CLAIMS

1. A termination arrangement for securing an overhead electrical cable comprising a strength member and an electrical conductor disposed around the strength member, the termination arrangement comprising:

a steel connector comprising a fastener disposed at a first end of the connector and a connector body extending from the fastener toward an end of the connector that lies opposite the fastener, wherein the connector body comprises a longitudinally-extending internal chamber that is accessible through a chamber inlet;

a longitudinally-extending sheath having a tensile modulus of at least about 125 GPa and comprising a central bore extending through the length of the sheath that is configured to receive the strength member within the central bore, where the internal chamber of the connector body is configured to operatively receive the sheath therein when the termination arrangement is assembled; and

a conductive sleeve configured to be disposed over: (i) an end of the electrical cable, (ii) the sheath, and (iii) at least a portion of the connector body when the termination arrangement is operatively assembled.

2. The termination arrangement recited in Claim 1, wherein the sheath is fabricated from steel.

3. The termination arrangement recited in Claim 1 or Claim 2, wherein the central bore has a substantially circular cross-section.

4. The termination arrangement recited in any one of Claims 1 to 3, wherein the central bore has a bore surface that is substantially smooth.

5. The termination arrangement recited in any one of Claims 1 to 3, wherein the central bore has a bore surface comprising surface features that are configured to improve the grip of the sheath onto the strength member when the sheath is operatively placed over the strength member.

6. The termination arrangement recited in Claim 5, wherein the surface features are selected from surface grit and surface scoring.

7. The termination arrangement recited in any one of Claims 1 to 6, wherein the sheath has an outer diameter and a length, and wherein the length is at least 20 times greater than the outer diameter.

8. The termination arrangement recited in any one of Claims 1 to 7, wherein the sheath has an outer diameter and a length, and wherein the length is not greater than about 30 times the outer diameter.

9. The termination arrangement recited in any one of Claims 1 to 8, wherein the sheath comprises at least a first longitudinal slit through a first end of the sheath and extending toward a second end of the sheath.

10. The termination arrangement recited in Claim 9, wherein the sheath comprises at least a second longitudinal slit through the second end of the sheath and extending toward the first end of the sheath.

11. The termination arrangement recited in Claim 10, wherein the sheath comprises at least a third longitudinal slit through the first end of the sheath and extending toward the second end of the sheath.

12. The termination arrangement recited in Claim 10 or Claim 11, wherein the slits are disposed around the sheath in a substantially equidistant manner.

13. The termination arrangement recited in any one of Claims 1 to 12, further comprising an aluminum sleeve that is configured to be disposed in the internal chamber and between a chamber wall and the sheath when the termination arrangement is operatively assembled.

14. The termination arrangement recited in any one of Claims 1 to 13, wherein the conductive sleeve is formed from aluminum.

15. A termination arrangement secured to an overhead electrical cable, the overhead electrical cable comprising a fiber-reinforced composite strength member and an electrical conductor disposed around the composite strength member, the termination arrangement comprising:

a steel connector comprising a fastener disposed at a first end of the connector and a connector body extending from the fastener toward an end of the connector that lies opposite the fastener, wherein the connector body comprises a longitudinally-extending internal chamber that is accessible through a chamber inlet at the end opposite the fastener;

a longitudinally-extending sheath having a tensile modulus of at least about 125 GPa and comprising a central bore extending through the entire length of the sheath and that is operatively disposed over and compressed onto a portion of the strength member to operatively grip the strength member; and

a conductive sleeve that is disposed over (i) an end of the electrical cable, (ii) the sheath, and (iii) at least a portion of the connector body;

wherein the sheath is operatively attached to the connector body by being disposed within the longitudinally-extending chamber and having the connector body crimped onto the sheath.

16. The termination arrangement recited in Claim 15, wherein the fiber-reinforced composite strength member comprises longitudinally-extending reinforcing fibers in a binding matrix.

17. The termination arrangement recited in Claim 16, wherein the reinforcing fibers comprise fibers selected from the group consisting of carbon fibers, glass fibers, ceramic fibers and combinations thereof.

18. The termination arrangement recited in any one of Claims 15 to 17, wherein the sheath is formed from a material selected from the group consisting of steel and a fiber-reinforced composite.

19. The termination arrangement recited in any one of Claim 18, wherein the sheath is fabricated from steel and wherein the steel sheath comprises at least a first longitudinally extending slit through a first end of the steel sheath and toward a second end of the steel sheath.

20. The termination arrangement recited in Claim 19, wherein the sheath comprises at least a second longitudinally extending slit through the second end of the steel sheath and toward the first end of the steel sheath.

21. The termination arrangement recited in any one of Claims 15 to 20, wherein an aluminum sleeve is disposed between the connector body and the sheath.

22. The termination arrangement recited in any one of Claims 15 to 21, wherein the connector body is crimped onto the sheath along substantially the entire length of the sheath.

23. The termination arrangement recited in any one of Claims 15 to 22, wherein the conductive sleeve is formed from aluminum.

24. The termination arrangement recited in any one of Claims 15 to 23, wherein the fiber-reinforced composite strength member includes a single strength element comprising reinforcing fibers in a plastic binding matrix.

25. A method for the termination of an overhead electrical cable comprising a fiber-reinforced composite strength member and an electrical conductor disposed around the fiber-reinforced composite strength member, the method comprising the steps of:

removing the electrical conductor from a termination end of the overhead electrical cable to expose an end portion of the fiber-reinforced composite strength member;

placing the exposed end portion of the fiber-reinforced composite strength member through a central bore disposed within a longitudinally extending steel sheath;

operatively attaching the steel sheath to a connector, the connector comprising a fastener disposed at a first end of the connector and a connector body extending from the fastener toward an end of the connector that lies opposite the fastener, the attaching comprising disposing the sheath within a chamber in the connector body and crimping the connector body onto the steel sheath; and

disposing a conductive sleeve over: (i) an end of the electrical cable, (ii) the steel sheath, and (iii) at least a portion of the connector body.

26. The method recited in Claim 25, wherein the fiber-reinforced composite strength member includes a single strength element comprising reinforcing fibers in a plastic binding matrix.