES IS 1-3/8" AND 2-3/4" RESPECTIVELY.
   B. UNLESS FIRE STOP PRODUCTS INC = THREADED SLEEVE.
   C. FILL, VOID OR CAVITY SEALANT: SEALANT OR PUTTY - MIN 1" IN THICKNESS OF FILL MATERIAL APPLIED WITHIN THE THREADED SLEEVE, FLUSH WITH BOTH ENDS SPECIFIED TECHNOLOGIES INC. = Special Series 100 Sealant or SpecSeal Putty.

THROUGH-PENETRATION FIRESTOP SYSTEM NUMBER: WL-3138 (UL)

1. WALL ASSEMBLY: THE 1 OR 2 HR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL UL100 AND UL1040 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS: WALL FRAMING SHALL CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4" IN LUMBER SPACED IN 16" OC. STEEL STUDS TO BE MIN 3 1/2" WIDE AND SPACED 24" IN OC.
   B. GYPSUM BOARD: 1/2" THICK, 4 FT X 8 FT SQUARE WITH SMOOTH OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL UL100 OR UL1040 SERIES WALL RESISTANCE DIRECTORIES.
   C. THE HOURLY FIRE RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

2. CABLES: AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN THREADED SLEEVE TO BE MIN 8 PERCENT TO MAX 48 PERCENT OF THE AVERAGE CROSS-SECTIONAL AREA OF THE THREADED SLEEVE. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES CABLES MAY BE USED:
   A. MAX 300 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR CABLE WITH POLY VINYL CHLORIDE (PVC) JACKETING AND INSULATION.
   B. MAX 1/16" COPPER POWER CABLE WITH COPPER CONDUCTORS AND CROSS-LINKED POLYETHYLENE (XLPE) JACKETING.
   C. MAX 3/18" COPPER SERVICE ENTRANCE CABLE WITH PVC INSULATION AND JACKET.
   D. MAX 2/16" COPPER POWER CABLE WITH COPPER CONDUCTORS PVC INSULATION AND JACKET.
   E. MAX 4 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR CATEGORY 5 CABLE WITH PVC INSULATION AND JACKET.

3. FIRESTOP SYSTEMS: FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
   A. FIRESTOP DEVICE: THROUGH PENETRATION DEVICE, INCLUDING FLAT WASHERS SECURED BY THREADED COUPLERS. DEVICE SHALL BE INSTALLED AROUND CABLES IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. DEVICE PROVIDED IN 12" AND 4" SQUARE SIZES. MAXIMUM DIAMETER OF OPENING IN WALL FOR 12" AND 4" SQUARE SIZES IS 1-3/8" AND 2-3/4" RESPECTIVELY.
   B. UNLESS FIRE STOP PRODUCTS INC = THREADED SLEEVE.
   C. FILL, VOID OR CAVITY SEALANT: SEALANT OR PUTTY - MIN 1" IN THICKNESS OF FILL MATERIAL APPLIED WITHIN THE THREADED SLEEVE, FLUSH WITH BOTH ENDS SPECIFIED TECHNOLOGIES INC. = Special Series 100 Sealant or SpecSeal Putty.
NOTE:
PROPOSED WEATHERHEAD TO BE ROUTED THROUGH PROPOSED ROOF PENETRATION. CONTRACTOR TO VERIFY SUFFICIENT SPACE EXISTS WITHIN PROPOSED ROOF PENETRATION FOR INSTALLATION OF WEATHERHEAD.

NOTE:
CAULK FILL WITH 3M (CP 25 WB+) 1" MIN DEPTH

EXISTING WALL

EXISTING ROOFTOP

PROPOSED WEATHERPROOFING

PROPOSED POWER CONDUIT

PROPOSED WEATHERHEAD

RMC FOR POWER AND TELCO

PROPOSED CABLES TO EXTEND THROUGH WALL

MIN

25"
SCOPE:
1. PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

CODES:
1. INSTALLATION SHALL COMPLY WITH APPLICABLE LAWS AND CODES. THESE INCLUDE BUT ARE NOT LIMITED TO THE LATEST ADAPTATIONS OF:
   A. NATIONAL ELECTRICAL CODE - NFPA-70
   B. NATIONAL ELECTRICAL SAFETY CODE
   C. LOCAL AND STATE AMENDMENTS
   D. THE NATIONAL ELECTRIC CODE - NEC
   E. INTERNATIONAL ELECTRIC CODE
   F. REGULATIONS OF THE SERVING UTILITY COMPANY

2. PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR.
3. AFTER COMPLETION AND FINAL INSPECTION OF THE WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF COMPLETION AND APPROVAL.

TESTING:
1. UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST THE EQUIPMENT AND SYSTEMS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. THE TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.

GUARANTEE:
1. IN ADDITION TO THE GUARANTEE OF THE EQUIPMENT BY THE MANUFACTURER, EACH PIECE OF EQUIPMENT SPECIFIED HEREIN SHALL ALSO BE GUARANTEED FOR DEFECTS OF MATERIAL OR WORKMANSHIP OCCURRING DURING A PERIOD OF ONE (1) YEAR FROM FINAL ACCEPTANCE OF THE WORK BY THE OWNER AND WITHOUT CHARGE TO THE OWNER.
2. THE GUARANTEE CERTIFICATES & GUARANTEES FURNISHED BY THE MANUFACTURERS SHALL BE TURNED OVER TO THE OWNER.

UTILITY CO-ORDINATION:
1. CONTRACTOR SHALL COORDINATE WORK WITH THE POWER AND TELEPHONE COMPANIES AND SHALL COMPLY WITH THE SERVICE REQUIREMENTS OF EACH UTILITY COMPANY.

EXAMINATION OF SITE:
1. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS AFFECTING THE PROPOSED ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO FAMILIARIZE THE CONTRACTOR WITH THE INTENT OF THIS SECTION WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING THE WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM OR SYSTEMS.

CUTTING, PATCHING AND EXCAVATION:
1. COORDINATION OF SLEEVES, CHASES, ETC., BETWEEN SUBCONTRACTORS WILL BE REQUIRED PRIOR TO THE CONSTRUCTION OF ANY PORTION OF THE WORK. CUTTING AND PATCHING OF WALLS, PARTITIONS, FLOORS, AND CHASIS IN CONCRETE, WOOD, STEEL OR MASONRY SHALL BE DONE AS PROPERLY SHOWN ON THE DRAWINGS.

2. NECESSARY EXCAVATIONS AND BACKFILLING INCIDENT TO THE ELECTRICAL WORK SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

3. SEAL PNEUMATICS THROUGH RATED WALLS, FLOORS, ETC., WITH APPROVED METHOD AS INDICATED BY UL.

RACEWAYS / CONDUITS GENERAL:
1. CONDUCTORS SHALL BE INSTALLED IN LISTED RACEWAYS. CONDUITS SHALL BE RIGID STEEL, EMT, Rigid PVC, OR other conductors as indicated on the drawings. THE RACEWAY SYSTEM SHALL BE COMPLETE BEFORE INSTALLING CONDUCTORS.

2. EXTERIOR RACEWAYS AND GROUNDING SLEEVES SHALL BE SEALED AT POINTS OF EXTRICATION AND EXIT. THE RACEWAY SYSTEM SHALL BE BONDED TO THE BUILDING.

EXTERIOR CONDUIT:
1. EXPOSED CONDUIT SHALL BE HEAT INSULATED AND RUN PARALLEL, OR PERPENDICULAR TO STRUCTURAL ELEMENTS SUPPORTS AND MOUNTING HARDWARE SHALL BE NOT DELETED GALVANIZED STEEL.

2. THE CONDUIT SHALL BE RIGID STEEL AT GRADE TRANSITIONS OR WHERE EXPOSED TO DAMAGE.

3. UNDERGROUND CONDUITS SHALL BE RIGID STEEL, 3404 PVC, OR 3406 PVC AS INDICATED ON THE DRAWINGS.

4. BURIAL DEPTH OF CONDUITS SHALL BE AS REQUIRED BY CODE FOR EACH SPECIFIC CONDUIT TYPE AND APPLICATION, BUT SHALL NOT BE LESS THAN THE FLOOR DEPTH AT THE SITE.

5. CONDUIT ROUTES ARE SCHEMATIC; CONTRACTOR SHALL FIELD VERIFY ROUTES BEFORE BID. COORDINATE ROUTE WITH WIRELESS CARRIER AND/ OR BUILDING OWNER.

INTERIOR CONDUIT:
1. CONCEALED CONDUIT IN WALLS OR INTERIOR SPACES ABOVE GRADE MAY BE EMT OR PVC.

2. CONDUIT RUNS SHALL USE APPROVED COUPLINGS AND CONNECTORS, PROVIDED INSTALL AND BURSTING FOR ALL CONDUIT TERMINATIONS. CONDUIT RUNS IN A NET LOCATION SHALL HAVE WATERPROOF FITTINGS.

3. PROVIDE SUPPORTS FOR CONDUITS IN ACCORDANCE WITH NEC REQUIREMENTS. CONDUITS SHALL BE SIZED AS REQUIRED BY NEC.

EQUIPMENT:
1. DISCONNECT SWITCHES SHALL BE SERVICE ENTRANCE RATED, HEAVY DUTY TYPE.

2. CONTRACTOR SHALL VERIFY MAXIMUM AVAILABLE FAULT CURRENT AND COORDINATE INSTALLATION WITH THE LOCAL UTILITY BEFORE STARTING WORK. CONTRACTOR WILL VERIFY THAT EXISTING CIRCUIT BREAKERS ARE RATED FOR MORE THAN AVAILABLE FAULT CURRENT AND REPLACE AS NECESSARY.

3. NEW CIRCUIT BREAKERS SHALL BE RATED TO WITHSTAND THE MAXIMUM AVAILABLE FAULT CURRENT AS DETERMINED BY THE LOCAL UTILITY.

CONDUCTORS:
1. BARELY INSTALL CONDUCTORS SPECIFIED IN THE DRAWINGS. CONDUCTORS SHALL BE COPPER AND SHALL HAVE TYPE-TM (M1) INSULATION, RATED FOR 600 Volts.

2. THE USE OF ALUMINUM CONDUCTORS WILL BE DEPENDED FOR THE SERVICE INSTALLER TO BE USED.

3. CONDUCTORS SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:
   A. MINIMUM WIRE SIZE SHALL BE #12 AWG.
   B. CONDUCTORS #8 AND #6 LARGER SHALL BE STRANDED. CONDUCTORS SIZED #10 AND #12 MAY BE SOLID OR STRANDED.
   C. CONNECTORS FOR #8, #10 AND #12 SHALL BE BY TWISTING TIGHT AND INSTALLING INSULATED PRESSURE OR WIRE HUT CORRECTIONS.
   D. CONNECTOR FOR #6 AWG AND LARGER SHALL BE BY USE OF STEEL CRIMP-ON SLEEVES WITH NYLON INSERT TO THE OWNER.

4. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC STANDARDS.

UL COMPLIANCE:
1. ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES, AND EQUIPMENT SHALL BE LABELLED/STAMPED BY UL OR ACCEPTED BY JURISDICTION (E.G. LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY.

GROUNDING:
1. ELECTRICAL NEUTRAL, RACEWAYS AND NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT AND ASSOCIATED ENCLOSES SHALL BE GROUNDED IN ACCORDANCE W/ NEC ARTICLE 250. THIS SHALL INCLUDE NEUTRAL CONDUIT, CONDUITS, SUPPORTS, CABINETS, BOXES, GROUND BUSES, ETC. THE NEUTRAL CONDUCTOR IS GROUNDED AT A SINGLE POINT.

2. PROVIDE GROUND CONDUCTOR IN RACEWAYS PER NEC.

3. PROVIDE BOXING AND GROUND TO MEET NFP 780 - "LIGHTNING PROTECTION" AS A MINIMUM.


ABBREVIATIONS AND LEGEND

A  - AMPERE
AFG  - AFGREED FINISHED GRADE
AGU  - AMERICAN WIRE GAUGE
ATS  - AUTOMATIC TRANSFER SWITCH
BFG  - BELOW FINISHED GRADE
BIR  - BLOWOUT RATING
C   - CONDUIT
CIRCUIT  - CIRCUIT BREAKER
CO  - COORDINATE
DISC  - DISCONNECT
EGR  - EXTERIOR GROUND RING
EMT  - ELECTRIC METALLIC TUBING
FSC  - FLEXIBLE STEEL CONDUIT
GEN  - GENERATOR
GPS  - GLOBAL POSITIONING SYSTEM
GROUNDED  - GROUNDED DEVICE
GROUNDS  - GROUNDED SYSTEM
HOMESTEADING  - HOMESTEADING CONDUCTOR
I  - ISOLATED GROUND
ICR  - INTERIOR GROUND RING (HALF)
KILOWATT-HOUR METER
KWH  - KILOWATT-HOURS
KWH  - KILOWATT-HOURS
PCS  - PERSONAL COMMUNICATION SYSTEM
PHASE  - PHASE
PH  - PHASE
PHL  - PANEL
PHNL  - PANELBOARD
PIF  - PICKOFF
PM  - PANEL
PMU  - PANEL MOUNT
PS  - PUMP SITE
PV  - PHOTOVOLTAIC
PVU  - PANEL
PVC  - POLYVINYL CHLORIDE
PT  - PANEL
TH  - THUNDER SYSTEM
PLAN NOTES:
1. (1) - 2½" RG6 FIBER CONDUIT FROM 11TH FLOOR TELCO RECEPTACLE TO SHELTER
2. (1) - 2½" RG6 POWER CONDUIT FROM METER IN BASEMENT TO SHELTER
3. (1) - ¾" GROUND CONDUIT FROM PLATFORM GROUND BAR TO S.E. RATED GROUND ROD IN BASEMENT
4. PROPOSED AT&T EQUIPMENT SHELTER
5. PROPOSED DISTRIBUTION PANEL INSIDE SHELTER
6. PROPOSED 3" CONDUIT FOR FIBER TO PROPOSED ANTENNA (YP). ALL RUNS NOT SHOWN FOR CLARITY.
7. PROPOSED 3" CONDUIT FOR POWER TO PROPOSED ANTENNA (YP). ALL RUNS NOT SHOWN FOR CLARITY.
8. (1) - 2½" RG6 FIBER CONDUIT FROM DISCONNECT TO PANEL INSIDE SHELTER. CONTRACTOR TO VERIFY RUN LENGTH FROM 200A DISCONNECT ON PLATFORM TO MAIN BREAKER IN PANEL IS NO LONGER THAN 25'.
9. PROPOSED 200A DISCONNECT MOUNTED TO PLATFORM HANDRAIL.

SHELTER FIBER/POWER ROUTING PLAN

SCALE: N.T.S.

ROOFTOP FIBER/POWER ROUTING PLAN

SCALE: 3" = 1'-0"
# Proposed 200A, 120/240 VAC AT&T Power Panel Schedule

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<th>Volt Amperes (Watts)</th>
<th>Wire</th>
<th>Breaker</th>
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<th>Phase</th>
<th>CT#</th>
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<th>Volt Amps</th>
<th>7680</th>
<th>7500</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 Volt Amperes</td>
<td>13420</td>
<td>12700</td>
</tr>
<tr>
<td>L2 Volt Amperes</td>
<td>111.8</td>
<td>105.8</td>
</tr>
</tbody>
</table>

*A voltage drop of greater than 3% can occur with loading beyond 140A
**NOTE:**

The contractor shall utilize an intermediate ground bar for antenna rad centers over 200'.

- Wires from ground kits (number corresponds with number of fiber and power cables).
- Connect ground wires to ground bar with 2-hole lugs. All surfaces to be coated with KOPR-SHIELD.

---

**LOWER GROUND BAR DETAIL**

**SCALE:** N.T.S.

- Stainless steel bolt
- Stainless steel nut
- Stainless steel Belleville washer
- Copper bus bar
- Stainless steel flat washer

**NOTES:**

1. All hardware shall be 18-8 stainless steel, including the Belleville washers. Coat all surfaces with KOPR-SHIELD before mating.

2. For ground bond to steel only; insert a dragon tooth washer between the lug and steel. Coat all surfaces with KOPR-SHIELD.

---

**UPPER / INTERMEDIATE GROUND BAR DETAIL**

**SCALE:** N.T.S.

- Wires from ground kits (number corresponds with number of fiber and power cables).
- Connect ground wires to ground bar with 2-hole lugs. All surfaces to be coated with KOPR-SHIELD.

**GROUND BAR IN TELCO CABINET DETAIL**

**SCALE:** N.T.S.

- Ground leads to new equipment
- Connect ground wires to ground bar with 2-hole lugs. All surfaces to be coated with KOPR-SHIELD.
- Ground lead to inspection well at equipment ground ring

---

**GROUNDBAR IN TELCO CABINET DETAIL**

**SCALE:** N.T.S.

- Wires from ground kits (number corresponds with number of fiber and power cables).
- Connect ground wires to ground bar with 2-hole lugs. All surfaces to be coated with KOPR-SHIELD.

---

**LOWER GROUND BAR DETAIL**

**SCALE:** N.T.S.

- Stainless steel bolt
- Stainless steel nut
- Stainless steel Belleville washer
- Copper bus bar
- Stainless steel flat washer

**NOTES:**

1. All hardware shall be 18-8 stainless steel, including the Belleville washers. Coat all surfaces with KOPR-SHIELD before mating.

2. For ground bond to steel only; insert a dragon tooth washer between the lug and steel. Coat all surfaces with KOPR-SHIELD.
**MI CHECKLIST**

**CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR):**

**REPORT ITEM**

| X | MI CHECKLIST DRAWING |
| X | EOR APPROVED SHOP DRAWINGS |
| X | FABRICATION INSPECTION |
| X | FABRICATOR CERTIFIED WELD INSPECTION |
| X | MATERIAL TEST REPORT (MTR) |
| NA | FABRICATOR NDE INSPECTION |
| NA | NDE REPORT OF MONOPOLE BASE PLATE |
| X | PACKING SLIPS |

**PRE-CONSTRUCTION**

| X | MI CHECKLIST DRAWING |
| NA | EOR APPROVED SHOP DRAWINGS |
| X | FABRICATION INSPECTION |
| X | FABRICATOR CERTIFIED WELD INSPECTION |
| X | MATERIAL TEST REPORT (MTR) |
| NA | FABRICATOR NDE INSPECTION |
| NA | NDE REPORT OF MONOPOLE BASE PLATE |
| X | PACKING SLIPS |

**ADDITIONAL TESTING AND INSPECTIONS:**

| X | CONSTRUCTION INSPECTIONS |
| NA | CONTINUOUS FOUNDATION INSPECTIONS |
| NA | CONCRETE COMP. STRENGTH AND SLUMP TESTS |
| NA | GROUT COMP. STRENGTH (ASTM C109) |
| NA | POST INSTALLED ANCHOR ROD VIBRATION AND NDE REPORTS |
| NA | BASE PLATE GROUT VIBRATION |
| X | CONTRACTOR'S CERTIFIED WELD INSPECTION AND NDE REPORTS |
| X | EARTHWORK: LIFT AND DENSITY |
| X | ON SITE GROUND VIBRATING INSPECTION |
| NA | GUY WIRE TENSION REPORT |
| X | GC AS- BUILT DOCUMENTS |

**CONSTRUCTION**

| X | MI INSPECTOR REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM: |
| X | REVIEW THE REQUIREMENTS OF THE MI CHECKLIST |
| X | WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS |
| X | REVIEW THE REQUIREMENTS OF THE MI CHECKLIST |
| X | WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS |
| X | BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS |
| X | THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST |

**RECOMMENDATIONS**

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

1. IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
2. THE GC AND MI INSPECTORS COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
3. WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR ET- TENSIONING OPERATIONS.
4. IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTIONS TO COMMENCE WITH ONE SITE VISIT.
5. WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

**CORRECTION OF FAILING MIs**

IF THE MODIFICATION INSPECTION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE GC TO DEVELOP A RENUMBERING PLAN IN ONE OF TWO WAYS:

1. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI TO THE OWNER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS- BUILT CONDITION.

**MI INSPECTION SERVICES**

THE OWNER RESERVES THE RIGHT TO CONTRACT A MI INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTIONS ON A PROJECT-WIDE BASIS.

ALL MI INSPECTIONS SHALL BE HANDLED TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

**REQUIRED PHOTOS**

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, SHOULD BE TAKEN AND INCLUDED IN THE MI REPORT:

1. ON-SITE CHAIN OF POSSESSION/INVENTORY PHOTOGRAPHS DURING progressive BONE COATING 和/或 POST- CONSTRUCTION PHOTOGRAPHS.
2. ON-SITE CHAIN OF POSSESSION/INVENTORY PHOTOGRAPHS DURING progressive BONE COATING AND FINAL INSTALLATION CONDITION.
3. ON-SITE CHAIN OF POSSESSION/INVENTORY PHOTOGRAPHS DURING progressive BONE COATING AND FINAL INSTALLATION CONDITION.

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.
GENERAL NOTES:

1. ALL REFERENCES TO THE OWNER IN THIS DOCUMENTS SHALL BE CONSIDERED AT&T WORSHIP SERVICES, LLC, OR ITS DESIGNATE REPRESENTATIVE.

2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE HAD SUFFICIENT EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTACHING THAT HE DOES HAVE SUCH EXPERIENCE AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF NORTH CAROLINA.

3. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 2012 NORTH CAROLINA STATE BUILDING CODE.

4. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.

5. ALL HARDWARE ASSEMBLY MANUFACTURERS' INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.

6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ELECTRIC PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUARD OR RAIL DIAMS, THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.


8. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ALL MATERIALS AND EQUIPMENT FURNISHED MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL Furnish Satisfactory Evidence as to the Kind and Quality of the Materials and Equipment Being Substituted.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INFRINGING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.

10. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY INCLUCING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEADING AGENT FOR APPROVAL.

11. ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ARDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.

12. IF APPLICABLE, ALL CONCRETE WORK SHALL COMPLY TO LOCAL CODES AND THE ANSI A318-08, "BUILDING REQUIREMENTS FOR STRUCTURAL CONCRETE."

13. 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPROPRIATE JURISDICATIONAL (STATE, COUNTY OR CITY) ENGINEER.

14. ALL MATERIALS AND WORKSHOP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.

15. ALL TOWER DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST REVISED) PRIOR TO COMMENCING CONSTRUCTION. NOTICE THE ENGINEER IMMEDIATELY OF ANY CONFLICTS WITH THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OWNERSHIP OF THE MATERIALS OR EQUIPMENT AND SHALL BE QUALIFIED AND LICENSED TO COMPLY WITH ALL REQUIREMENTS OF THE CODE.

16. THE CLIMBING FACILITIES, SAFETY CMB AND ALL PARTS THEREOF SHALL NOT BE IMPERFC, MODIFIED OR ALTERED WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE TOWER OWNER OR ENGINEER OF RECORD.

17. ANY WORK PERFORMED WITHOUT A PREPARATION MAPPING IS DONE AT THE RISK OF THE GC AND/OR FABRICATOR.

ATTENTION

ALL CONSTRUCTION MEANS AND METHODS, INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING LINES, RIGGING PLANS, AND INCLUDE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ALL APPLICABLE CODES, STANDARDS, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/JS1A-1019 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.

STRUCTURAL STEEL NOTES:


2. UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL COMPLY TO THE FOLLOWING REQUIREMENTS: STRUCTURAL STEEL:

   - ANGLES: ASTM A572-50
   - W-SHAPE: ASTM A490
   - PIPES: TUBE: ASTM A500-46
   - SQUARE: ASTM A572-50
   - ALL BOLTS: ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS
   - ALL U-BOLTS, ASTM A193 GRADE 2
   - ALL NUTS: ASTM A563 CARBON AND ALLOY STEEL NUTS
   - ALL WASHERS: ASTM A483 HARDENED STEEL

3. ALL DRAWINGS NOT FULLY DETAILLED ON THESE PLANS SHALL BE DETAILLED BY THE STEEL FABRICATOR IN ACCORDANCE WITH ASCI STEEL CONSTRUCTION MANUAL, 13th Edition.

4. HOLES SHALL NOT BE FLAME CUT THROUGH STEEL EXCEPT AS SPECIFIED.

5. HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM A515/A515M OR ASTM A522/A522M, OR, AS APPLICABLE. ADDITIONALLY, ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.

6. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A725 OR BY APPLIICATION OF STICK OR THICK PLASTIC MATERIAL SPECIFICALLY DESIGNED FOR REPAIRING GALVANIZED STEEL TO WELD REMEDY OR REPLACE NEW WELD. MATERIAL IS APPLIED, WITH A TORCH TO A TEMPERATURE SUITABLE TO MELT THE METALLICS IN STICK OR PASTED. SPREAD WELTEN MATERIAI UNIFORMY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL. AFTER REPAIR, STEEL SHALL BE REPAINTED TO MATCH EXISTING FINISH (IF APPLICABLE).

7. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.

8. ALL PROPOSED AND OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.

9. ALL PROPOSED AND OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BEHIND THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

10. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.

WELDING NOTES:

1. ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1/D1.1M 2010 "STRUCTURAL WELDING CODE-STEEL."

2. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

3. CONTRACTOR SHALL RETAIN AN AWS CERTIFIED WELD INSPECTOR TO PERFORM VISUAL INSPECTIONS ON FIELD WELDS. A LETTER AND REPORT SHALL BE ISSUED TO THE CONTRACTOR. CONTRACTOR SHALL SUBMIT LETTER AND REPORT TO TONGER ENGINEERING PROFESSIONALS.

4. GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. GRIND THE SURFACE TO THE REQUIRED SIZE FOR A DISTANCE OF 3" MINIMUM. THE AREA TO BE GRINDED SHALL BE COMPLETELY ABRASIVE FREE, BUT FOR A DISTANCE OF 2" AROUND THE WELD. ENSURE BOTH AREAS ARE CODE FREE OF ALL GALVANIZING SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLUG, RUST, MOISTURE, OIL, OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING.

5. IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 40, THE MINIMUM PREHEAT AND INTERTEMPERATURE WELDING TEMPERATURE REQUIREMENTS SHALL COMPLY WITH SECTION 3.5.1 AND 13.5 OF THE 2010 AWS D1.1/D1.1M.

6. DO NOT WELD ON WET OR FROST-COVERED SURFACES & PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.

7. FOR ALL WELDING, USE 70K SI LOW HYDROGEN ELECTRODES. ELECTRODES SHALL BE APPROPRIATE FOR THE WELDING POSITION REQUIRED TO MAKE THE WELDING.

8. AFTER WELDING, THE INSPECTION OF THE WELD AND ALL SURFACES DAMAGED BY WELDING PROCESS SHALL RECEIVE A FULL-GALVANIZED COATING OR COATING. THESE DEVICES SHALL BE APPLIED BY BRUSH. THE GALVANIZING COMPOUND SHALL CONTAIN A MINIMUM OF 95% & PURE ZINC. THE FRESH COATING SHALL BE A MINIMUM THICKNESS OF 3 MIL.

9. FOR NONPOLE TOWERS, FULL PENETRATION WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 100% NDE INSPECTED BY ULTRASONIC TESTING (UT) IN ACCORDANCE WITH AWS D1.1.

10. FOR NONPOLE TOWERS, PARTIAL Penetration and FIllet welds in the vicinity of the base of the TOWER are REQUIRED TO BE 100% NDE INSPECTED BY MAGNETIC PARTICLE (MT) IN ACCORDANCE W/th AWS D1.1.

11. PROVIDE WELDS ALL AROUND OR ADD SEAL WELDS WHERE STRUCTURAL WELDS ARE NOT SPECIFIED.
ROOFING NOTES:

1. TEMPORARY ROOF PROTECTION — PROVIDE TEMPORARY PROTECTION USING 3/4" STYROFOAM PADDED AGAINST THE ROOFING MATERIAL WITH 3/4" PLYWOOD BETWEEN THE PADDED AND ANY EQUIPMENT. MATERIALS, AND TOOLS STORED ON THE ROOF. THE ROOF AROUND WORKING AREAS SHALL ALSO BE TEMPORARILY PROTECTED AS WELL AS THE PATHS BETWEEN THE WORK AREA AND ROOF ENTRY DOORS. THE METHOD OF PROTECTION SHALL ALSO COMPLY WITH ANY ROOF WARRANTY THAT MAY BE IN EFFECT IF PENETRATING SUBSTANCES SUCH AS ACIDS, CHEMICALS, OR TOOLS ARE TO BE USED DURING CONSTRUCTION, PROVIDE ADDITIONAL PROTECTION TO PREVENT ROOF DAMAGE.

2. WATER PROTECTION — THE CONTRACTOR SHALL PROVIDE PROTECTION FROM WATER PENETRATION DURING THE INSTALLATION OF ROOF PON CREATING SUPPORT SYSTEMS OR ANY OTHER ROOF PON CREATING PROCEDURE. METHODS SHALL COMPLY WITH ANY ROOF WARRANTY IN EFFECT.

3. FIRE PROTECTION — COMPLY WITH OSHA STANDARDS THROUGHOUT THE PROJECT. WHEN OPERATING TOOLS THAT PRODUCE SPARKS, FLAMES OR HEAT, THE CONTRACTOR WILL DESIGNATE AN INDIVIDUAL TO STAND-BY THE INDIVIDUAL OPERATING THE TOOL WITH A 20 LB. ABC FIRE EXTINGUISHER WITH ITS PIN REMOVED AND READY TO USE. IN CASE OF A FIRE, THE CONTRACTOR SHALL PROVIDE ALL TIMES ONE PROPERLY CHARGED 20 LB. ABC FIRE EXTINGUISHER WITHIN CLOSE PROXIMITY TO ALL WORK AREAS. FIRE EXTINGUISHERS SHALL HAVE BEEN INSPECTED WITHIN THE LAST YEAR. IT SHALL BE KEPT IN A CONSPICUOUS LOCATION AND EASILY ACCESSIBLE. PATHS TO THE FIRE EXTINGUISHER AND OTHER FIRE FIGHTING EQUIPMENT SHALL BE KEPT CLEAR.

4. SUBBASEMENT — ANY MOVING OF PAVEMENT, FOOTPATH, CURB, OUTLETS, WALLS, FLOORS, SERVICES, AND EXISTING FEATURES OR OTHER PROPERTIES DISTURBED OR DESTROYED DURING CONSTRUCTION SHALL BE REMEDIATE BY THE CONTRACTOR TO A CONDITION AT LEAST EQUAL TO THAT EXISTING BEFORE COMMENCEMENT OF OPERATIONS AT NO COST TO THE OWNER OR THE CLIENT.

5. DEBRIS — THE CONTRACTOR SHALL USE THIS EXISTING ROOFING WARRANTY CONTRACTOR TO REPAIR HOLES, DAMAGES, AND ALTERATIONS TO THE ROOF. IF EXCESSIVE COSTS ARE ASSOCIATED WITH THE ROOFING CONTRACTOR, THE CONTRACTOR SHALL NOTIFY THE CLIENT OF THE SITUATION AND PROVIDE AN ALTERNATE ROOFING CONTRACTOR TO PERFORM THE WORK.

6. CONTRACTOR SHALL REMOVE ONLY THE AMOUNT OF ROOFING AND INSULATION REQUIRED TO PERFORM THE WORK. AFTER THE COMPLETION OF WORK, REPLACE THE REMOVED MATERIALS IN A COMPATIBLE INSULATION. PROVIDING A TOOL JOINT ALL AROUND EACH NEW BUILT-UP ROOFING TO THE EXISTING BUILT-UP ROOFING AS RECOMMENDED BY THE MANUFACTURER TO PROVIDE A WATER-TIGHT ROOF.

DESIGN LOADS:

- DESIGN ENVIRONMENT:
  - LIVE LOAD = 40 psf
  - SHELTER AND EQUIPMENT: 32 kps

- SNOW
  - KG: 1.5 psf
  - EXPOSURE: II
  - V: 30 mph
  - WIND:
    - V: 30 mph
    - WIND CATEGORY: II
    - EXPOSURE: II
    - V: 30 mph

- SEISMIC
  - GSSE CATEGORY: II
  - LS: 0.20
  - Cs: 0.50
  - So: 0.33
  - SITE CLASS ASSUMED: D
  - SEISMIC DESIGN CATEGORY: B
  - LEVE: 2.0 kps
  - YE: 2.0 kps
  - CS: 0.07
  - S: 3

- ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE ANALYSIS
- SEISMIC FORCE RESISTING SYSTEM: STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE

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PROJECT NOTES II

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SHEET NUMBER: N-3
REVISION: 2
TEP: 11/30/15-101/01/16
BOLT TIGHTENING PROCEDURE:

1. UNLESS OTHERWISE NOTED ON DRAWINGS OR BELOW ALL BOLTED CONNECTIONS SHALL BE Brought TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. ALL SNUG TIGHT BOLTS SHALL BE INSTALLED WITH A NUT-LOCKING DEVICE OR MECHANISM SUCH AS, BUT NOT LIMITED TO, LOCK NUTS, LOCK WASHERS, OR PAKNUTS, TO PREVENT LOOSENING.

2. CONNECTION BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

8.2.1 TURN-OF-THE-NUT TIGHTENING

BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BRING TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE QUANTITY OF ROTATION SPECIFIED BELOW DURING THE TIGHTENING OPERATION. THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT IN A MANNER THAT WILL MINIMIZE RELAXATION OF PREVIOUSLY PRETENSIONED BOLTS.

3. PRE-TENSIONED BOLTS AS SPECIFIED ON THE DRAWINGS SHALL BE TIGHTENED IN ACCORDANCE WITH AISC - "TURN OF THE NUT" METHOD, USING THE CHART BELOW.

BOLT LENGTHS UP TO AND INCLUDING FOUR DIA.

3" BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3" BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3" BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3" BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3" BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIA. BUT NOT EXCEEDING EIGHT DIA.

3½" BOLTS 2.25 TO 4.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3½" BOLTS 2.75 TO 5.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3½" BOLTS 3.25 TO 6.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3½" BOLTS 3.75 TO 7.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT
3½" BOLTS 4.25 TO 8.0 INCH LENGTH +5 TURN BEYOND SNUG TIGHT

4. ALL ONE-SIDED BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

BOLT DETAILS

SINGLE SHEAR CONNECTIONS:

A325 X 4 BOLT:
UNTHREADED LENGTH OF BOLT PASSES THROUGH SHEAR PLANE.

DOUBLE SHEAR CONNECTIONS:

A325 X 4 BOLT:
UNTHREADED LENGTH OF BOLT PASSES THROUGH SHEAR PLANE.

BOLT THREADS

BOLT DIAMETER THREAD LENGTH

1/2" 1"
5/16" 1 1/4"
3/8" 1 1/4"
1/4" 1 
1/4" 2"
NOTES:
1. CONTRACTOR TO VERIFY PROPOSED BASE PLATES DO NOT CONFLICT WITH EXISTING ROOF JOISTS OR EXISTING MECH. OR ELECTRICAL EQUIPMENT.
2. CONTRACTOR TO VERIFY DIMENSIONS WITH EXISTING BUILDING.

EXISTING 10"x5-1/2" ROOF BEAM

EXISTING 12"x6-1/2" ROOF BEAM

EXISTING JOIST, TYP.

EXISTING 10"x5-1/2" ROOF BEAM

EXISTING BUILDING COLUMN BELOW, TYP.

PROPOSED PLATFORM BASE PLATE W/ 3/4" A325-X CONNECTION BOLTS, TYP.

PARTIAL ROOF BEAM PLAN WITH BASE PLATES

SCALE: 1/8" = 1'-0"
NOTES:
1. CONTRACTOR TO VERIFY DIMENSIONS WITH EXISTING BUILDING.
2. CONTRACTOR TO VERIFY ROOF TO BOTTOM OF PLATFORM CLEARANCE REQUIREMENTS ARE ADEQUATE.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES W/ SHELTER AND EQUIPMENT MANUFACTURER.
4. TOP OF PLATFORM STEEL TO BE +3'-10" FROM TOP OF REFERENCED EXISTING ROOF BEAM ELEVATION OF 0'-0".
5. (± NO.) DENOTES TOP OF BEAM ELEVATION FROM REFERENCED TOP OF PLATFORM STEEL ELEVATION.
6. PLATFORM LOCATION TO BE VERIFIED WITH CD'S.
7. SEE SHEET 5-6 FOR ATTACHMENT DETAIL OF SHELTER TO PLATFORM.
8. ATTACH GRATING TO PLATFORM AS REQUIRED BY GRATING MANUFACTURER.
9. PLATFORM DESIGNED TO SUPPORT A COMBINED SHELTER AND EQUIPMENT WEIGHT OF 32,000 LBS.

PLATFORM FRAMING PLAN
SCALE: 1/8" = 1'-0"
NOTES:
1. SEE SHEET N-3 FOR GAGE, BOLT SPACING, MINIMUM EDGE DISTANCE, AND MAXIMUM ALLOWABLE ANGLE COPES.
2. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. AVERAGE LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY, AND SHALL NOT BE USED FOR FABRICATION.
3. ALL CONNECTIONS NOT FULLY DETAILLED ON THESE PLANS SHALL BE DETAILLED BY THE STEEL FABRICATOR IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, LRFD, 13TH EDITION.
4. TOP OF PLATFORM STEEL TO BE +3'-10" FROM TOP OF REFERENCED ROOF ELEVATION OF 0'-0".

CAP PLATE DETAIL
SCALE: 3" = 1'-0"

WELD DETAIL
SCALE: 3" = 1'-0"

NOTE:
CONFIRM BOLT HOLES PROVIDE MINIMUM EDGE DISTANCE ON EXISTING ROOF BEAMS PRIOR TO FABRICATION.

SECTION
SCALE: 1" = 1'-0"

BASE PLATE DETAIL
SCALE: 3" = 1'-0"
SECTION
Scale: 1/8" = 1'-0"

NOTE:
Contractor to verify connection and connection location is compatible with proposed shelter.

PROPOSED ANGLED CHANNEL

PROPOSED 1/2" x 12" O.D. SERIES BAR GRATING BY MCNICHOLS

PROPOSED SUPPORT BEAM AT LANDING

4'-0"

8'-0"

2"

SECTION
Scale: 3" = 1'-0"

NOTE:
Top flange of beam not shown for clarity.

PROPOSED 3/4" A325-X BOLT, TYP.

PROPOSED 2 3/8" x 3/8" x 4/" @ 8" LONG, TYP.

PROPOSED SHELTER

SECTION
Scale: 1/8" = 1'-0"

NOTE:
Bolts shall meet minimum edge and spacing requirements as specified by AISC. See Sheet N-3.

PROPOSED BEAM

(2) 3/4" A325X BOLT (TYP.)

PROPOSED CHANNEL BRACE

46"

23"

11/4"

7/8"

PROPOSED 3/4" A325-X BOLT, TYP.