

INSTALLATION INSTRUCTIONS NOFIRNO® UPGRADING SYSTEM FOR EXISTING CABLE TRANSITS

NOFIRNO®

FISSIC®

FYLOFYS®

® registered trade marks of BEELE Engineering



**TECHNOLOGY DEVELOPED BY BEELE ENGINEERING BV
COMPOUNDING AND PRODUCTION IN THE ULTRA-MODERN
MANUFACTURING FACILITIES IN AALTEN/THE NETHERLANDS
UNDER A STRINGENT ISO 9001:2015 QUALITY SYSTEM
MORE THAN 45 YEARS R&D ON QUALITY, DURABILITY & FUNCTIONALITY**

Beele campus 45.000 m²
building phase 1 starts June 2017



| | |
|-----------------------------------|---|
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| brochure code | : installation NOFIRNO upgrading systems |

INSTALLATION INSTRUCTIONS FOR NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM



Not only for standard cellulose fires, but also for applications with highest fire and tightness ratings (up to HC and Jet Fires) the NOFIRNO® sealing system is used. The NOFIRNO® multi-cable transit sealing system is composed of NOFIRNO® insert (cable) sleeves in 29 different sizes, NOFIRNO® (multi-) filler sleeves in 5 different sizes and NOFIRNO® sealant.

The use of NOFIRNO® multi-filler sleeves contributes to ease of installation.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM

PRODUCT INFORMATION SEALANT

| | |
|-------------------------|---|
| 01) colour | red brown |
| 02) specific gravity | 1.40 ± 0.03 g/cm ³ |
| 03) curing of top layer | 0.5 - 1 hour depending on temperature and air humidity |
| 04) service temperature | -50 °C up to +180 °C |
| 05) tensile strength | 1.5 MPa |
| 06) elongation at break | 200% |
| 07) hardness | 45 Shore A |
| 08) elastic deformation | approx. 50% |
| 09) resistance | UV, Ozone, arctic conditions |
| 10) ageing | more than 20 years |
| 11) supplied in | 310 ml cartridges |
| 12) storage | to be stored cool and dry min/max temperature = +5/+30° C |
| 13) storage life | guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application |

article number 50.0102



NOFIRNO® is absolutely HALOGEN FREE with zero VOC (volatiles organic compounds) according to TÜV report 89206405-01. Furthermore NOFIRNO® has a low smoke index and a high oxygen index (ISO 4589-2: 1996), and low flame spread characteristics according to IMO Resolution A.653(16). NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.

terracotta



article number 50.0102

black



on request, depending on quantity
article number 50.0104

white



on request, depending on quantity
article number 50.0105

blue grey



article number 50.0106

INSTALLATION INSTRUCTIONS FOR NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM

NOFIRNO® CABLE INSERT SLEEVES




cable insert sleeves are split lengthwise

Operating temperatures:
-50 °C up to +180 °C

NOFIRNO® cable insert sleeves are used to separate cables inside the conduit opening. This allows for ease of application of the NOFIRNO® sealant in between and around the ducted cables. The NOFIRNO® cable sleeves are available in 29 sizes and in lengths of 60, 110, 140, 160 and 210 mm. The NOFIRNO® cable insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit opening.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM

NOFIRNO® CABLE INSERT SLEEVES

| NOFIRNO® sleeve | cable diameter | sleeve length | article number | NOFIRNO® sleeve | cable diameter | sleeve length | article number | NOFIRNO® sleeve | cable diameter | sleeve length | article number |
|----------------------|----------------|---------------|----------------|-----------------|----------------|---------------|----------------|---|----------------|---------------|----------------|
| 12/6 | 5 - 7 | 60 | 50.1000 | 12/6 | 5 - 7 | 110 | 50.1040 | 12/6 | 5 - 7 | 140 | 50.1080 |
| 14/8 | 7 - 9 | 60 | 50.1001 | 14/8 | 7 - 9 | 110 | 50.1041 | 14/8 | 7 - 9 | 140 | 50.1081 |
| 16/10 | 9 - 11 | 60 | 50.1002 | 16/10 | 9 - 11 | 110 | 50.1042 | 16/10 | 9 - 11 | 140 | 50.1082 |
| 18/12 | 11 - 13 | 60 | 50.1003 | 18/12 | 11 - 13 | 110 | 50.1043 | 18/12 | 11 - 13 | 140 | 50.1083 |
| 20/14 | 13 - 15 | 60 | 50.1004 | 20/14 | 13 - 15 | 110 | 50.1044 | 20/14 | 13 - 15 | 140 | 50.1084 |
| 22/16 | 15 - 17 | 60 | 50.1005 | 22/16 | 15 - 17 | 110 | 50.1045 | 22/16 | 15 - 17 | 140 | 50.1085 |
| 26/18 | 17 - 19 | 60 | 50.1006 | 26/18 | 17 - 19 | 110 | 50.1046 | 26/18 | 17 - 19 | 140 | 50.1086 |
| 28/20 | 19 - 21 | 60 | 50.1007 | 28/20 | 19 - 21 | 110 | 50.1047 | 28/20 | 19 - 21 | 140 | 50.1087 |
| 30/22 | 21 - 23 | 60 | 50.1008 | 30/22 | 21 - 23 | 110 | 50.1048 | 30/22 | 21 - 23 | 140 | 50.1088 |
| 32/24 | 23 - 25 | 60 | 50.1009 | 32/24 | 23 - 25 | 110 | 50.1049 | 32/24 | 23 - 25 | 140 | 50.1089 |
| 34/26 | 25 - 27 | 60 | 50.1010 | 34/26 | 25 - 27 | 110 | 50.1050 | 34/26 | 25 - 27 | 140 | 50.1090 |
| 36/28 | 27 - 29 | 60 | 50.1011 | 36/28 | 27 - 29 | 110 | 50.1051 | 36/28 | 27 - 29 | 140 | 50.1091 |
| 38/30 | 29 - 32 | 60 | 50.1012 | 38/30 | 29 - 32 | 110 | 50.1052 | 38/30 | 29 - 32 | 140 | 50.1092 |
| 42/33 | 32 - 35 | 60 | 50.1013 | 42/33 | 32 - 35 | 110 | 50.1053 | 42/33 | 32 - 35 | 140 | 50.1093 |
| 46/36 | 35 - 38 | 60 | 50.1014 | 46/36 | 35 - 38 | 110 | 50.1054 | 46/36 | 35 - 38 | 140 | 50.1094 |
| 49/39 | 38 - 41 | 60 | 50.1015 | 49/39 | 38 - 41 | 110 | 50.1055 | 49/39 | 38 - 41 | 140 | 50.1095 |
| 52/42 | 41 - 44 | 60 | 50.1016 | 52/42 | 41 - 44 | 110 | 50.1056 | 52/42 | 41 - 44 | 140 | 50.1096 |
| 55/45 | 44 - 47 | 60 | 50.1017 | 55/45 | 44 - 47 | 110 | 50.1057 | 55/45 | 44 - 47 | 140 | 50.1097 |
| 58/48 | 47 - 51 | 60 | 50.1018 | 58/48 | 47 - 51 | 110 | 50.1058 | 58/48 | 47 - 51 | 140 | 50.1098 |
| 62/52 | 51 - 55 | 60 | 50.1019 | 62/52 | 51 - 55 | 110 | 50.1059 | 62/52 | 51 - 55 | 140 | 50.1099 |
| 66/56 | 55 - 59 | 60 | 50.1020 | 66/56 | 55 - 59 | 110 | 50.1060 | 66/56 | 55 - 59 | 140 | 50.1100 |
| 70/60 | 59 - 63 | 60 | 50.1021 | 70/60 | 59 - 63 | 110 | 50.1061 | 70/60 | 59 - 63 | 140 | 50.1101 |
| 74/64 | 63 - 67 | 60 | 50.1022 | 74/64 | 63 - 67 | 110 | 50.1062 | 74/64 | 63 - 67 | 140 | 50.1102 |
| 78/68 | 67 - 71 | 60 | 50.1023 | 78/68 | 67 - 71 | 110 | 50.1063 | 78/68 | 67 - 71 | 140 | 50.1103 |
| 82/72 | 71 - 75 | 60 | 50.1024 | 82/72 | 71 - 75 | 110 | 50.1064 | 82/72 | 71 - 75 | 140 | 50.1104 |
| 86/76 | 75 - 79 | 60 | 50.1025 | 86/76 | 75 - 79 | 110 | 50.1065 | 86/76 | 75 - 79 | 140 | 50.1105 |
| 95/80 | 79 - 84 | 60 | 50.1026 | 95/80 | 79 - 84 | 110 | 50.1066 | 95/80 | 79 - 84 | 140 | 50.1106 |
| 100/85 | 84 - 89 | 60 | 50.1027 | 100/85 | 84 - 89 | 110 | 50.1067 | 100/85 | 84 - 89 | 140 | 50.1107 |
| 110/90 | 89 - 94 | 60 | 50.1028 | 110/90 | 89 - 94 | 110 | 50.1068 | 110/90 | 89 - 94 | 140 | 50.1108 |
| all dimensions in mm | | | | | | | | | | | |
| 12/6 | 5 - 7 | 160 | 50.1120 | 12/6 | 5 - 7 | 210 | 50.1160 |  | | | |
| 14/8 | 7 - 9 | 160 | 50.1121 | 14/8 | 7 - 9 | 210 | 50.1161 | | | | |
| 16/10 | 9 - 11 | 160 | 50.1122 | 16/10 | 9 - 11 | 210 | 50.1162 | | | | |
| 18/12 | 11 - 13 | 160 | 50.1123 | 18/12 | 11 - 13 | 210 | 50.1163 | | | | |
| 20/14 | 13 - 15 | 160 | 50.1124 | 20/14 | 13 - 15 | 210 | 50.1164 | | | | |
| 22/16 | 15 - 17 | 160 | 50.1125 | 22/16 | 15 - 17 | 210 | 50.1165 | | | | |
| 26/18 | 17 - 19 | 160 | 50.1126 | 26/18 | 17 - 19 | 210 | 50.1166 | | | | |
| 28/20 | 19 - 21 | 160 | 50.1127 | 28/20 | 19 - 21 | 210 | 50.1167 | | | | |
| 30/22 | 21 - 23 | 160 | 50.1128 | 30/22 | 21 - 23 | 210 | 50.1168 | | | | |
| 32/24 | 23 - 25 | 160 | 50.1129 | 32/24 | 23 - 25 | 210 | 50.1169 | | | | |
| 34/26 | 25 - 27 | 160 | 50.1130 | 34/26 | 25 - 27 | 210 | 50.1170 | | | | |
| 36/28 | 27 - 29 | 160 | 50.1131 | 36/28 | 27 - 29 | 210 | 50.1171 | | | | |
| 38/30 | 29 - 32 | 160 | 50.1132 | 38/30 | 29 - 32 | 210 | 50.1172 | | | | |
| 42/33 | 32 - 35 | 160 | 50.1133 | 42/33 | 32 - 35 | 210 | 50.1173 | | | | |
| 46/36 | 35 - 38 | 160 | 50.1134 | 46/36 | 35 - 38 | 210 | 50.1174 | | | | |
| 49/39 | 38 - 41 | 160 | 50.1135 | 49/39 | 38 - 41 | 210 | 50.1175 | | | | |
| 52/42 | 41 - 44 | 160 | 50.1136 | 52/42 | 41 - 44 | 210 | 50.1176 | | | | |
| 55/45 | 44 - 47 | 160 | 50.1137 | 55/45 | 44 - 47 | 210 | 50.1177 | | | | |
| 58/48 | 47 - 51 | 160 | 50.1138 | 58/48 | 47 - 51 | 210 | 50.1178 | | | | |
| 62/52 | 51 - 55 | 160 | 50.1139 | 62/52 | 51 - 55 | 210 | 50.1179 | | | | |
| 66/56 | 55 - 59 | 160 | 50.1140 | 66/56 | 55 - 59 | 210 | 50.1180 | | | | |
| 70/60 | 59 - 63 | 160 | 50.1141 | 70/60 | 59 - 63 | 210 | 50.1181 | | | | |
| 74/64 | 63 - 67 | 160 | 50.1142 | 74/64 | 63 - 67 | 210 | 50.1182 | | | | |
| 78/68 | 67 - 71 | 160 | 50.1143 | 78/68 | 67 - 71 | 210 | 50.1183 | | | | |
| 82/72 | 71 - 75 | 160 | 50.1144 | 82/72 | 71 - 75 | 210 | 50.1184 | | | | |
| 86/76 | 75 - 79 | 160 | 50.1145 | 86/76 | 75 - 79 | 210 | 50.1185 | | | | |
| 95/80 | 79 - 84 | 160 | 50.1146 | 95/80 | 79 - 84 | 210 | 50.1186 | | | | |
| 100/85 | 84 - 89 | 160 | 50.1147 | 100/85 | 84 - 89 | 210 | 50.1187 | | | | |
| 110/90 | 89 - 94 | 160 | 50.1148 | 110/90 | 89 - 94 | 210 | 50.1188 | | | | |
| all dimensions in mm | | | | | | | | | | | |

INSTALLATION INSTRUCTIONS FOR NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM

NOFIRNO® MULTI-FILLER SLEEVES



filler sleeves are not split lengthwise

Operating temperatures:
-50 °C up to +180 °C

NOFIRNO® filler sleeves are supplied in multi-sets of 6, 8, 10 and 12 sleeves, depending on the outer dimensions of the sleeves. Single sleeves or smaller sets of sleeves can be torn off easily. To tear off sleeves from the multi-set, the procedure is to do this backwards/forwards and not sideways. This is because of the strength of the intermediate rubber parts.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® MULTI-CABLE TRANSIT SEALING SYSTEM

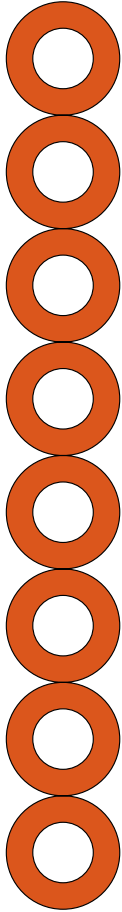
NOFIRNO® MULTI-FILLER SLEEVES



NOFIRNO® multi-filler sleeve 10/4

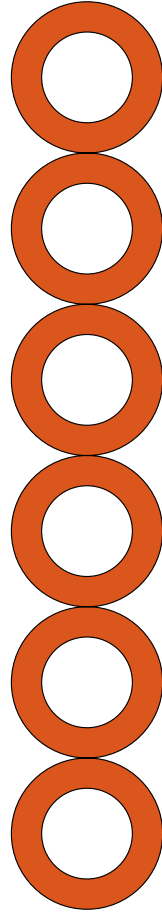
- art. no. 50.0301 for 60 mm length
- art. no. 50.0311 for 110 mm length
- art. no. 50.0321 for 140 mm length
- art. no. 50.0331 for 160 mm length
- art. no. 50.0341 for 210 mm length

to be used for smaller conduit openings



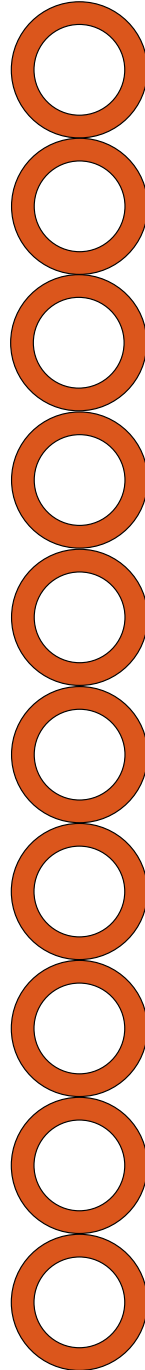
NOFIRNO® multi-filler sleeve 15/8

- art. no. 50.0302 for 60 mm length
- art. no. 50.0312 for 110 mm length
- art. no. 50.0322 for 140 mm length
- art. no. 50.0332 for 160 mm length
- art. no. 50.0342 for 210 mm length



NOFIRNO® multi-filler sleeve 20/12

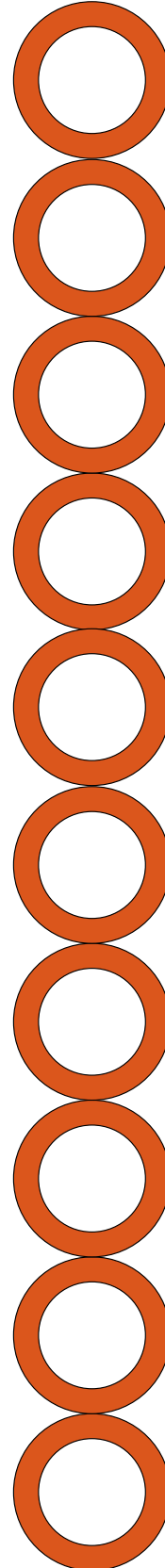
- art. no. 50.0303 for 60 mm length
- art. no. 50.0313 for 110 mm length
- art. no. 50.0323 for 140 mm length
- art. no. 50.0333 for 160 mm length
- art. no. 50.0343 for 210 mm length



NOFIRNO® multi-filler sleeve 18/12

- art. no. 80.5050 for 60 mm length
- art. no. 80.5051 for 110 mm length
- art. no. 80.5052 for 140 mm length
- art. no. 80.5053 for 160 mm length
- art. no. 80.5054 for 210 mm length

to be used for larger conduit openings



NOFIRNO® multi-filler sleeve 22/15

- art. no. 80.5070 for 60 mm length
- art. no. 80.5071 for 110 mm length
- art. no. 80.5072 for 140 mm length
- art. no. 80.5073 for 160 mm length
- art. no. 80.5074 for 210 mm length

to be used for larger conduit openings

filler sleeves are supplied non-split

Operating temperatures:
-50 °C up to +180 °C

FISSIC

**SAFETY
SEALING
SYSTEMS**



a product developed and manufactured
by BEELE Engineering bv/Netherlands
website: www.fissiccoating.com

FISSIC®

FISSIC® is a fire retardant coating on the basis of an APEO-free water-based polymer emulsion without the addition of VOC containing solvents.

FISSIC® has been tested successfully on flame spread characteristics and toxicity and is classed as "not capable of producing excessive quantity of smoke or toxic product".
MED certificate 39278/A0 EC issued by Bureau Veritas.

FISSIC® is fire proof and salt water resistance (even after fire). KIWA Netherlands report 20150421HN01.

FISSIC® is gas tight 30 mBar.

FISSIC® is water impermeable. KIWA Netherlands report 20160203TW01

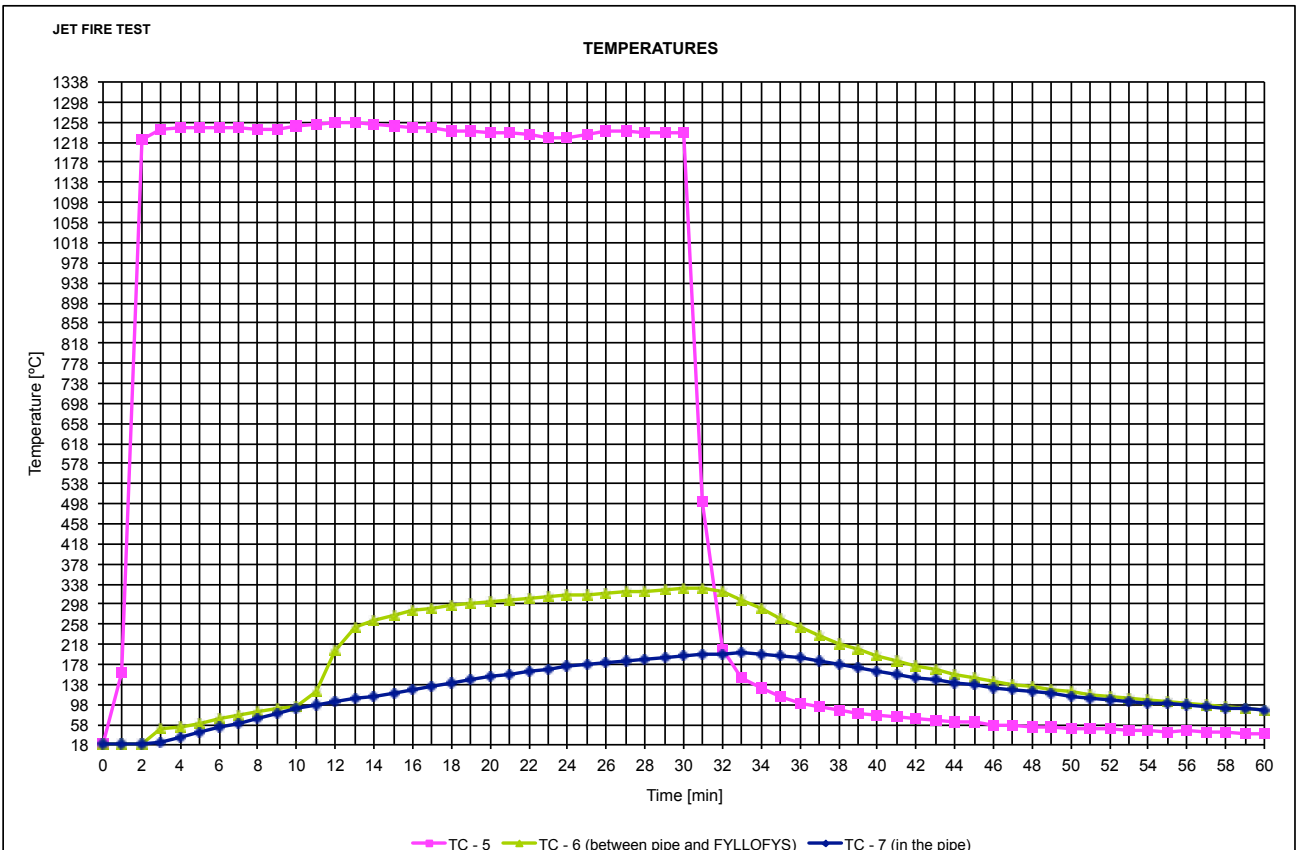
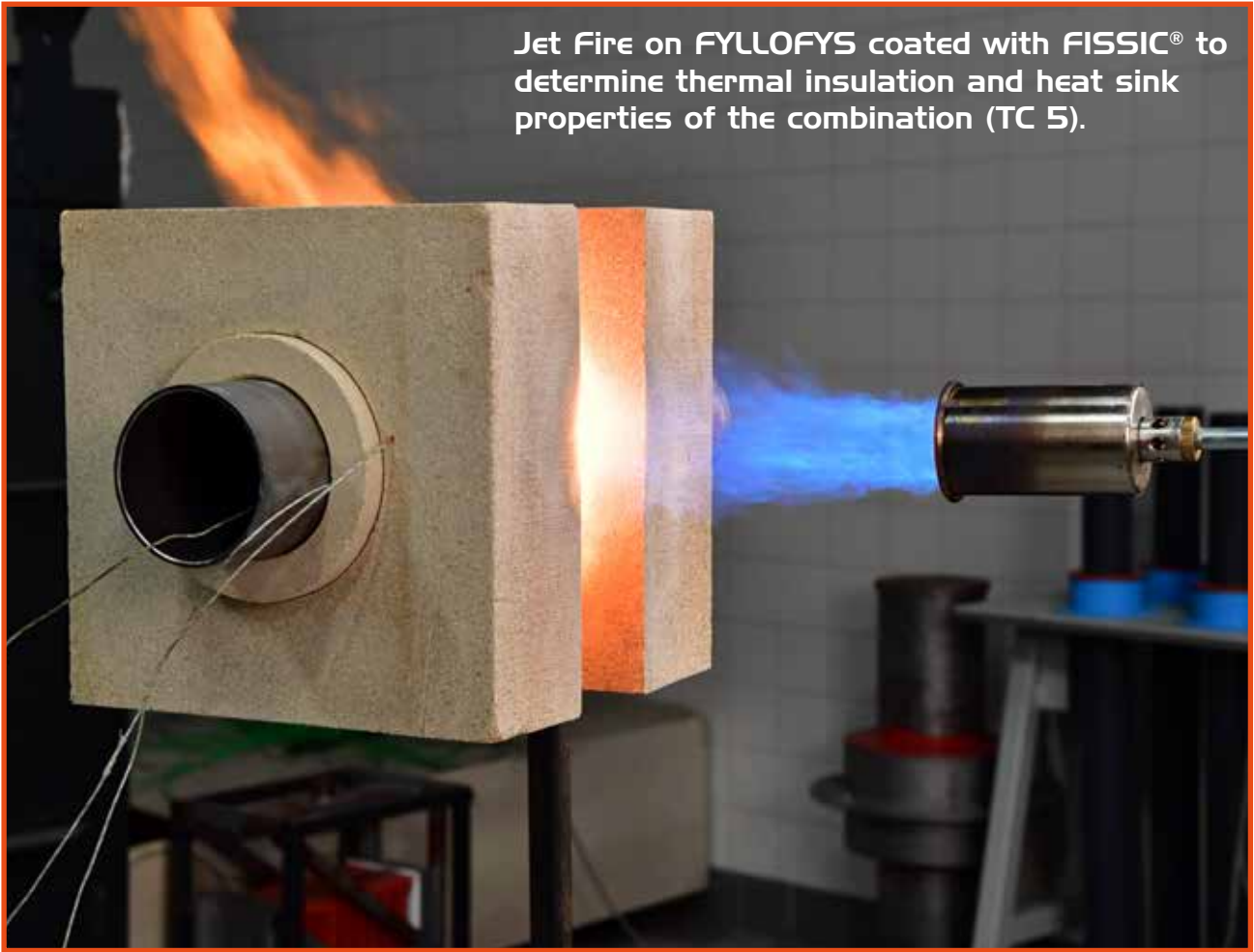
FISSIC® resistance to diesel & petrol. KIWA Netherlands report 20160224TW01

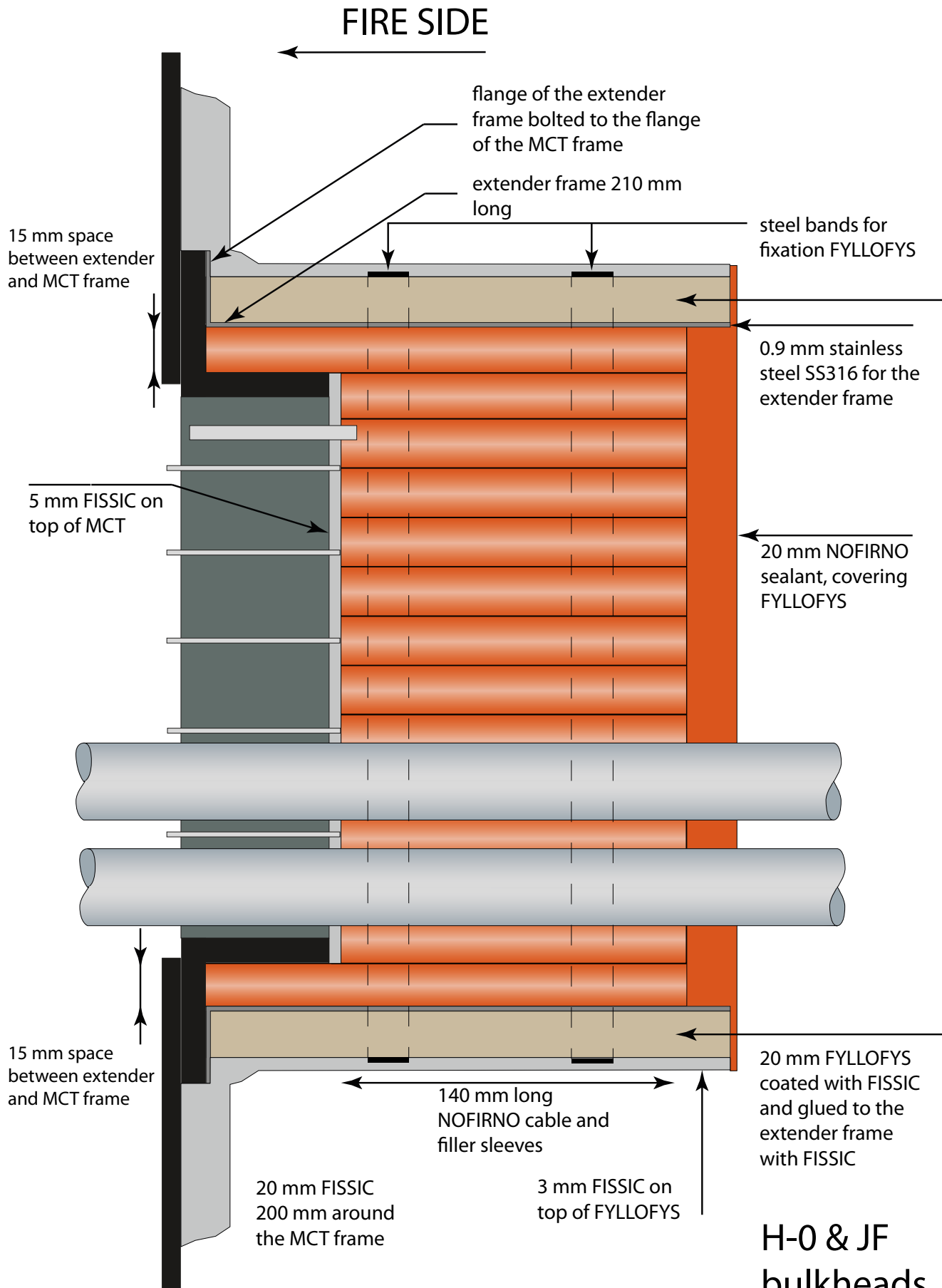
FISSIC® prevents "CUI - corrosion underneath insulation"

FISSIC® successfully SBI tested according to EN 13823:2010 for B-1s-d0 class rating

FISSIC® successfully tested according to ISO 1716 for A2-1s-d0 noncombustible

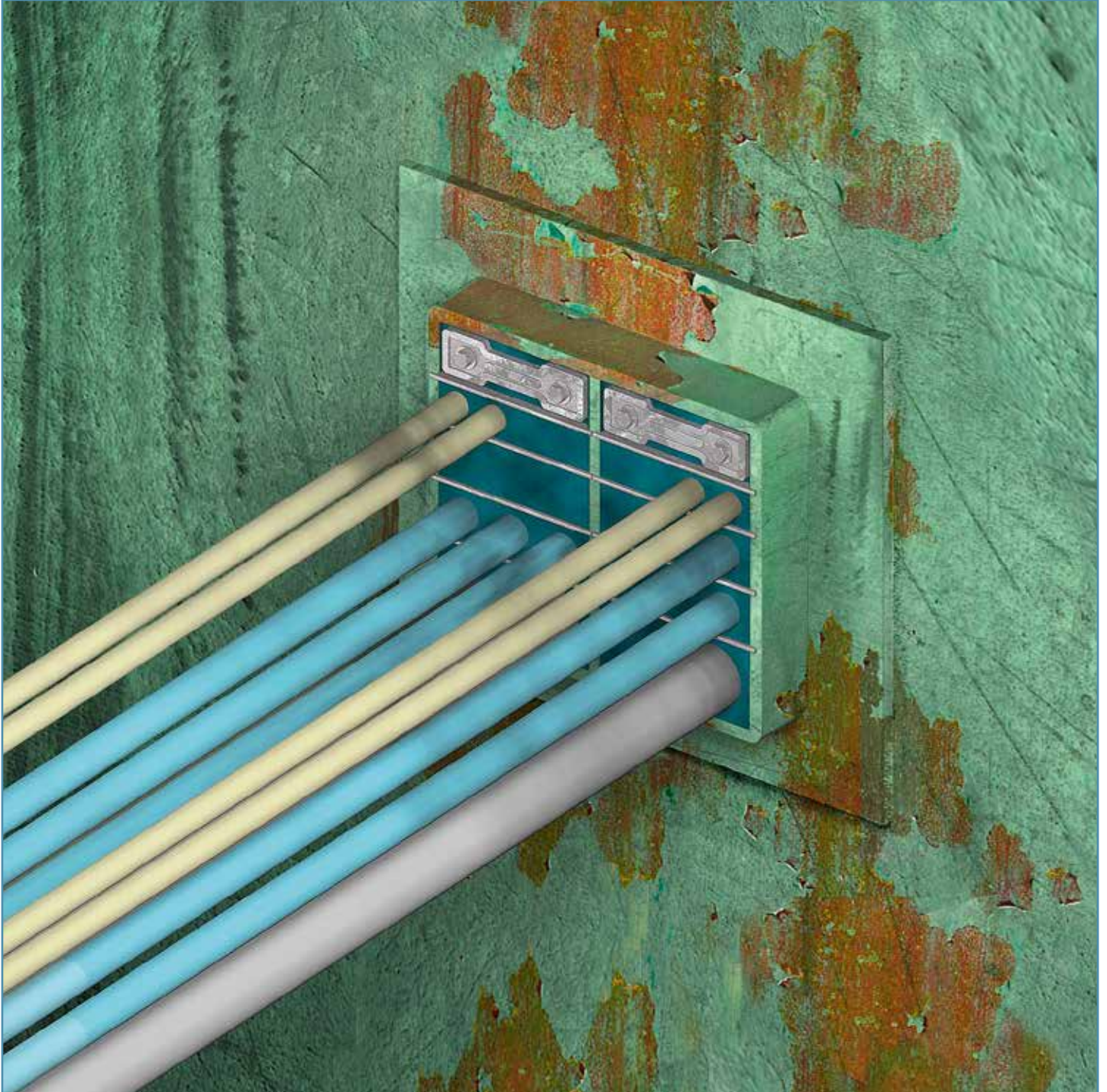
FISSIC® adhesion 3.84 MPa according to ISO 4624:08-2003. KIWA report P 10498a





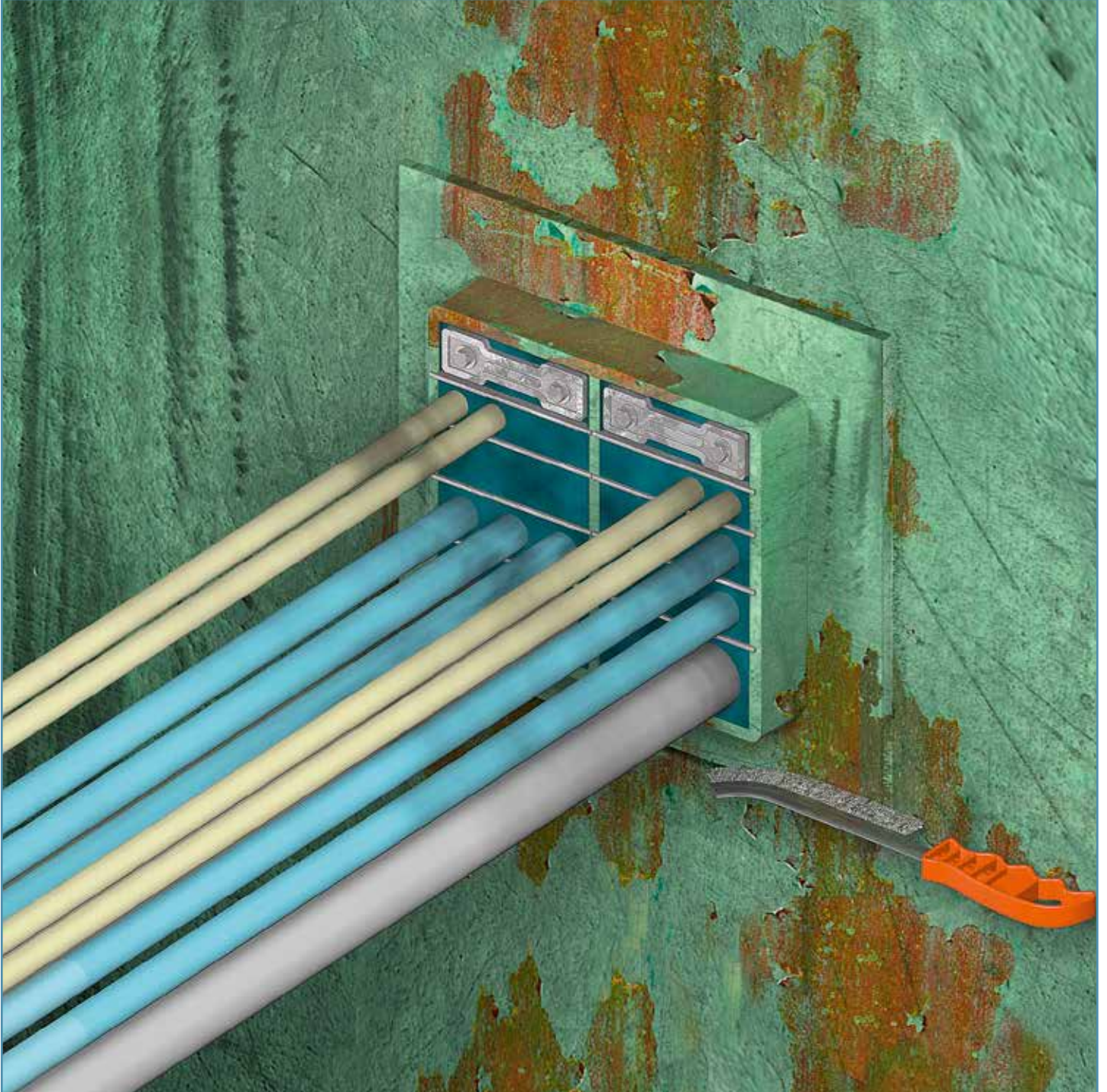
H-0 & JF bulkheads and decks

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



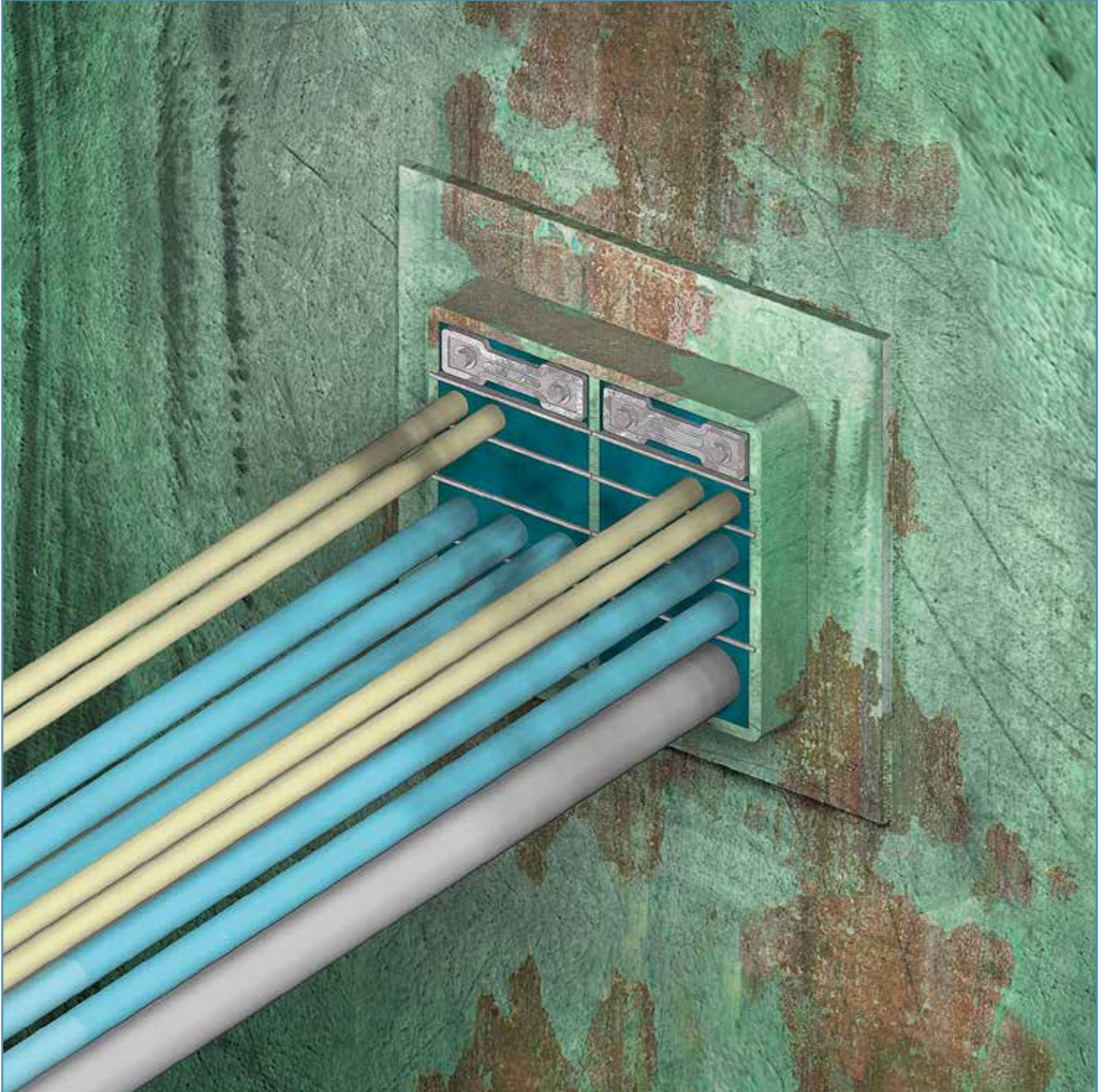
In installations where existing multi-cable transits have to be upgraded to a higher level of fire rating whereby dismantling or removal of the existing system is impossible or unwanted, a special design of the NOFIRNO sealing system has been developed. This system is specially developed for exposure at the fire side of the partition for highest ratings like H-O and Jet Fire.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



Before application of the NOFIRNO®/FISSIC® system, the existing system and transit has to be cleaned from rust and dirt or oil residues. Sand blasting, if possible, is preferred in case of substantial corrosion or pollution.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



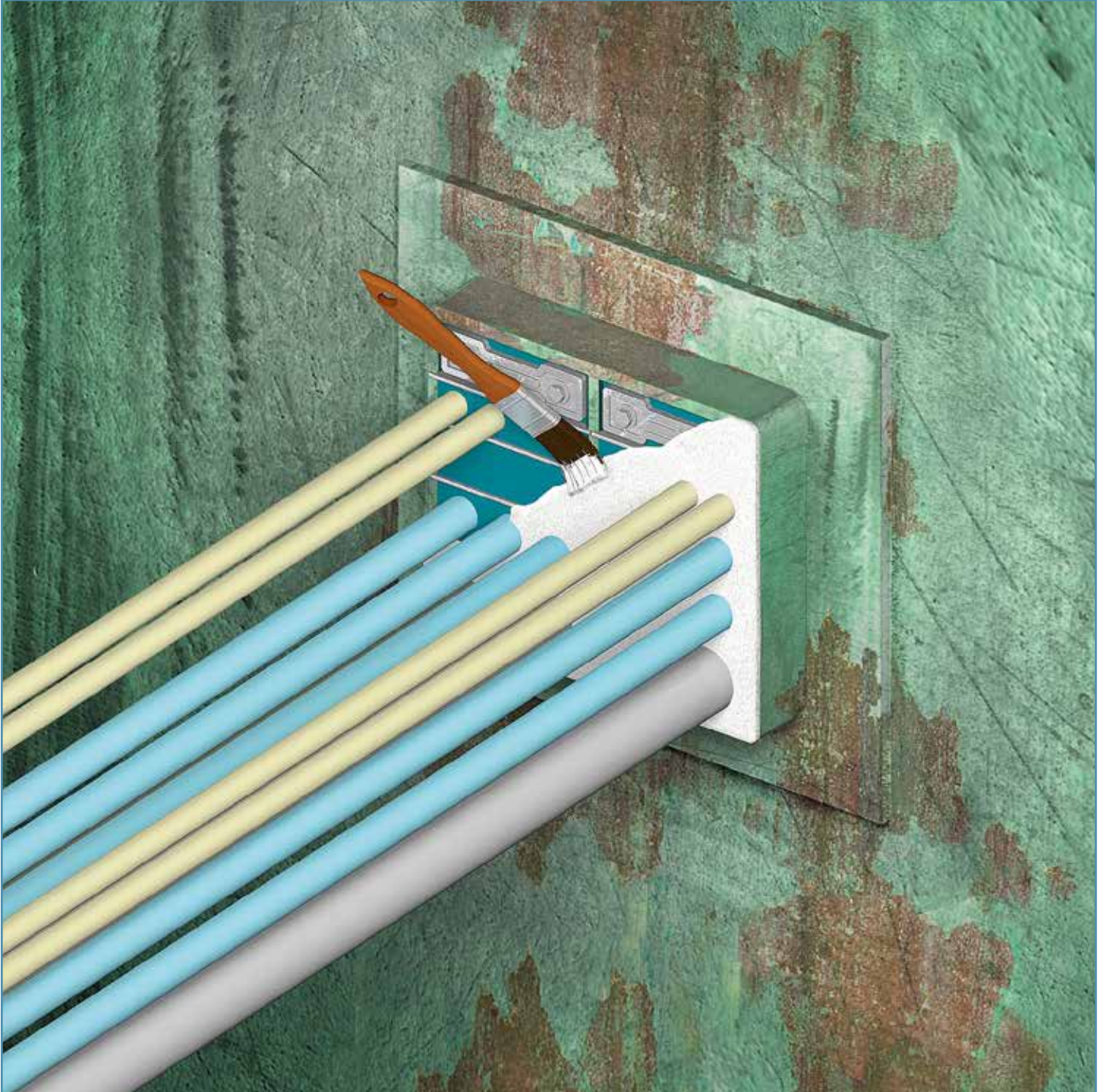
Cleaning of the deck/bulkhead 200 mm around the existing transit is necessary for the application of the FISSIC® coating. FISSIC® coating offers a high degree of thermal insulation and is needed to prevent radiation heat of the uninsulated partition to ignite the ducted cables.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



Also the cables and the surface of the existing sealing system have to be cleaned thoroughly.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



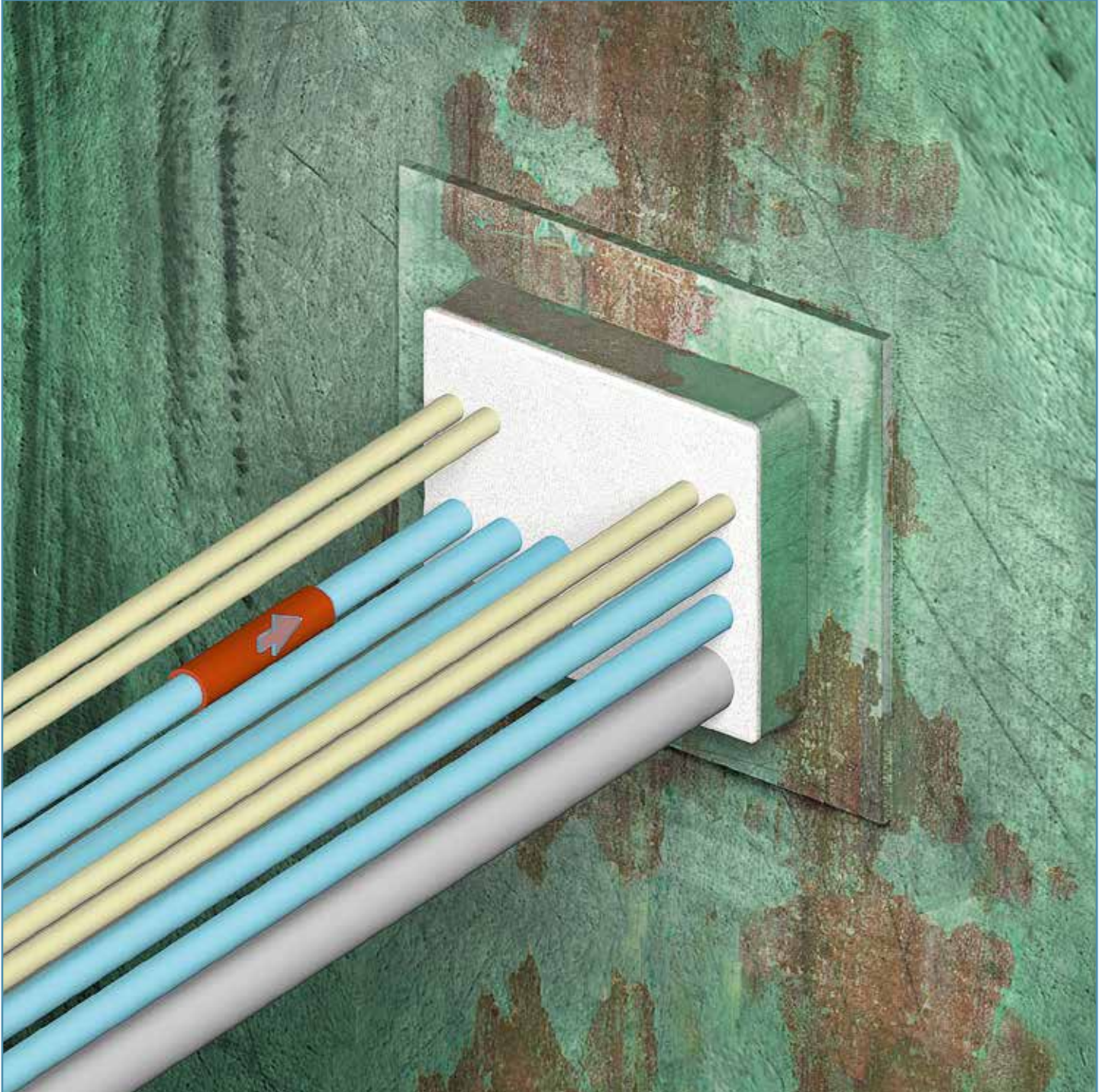
Then the existing sealing system is covered with a 5 mm thick layer of the the FISSIC® coating. Once dried the coating prevents any hot smoke or degassing of the existing system to penetrate into the NOFIRNO® system.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



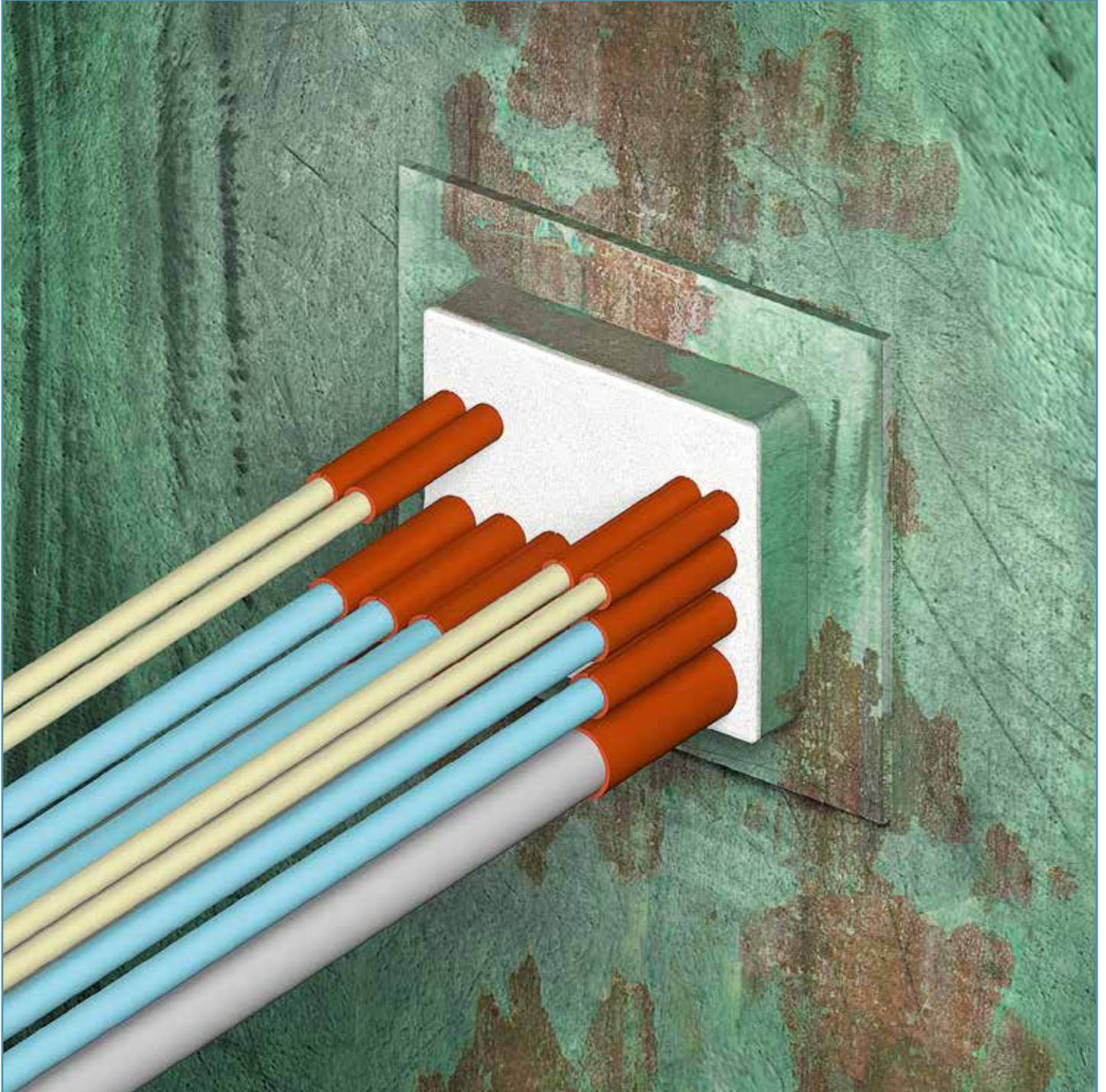
It is advisable to apply the coating in between the cables as well to obtain, as far as possible, a gas tight FISSIC® layer on top of the existing system.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



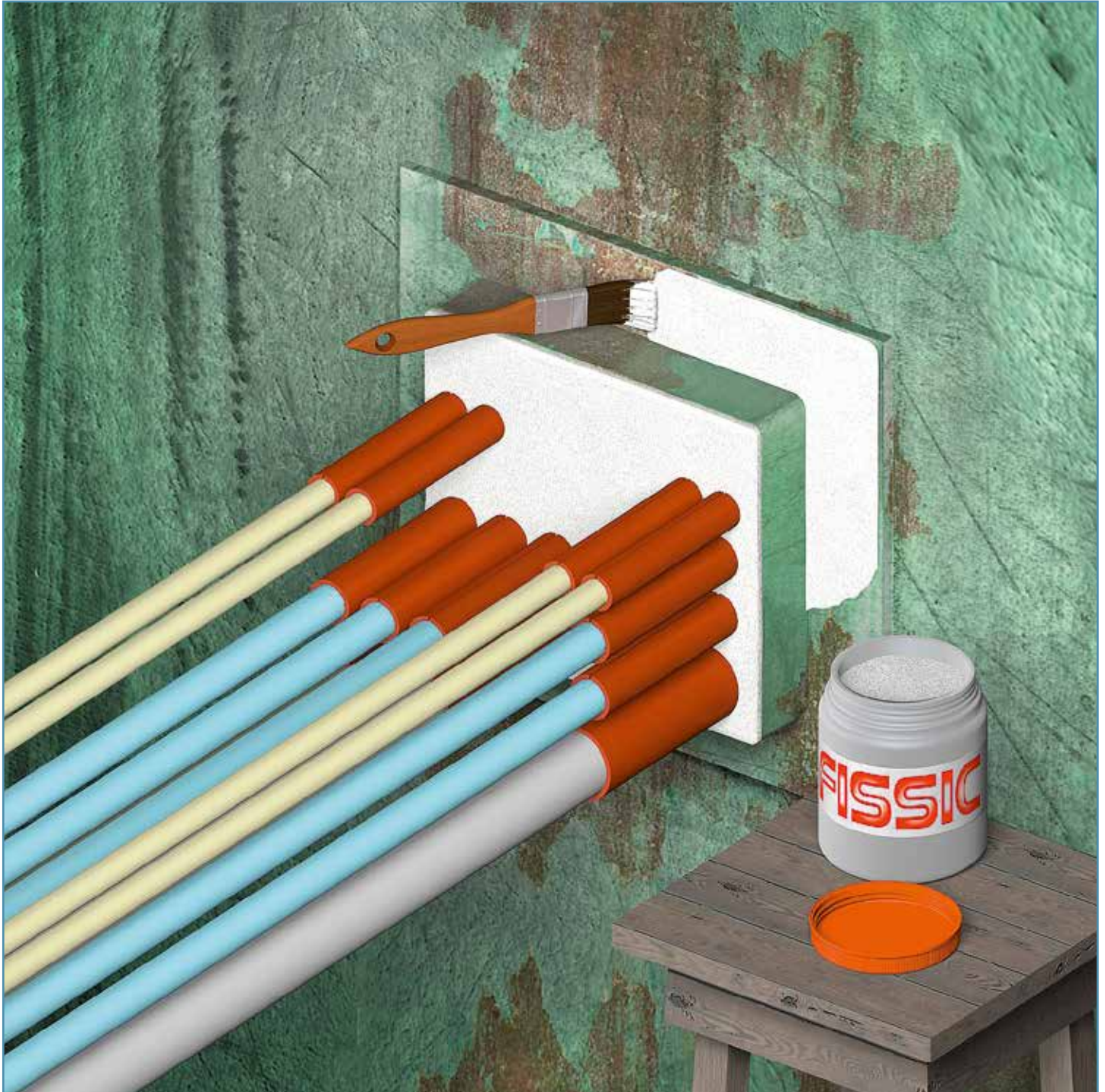
NOFIRNO® cable sleeves, slit lengthwise, with a length of 140 mm are placed around the ducted cables. NOFIRNO® rubber is very endothermic and will insulate the cables from each other, specifically the ones with heavy copper conductors.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



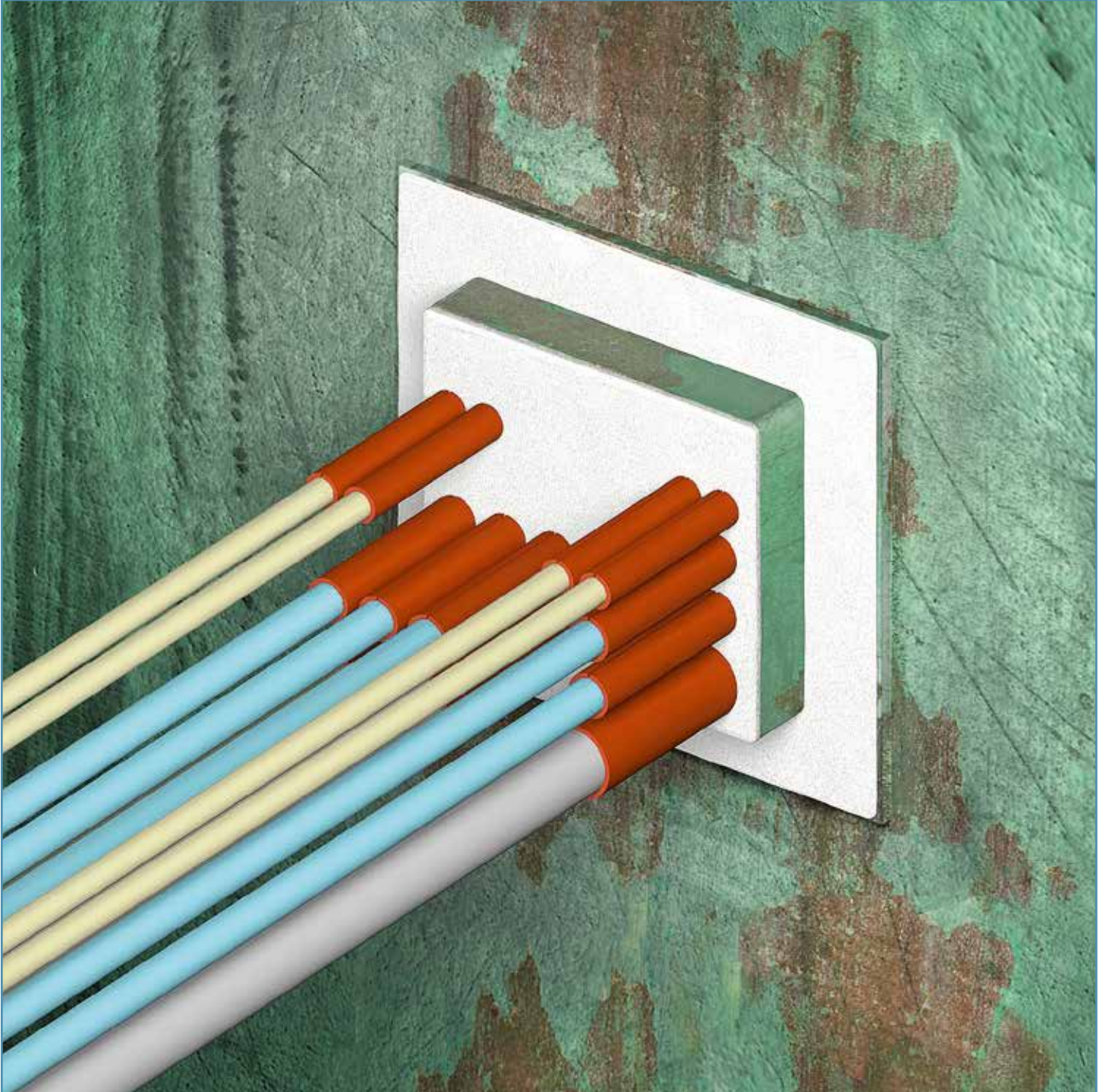
It is advisable to do the sleeving of the cables before the extender casing is going to be placed.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



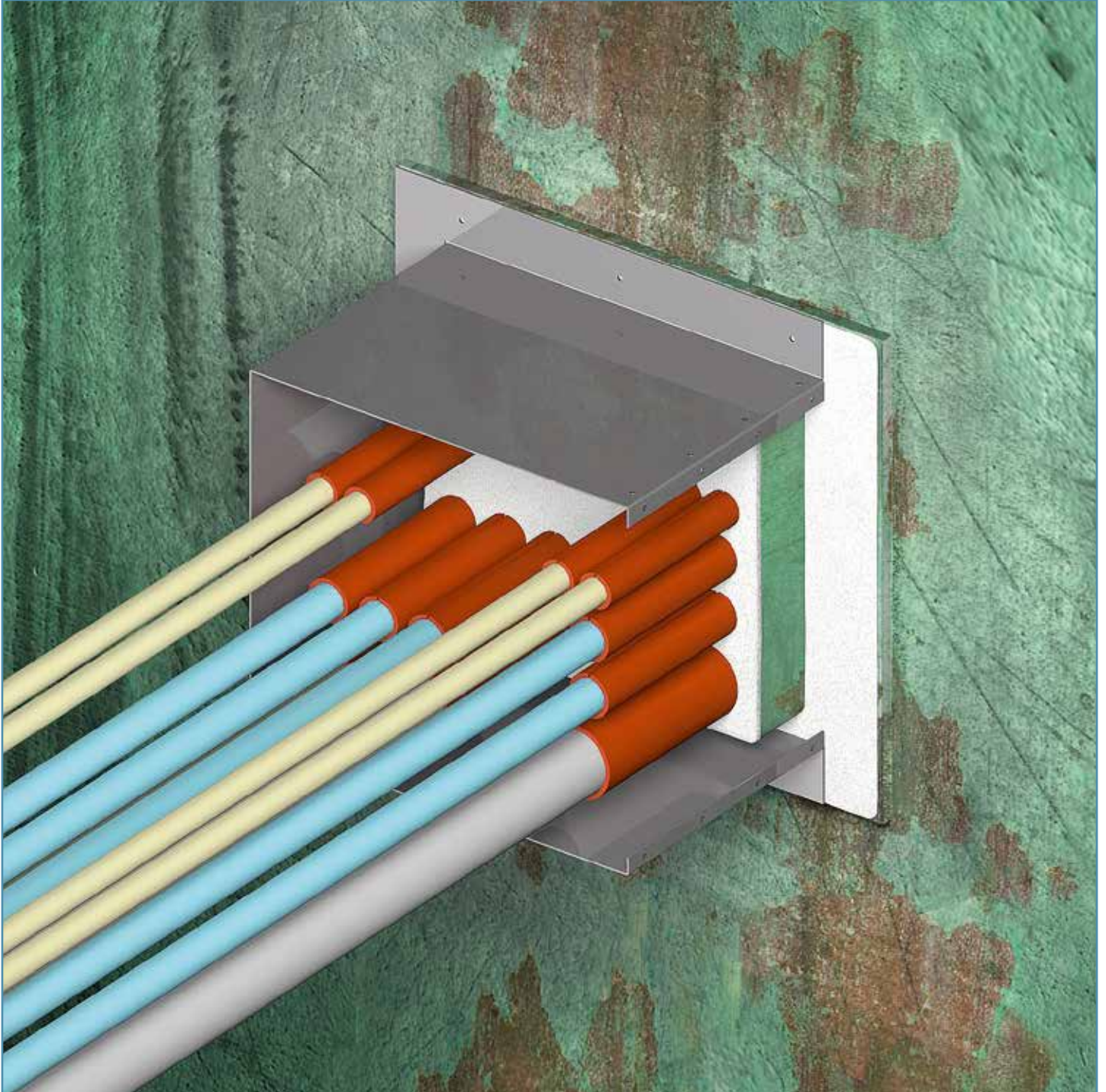
A layer of FISSIC® coating is applied on the flange of the existing transit frame to glue the extender frame to the flange. The objective is to create a tight seal to prevent, in case of fire, hot gases to escape underneath the flange of the extender frame. Besides, the FISSIC® coating prevents corrosion between the extender frame and the steel frame of the existing sealing system.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



The coating should still be wet when the extender frame is placed. Due to the fast drying time of the FISSIC® coating the time for placing the extender frame is reasonably short.

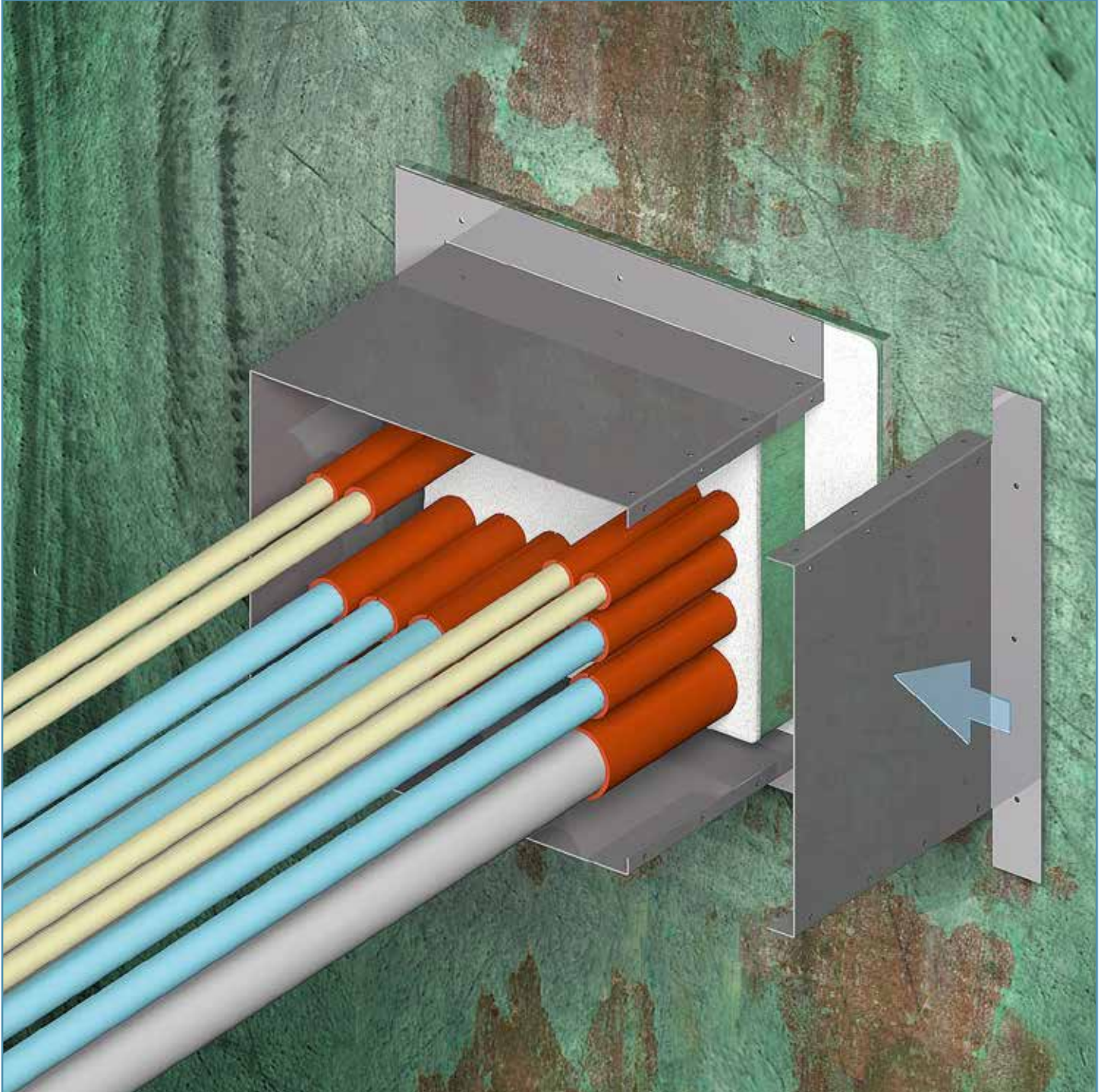
INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



The extender frame, fitting around the existing transit frame, is made of thin stainless steel plate to enable construction at a site workshop

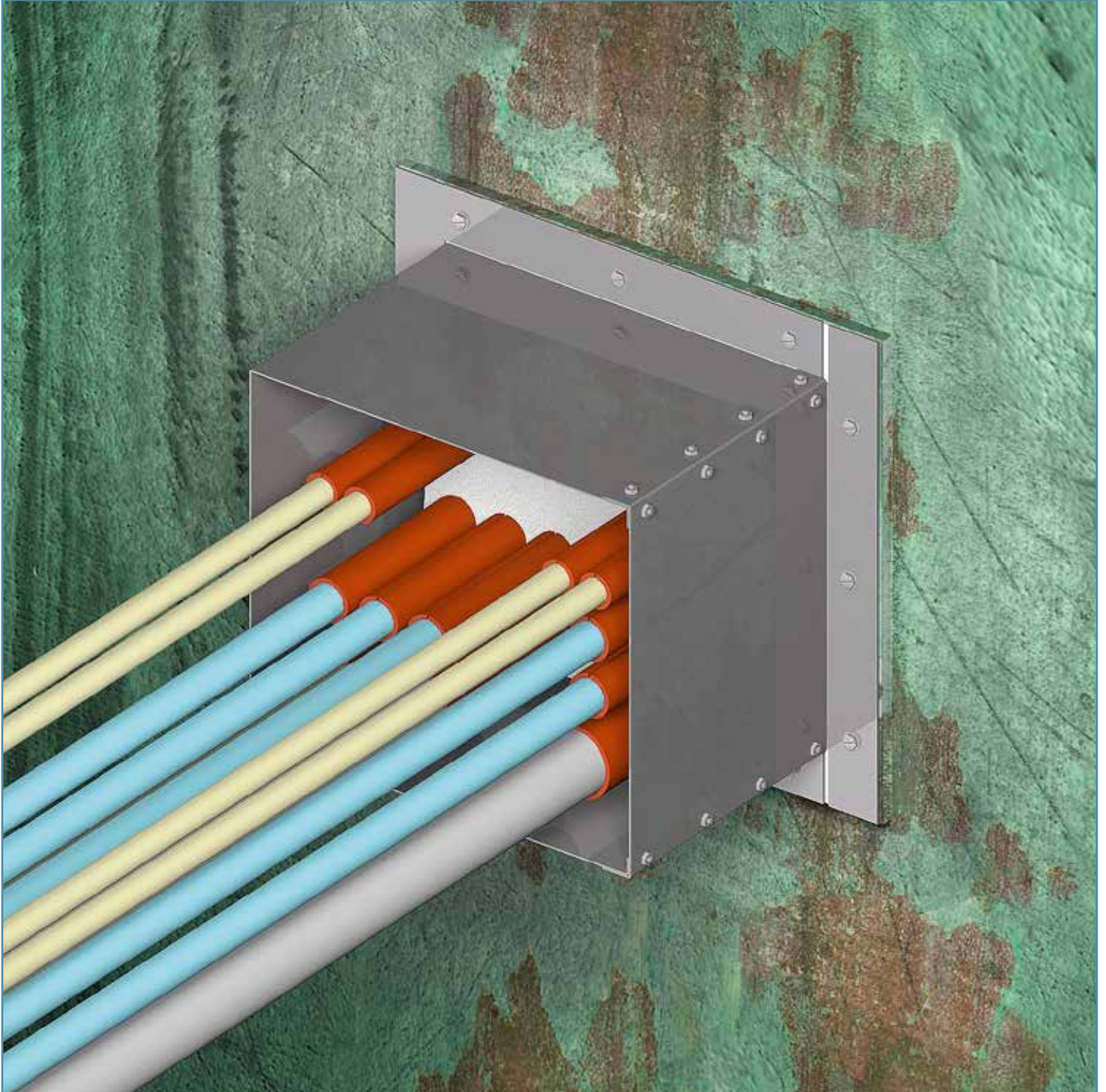
There should be a gap of about 15 mm between the existing frame and the extender frame.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



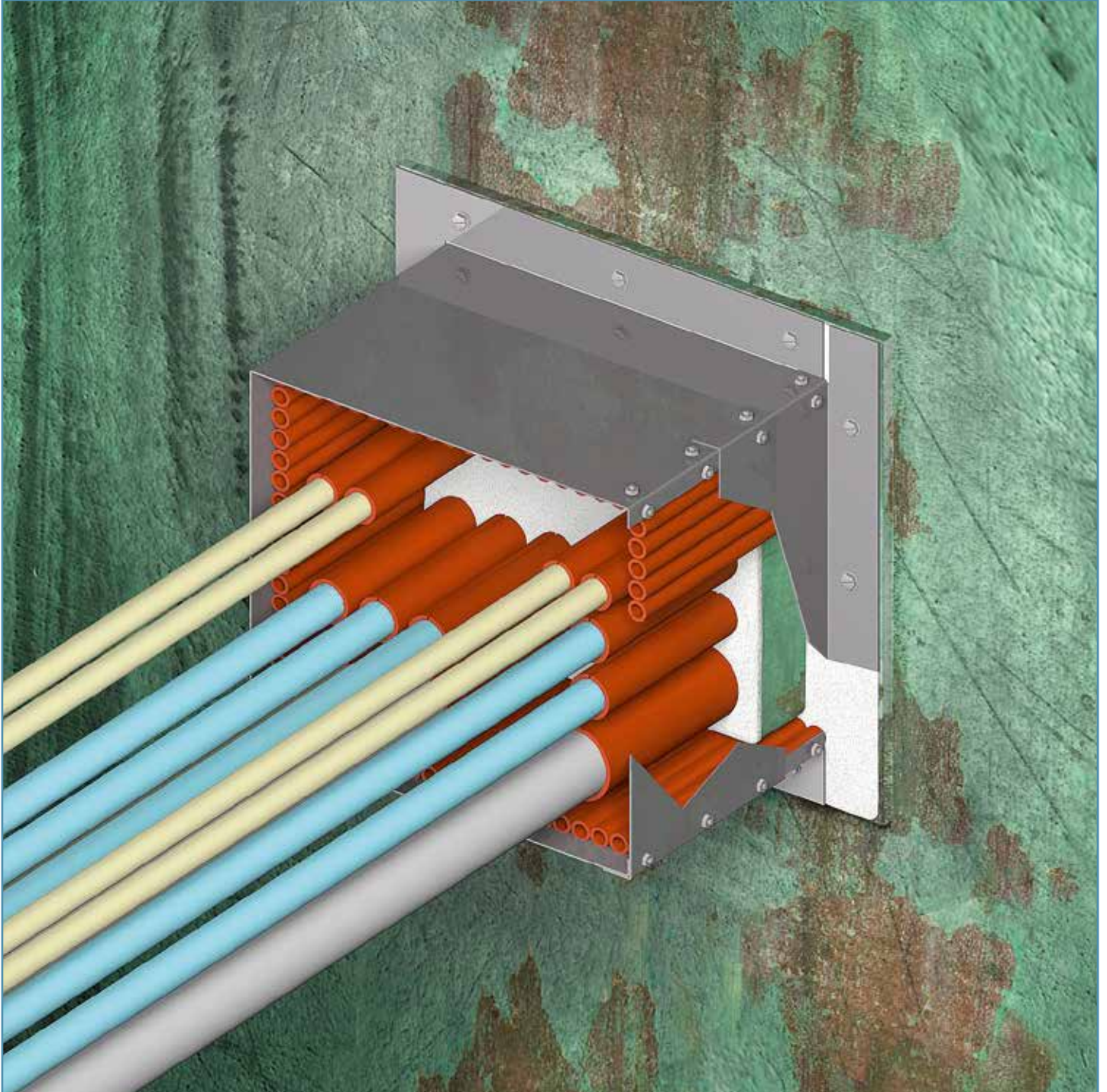
The closure is then placed.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



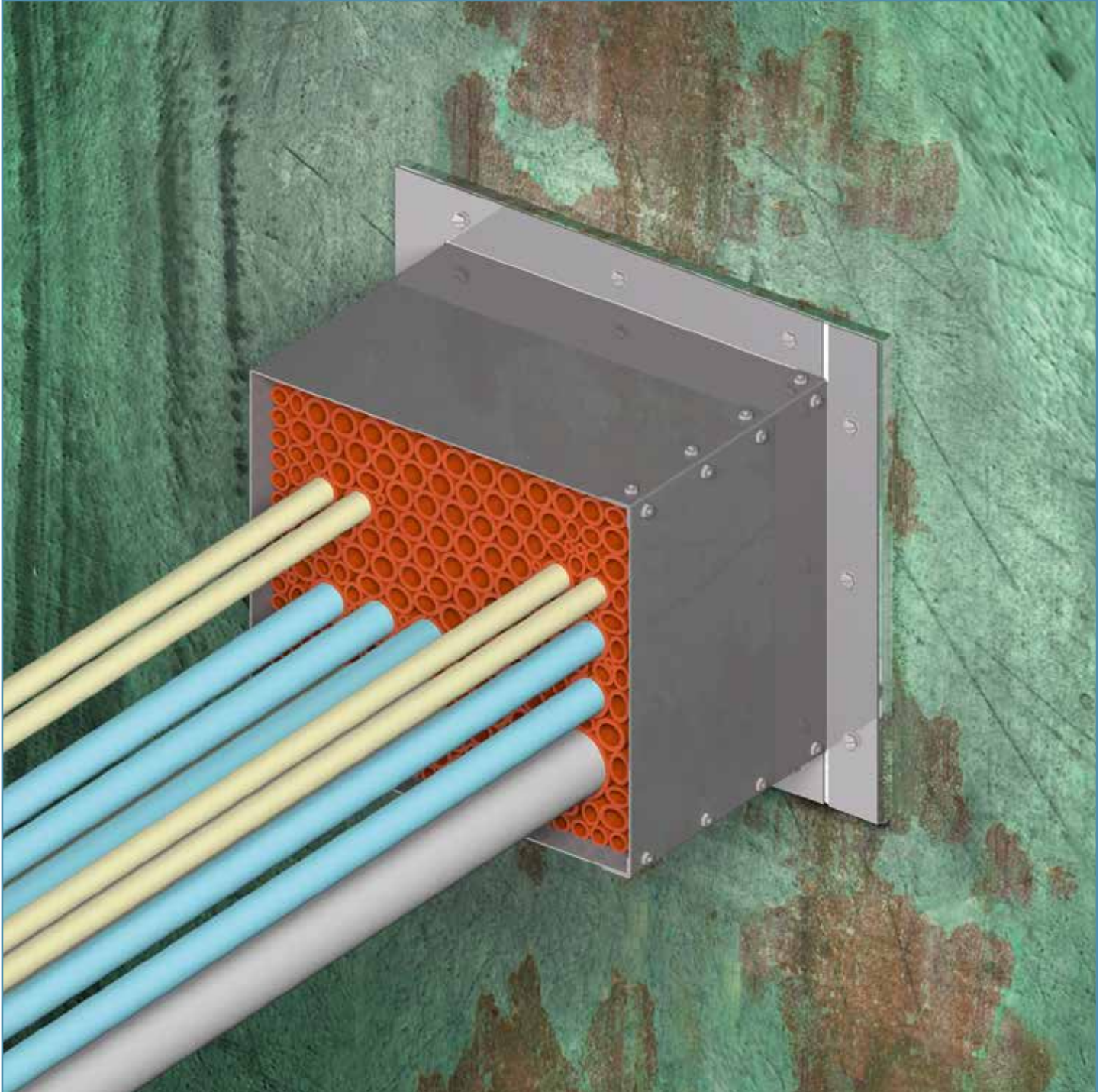
The two parts of the extender frame are bolted together and the assembled extender frame is then bolted on the flange of the existing transit.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



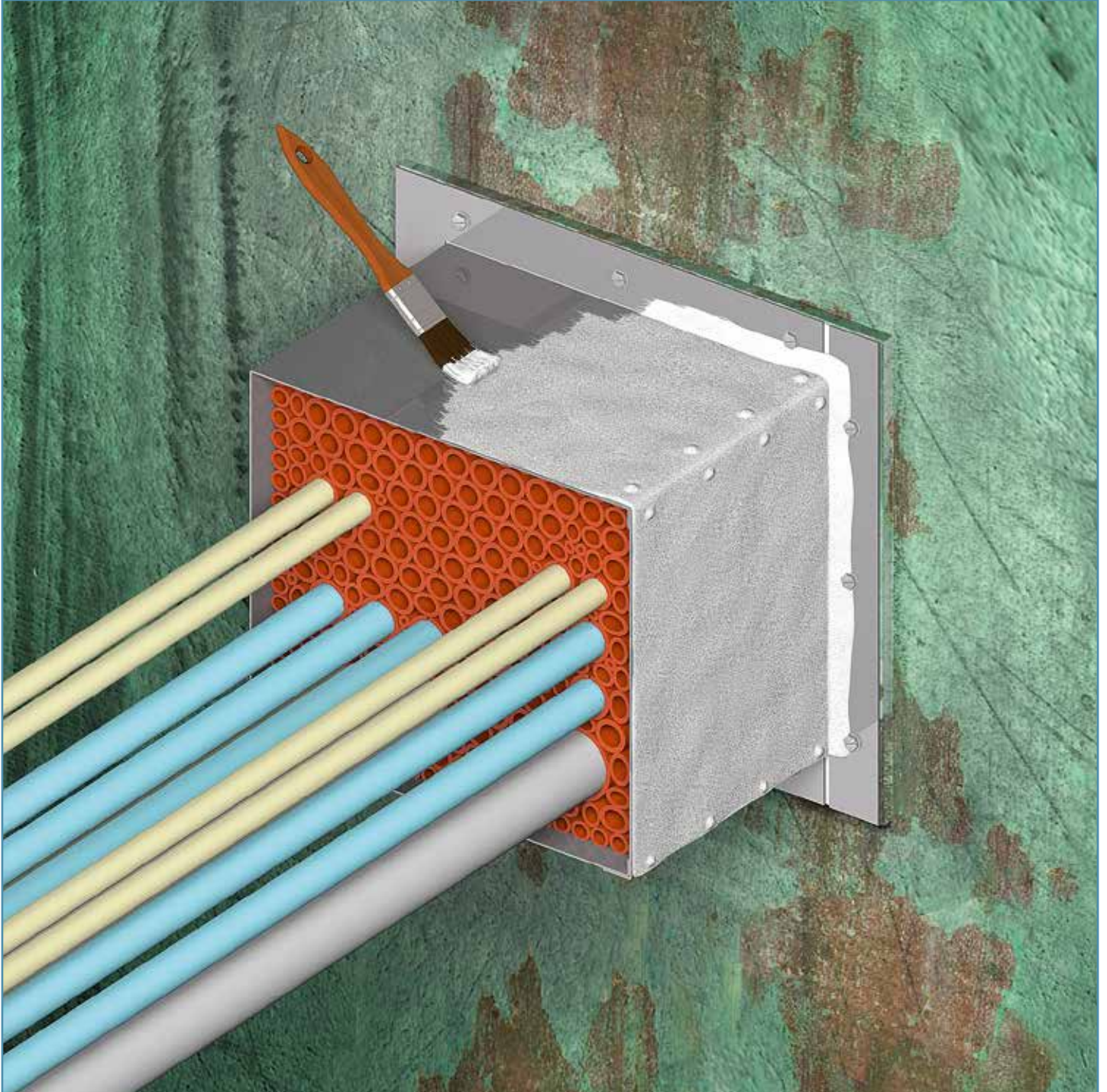
NOFIRNO® filler sleeves 15/8 with a length of 210 mm are installed all around in the gap between the existing and the extender frame. The objective is to offer sufficient thermal insulation to protect in case of fire the cables positioned very close to the external wall of the existing system to extreme heat.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



With a combination of NOFIRNO® filler sleeves sizes 15/8, 18/12 and 22/15 the free spaces inside the extender frame are filled.

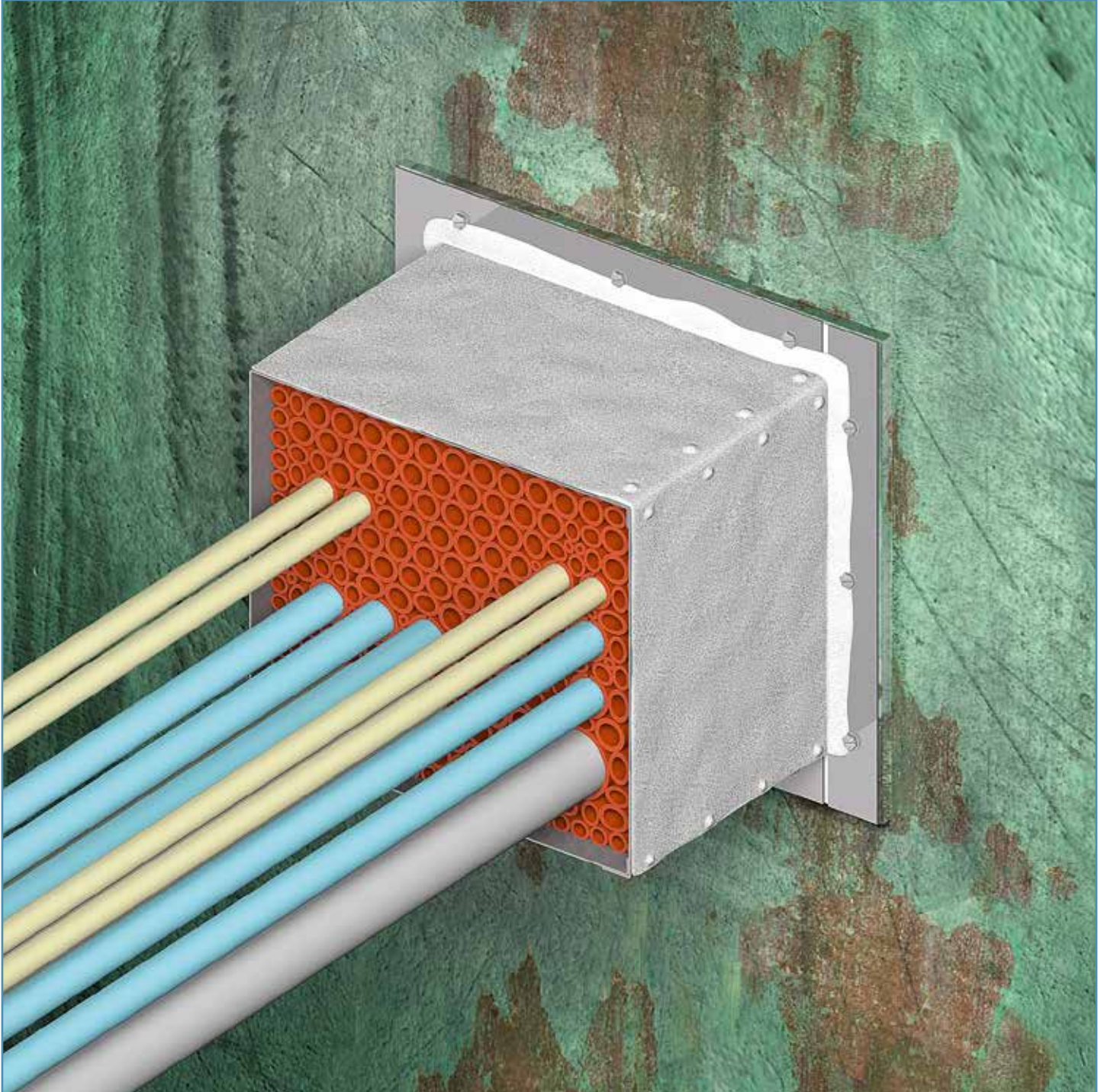
INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



The extender frame is coated all around with FISSIC® to prepare for gluing the FYLLOFYS® thermal insulation plates on the extender frame and partly on the flange.

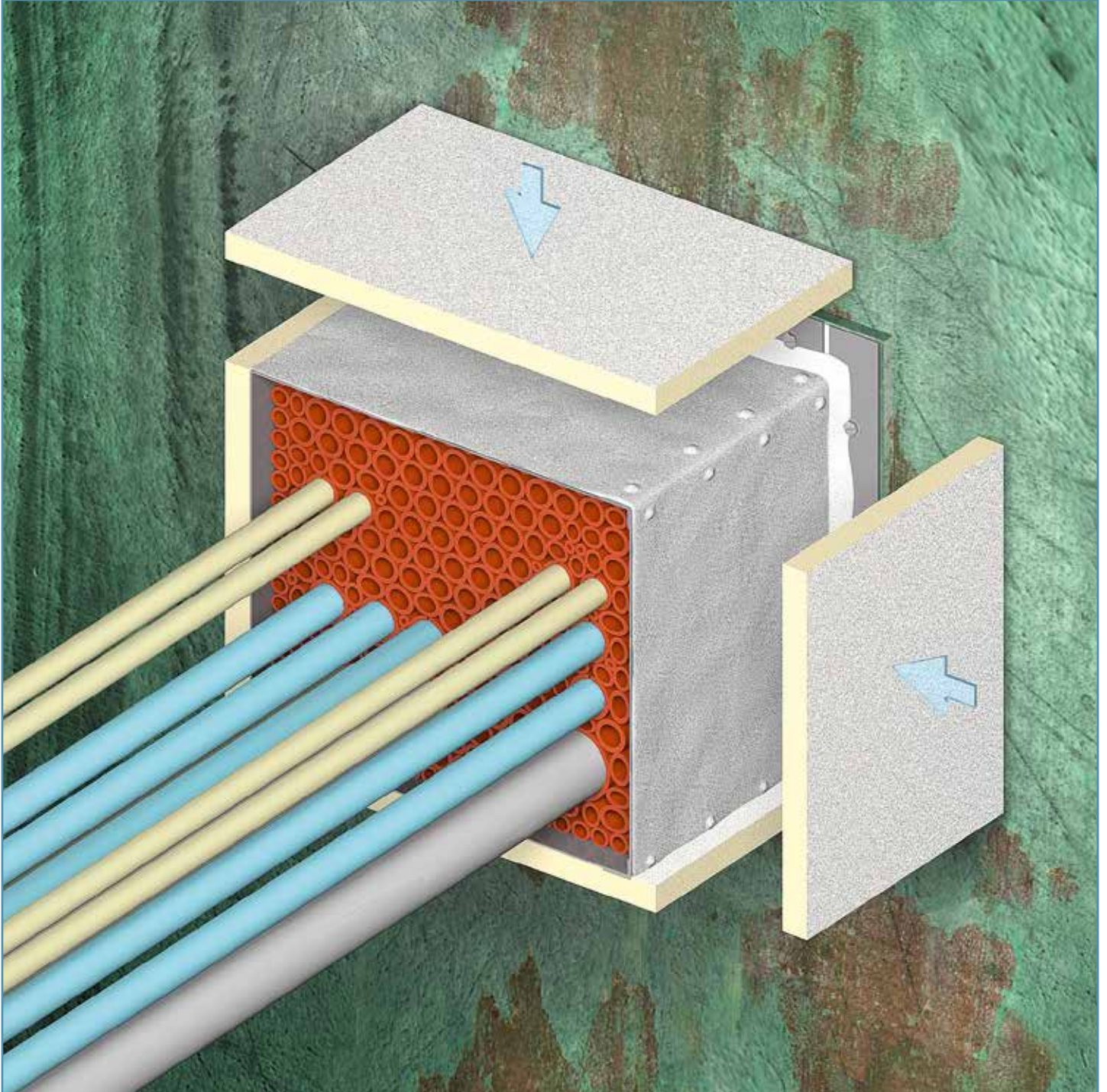
For gluing purposes the FISSIC® coating has to be wet when the FYLLOFYS® plates are placed.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



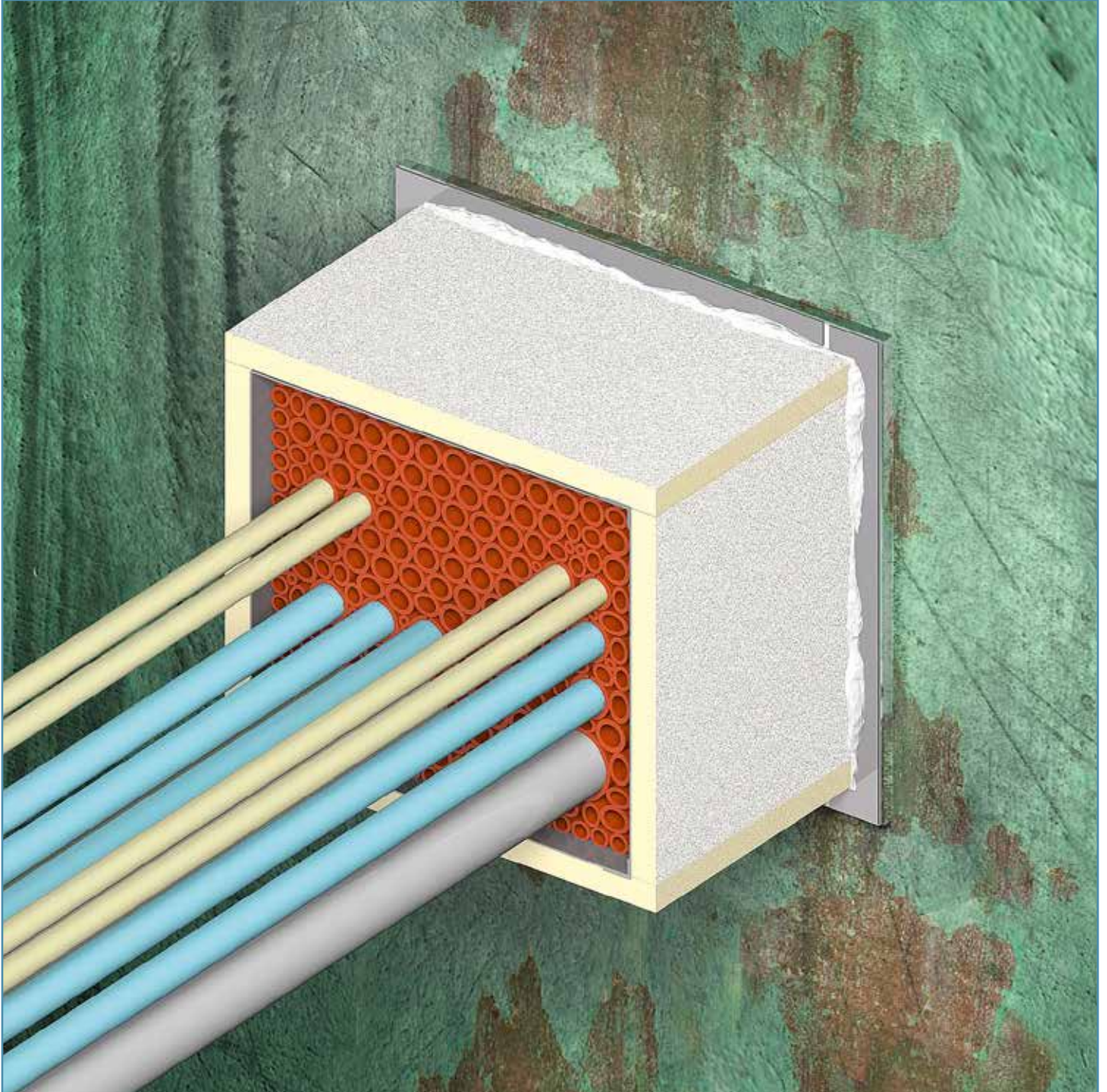
FISSIC® applied all around the extender frame.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



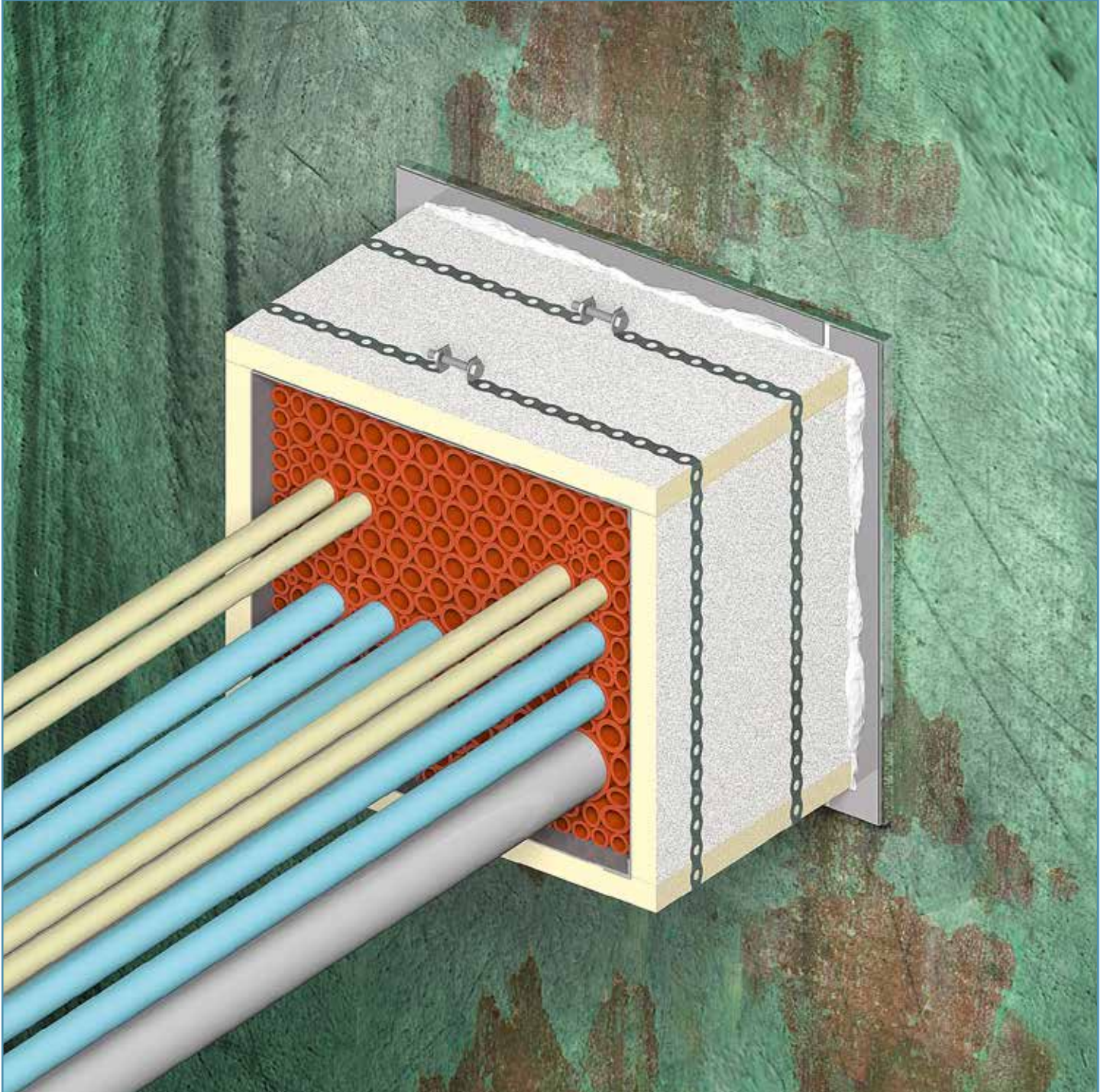
FYLLOFYS® plates should be cut to size before installation. FYLLOFYS® plates are already coated with FISSIC®. The FYLLOFYS® plates are pressed onto the wet FISSIC® coating.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



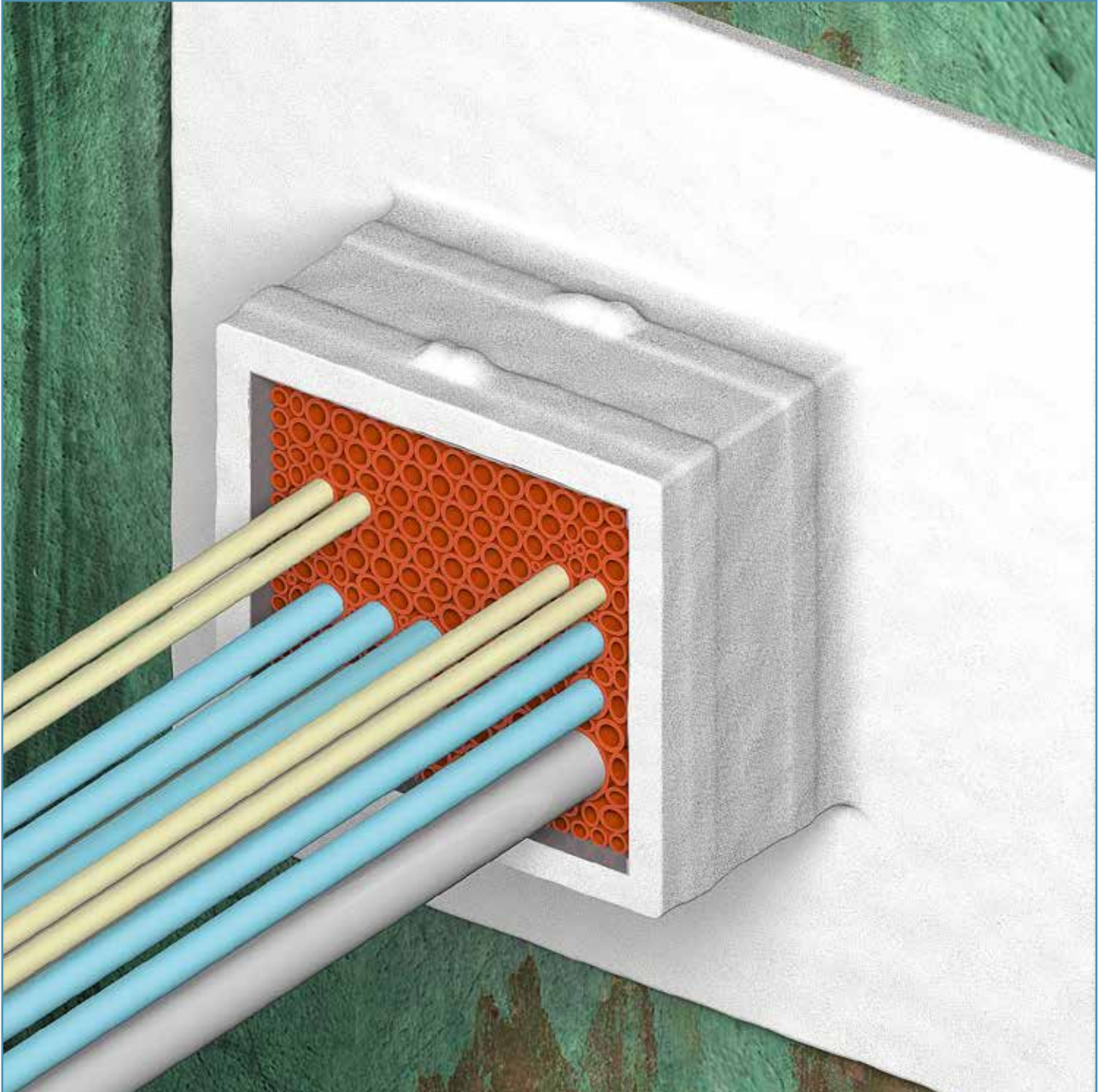
The FYLLOFYS® plates are 20 mm thick for this type of application in this way offering sufficient thermal insulation to prevent the thin stainless steel plating of the extender frame to get substantially deformed by fire exposure.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



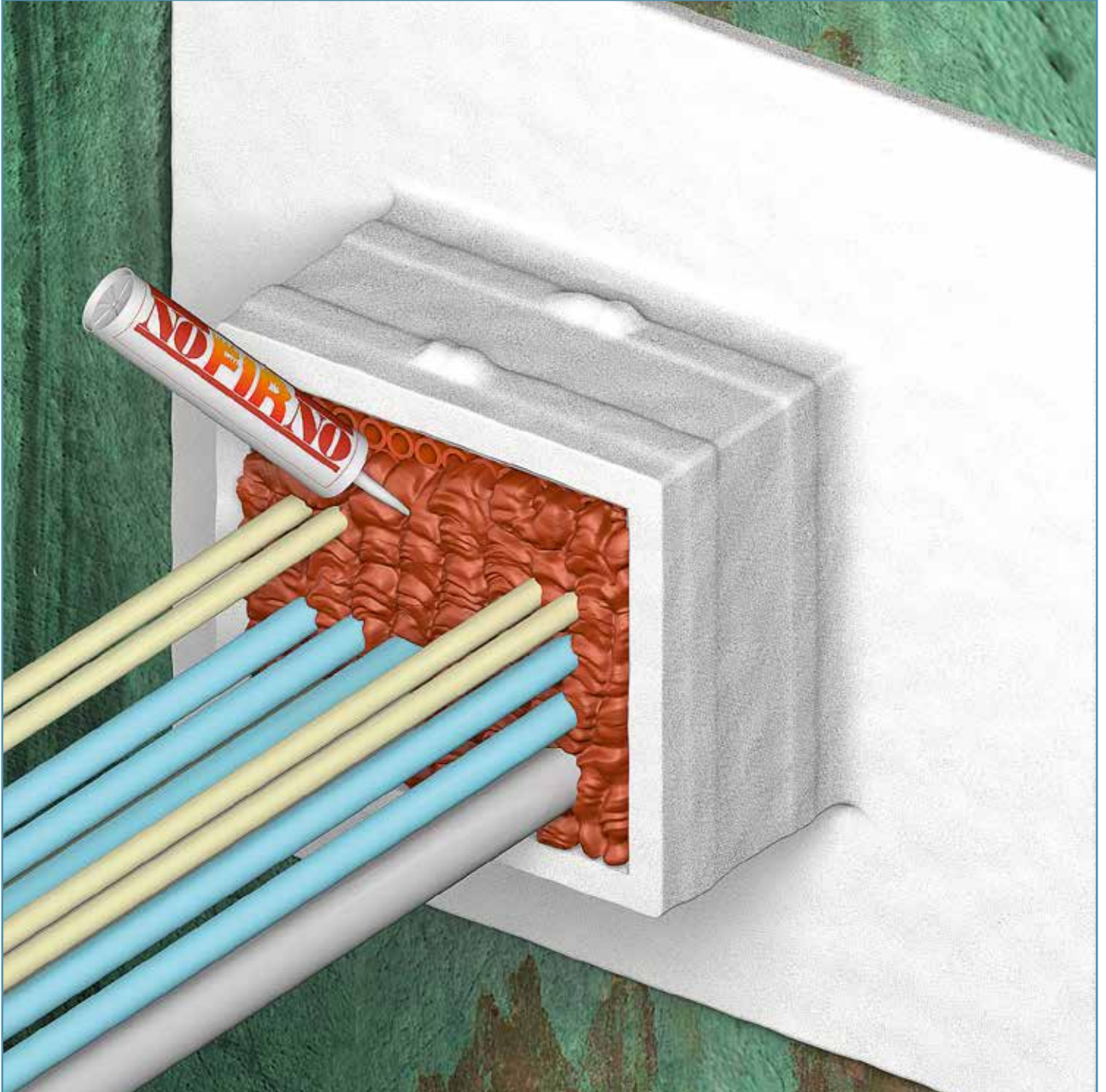
Steel bands are placed around the the FYLLOFYS® plates because the thin stainless steel plating will not be strong enough to cope with the expansion occurring inside the sealing system under fire exposure.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



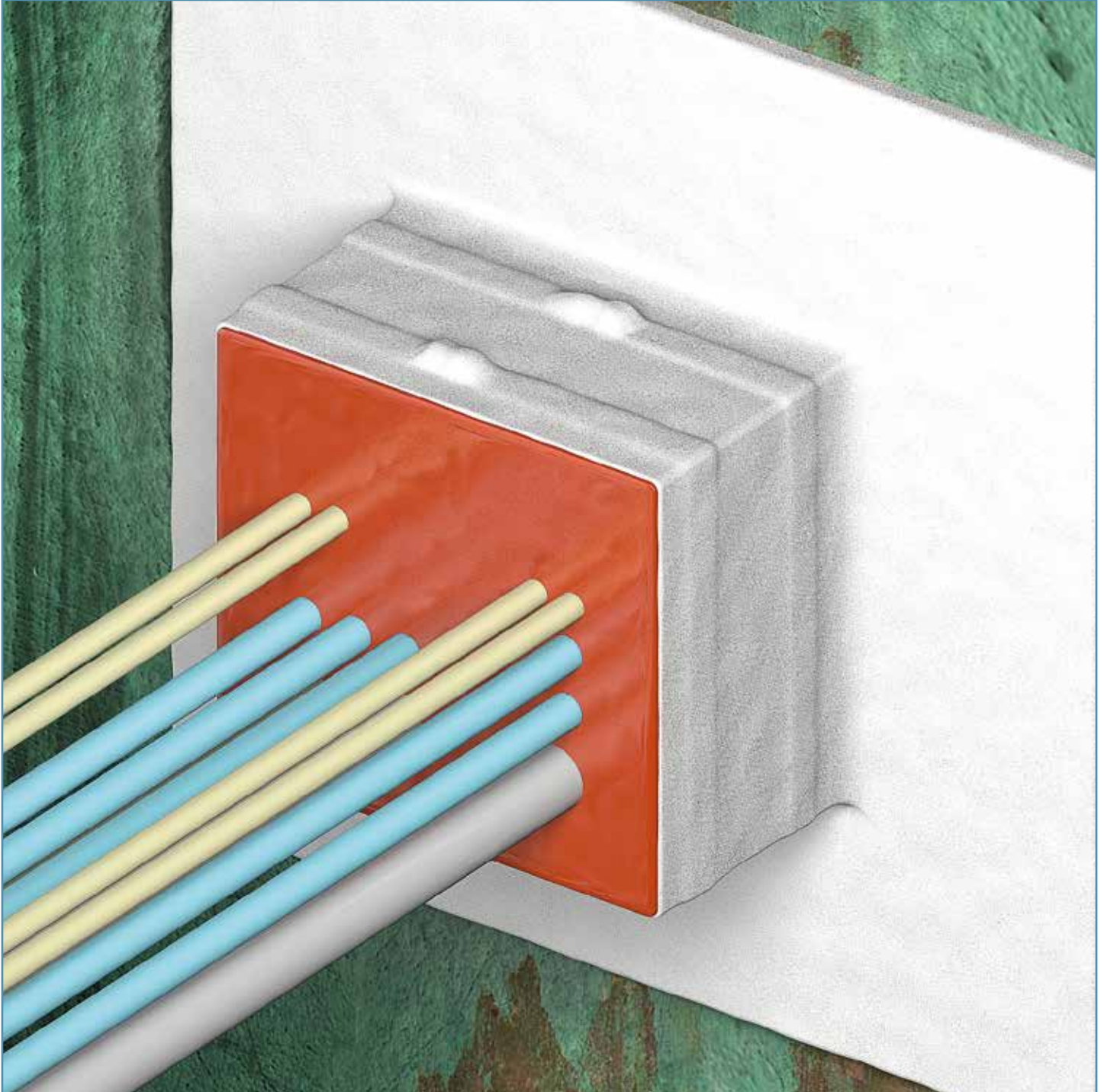
Finally 3 mm FISSIC® coating is applied all over the FYLLOFYS® plates and the steel bands. To prevent excessive (radiation) heat close to the existing sealing system at the unexposed side a 20 mm thick layer of FISSIC® coating should be applied 200 mm around the existing cable transit system at the exposed side.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



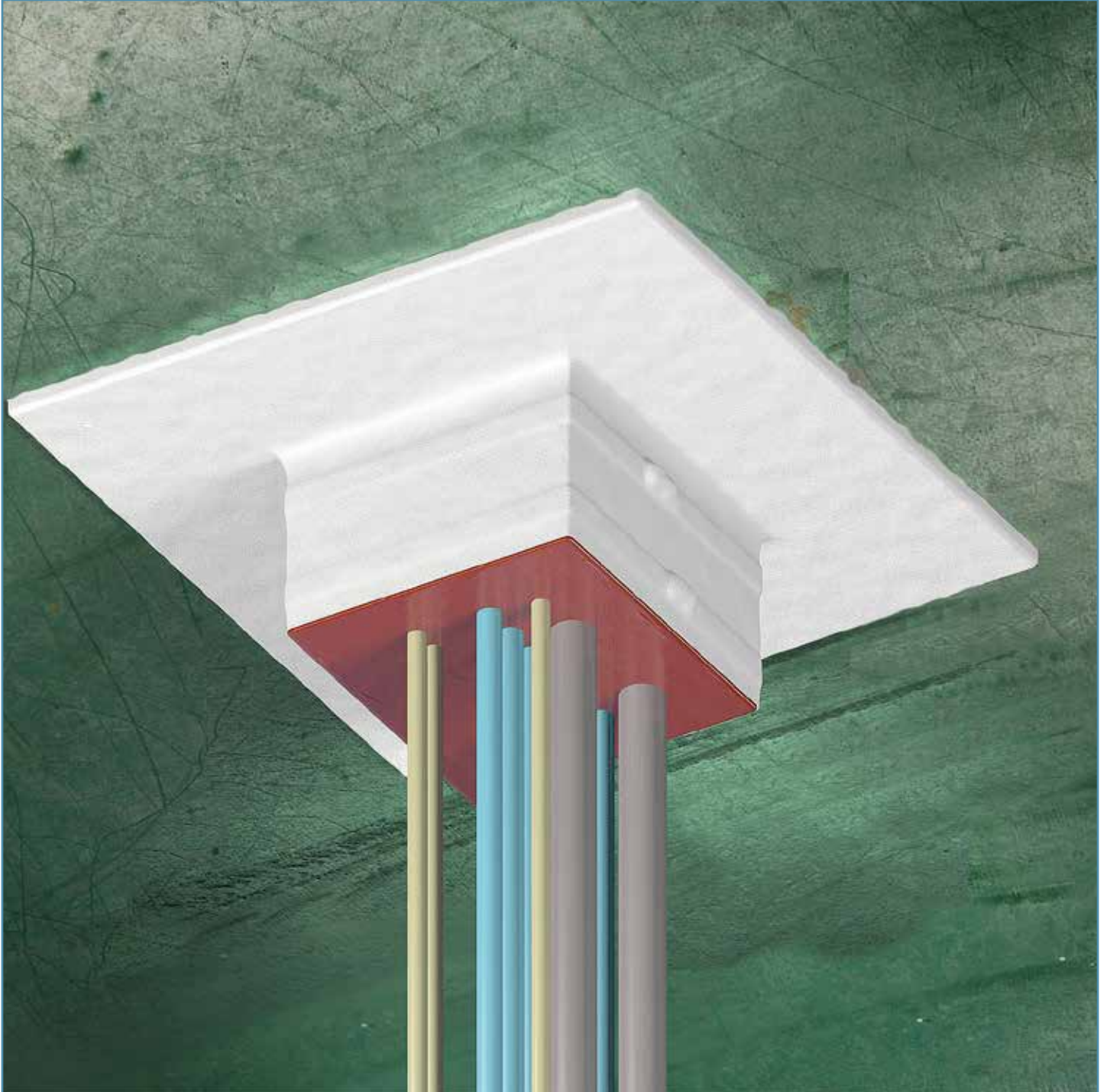
A 20 mm layer of NOFIRNO® sealant is applied to seal the penetration.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



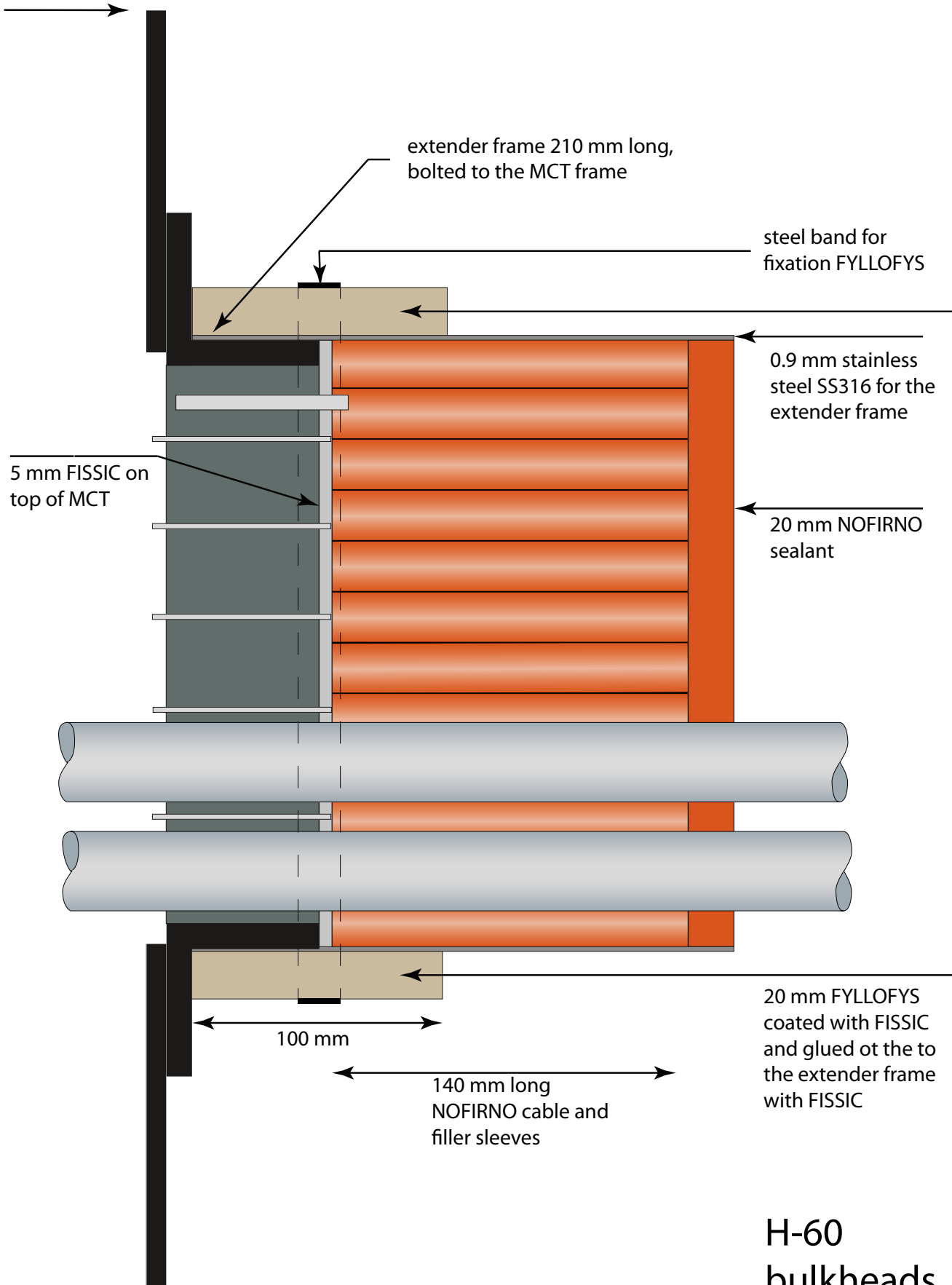
The front side of the FYLLOFYSS® plates is covered with ca. 5 mm sealant.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-O AND JET FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



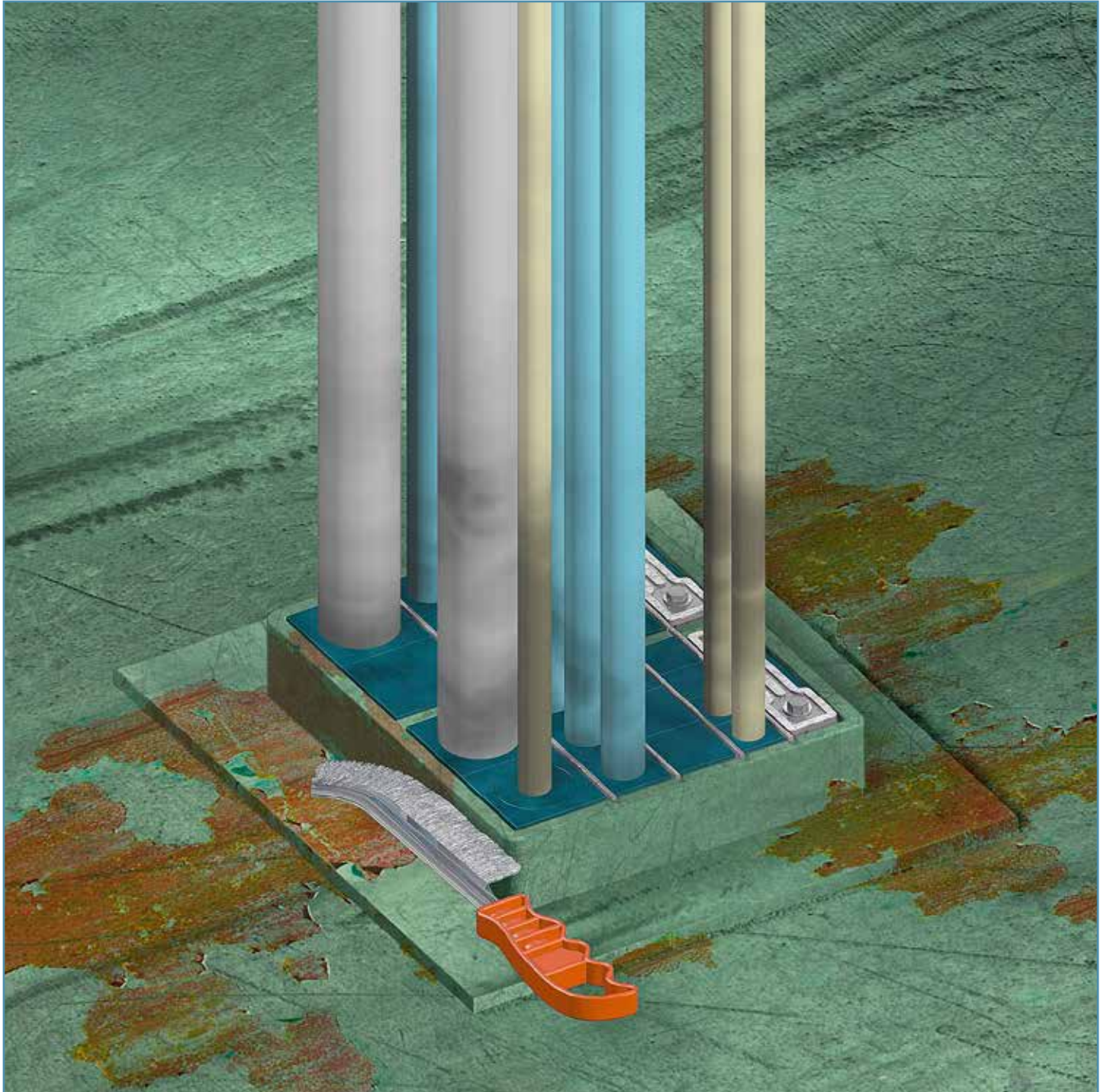
The NOFIRNO®/FISSIC® upgrading system can also be used for existing systems below deck. The system has been tested at the exposed side of the deck and bulkhead both for H-0 and Jet Fire exposure.

FIRE SIDE
→



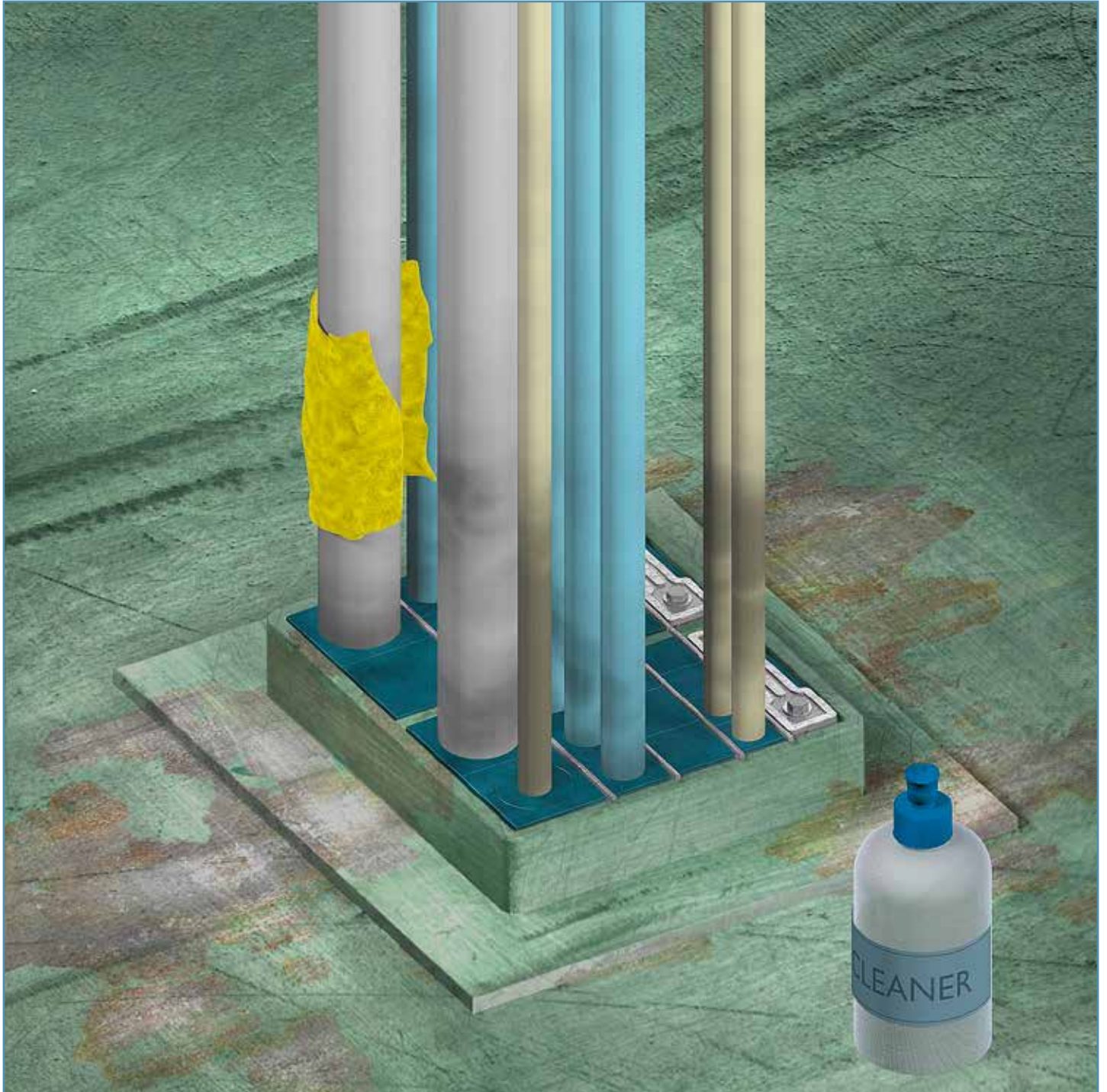
H-60
bulkheads
and decks

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



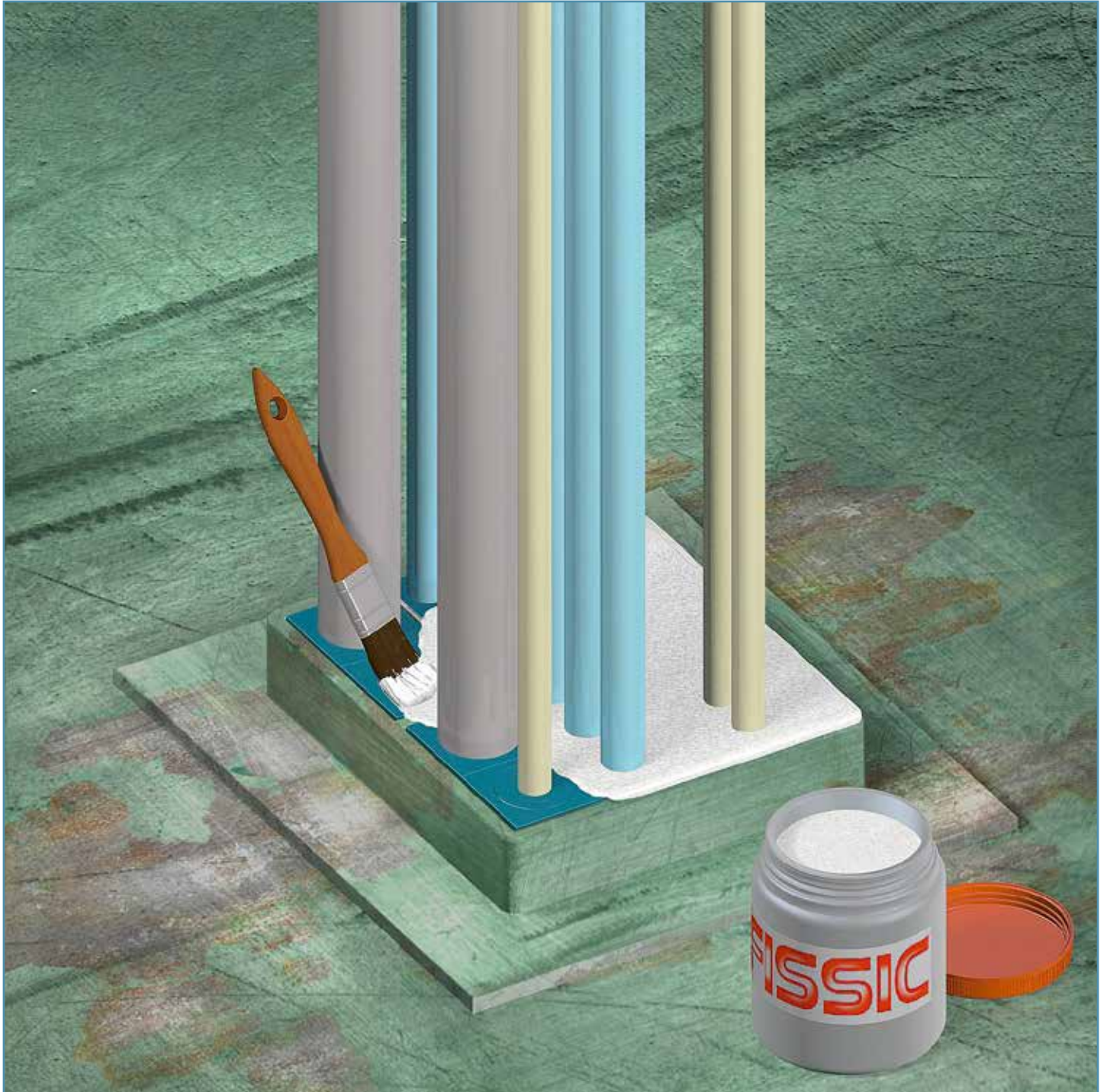
The NOFIRNO®/FISSIC® system has been tested at the unexposed side of H-0 and at the exposed side of insulated H-60 class partitions without the use of FYLLOFYS® thermal insulating plates. For H-60 class with the system at the unexposed the same system is used only FYLLOFYS® plates are applied to avoid a temperature rise of 180 °C on the casing 25 mm above the partition.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



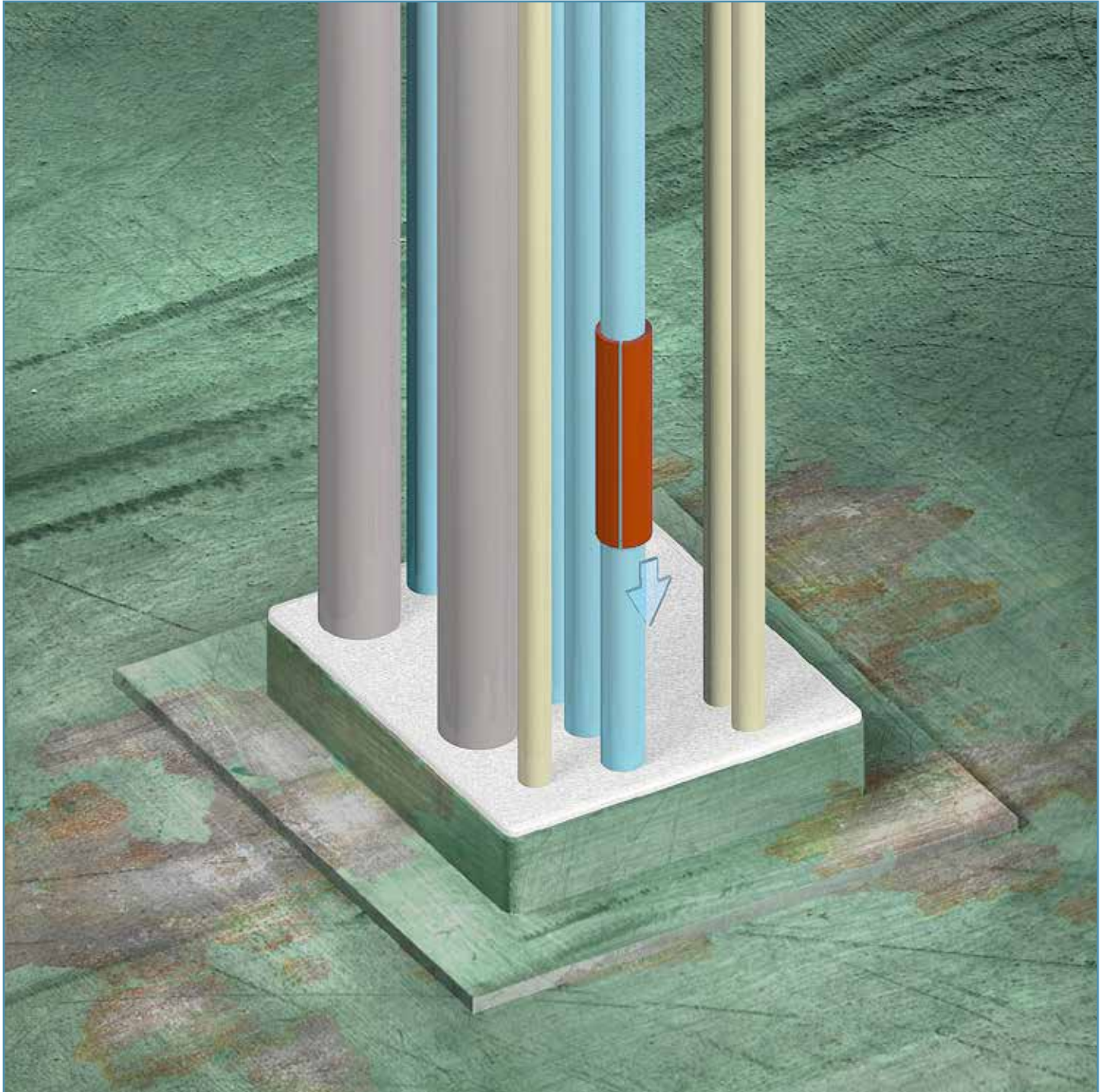
Cleaning the cables and the surface of the existing system.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



Applying a 5 mm thick layer of FISSIC® coating on top of the existing system.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



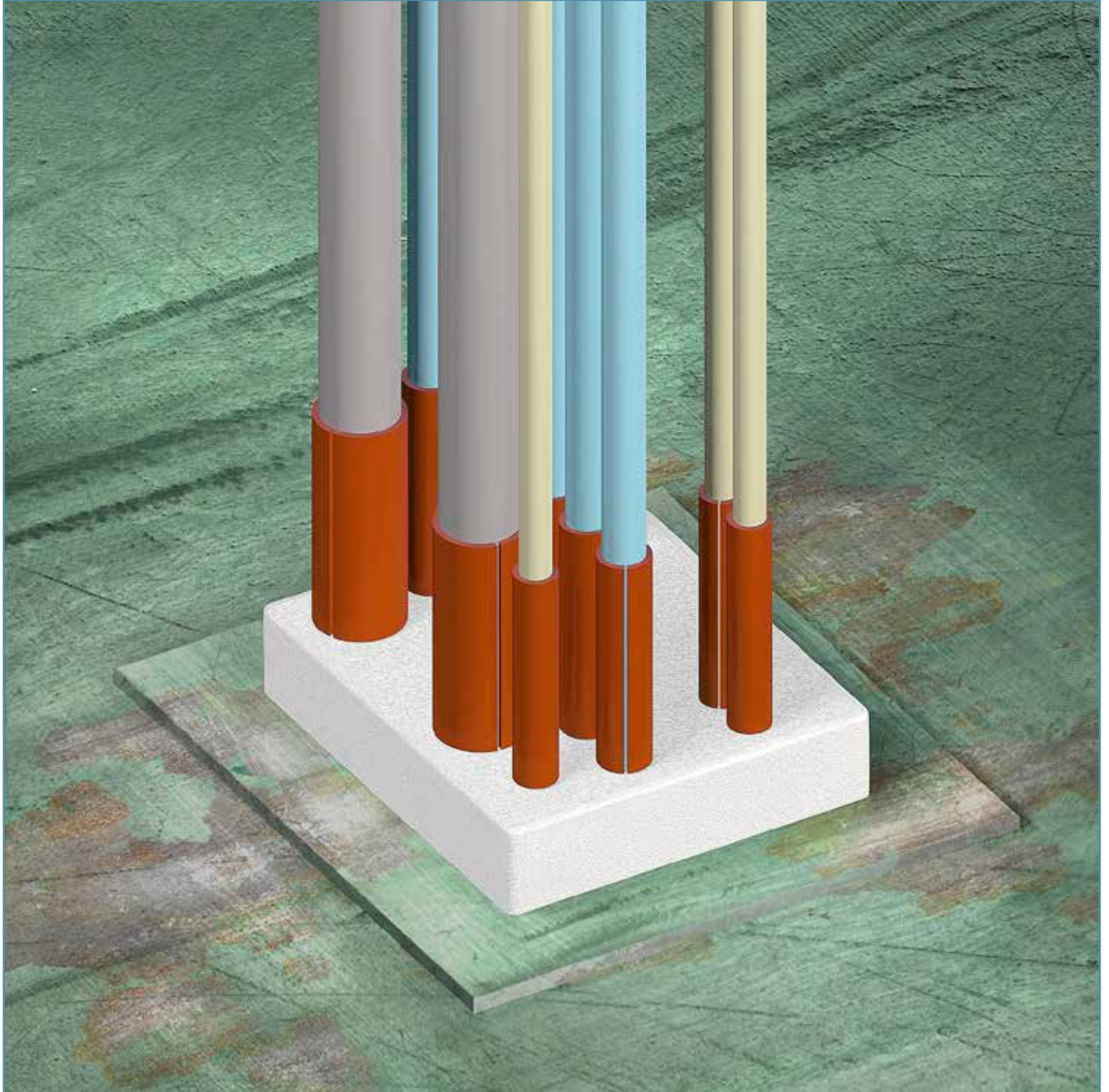
NOFIRNO® sleeves are applied around the ducted cables.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



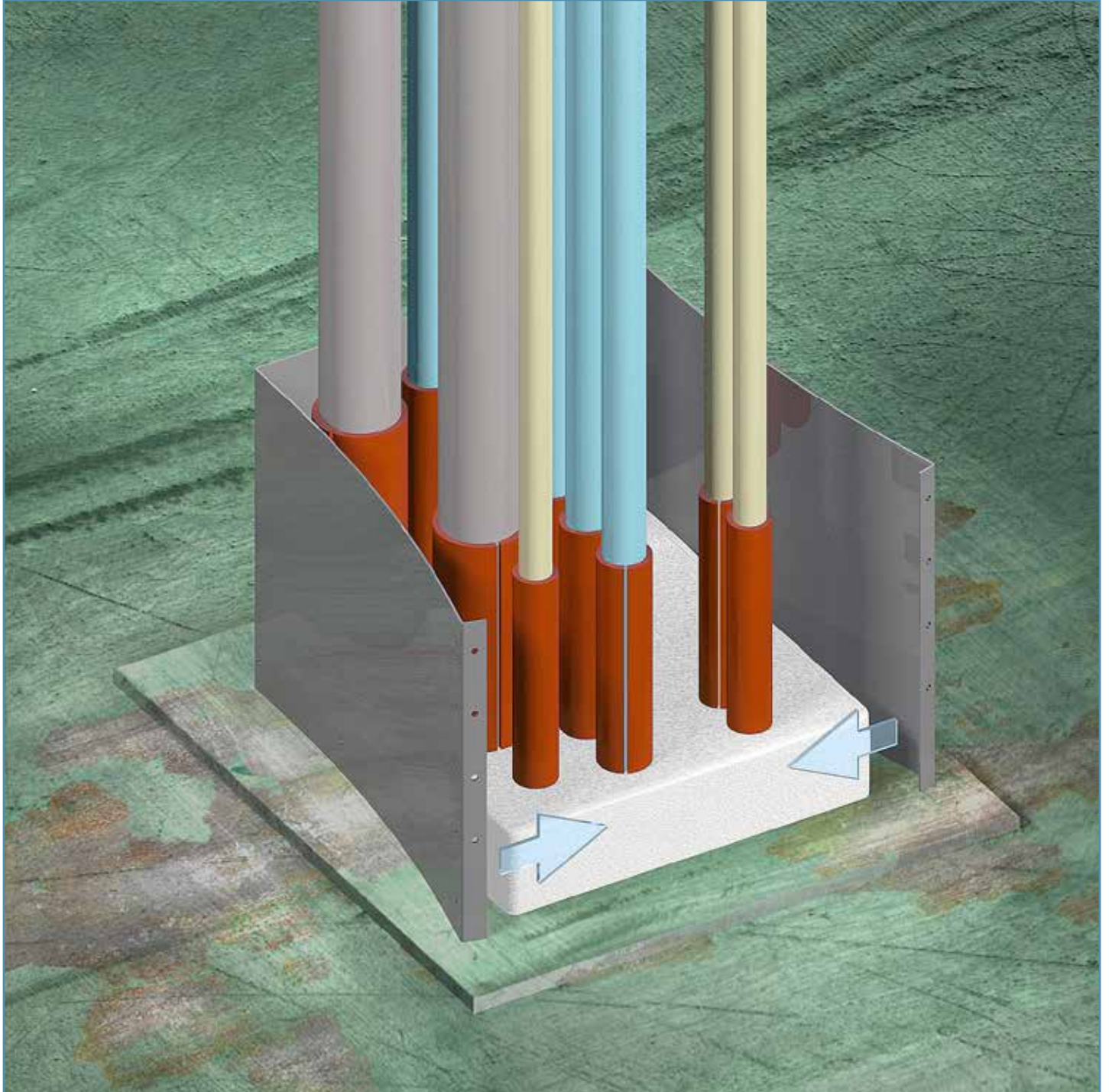
Applying FISSIC® around the existing transit to glue to extender frame against the wall of the existing transit.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



This installation is a bit different from the installation of the NOFIRNO®/FISSIC® system developed for full exposure to the fire. The extender frame will be fixed directly to the existing transit frame.

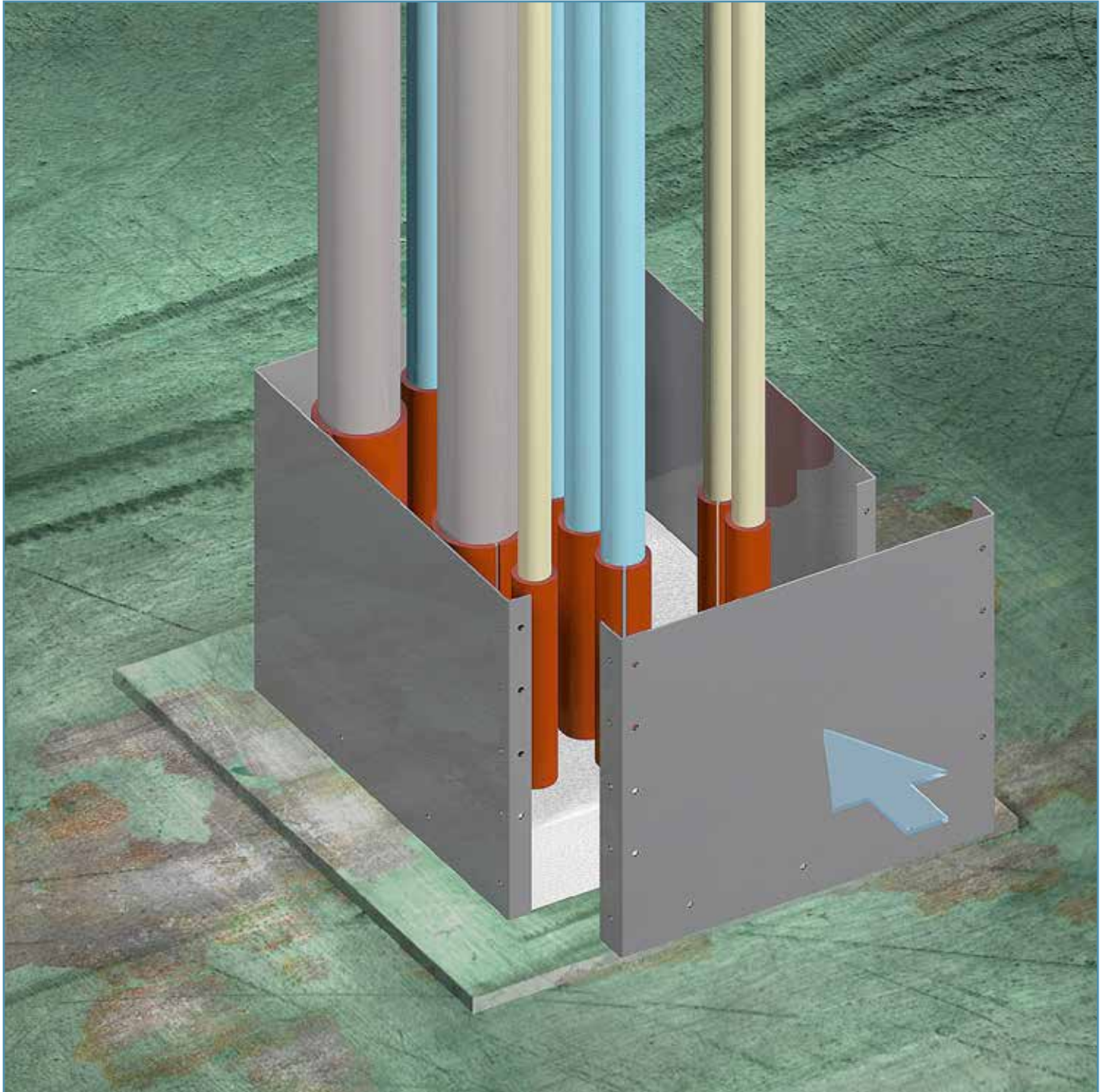
INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



The extender frame has no flanges.

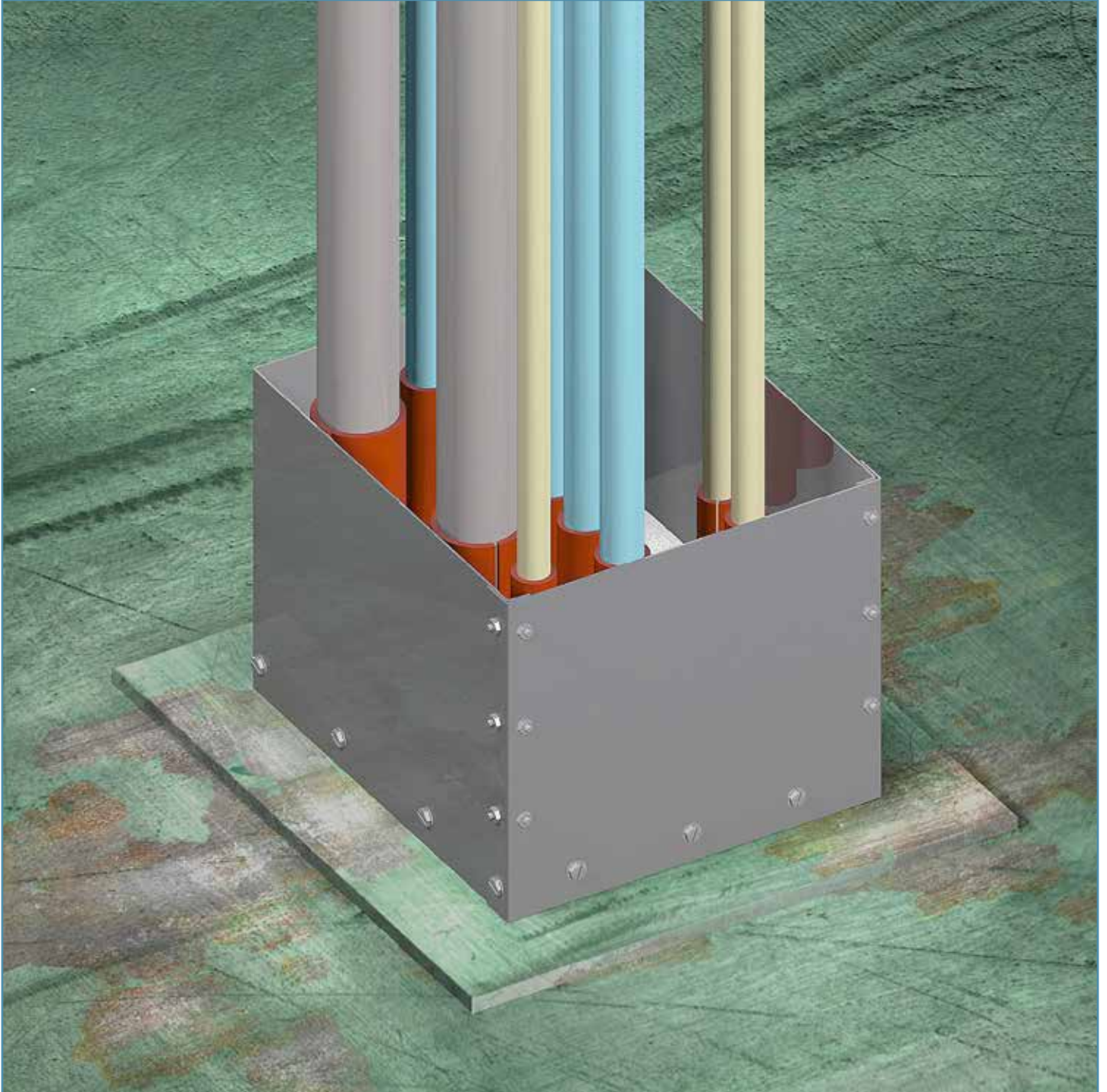
Note: to obtain sufficient tightness between the extender frame and the wall of the existing transit frame the FISSIC® coating should be wet when the extender frame is placed.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



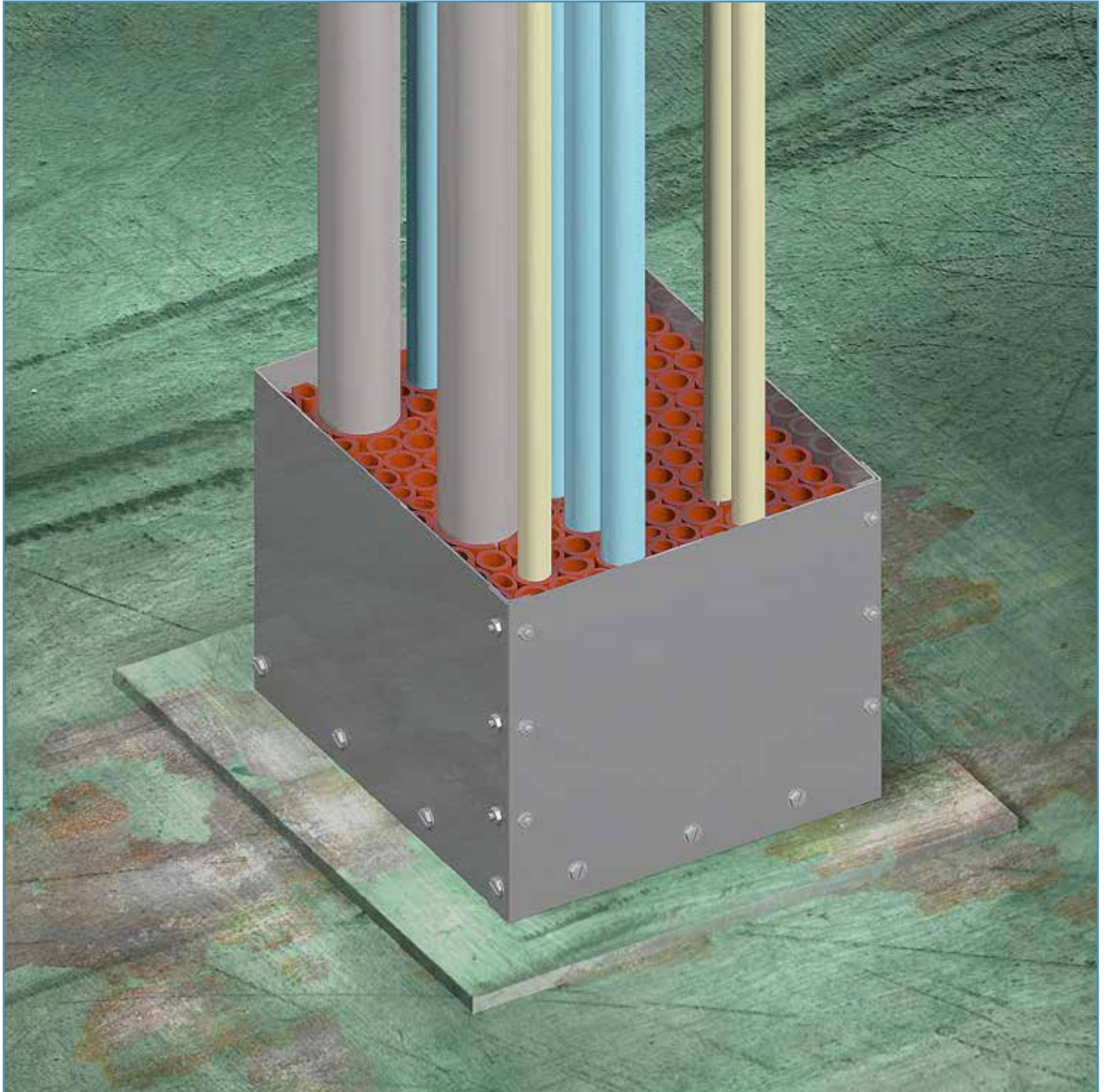
The closure has also no flange.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



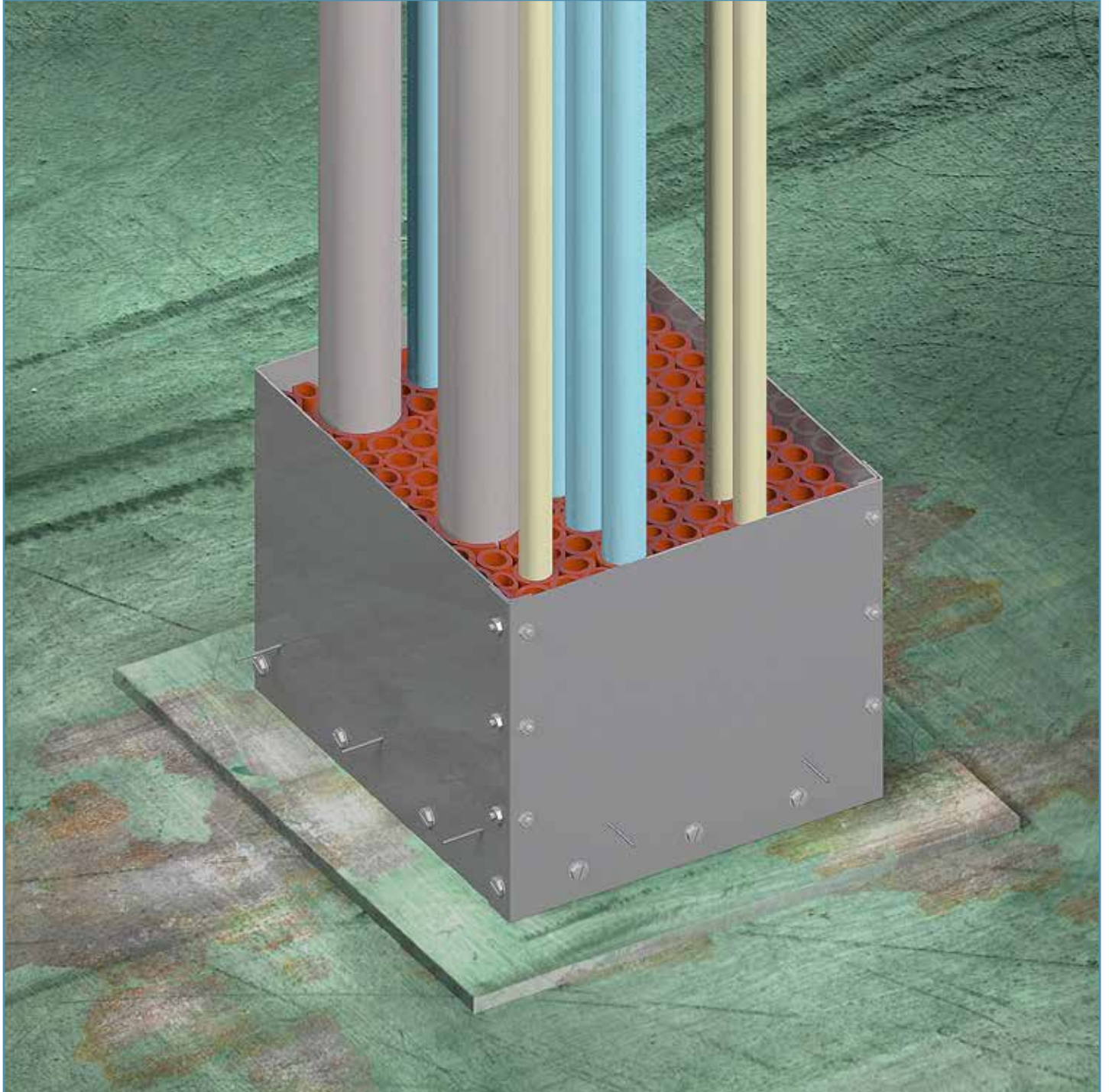
The two parts of the extender frame are bolted together and the extender frame is then bolted to the existing transit frame.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



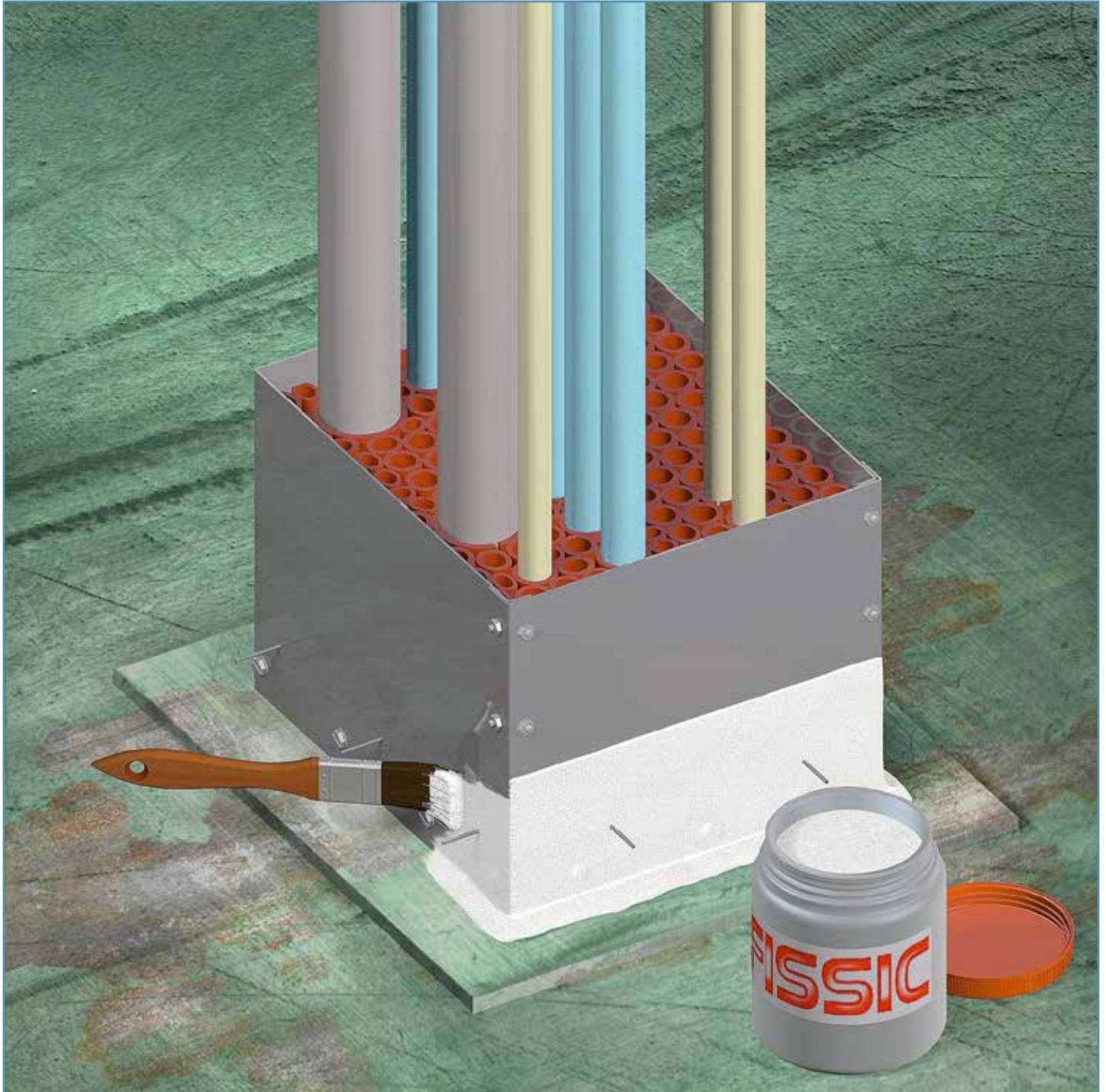
With a combination of NOFIRNO® filler sleeves sizes 15/8, 18/12 and 22/15 the free spaces inside the extender frame are filled.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



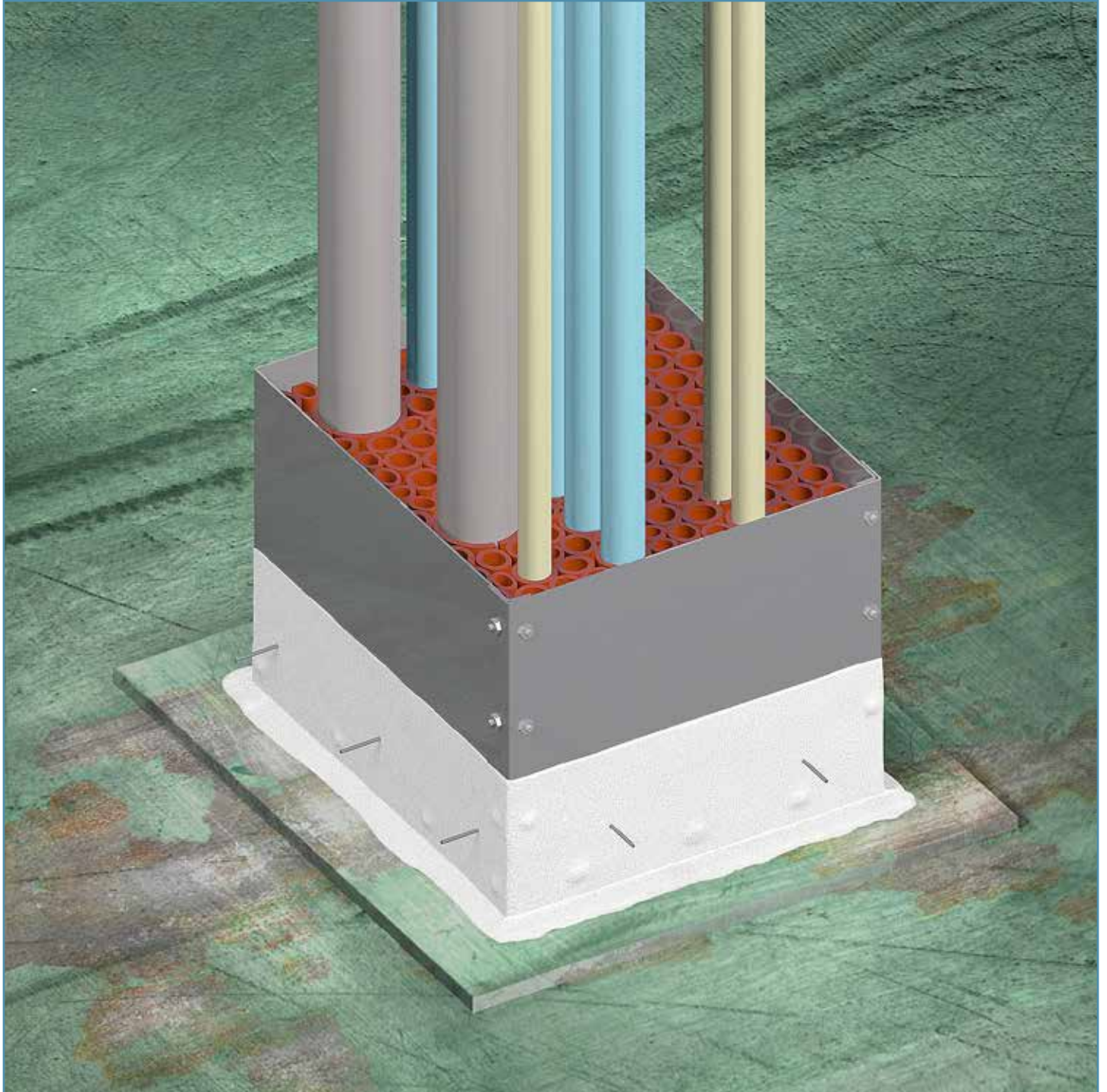
To attach the FYLLOFYS® plates around the extender frame, pins as generally used for fixing mineral wool insulation, are fixed on the extender frame.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



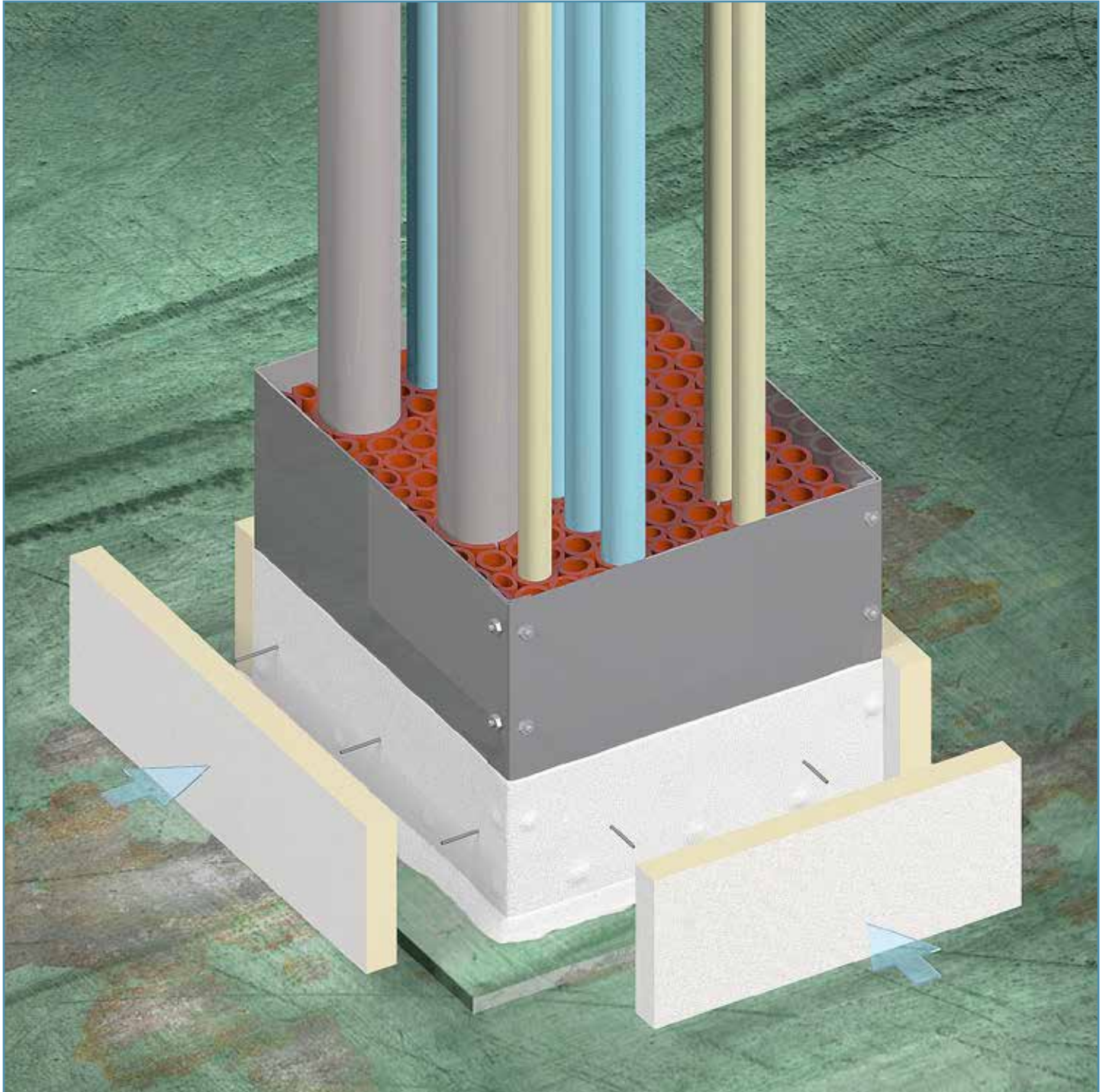
FISSIC® coating is applied to glue the FYLLOFYS® thermal insulation plates against the extender frame.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



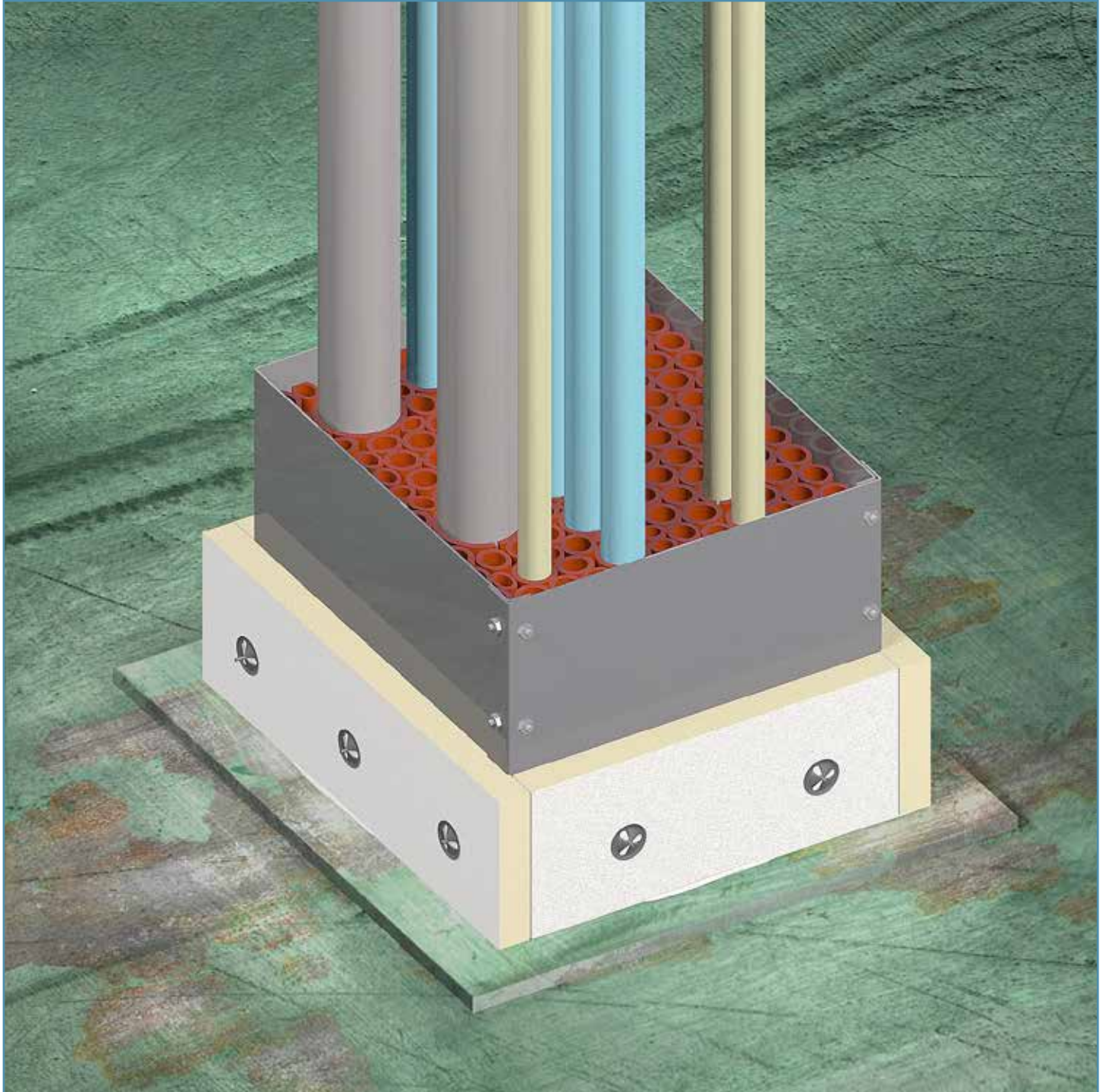
The coating has to be wet when placing the FYLLOFYS® plates.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



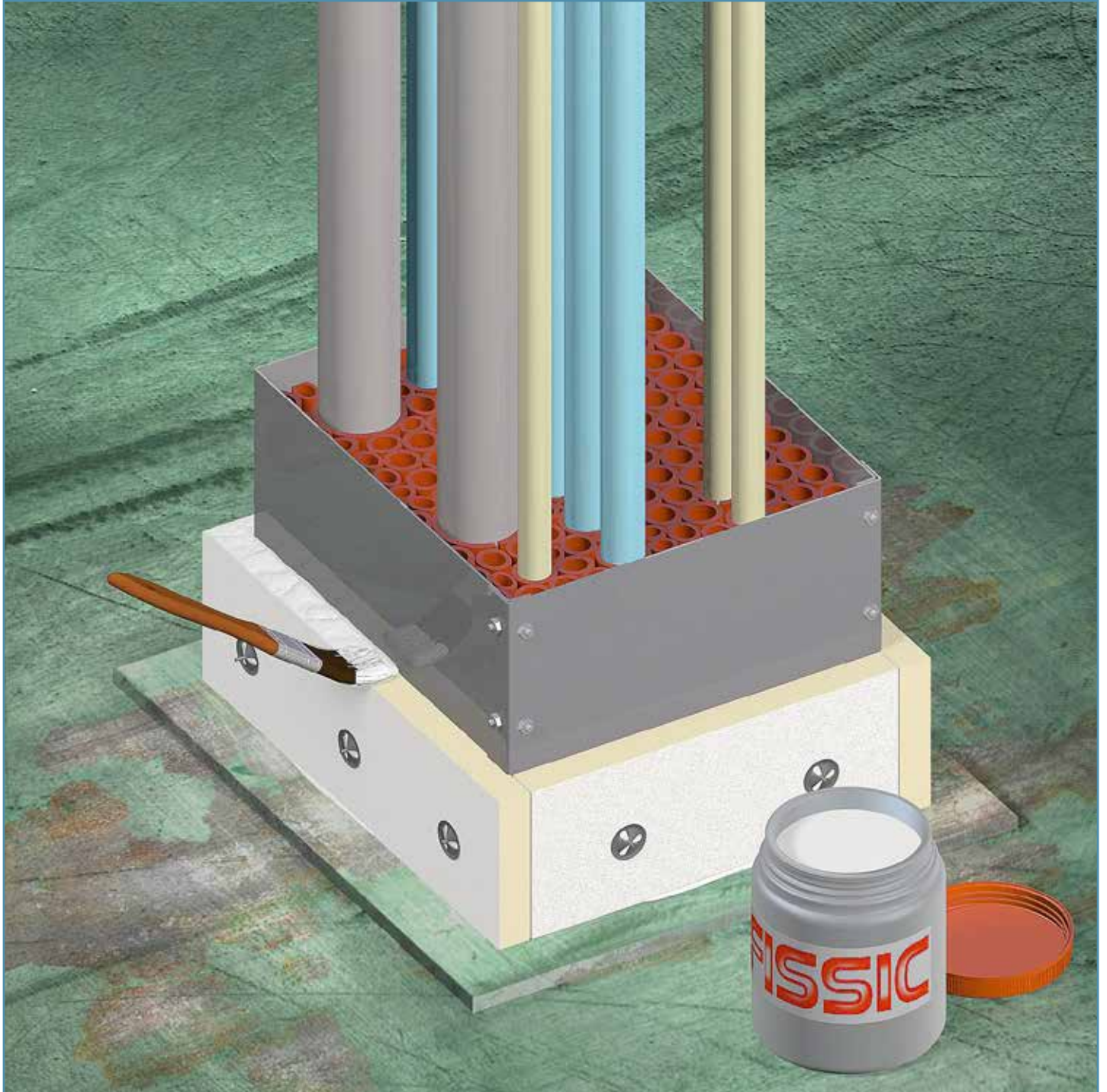
The FYLLOFYS® plates are only 100 mm high and should be cut to size on beforehand.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



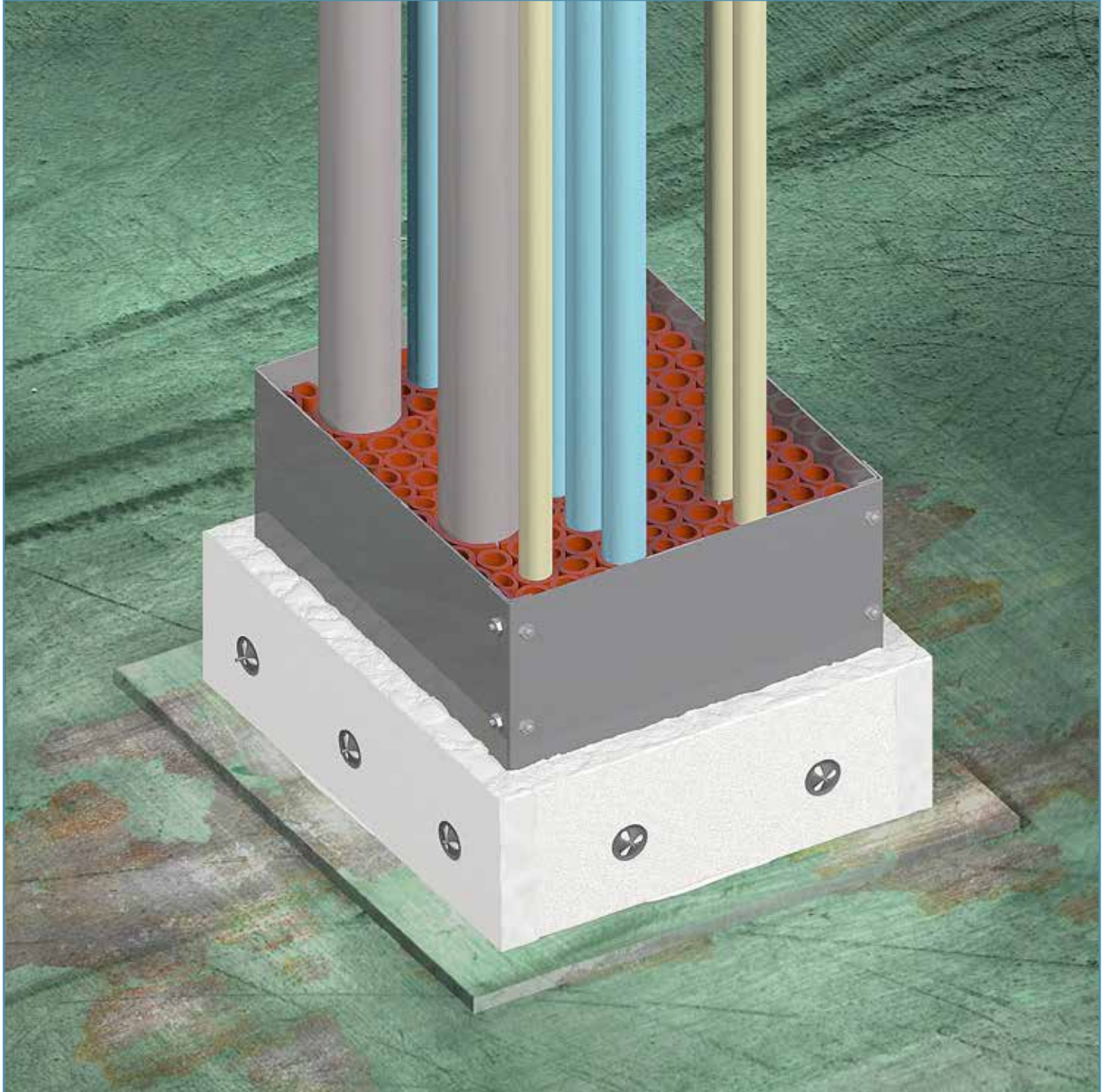
The discs are placed over the pins to attach the FYLLOFYS® plates.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



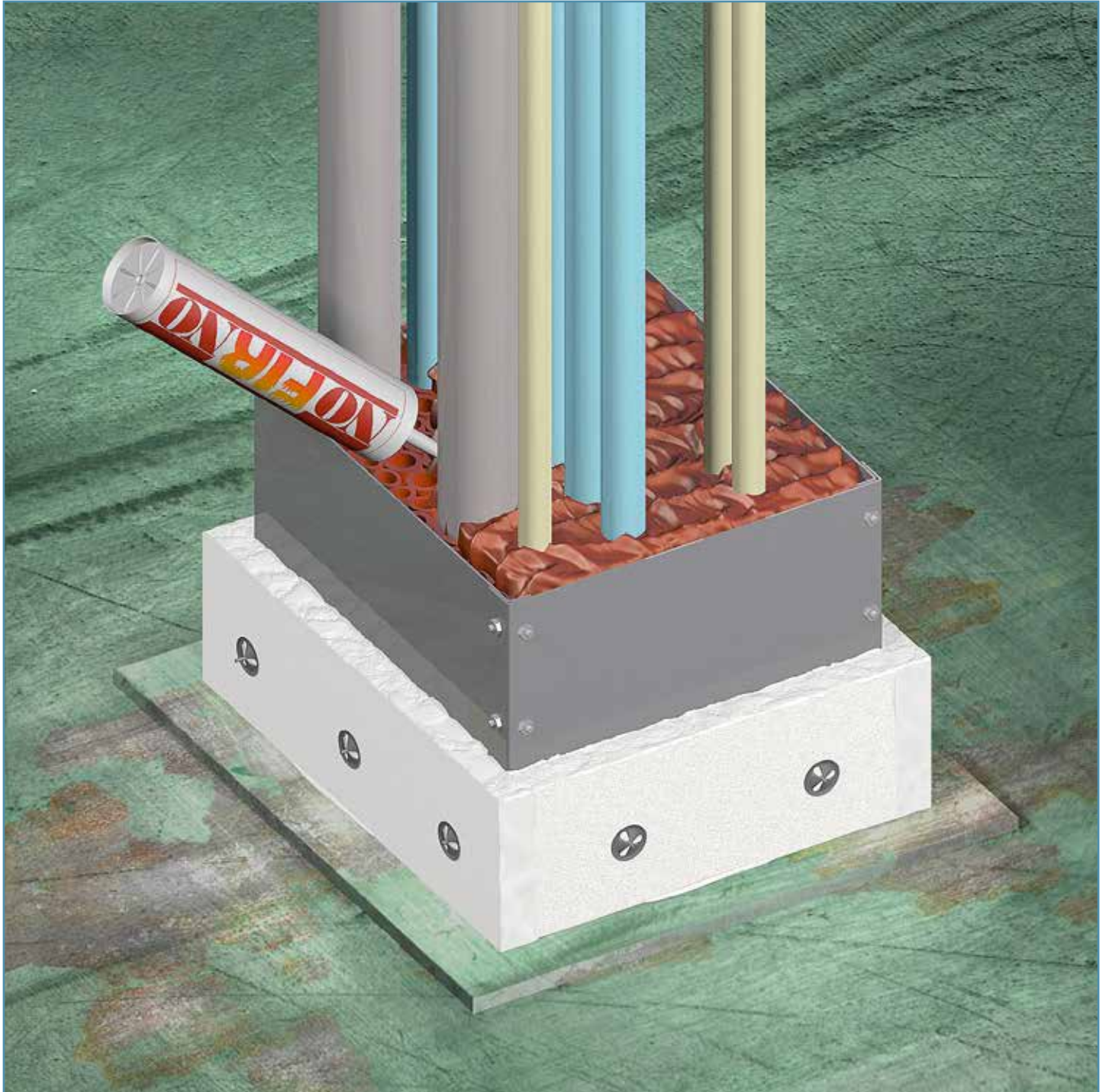
It is important to coat the edges of the cut FYLLOFYS® plates to protect against moisture absorption.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



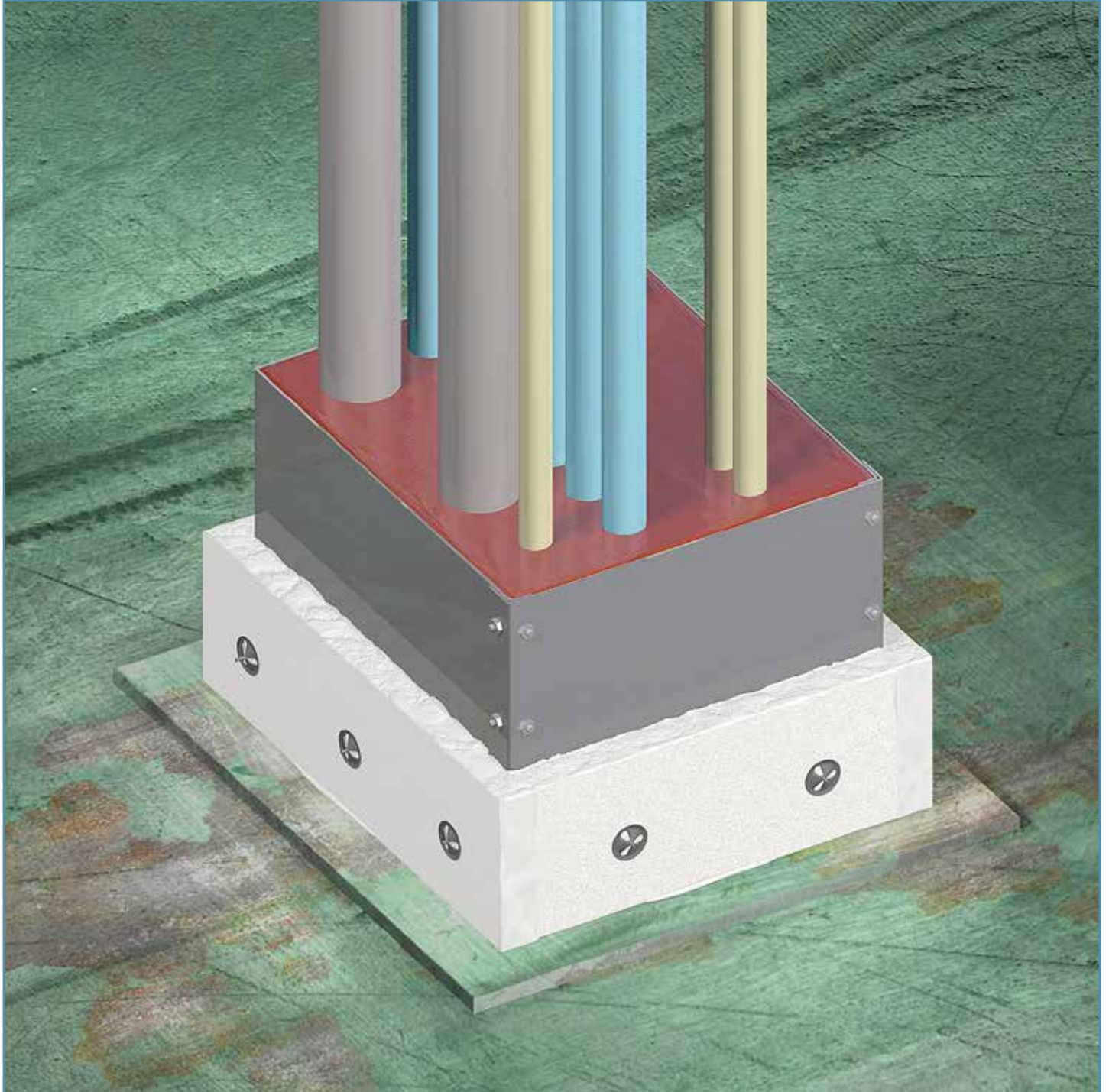
The finished thermal insulation around the extender frame.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



Then the sealing system is finished by applying the sealant.

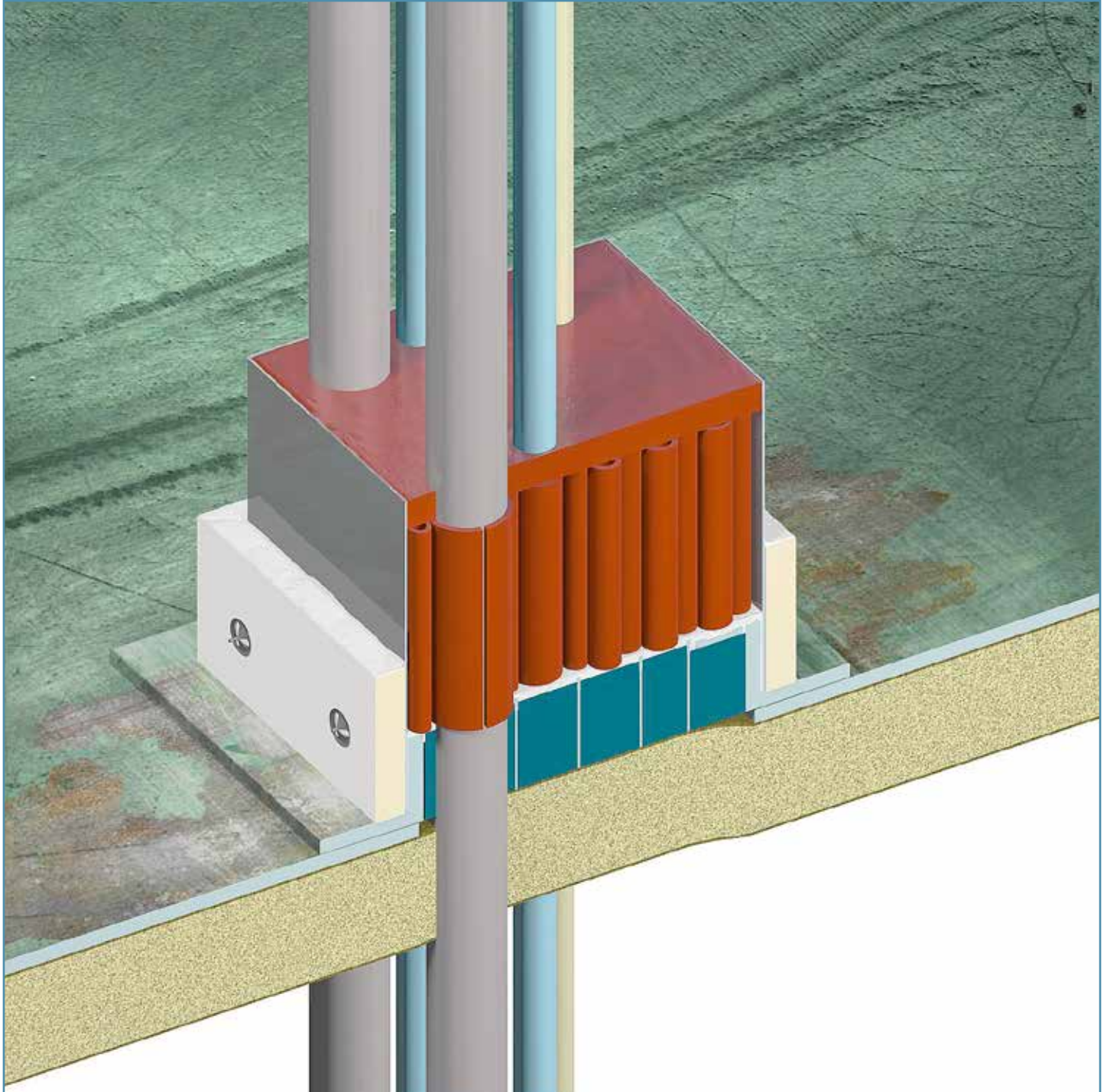
INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



The finished H-60 transit at the unexposed side of the deck.

Note: although the system is tested without FYLLOFYSS® plates for H-0 transits at the unexposed side, it is recommended to apply the FYLLOFYSS® plates also for H-0 to obtain optimum performance.

INSTALLATION INSTRUCTIONS FOR NOFIRNO® H-60 FIRE CLASS FOR EXISTING MULTI-CABLE TRANSITS



The H-60 system with the H-class insulation at the exposed side.
The NOFIRNO®/FISSIC® system is also tested at the exposed side of H-60 class partitions. In this case the extender frame should be totally insulated with the used H-class insulation. FYLLOFYS® is then not needed.

STATE-OF-THE ART MULTI-CABLE TRANSIT SEALING SYSTEMS

The logo for RISE, featuring the word "RISE" in a stylized, bold, red font with a white outline and a slight shadow effect.The logo for RISE, featuring the word "RISE" in a stylized, bold, red font with a white outline and a slight shadow effect.

#CONDUCTION

The logo for NOFIRNO, featuring the word "NOFIRNO" in a bold, orange font with a white outline. The letters "FIR" are replaced by a stylized flame graphic.

CONTROFIL
MULTI-CABLE TRANSITS

CET-A-SIL

RISE®

- For fire, gas, smoke and watertight sealing of multi-cable penetrations.
- Compact system. No precise fitting parts.
- No metal parts, no corrosion.
- Most cost-effective way of installation.
- No pre-engineering or special conduit frames.
- No restrictions on cable types and sizes, no insulation in front of the penetration needed.
- Adding or removing cables an easy matter.
- RISE® EXTEND-A-FRAME for upgrading block systems - doubles the usable space!
- RISE® CONDUCTION® for EMC penetrations - high attenuation values - no galvanic corrosion - no aging.
- **Proven - for new and upgraded installations.**
- The system of choice in shipyards worldwide for more than 25 years!

NOFIRNO®

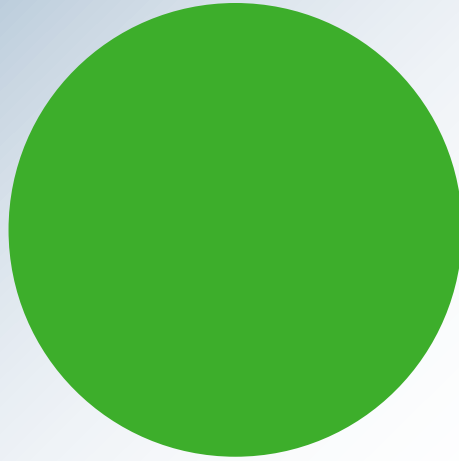
- System technology based on RISE®.
- Even easier installation.
- Even higher pressure ratings.
- Jet Fire tested for harshest applications.
- A-O and H-O up to A-60 and H-I20.
- **Breakthrough - bundled cable sets approved.**
- The system of choice for highest fire ratings and harshest environment!

CONTROFIL®

- Newest technology for cable ducting and sealing.
- Newest rubber technology - CRUSHNOF® rubber.
- Shorter conduit depths - flexible composition.
- Prevents overfilling of cable transits.
- Fire tight - watertight.
- **Breakthrough - controlled filling of transits.**
- The system of choice for neat cable routing in installations.

CET-A-SIL®

- Multi-gland system for electrical cabinets.
- Modular system - sealing plugs and modules.
- Suitable for IP 68 rated equipment.
- Watertight up to 4 meter water column.
- No compression on cable sheathings.
- No metal parts - no corrosion - no O-rings.
- **Breakthrough - no disassembling to add cables.**
- The alternative system for cable glands.



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