

# Table of Contents

- Preface** . . . . . xi
- 1 Introduction**
  - 1.1 Purpose and Scope . . . . . 1-1
  - 1.2 Target Audience . . . . . 1-1
  - 1.3 Structure and Use of This Document . . . . . 1-1
  - 1.4 Reasons for GR-902-CORE, Issue 2 . . . . . 1-2
  - 1.5 Requirements Terminology . . . . . 1-2
  - 1.6 Requirement Labeling Conventions . . . . . 1-3
    - 1.6.1 Numbering of Requirement and Related Objects . . . . . 1-3
    - 1.6.2 Requirement, Conditional Requirement, and Objective Identification . . . 1-4
  - 1.7 Test Sample Selection, Retest, and Exemptions . . . . . 1-4
- 2 General Information**
  - 2.1 General Description . . . . . 2-1
  - 2.2 Operating Environment . . . . . 2-1
  - 2.3 Telecommunications Equipment . . . . . 2-1
  - 2.4 Handholes . . . . . 2-2
    - 2.4.1 Physical Parameters . . . . . 2-2
- 3 Detailed Requirements**
  - 3.1 Product Samples . . . . . 3-1
  - 3.2 Product Changes . . . . . 3-1
  - 3.3 Safety and Reliability Considerations . . . . . 3-1
  - 3.4 Metallic Materials . . . . . 3-2
  - 3.5 Plastic and Other Nonmetallic Materials . . . . . 3-3
    - 3.5.1 Chemical Resistance . . . . . 3-3
    - 3.5.2 Flammability . . . . . 3-4
    - 3.5.3 Fungus Resistance . . . . . 3-5
      - 3.5.3.1 Fungus Resistance Test . . . . . 3-5
    - 3.5.4 Ultraviolet Resistance . . . . . 3-5
      - 3.5.4.1 UV Resistance Test Method . . . . . 3-6
    - 3.5.5 Ozone Resistance . . . . . 3-7
    - 3.5.6 Coefficient of Friction Test . . . . . 3-7
  - 3.6 Fault Locating . . . . . 3-8
  - 3.7 Hardware . . . . . 3-8
  - 3.8 Design Features . . . . . 3-9
    - 3.8.1 Safety . . . . . 3-9
    - 3.8.2 Rodent and Insect Resistance . . . . . 3-9
    - 3.8.3 Capacity . . . . . 3-9
    - 3.8.4 Compliance With Americans with Disabilities Act . . . . . 3-11
  - 3.9 Security . . . . . 3-13
  - 3.10 Bonding and Grounding . . . . . 3-13
    - 3.10.1 AC Fault Test . . . . . 3-14
      - 3.10.1.1 AC Fault Test Method . . . . . 3-15
  - 3.11 Documentation . . . . . 3-16

3.11.1 Engineering Support . . . . .	3-17
3.11.2 Regulatory Support . . . . .	3-17
3.12 Marking, Packaging, and Shipping . . . . .	3-17
3.13 Installation and Maintenance . . . . .	3-18
3.14 Quality . . . . .	3-19
3.15 Fire Resistance . . . . .	3-20
3.16 Power Cross Ignition . . . . .	3-21
3.17 Corrosion Resistance . . . . .	3-21
3.17.1 Salt Fog . . . . .	3-21
3.17.2 Ground Water Resistance . . . . .	3-21
3.18 Handling Shock . . . . .	3-22
3.18.1 Accelerated Thermal Aging . . . . .	3-22
3.18.2 Thermal Shock . . . . .	3-22
3.18.3 Freeze Thaw . . . . .	3-22
3.19 Cover and Sidewall Loading by Category . . . . .	3-22
3.19.1 Application Environments . . . . .	3-22
3.19.1.1 Mechanical Requirements . . . . .	3-23
3.19.2 Loading Test Procedures . . . . .	3-24
3.19.2.1 Test Pad – Steel Plate and Rubber Pad . . . . .	3-24
3.19.2.2 Vertical Cover Loading Procedure . . . . .	3-24
3.19.2.3 Vertical Sidewall Loading Procedure . . . . .	3-25
3.19.2.4 Lateral Sidewall Loading Procedure . . . . .	3-27
3.19.2.5 Long-Term Lateral Sidewall Loading Procedure . . . . .	3-31
3.20 Loading Requirements by Category . . . . .	3-31
3.20.1 Category I - Light Duty: Pedestrian Only Loading Requirements . . . . .	3-31
3.20.1.1 Vertical Cover Load . . . . .	3-31
3.20.1.2 Vertical Sidewall Load . . . . .	3-31
3.20.1.3 Lateral Sidewall Load . . . . .	3-32
3.20.1.4 Long-Term Lateral Sidewall Load . . . . .	3-32
3.20.2 Category II - Medium Duty: Pedestrian and Light Incidental Vehicular Traffic Loading Requirements . . . . .	3-32
3.20.2.1 Vertical Cover Load . . . . .	3-33
3.20.2.2 Vertical Sidewall Load . . . . .	3-33
3.20.2.3 Lateral Sidewall Load . . . . .	3-33
3.20.2.4 Long-Term Lateral Sidewall Load . . . . .	3-34
3.20.3 Category III - Heavy Duty: Non-Deliberate (Incidental) Vehicular Traffic Loading Requirements . . . . .	3-34
3.20.3.1 Vertical Cover Load . . . . .	3-34
3.20.3.2 Vertical Sidewall Load . . . . .	3-34
3.20.3.3 Lateral Sidewall Load . . . . .	3-34
3.20.3.4 Long-Term Lateral Sidewall Load . . . . .	3-35
3.20.4 Category IV - Heavy Duty: Non-Deliberate (Incidental) Vehicular Traffic Loading Requirements . . . . .	3-35
3.20.4.1 Vertical Cover Load . . . . .	3-35
3.20.4.2 Vertical Sidewall Load . . . . .	3-35
3.20.4.3 Lateral Sidewall Load . . . . .	3-36
3.20.4.4 Long-Term Lateral Sidewall Load . . . . .	3-36
3.20.5 Deliberate Vehicular Traffic Areas . . . . .	3-36
3.20.6 Summary of Mechanical Loading . . . . .	3-37
3.21 Handhole Cover Deflection Test . . . . .	3-38

**Appendix A: Application Documentation**

**Appendix B: References**

B.1 Telcordia Documents . . . . . B-1

B.2 Non-Telcordia Documents . . . . . B-1

    B.2.1 Non-Telcordia Documents Used in GR-902 . . . . . B-1

    B.2.2 Non-Telcordia Documents Related to Manholes and Other  
        ASTMs of Interest . . . . . B-3

B.3 Telcordia Document Sets—Family of Requirements (FR) . . . . . B-4

B.4 Websites for Additional Reference Material . . . . . B-5

B.5 Telcordia Reference Notes . . . . . B-6

    B.5.1 Contact Telcordia . . . . . B-6

    B.5.2 Order Documents Online From the Telcordia Information  
        SuperStore . . . . . B-6

    B.5.3 Web Sites for Generic Requirements Information . . . . . B-7

    B.5.4 Licensing Agreements for Telcordia Documents . . . . . B-7

**Appendix C: Glossary**

**Requirement-Object Index**

## List of Figures

Figure 3-1	Three-Point Test Fixture . . . . .	3-4
Figure 3-2	Cover Lip 1 . . . . .	3-12
Figure 3-3	Cover Lip 2 . . . . .	3-12
Figure 3-4	Cover Lip 3 . . . . .	3-13
Figure 3-5	AC Fault Test . . . . .	3-16
Figure 3-6	Vertical Cover Loading Diagram . . . . .	3-25
Figure 3-7	Vertical Sidewall Loading Diagram . . . . .	3-26
Figure 3-8	Handhole Length Calculation Figures . . . . .	3-29
Figure 3-9	Test Schematic for Lateral Test of Product With Length Under 60 Inches . . . . .	3-30
Figure 3-10	Test Schematic for Lateral Test of Product With Length Equal To or More Than 60 Inches . . . . .	3-30
Figure A-1	Application Guide . . . . .	A-2
Figure A-2	A - Secondary Roads - Residential Areas . . . . .	A-3
Figure A-3	B - Trash Receptacle Areas . . . . .	A-4
Figure A-4	C - Alley Ways . . . . .	A-4
Figure A-5	D - Parking Lots . . . . .	A-5
Figure A-6	E - Grassy Areas Adjacent to Divided Highways . . . . .	A-6
Figure A-7	F - Corners and Areas Adjacent to Roads and Highways . . . . .	A-7

## List of Tables

Table 2-1	Selected Load Ratings for Handholes . . . . .	2-3
Table 2-2	Gross Vehicle Weight Rating (GVWR) and Wheel Load . . . . .	2-4
Table 3-1	Ultraviolet Test Conditions . . . . .	3-6
Table 3-2	Light Duty: Pedestrian Only Lateral Sidewall Loading . . . . .	3-32
Table 3-3	Medium Duty: Non-Deliberate (Incidental) Vehicular Traffic Lateral Sidewall Loading . . . . .	3-33
Table 3-4	Heavy Duty: Non-Deliberate (Incidental) Vehicular Traffic Lateral Sidewall Loading Table . . . . .	3-35
Table 3-5	Heavy Duty: Non-Deliberate (Incidental) Vehicular Traffic Lateral Sidewall Loading Table . . . . .	3-36
Table 3-6	Comparison of Requirement Loading Forces . . . . .	3-37
Table 3-7	Comparison of Requirement Lateral Sidewall Loads . . . . .	3-38
Table 3-8	Handhole Cover Deflection . . . . .	3-39
Table A-1	Application Options . . . . .	A-1

