



CLEC Cage Construction Standard

Contents

Purpose	2
<i>Roles and Responsibilities</i>	5
Electrical Requirements	8
Convenience Outlets.....	8
Lighting.....	8
Change Log	9

Frontier Wholesale

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CLEC Cage Construction Standard

Purpose

Each Competitive Local Exchange Carrier (CLEC) applying for physical collocation under FCC tariffs has the option of installing an individual cage for equipment security. Frontier no longer provides this security pursuant with Federal Communications Commission (FCC) Tariff No. 1, Section 19. It is the responsibility of the CLEC to install this structure if so required, except in states where the local tariffs mandate cage installation by Frontier. This publication provides the building construction standards and requirements for installation of wire-mesh partition cages and the associated electrical components within Frontier facilities. These standards and requirements specify the process, roles, and responsibilities of Frontier and the CLECs with respect to the design and construction of these cages.

It is the intent of this document to define the process, facilitate communication, and dictate proper design and construction. These standards are based on other Frontier documents and governance publications such as the Real Estate Collocation Guidelines, Building Officials & Code Administrators (BOCA) National Building Code, National Electric Code (NEC) and local building codes. As applicable, these publications are to be used in conjunction with these standards. This document covers the states of West Virginia.



CLEC Cage Construction Standard

Process

The Frontier Local Collocation Coordinator (LCC) shall provide the central control for the information flow between Frontier and the CLEC, including all official communication between the CLEC and Frontier employees or representatives. The Frontier Space and Frame (S/F) Team Leader shall determine the placement of the cage and assign the space. The Frontier Real Estate Representative shall mark the floor appropriately and develop a sketch illustrating the space assignment. The sketch is to be provided to the CLEC within ten (10) business days after Frontier receives a deposit of fifty percent (50%) of the construction cost estimate, the appropriate pro-rata charge, or receipt of the application as applicable.

The CLEC may hire any contractor to conduct cage construction within the Collocation Room in Frontier's Central Offices. The CLEC may gain access to the central office building and commence cage construction thirty (30) business days after Frontier receives a deposit of fifty percent (50%) of the construction cost estimate, the appropriate pro-rata charge, or from receipt of the application whichever is applicable. When the application received involves the construction of a new Collocation Room, the CLEC may gain access to the building and begin cage construction after forty-five (45) business days after the receipt of the application. Frontier may authorize an earlier construction start date depending upon the complexity of the required Collocation Room construction site. The CLEC Project Manager and Contractor must submit a Frontier Real Estate CLEC/Contractor Requirements document with the appropriate signatures for approval to the Frontier Real Estate Representative prior to beginning any work. The Frontier Real Estate CLEC/Contractor Requirements document is attached in Appendix "A". The Frontier Real Estate Representative shall provide the CLEC and Contractor with the required information pertaining to the Frontier stakeholders for the Methods Of Procedure (MOP) and Emergency Information sheet preparation, shown in Attachments "A" and "B". The Frontier Real Estate Representative will insure adherence to the documents and insure information concerning construction activity is properly communicated to all stakeholders. This includes sending a copy of the approved document to the LCC. An approved, signed copy of the document must be displayed within the Collocation Room during all construction activities.

The CLEC Project Manager will submit a sketch illustrating the termination points of all fiber, power, and communications cable within thirty-eight (38) days after Frontier receives a deposit of 50% of the construction cost estimate, the appropriate pro-rata charge, or from receipt of the application as applicable. If required by the CLEC, Frontier Real Estate shall provide a 1-1/2" conduit for fiber cabling from the installed cable pull box to the CLEC assigned location. The CLEC is to designate where the vertical run for the fiber conduit is to enter the CLEC assigned space on the sketch. This conduit will be installed by Frontier Real Estate at the conclusion of the cage construction unless mutually agreed upon prior to cage construction.

The CLEC Project Manager must contact the Frontier Real Estate Representative at the conclusion of the cage construction for a closeout inspection. The Frontier Real Estate Representative shall provide the CLEC Project Manager a Confirmation of Completion document upon satisfactory inspection. The Confirmation of Completion document is attached in Appendix "C". Occupancy may not be obtained prior to the receipt of the signed Confirmation of Completion.



CLEC Cage Construction Standard

Milestone	Accountable Entity	Timeframe
Assignment of space	Frontier S/F Team Leader	
Sketch illustrating CLEC assigned space, cage outline, and door placement	Frontier Real Estate Representative	Approximately 10 Business Days from receipt of Application
Commencement of cage construction	Contractor	30 Business Days from receipt of Application and/or deposit provided that approval of the Frontier Real Estate CLEC/ Contractor Requirements is given
Sketch illustrating cable termination points	CLEC Project Manager	38 Business Days from receipt of Application
Confirmation of Completion	Frontier Real Estate Representative	Upon satisfactory cage installation



CLEC Cage Construction Standard

Roles and Responsibilities

Role	Responsibilities
CLEC Project Manager/Contractor	<ul style="list-style-type: none">▪ Procure Contractor▪ Secure required permits▪ Provide sketch of termination points for all fiber, power, and communication cables to the LCC▪ Complete and submit a Frontier CLEC/Contractor Requirements document to Frontier Real Estate for approval▪ Conduct MOP meeting▪ Display approved Frontier Real Estate/CLEC Contractor Requirements document within the construction area▪ Insure all activities are completed in accordance with the Standards and Frontier Real Estate/CLEC Contractor Requirements document▪ Submit for final inspection (Confirmation of Completion) with Frontier Real Estate▪ Provide two (2) copies of the cage door key to the LCC
Frontier LCC	<ul style="list-style-type: none">▪ Single point of contact between Frontier and the CLEC for site specific issues▪ Forward all appropriate documents to the required entities▪ Coordinate all required activities between the CLEC and Frontier▪ Coordinate CLEC access to the building▪ Distribute the CLEC cage keys as required
Frontier S/F Team Leader	<ul style="list-style-type: none">▪ Assign space for cage placement



CLEC Cage Construction Standard

Role	Responsibilities
Frontier Real Estate Representative	<ul style="list-style-type: none">▪ Clearly mark the CLEC assigned space on the Collocation Room floor▪ Provide sketch of CLEC assigned space▪ Make sure Frontier obligations for room construction are met (This may require some construction aspects to be conducted at the conclusion of the cage construction.)▪ Provide required Frontier specific information for Frontier Real Estate CLEC/Contractor Requirements document preparation to the CLEC/Contractor▪ Review and approve Frontier Real Estate CLEC/Contractor Requirements document and provide copies to the CLEC and LCC▪ Provide and label the lighting circuit and junction box (if required)▪ Provide and label the 20 Amp breaker (if required)▪ Conduct final inspection of the CLEC cage and issue Confirmation of Completion▪ Notify LCC upon satisfactory cage installation



CLEC Cage Construction Standard

General Construction

Permits and Code Compliance

The design and installation of the cage and its components must comply with national and local codes. The CLEC/Contractor is responsible for securing all required building permits for the project prior to construction.

Cage Design

The cage must be constructed of woven wire mesh or galvanized welded wire partitions. These partitions must be constructed of bolted wire-mesh panels composed of 10 gauge steel with 1-1/2" X 1-1/2" pattern or equivalent with factory applied finish and must be designated for the earthquake zone where the requested central office resides. The cage shall not be constructed of chain link fencing material. A representative listing of some wire-mesh partition manufacturers is contained in Appendix "B". Where possible, existing building partitions must be utilized as part of the cage construction.

The cage height is limited to 8'-0" AFF (Above Finished Floor) and shall not be exceeded. The installed cage must not exceed the outside edge of the floor marks indicating the CLEC's cage dimensions. The cage is to be constructed with a 3'-0" sliding gate. Hinged doors are allowed if space restrictions exist or cage dimensions are less than 100 SQFT. The CLEC Project Manager must submit two (2) keys of the cage door lock to the LCC. The CLEC may elect to install a cage ceiling composed of wire-mesh ceiling panels for added security.

All equipment in the CLECs common area, within the cage, and the cage itself, shall be grounded as a part of the integrated (building's) ground plane. All grounding must meet the requirements of the latest version of the National Electric Code (NEC). The cage shall be equipped with a CLEC cage ground bar mounted on insulators approximately 7'-0" AFF on the outside portion of the cage in proximity to the door. The dimensions of the CLEC cage ground bar will be in accordance with the NEC. It must be visible and predrilled with 3/8" holes, 1" on center, to accommodate two hole lugs. Spacing between the holes shall be 2". The bus bar shall be labeled "Collocation Cage Ground Bar". The ironwork of the CLEC cage must be bonded to the CLEC cage ground bar using a minimum No. 6 AWG conductor. When continuity between sections of the cage is not evident, additional No. 6 AWG conductors will be required to bond that section of cage to the CLEC cage ground bar. These grounding conductors shall not be connected in a "Daisy Chain" fashion. Frontier Real Estate shall provide a No. 1/0 ground wire connecting the C.O. ground bar to the CLEC cage location. The CLEC contractor must connect this ground wire to the CLEC cage ground bar. Grounding of integrated ground plane apparatus such as air ducts, metal door and window frames, and metallic conduits within 6' of the cage is not required.



CLEC Cage Construction Standard

Electrical Requirements

The CLEC has the option of having Frontier coordinate the installation of the lighting and convenience outlets or hiring a Frontier approved electrical contractor directly to perform these activities. All other electrical requirements are considered room construction and will be provided by Frontier. This includes all required life safety devices such as emergency egress lighting and fire detection equipment. The following are the guidelines for CLEC's opting to install the lighting outlets.

Convenience Outlets

Frontier Real Estate shall provide one (1) dedicated 20 Amp breaker (15 Amp breaker where local codes dictate) in the Collocation Room subpanel for the CLEC branch circuit. The CLEC's contractor is to run the required conductors in EMT conduit with steel fittings from the subpanel to the CLEC's designated space. The outlets are to be rated 120V/20A. The number of outlets may not exceed the maximum as indicated by the NEC or local code.

Lighting

The lighting is to be of two lamp fluorescent fixtures equipped with electronic ballast, F32T8 lamps and an acceptable guard/lens. Frontier will provide a junction box installed on the ceiling with the lighting circuit. The CLEC's contractor is to run required conductors in EMT conduit with steel fittings from the junction box to the light fixtures. It is permissible to use flexible conduit for vertical run with final connection to the fixtures. The flexible conduit is to be properly secured to the rod fixture.

The placement of the fixtures shall not interfere with existing or future placement of cable racking, HVAC ductwork, fire detection equipment, or other auxiliary equipment or structure designated by Frontier prior to construction. The control for the fixtures will be via motion sensors installed by Frontier. The Frontier Real Estate Representative may provide permission for individual switched control for locations currently not deploying motion sensors. The maximum number of fixtures is two (2) per 100 square feet of assigned space. The CLEC may install additional fixtures only with approval from the Frontier Real Estate Representative.



CLEC Cage Construction Standard

Change Log

Date	Page Number	Change

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