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ROUTING FIBER OPTIC DISTRIBUTION CABLES WITH SERVICE DROP LINES ON THE FAÇADE OF A MULTIDWELLING UNIT (MDU) BUILDING

Abstract

A procedure for providing fiber optic service to users in living units inside a multidwelling unit (MDU) building having an outside wall or façade. A number of connection enclosures are fixed on the façade along a path extending in the region of a set of living units to be serviced via associated drop lines. A feeder cable containing fibers assigned to service the living units is routed through the enclosures. Inside a given enclosure, fibers of a given drop line are connected to a set of fibers in the feeder cable that are assigned to service a living unit with which the line is associated. Before the drop lines pass through the façade to enter the living units, the lines are managed over the façade by inserting them into one or more cable support members that are fastened to the façade and in which the feeder cable is also inserted for support.

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Background/Summary

CROSS REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation-in-part (CIP) of our co-pending U.S. patent application Ser. No. 18/023,841 filed Feb. 28, 2023, and titled Supporting and Routing Drop Lines From an All-Dielectric Self Supporting (ADSS) Fiber Optic Trunk Cable. The '841 application is a national stage application under 35 U.S.C. § 371 of PCT/US21/48432 filed Aug. 31, 2021, which claims the benefit of U.S. Provisional Patent Application No. 63/073,201 filed Sep. 1, 2020.

BACKGROUND OF THE INVENTION
Field of the Invention
[0002] The present invention relates to managing fiber optic distribution cables and associated service drop lines on the façade of a multidwelling unit (MDU) building, for servicing users in the building.
Discussion of the Known Art
[0003] To provide communications or network services, for example; Internet, television, telephony, various data streams, and the like to users in a MDU building, providers must route a number of service drop lines that originate from a main trunk or distribution cable, to a number of living units inside the building where users of the services reside.
[0004] Modern distribution cables are typically fiber optic cables, some of which may have an all-dielectric, self-supporting (ADSS) construction. Optical fibers contained in the cables can supply so-called Fiber-to-the-Home (FTTH) services including the network services noted above. In particular, ADSS cables are self-supporting over specified distances when anchored or attached at opposite ends to poles, towers, or other fixed structures. And because they have no metallic components, they present no safety hazard when deployed near high voltage power lines which produce strong electric fields. The fibers in ADSS cables may be routed loosely inside flexible, gel-filled or gel-free buffer tubes (so called "loose tube" cables), or arranged in ribbon configurations. See, e.g., U.S. Pat. No. 9,323,019 (Apr. 26, 2016) and U.S. Pat. No. 10,591,691 (Mar. 17, 2020), all relevant portions of which are incorporated by reference.
[0005] FIG. **1** is a cross-sectional profile of a typical loose tube ADSS fiber optic cable **10** sold by OFS Fitel, LLC under the registered trademark PowerGuide Short Span DT. The cable is intended for light duty, short span, non-custom applications. As seen in the drawing, the cable **10** includes:
[0006] A central dielectric strength or tension rod member **12** made of epoxy-fiberglass; [0007] Gel-free buffer tubes **14** stranded about the central rod member **12** with a reverse oscillating lay (ROL) twist; [0008] Optical fibers **16** routed inside the buffer tubes **14**; [0009] A water swellable yarn **18** or other water blocking material routed with the fibers inside each tube **14**; [0010] Dry water blocking materials **20** applied over the tubes **14**; [0011] Dielectric strength members **22**; and [0012] A medium-density polyethylene (MDPE) outer jacket **24**.
[0013] For many years, telephone and cable television service providers have lashed both the trunk and the service drop cables to a separate metallic messenger wire or cable for support. While a

given span of a fiber optic trunk cable may not have enough tensile strength to bear the increased load of one or more traditional copper wire cables when lashed to the trunk cable, today's all fiber networks may reduce or eliminate the need for separate support wires or cables. In fact, fiber optic cables are now preferred for use in new installations as they require less installation time and preparation, little or no regular maintenance, and minimal cable anchoring requirements, thereby yielding a greater return on investment.

[0014] Notwithstanding, because of issues concerning the management of service drop lines for individual users from a fiber optic trunk cable, some industry consultants still recommend that standard loose tube fiber cables be lashed onto existing copper trunk cables when the loose tube cables are used as drop lines. Such recommendations may be based on common practices in the telephone and cable TV industries that call for lashing telephone and coaxial TV cables onto steel messenger wires whose ends are anchored to poles or other fixed structures. The steel messenger wires are by definition conductive, and thus require additional clearances from other metallic cables in comparison with ADSS fiber optic cables. Such lashing can result in significant costs by requiring extensive work to make existing poles ready for the additional lashed cables.

[0015] The above “make ready” process involves moving cables up and down on a given pole to comply with cable-to-cable and cable-to-ground clearance requirements specified by the National Electric Safety Code (NESC). In some cases, poles may need to be replaced to enable compliance. In one known situation, the cost of such change-outs was $1.25/foot or $6,600/mile, which is much higher than the cost of deploying an exclusively fiber network.

[0016] Moreover, until the present invention, there was no known reliable and aesthetically viable system for managing and supporting service drop lines from a fiber optic trunk cable. Industry requirements limit the strain on fibers contained in fiber optic cables to less than 0.2% over the lifetime of the fibers. Lashing drop lines to a trunk cable will increase the overall weight of the attached lines and cable, and their effective diameter with respect to wind or icing. Nevertheless, drop lines ordinarily do contain strength members to control strain. There are two ways to model how the addition of drop lines to a fiber optic trunk cable affect strain: [0017] (1) The trunk cable absorbs all of the load from all cables. [0018] (2) The trunk cable the and the drop lines behave as a coupled system, so the additional amount of strain added to the trunk cable by the drop lines is reduced since the drop lines will also absorb load.

[0019] Testing to determine which model governs when drop lines are coupled to a trunk cable is also contemplated by the present invention.

[0020] Known devices for supporting two or more lines or cables along a given span include (i) Preformed Line Product (PLP) bushings that may hold multiple drop lines inside of a tangent clamp, (ii) rubber bands, (iii) electrical conductor spacing devices, and (iv) AFL Telecommunications tangent clamps combined for two lines.

[0021] An outdoor enclosure for protecting splices or connections of fibers in a service drop line, with fibers in a feeder or distribution cable which have been assigned to connect with the fibers in the drop line, is available from OFS Fitel, LLC under the registered mark SlimBox®. The enclosure is constructed for mounting on the façade of a MDU building, and is designed for inline applications wherein the feeder cable is routed on the façade to enter either the left or the right side of the enclosure, and fibers of one or more drop lines are spliced or connected to assigned fibers in the feeder cable. The feeder cable can then exit the opposite side of the enclosure, and be routed to other enclosures on the façade in order to connect with the fibers in any additional drop lines.

[0022] Notwithstanding, there is a need for a system or procedure that allows multiple service drop lines to be routed on the façade of a MDU building in a way that does not create an aesthetically unpleasant appearance or footprint in which the drop lines may hang loosely or extend long distances on the façade without adequate support, before the lines pass through the façade and are routed to living units inside the building.

SUMMARY OF THE INVENTION

[0023] According to the invention, a procedure for providing fiber optic communication services to users residing in living units inside a multidwelling unit (MDU) building having an outside wall or façade, includes fixing a number of connection enclosures on the façade at determined locations along a given path on the façade, wherein the path extends in the region of a set of living units to be serviced via associated service drop lines. A fiber optic distribution or feeder cable is routed through the enclosures fixed on the façade and the cable contains fibers assigned to service the set of living units. Inside a given enclosure, fibers of a given drop line are spliced or connected to a set of fibers in the distribution cable that have been assigned to service a living unit with which the drop line is associated.
[0024] The drop lines from the connection enclosures fixed on the building façade are routed to their associated living units, by clamping the drop lines to the distribution cable at determined locations between successive ones of the connection enclosures on the façade before passing the lines through the façade for routing to the living units. The drop lines are thus managed and adequately supported over the façade, and an aesthetically unpleasant appearance or footprint on the façade is avoided.
[0025] For a better understanding of the invention, reference is made to the following description taken in conjunction with the accompanying drawing and the appended claims.

Description

BRIEF DESCRIPTION OF THE DRAWING FIGURES
[0026] In the drawing:
[0027] FIG. **1** is a cross-sectional view of a known ADSS fiber optic cable;
[0028] FIG. **2** is a perspective view of a first embodiment of a cable support member;
[0029] FIG. **3** is a cross-sectional view of a second embodiment of a cable support member;
[0030] FIG. **4** shows a span of an ADSS cable with the inventive cable support members placed at intervals along the span, and drop lines supported by the members for routing to designated users;
[0031] FIG. **5** is a cross-sectional view of a third embodiment of a cable support member;
[0032] FIG. **6** is a cross-sectional view of a fourth embodiment of a cable support member suitable for use on the façade of a multiple dwelling unit (MDU) building, according to the invention;
[0033] FIG. **7** is a bottom view of the cable support member in FIG. **6**;
[0034] FIG. **8** shows a MDU building façade over which a fiber optic feeder cable and associated service drop lines are routed, according to the invention; and
[0035] FIGS. **9**(*a*) to **9**(*c*) are cross-sectional views of additional embodiments of cable support members, according to the invention.
DETAILED DESCRIPTION OF THE INVENTION
[0036] FIGS. **2** and **3** show two embodiments of a cable support member **100** according to one aspect of the invention. When placed at determined intervals along a span of a trunk or distribution cable **102** (see FIG. **4**), the members **100** enable a number of service drop lines **104** together with other cables or dielectric strands, to be supported by the cable **102** along the length of the span. The distribution cable **102** may be, for example, an ADSS cable available from OFS Fitel, LLC under the registered marks “PowerGuide” and “AccuTube.” The service drop lines **104** may be, e.g., flat, round loose tube or tight buffered cables available from OFS under the mark “mini LT”.
[0037] In the illustrated embodiments, the support member **100** is in the form of an elongated, non-metallic or dielectric circular cylinder. It will be understood, however, that the overall shape of the support member **100** may be other than circular cylindrical depending on a given application. The material forming the support member **100** may be ethylene propylene died monomer (EPDM) rubber, or an equivalent resilient, weather resistant material.
[0038] The member **100** has a central passage or opening **106** formed axially over the length of the

member, and the passage **106** is sized to receive and contain a corresponding length of the trunk cable **102**. The passage **106** has an associated first slit or slot **108** formed to open between the circumference of the support member **100** and the central passage **106** over the length of the member when the cable **102** is urged sideways through the slit **108** from outside the member and received in the central passage **106**. The slit **108** need not have a straight line profile as shown, but may have a wavy or curvilinear profile so as to decrease the likelihood that after the cable **104** is received in the passage **106**, the cable will not fall out of the support member **100** through the slit **108**.

[0039] In addition, the support member **100** has a number of outer passages **110** formed axially in the member **100** over the length of the member. Each outer passage **110** is sized to receive and contain one or more drop lines **104**, and has an associated second slit or slot **112** over the length of the support member **100** which opens between the circumference of the member and the outer passage **110** when a given drop line **104** is urged sideways through the second slit **112** from outside the member and received in the outer passage **110**. The passages **106**, **110**, and the slits **108**, **112**, can be formed while the support member **100** is molded or extruded.

[0040] As shown in FIG. **2**, all of the outer passages **110** in the support member **100** may be sized to accommodate flat drop lines **104**, or, as shown in FIGS. **3** and **4**, at least some of the outer passages **110** may be sized to contain round drop lines, dielectric strands, or metallic support wires, as needed. Typical dimensions (in mm) for the support member **100** are: [0041] Length of support member **100**: Approximately 150 mm [0042] Outside Diameter of support member **100**: Approximately 45 mm [0043] Diameter of central passage **106**: Sized to diameters of cables [0044] Dimensions of flat outer passages **110**: Sized to diameters of cables [0045] Diameters of round outer passages **110**: Sized to diameter of cables [0046] Rubber durometer: 70, although other formulations may be used

[0047] The support member **100** may also have a generally T-shaped, thick rubber nub **120** that can be molded integrally with the member to project from the bottom of the member as viewed in FIG. **3**. The nub **120** is dimensioned and formed to anchor, e.g., a UV protected EPDM rubber band after the band is firmly wound about the member **100** with the trunk cable **102** and the drop lines **104** contained in the member passages, thus preventing the cable and the lines from leaving the passages through their associated slits **108**, **112**.

[0048] As shown in FIG. **4**, the support members **100** may be placed at determined intervals of, e.g., 50 to 100 feet along a first span of the trunk cable **102**. The drop lines **104** originate from a splice closure **130** that can be mounted on a pole **132** or other fixed structure at one end of the span. At the splice closure **130**, a first set of fibers in the cable **102** are spliced or connected to corresponding fibers of the drop lines **104**. The drop lines **104** may be wound about the trunk cable **102** or otherwise bound to the cable for support.

[0049] At a first location A along the first span, the trunk cable **102** is urged trough the first slit **108** in the support member **100** and received in the central passage **106** in the member. Drop lines **104** that have been wound about the cable **102** and destined to users at or beyond the first location A, are urged through the second slits **112** and received in the outer passages **110** in the first support member **100**. One or more of the drop lines **104** exiting the outer passages **110** in the first support member **100** and destined to designated users at the first location A, are then routed away from the cable **102** to the users.

[0050] Remaining drop lines **104** continue to be wound along the first span of the trunk cable **102** to a second location where one or more of the drop lines **104** are destined to users at the second location or beyond. The cable **102** is received in the central passage **106** of a second support member **100** at the second location B, and the drop lines **104** are received in corresponding outer passages **110** in the second support member. Those drop lines **104** exiting the outer passages **110** in the second support member **100** and destined to designated users at the second location B, are then routed away from the cable **102** to service the users. The remaining drop lines **104** continue to be wound along the span of the trunk cable **102** to a third location where one or more of the drop lines **104** are destined to users at the third location. The cable **102** is received in a third support member **100** at the third location, and the remaining drop lines **104** are received in corresponding outer passages **110** in the third support member. The drop lines **104** exiting the outer passages **110** in the third support member **100** and destined to users at the third location, are then routed away from the cable **102** to service the users.

[0051] Once all the drop lines **104** wound about the first span of the trunk cable **102** are routed to designated users located along the first span, a second set of fibers in the cable are spliced or connected to corresponding fibers in a second set of drop lines **104** in a second splice closure **130** associated with a second span (not shown in FIG. **4**) of the cable **102**. As before, the second set of drop lines **104** are wound about or otherwise bound to the second cable span for support. The cable **102** and the drop lines **104** are received in the corresponding passages in one or more successive support members **100** at locations along the second span of the cable where the drop lines are destined to users located along the second span. At each location, one or more of the drop lines **104** exiting a support member **100** at the location and destined to users at the location, are routed away from the cable **102** to the users.

[0052] As disclosed herein, the inventive system including the support members **100** allow user drop lines to be supported by a span of a given trunk cable, and can also allow one or more additional cables to be supported along the given cable. Other advantages include: [0053] 1. The support members **100** allow the drop lines **104** to be deployed on an “as needed” basis. [0054] 2. The slit **112** in the support members **100** can be opened and closed repeatedly to allow additional drop lines **104** to be received in the outer passages **110** in the members and routed to new users, without interrupting service to existing users via the trunk cable **102**. [0055] 3. Each support member **100** can be used with different numbers, sizes, and shapes of drop lines **104**. [0056] 4. One of the outer passages **110** in the members **100** can be formed to receive and contain a separate dielectric strand to counter additional load tensions produced by the drop lines **104**. [0057] 5. The support members **100** can be formed with passages to accommodate different numbers and shapes of drop lines or dielectric strands. Additional central passages may also be formed to accommodate trunk cables having different outside diameters. [0058] 6. The support members **100** can be used with a dielectric strength member and a mid-span drop dead end, to enable deployment of mid-span drops without an additional lashing wire.

[0059] It will be understood that any published maximum rated cable load (MRCL) for a given ADSS trunk cable may need to be modified in view of added loading by the drop lines **104** through the support members **100**, with the drops occurring either mid-span or at poles. Any such increased loading may be kept at a minimum by attaching drop lines only when a corresponding number of customers sign up, and only when additional drop lines are otherwise needed.

[0060] FIG. **5** is a cross-sectional profile of a third embodiment of a cable support member **200** according to the invention. The member **200** has a first or main passage **206** formed axially over the length of the member, and the passage **206** is sized to receive and contain a length of a trunk cable. The passage **206** has an associated first slit or slot **208** formed through the wall of the member **200** so that when the cable is urged sideways through the slit **208** from outside the member, the cable can be received and contained in the main passage **206**.

[0061] In addition, the support member **200** has a second passage **210** formed axially over the length of the member. The second passage **210** is sized to receive and contain a non-metallic or metallic support cable such as an electrical neutral, and has an associated second slit or slot **212** formed through the wall of the member **200** so that when a support cable is urged sideways through the slit **212** from outside the member **200**, the support cable can be received and contained in the second passage **210**. The passages **206**, **210**, and the slits **208**, **212**, may be formed, for example, while the support member **200** is being molded or extruded.

[0062] FIG. **6** is a cross sectional view of a fourth embodiment of a cable support member **300** according to the invention. The support member **300** can be used to secure one or more service drop lines to a fiber optic distribution or feeder cable, when the feeder cable is routed over the façade of a multiple dwelling unit (MDU) building. FIG. **7** is a bottom view of the support member **300** in FIG. **6**.

[0063] In the embodiment of FIG. **6**, the support member **300** is in the shape of an elongated rectangular block having a long axis A, a top surface **302**, and a bottom surface **304** shown in FIG. **7**. The member **300** can measure, for example, approximately 51 mm wide (W), 25 mm high (H), and 75 mm long (L). The member may be extruded or formed of, e.g., EPDM or equivalent resilient dielectric material that is durable enough for outdoor use and which can be painted, if desired.

[0064] The top surface **302** of the support member **300** has an axially directed central passage or channel **306** the bottom of which is spaced a determined distance, e.g., 10 mm (D) from the clamp bottom surface **304** to define a base **308** of the member. The channel **306** is dimensioned and formed to receive a feeder cable when urged into the top of the channel **306**, and to retain the cable in the channel, e.g., by friction or by a cap inserted in top of the channel **306**.

[0065] A central guide hole **310** is drilled or otherwise formed through the base **308** for passage of a bolt **312** or other fastener to mount the member **300** at one or more selected locations on a building façade. Before the member **300** is mounted, a hole for receiving the fastener **312** may be drilled into the surface of a brick or concrete façade at each location. A washer **314** is preferably disposed beneath the head of the fastener **312** before the base **308** of the member **300** is tightened against the façade by the fastener **312**. Alternatively, in applications where a feeder cable and associated service drop lines are to be routed vertically, flexible tie wraps may be used to mount the base **308** of the clamp **300** onto, for example, a vertical down spout of a building gutter system.

[0066] As seen in FIG. **6**, the cable support member **300** has a number of axial passages **320** each of which is dimensioned and formed to receive and retain a service drop line associated with a feeder cable in the channel **306**. The passages **320** may have diameters ranging between, for example, approximately 3.0 and 4.8 mm, depending on the diameters of the service drop lines to be retained in the passages. Each passage **320** has an associated slit opening **322** formed between the passage and the outside surface of the support member **300**, so that a given drop line can be urged sideways through the slit opening **322** and received in a corresponding passage **320**. The number and shape of the passages **320** in the support member **300**, as well as the overall shape of the support member, may vary depending on the number and shape (e.g., round or flat) of the service drop lines expected to be accommodated by the member **300**,

[0067] As mentioned, the material from which the support member **300** is made should be resilient or deformable enough to allow a drop line to be urged through each slit **322** to enter the associated passage **320**, and for the material to regain its initial shape sufficiently to restrain the drop line from axial movement relative to the member **300**.

[0068] FIG. **8** shows a MDU building façade **340** over which a fiber optic distribution or feeder cable **342** and a number of associated service drop lines **344** are routed, according to the invention. As used herein, the term “façade” refers broadly to any outside or exterior wall of a MDU building, the surface of which is accessible to installers and is capable of supporting as many cables as may be needed to provide communication or network services to persons residing in the building.

[0069] A number of connection enclosures **346**, each of which may be the earlier mentioned “SlimBox” inline façade enclosure or equivalent; are fixed at determined locations on the façade **340** along a path that extends near (e.g., above and/or below) a set of living units **348** to be serviced via the drop lines **344**. Inside a given enclosure **346**, the fibers of a given drop line **344** are spliced or connected to a set of fibers in the distribution cable **342** assigned to service a living unit **348** with which the given drop line **344** is associated.

[0070] The drop lines **344** from the connection enclosures **346** are routed over the façade **340** to points outside the living units **348** associated with the lines. For each drop line **344**, a hole or passage is made through the façade, and the line **344** is passed through the hole and routed to the associated living unit inside the building. At the living unit, the drop line **344** may be connected to an optical network terminal (ONT) or other user device in the unit. Typically, one feeder cable **342** containing multiple optical fibers can service as many as 16 living units with corresponding drop lines **344**.

[0071] The drop lines **344** are mounted and supported over the façade **340** by using one or more of the cable support members **300** to clamp each of the lines **344** to the feeder cable **342** at determined locations between successive ones of the connection enclosures **346** fixed on the façade **340**, before each line **344** is passed through the façade for routing to an associated living unit. Alternatively, one or more of the cable support members **400**, **500**, or **600** shown in FIGS. **9**(*a*) to **9**(*c*) may be deployed instead, for example, the support member **400** depicted in FIG. **8**. As a result, the drop lines **344** are securely supported and restrained from hanging loose over the façade. An aesthetically unpleasant footprint or appearance on the façade is thus avoided.

[0072] Moreover, it will be appreciated that the support member **300** allows service drop lines to be deployed on an “as needed” basis from a given feeder cable, and the member can be repeatedly opened and closed to accommodate additional drop lines after initial installation, and without interruption of service. The passages **306**, **320** in each support member **300** may also be dimensioned and formed to accommodate different shapes, sizes, and numbers of cables, and the member **300** may be painted or otherwise modified to improve the installation footprint aesthetically.

[0073] FIGS. **9**(*a*) to **9**(*c*) are cross-sectional views of additional embodiments of cable support members **400**, **500**, and **600**, according the invention. Support members **400** and **600** have generally semicircular cross-sections, and are fastened to the façade **340** at first ends **402**, **602** of the members. Each of the support members **400**, **600** has a semicircular passage **404**, **604** for receiving and restraining a feeder cable when the support member is fastened to the façade **340**. The members **400**, **600** also have axial passageways **406**, **606** in which service drop lines can be received through corresponding slits or openings **408**, **608** in the member.

[0074] Cable support member **500** also has a generally circular cross-section, and two semicircular axial passages **502**, **504**. Each passage is dimensioned for receiving and restraining a feeder cable or a service drop line, when the member **500** is fastened at or near its axis **506** to the façade **340**. Like the support member **300**, the members **400**, **500**, and **600** may be formed of EPDM or equivalent material durable enough for outdoor use and paintable if desired.

[0075] While the foregoing represents preferred embodiments of the present invention, it will be understood by persons skilled in the art that various changes, modifications, and additions can be made without departing from the spirit and scope of the invention, and that the invention includes all such changes, modifications, and additions that are within the scope of the following claims.

Claims

1. A procedure for providing fiber optic service to users residing in living units inside a multidwelling unit (MDU) building having an outside wall or façade, comprising: fixing a number of connection enclosures on the building façade at determined locations along a given path on the façade, wherein the path extends in the region of a set of living units to be serviced via associated service drop lines; routing a fiber optic distribution or feeder cable through the enclosures fixed on the façade along the given path, wherein the cable contains fibers assigned to service the set of living units; inside a given connection enclosure, splicing or connecting fibers of a given drop line to a set of fibers in the feeder cable that have been assigned to service a living unit with which the drop line is associated; fastening a cable support member at determined locations between successive ones of the connection enclosures fixed on the façade, and inserting the feeder cable in each cable support member; routing the service drop lines from the connection enclosures fixed on the building façade to the living units with which the drop lines are associated, including supporting the drop lines by inserting the lines in the cable support members in which the feeder cable is inserted; and passing the service drop lines through the façade for routing to the living units.

2. The procedure of claim 1, including performing the drop line supporting step by forming a first axial passage in each support member for receiving and retaining the feeder cable, and one or more second axial passages for receiving and retaining corresponding ones of the service drop lines, and forming each support member with a mounting portion for enabling the support member to be fastened to the façade.

3. The procedure of claim 2, including forming gap or slit openings between the outside surface of each support member and the first and the second axial passages in the member, and urging the feeder cable and the drop lines through the openings from the outside surface into the corresponding passages.

4. The procedure of claim 2, including forming the second axial passages in each cable support member to accommodate a desired number, shape, and/or size of the service drop lines.

5. The procedure of claim 2, including forming the cable support member in the shape of a generally rectangular block.

6. The procedure of claim 2, including forming the cable support member to have a generally semicircular cross section.

7. The procedure of claim 2, wherein the second axial passages are formed to receive and retain service drop lines having a round cross-section.

8. The procedure of claim 2, wherein the second axial passages are formed to receive and retain service drop lines having a rectangular cross-section.
