2017

FIRE SAFETY
TUNNEL APPLICATIONS

mercor tecresa®

IBERIA · LATAM · MIDDLE EAST · NORTH AFRICA · TURKEY

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COMPANY PROFILE

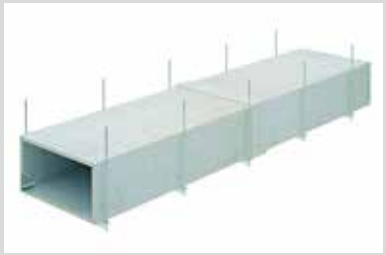
- LEADER ON FIRE PROTECTION
- WITH 27 YEARS OF EXPERIENCE WITHIN THE FIRE SECTOR
- LISTED COMPANY AT WARSAW STOCK EXCHANGE SINCE 2007
- MORE THAN 1000 EMPLOYEES IN 7 EUROPEAN COUNTRIES
- WITH 6 FACTORIES IN 4 DIFFERENT COUNTRIES
- WORKS EXECUTED IN OVER 40 COUNTRIES
- MAJOR PROJECTS DEVELOPED IN EUROPE, ASIA, AMERICA AND AFRICA
- MORE THAN 100 CERTIFIED FIRE PROTECTION SOLUTIONS
- TESTED UNDER DIFFERENT INTERNATIONAL STANDARDS
- COMPREHENSIVE FIRE PROTECTION RANGE OF PRODUCTS AND SOLUTIONS

FIRE PROTECTION SOLUTIONS FOR TUNNELS

TECBOR® BOARDS

TECWOOL® SPRAY MORTAR

TECSEL® SEALING SYSTEMS



SMOKE EXHAUST

TUNNEL REFERENCES

Experience in more than 400.000 m2 of tunnel construction.

Al Salam Tunnel, Abu Dhabi

San Mamés Stadium new entrance tunnel, Bilbao

Representative road tunnels

· Al Salam Street Tunnel in Abu Dhabi, U.A.E. · Al Ras Al Akhdar Tunnel in Abu Dhabi, U.A.E. · Baynoonah Street Tunnel in Abu Dhabi, U.A.E. · Midfield Terminal Tunnel in Abu Dhabi International Airport in Abu Dhabi, U.A.E. · Marina Coastal Expressway 482 Tunnel in Singapore · Bypass M-30 South Tunnel in Madrid, Spain · Bypass M-30 North Tunnel in Madrid, Spain · Ronda de Mig Tunnel in Barcelona, Spain · San Mamés Football Stadium, New entrance Tunnel in Bilbao, Spain · M-40 Pardo Tunnel in Madrid, Spain · Sevinnes tunnel in Paris · Smestad Tunnel in Oslo, Norway. · Vías Nuevas de Lima Tunnel, Peru

BY-PASS M-30 south tunnel ventilation shafts, Madrid

Representative rolling Undergroung & stock tunnels

· Polish Railway (PKP) Tunnel in Krakow, Poland · AVE-High Speed Railway Tunnel in Malaga, Spain · Commuting Railway Tunnel in Malaga, Spain · Terminal 4 Service Tunnel in Madrid Barajas Airport in Madrid, Spain · Metrosur Tunnel in Madrid, Spain · Underground metro stations in Bilbao, Spain · Line 9 Barcelona underground, Spain · Málaga underground, Spain · Madrid underground, Spain · Warsaw Underground, Poland · Algiers underground, Algiers.

Terminal 4 Service Tunnel in Madrid Barajas Airport in Madrid, Spain

Málaga Underground, Spain

Line 9 Barcelona Underground, Spain

TECRESA & MERCOR GROUP INTERNATIONAL PRESENCE

U.A.E. ABU DHABI
AL SALAM ST. TUNNEL

U.A.E. ABU DHABI
AL RAS AL AKHDAR ST. TUNNEL

U.A.E. ABU DHABI
MIDFIELD TERMINAL ABD AIRPORT

U.A.E. ABU DHABI
BAYNOONAH ST. TUNNEL

SINGAPORE SINGAPORE
MARINA COASTAL E.XP. 482 TUNNEL

SPAIN MADRID
M30 RING ROAD TUNNEL

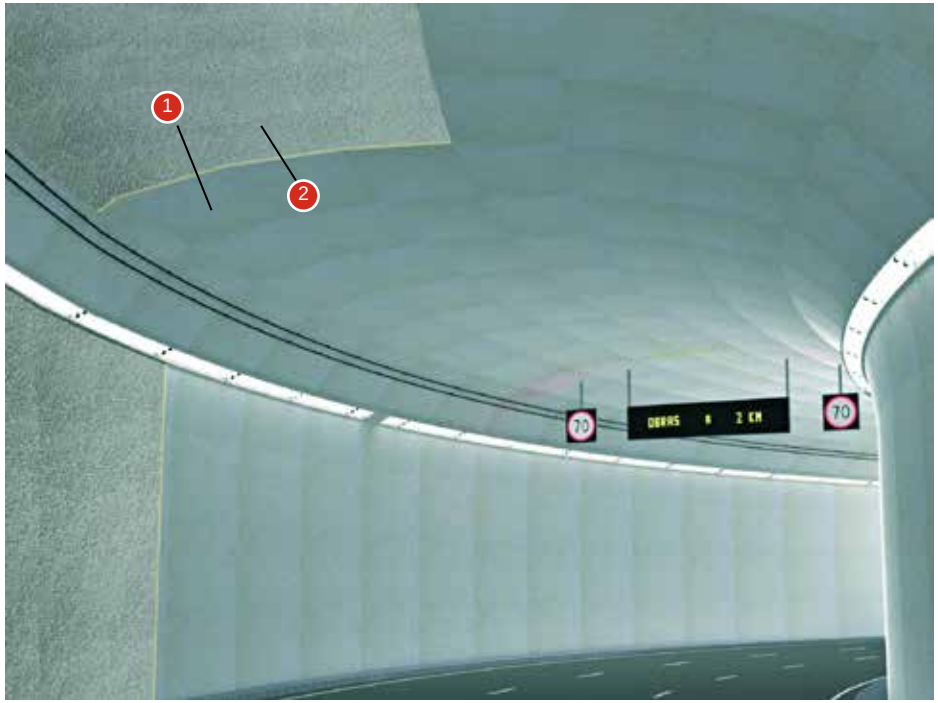
SPAIN BILBAO
SAN MAMÉS TUNNEL A STADIUM

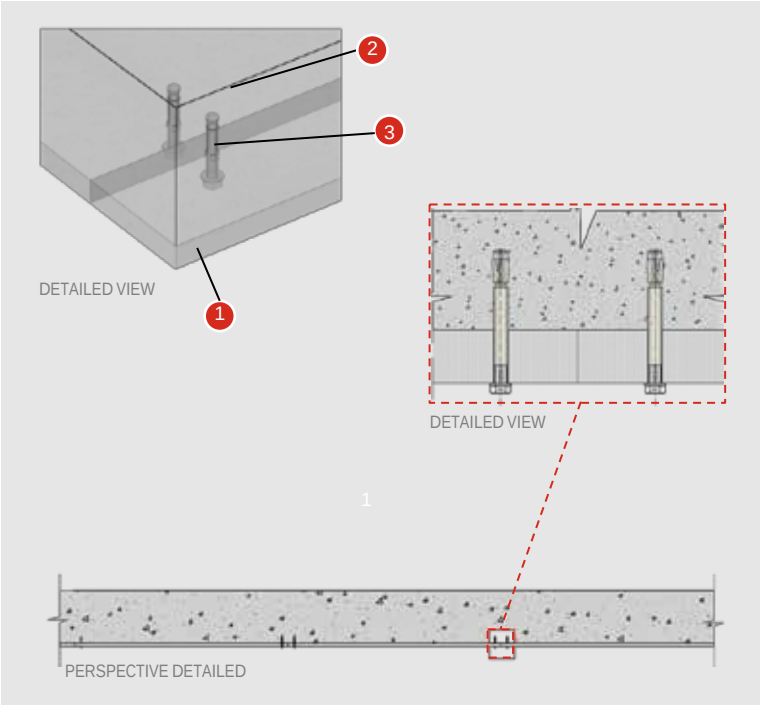
SPAIN MÁLAGA
HIGH SPEED RAILWAY TUNNEL

UNITED ARAB EMIRATES · KINGDOM OF SAUDI ARABIA · **QATAR** · ALGERIA · **COLOMBIA** · SINGAPORE · **ANGOLA** · HONG KONG · **MOZAMBIQUE** · ITALY · **FRANCE** · UNITED KINGDOM · **BELGIUM** · DENMARK · **NETHERLANDS** · LUXEMBURG · **POLAND** · SPAIN · **PORTUGAL** · ROMANIA · **CZECH REPUBLIC** · RUSSIA · **LITHUANIA** · SLOVAKIA · **UKRAINE** · MOROCCO · **PERU** · MEXICO · **TURKEY** · CHILE · **EGYPT** · ECUADOR · **NORWAY** · HUNGARY

TECHNICAL SOLUTIONS FOR TUNNELS

TECBOR® 23 - REI 120
TUNNEL POST FIXED APPLICATION





TEST

Standard: RWS Protocol **Laboratory:** TECNALIA **Test Nº:** 050632-002

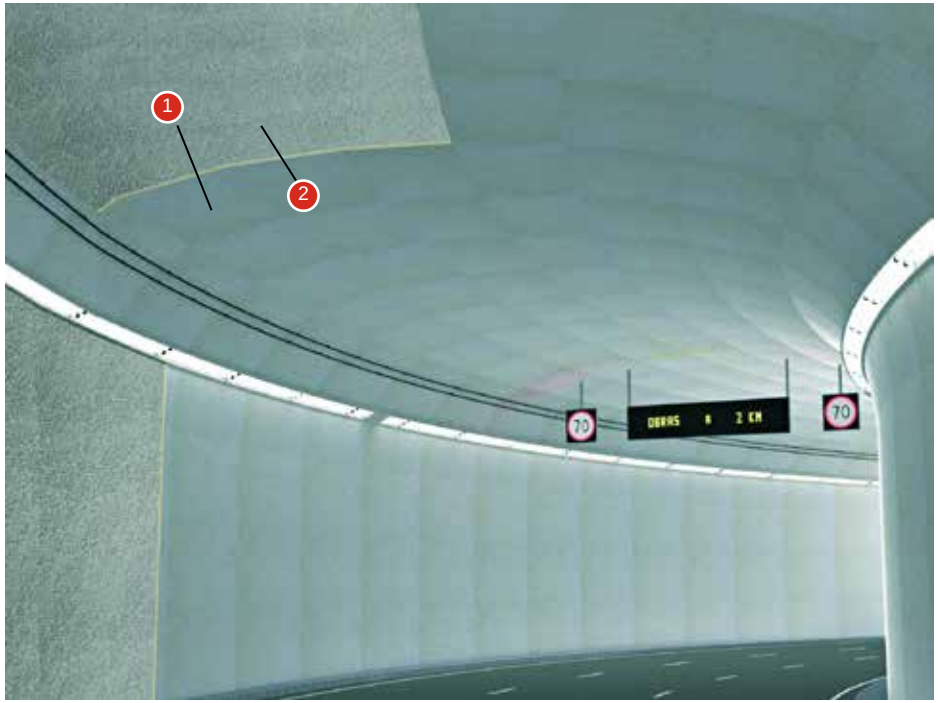
SOLUTION

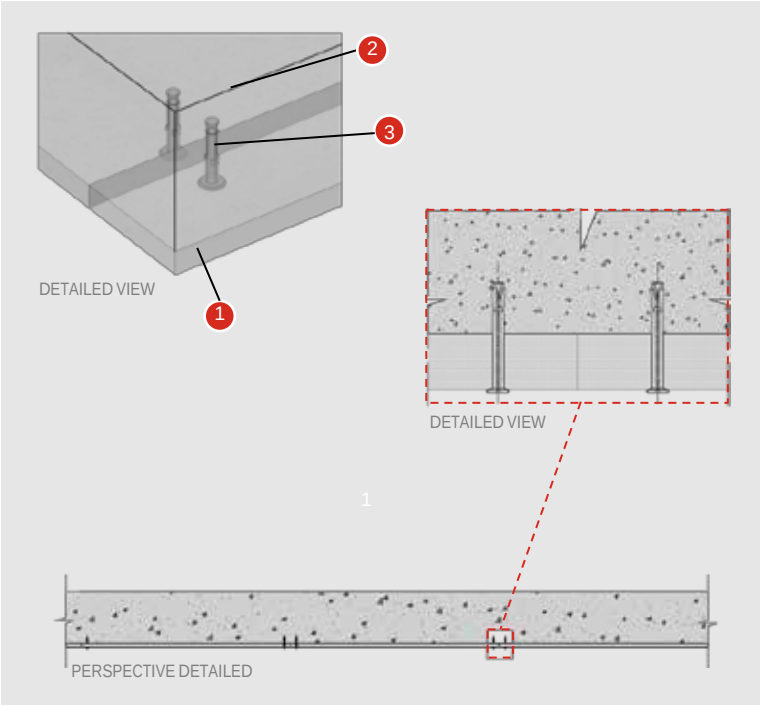
1 Tecbor® 23 mm boards. 2 120 mm thick slab. 3 10x60 mm metal plug.

DESCRIPTION OF ASSEMBLY

Attach Tecbor® 23 mm board directly to concrete slab using a HLC-M 8x70 mm metal plug.

TECBOR® 25 - REI 120
TUNNEL POST FIXED APPLICATION





TEST

Standard: RWS/HCM **Laboratory:** EFECTIS NEDERLAND **Test Nº:** 2015 – Efectis - R000911

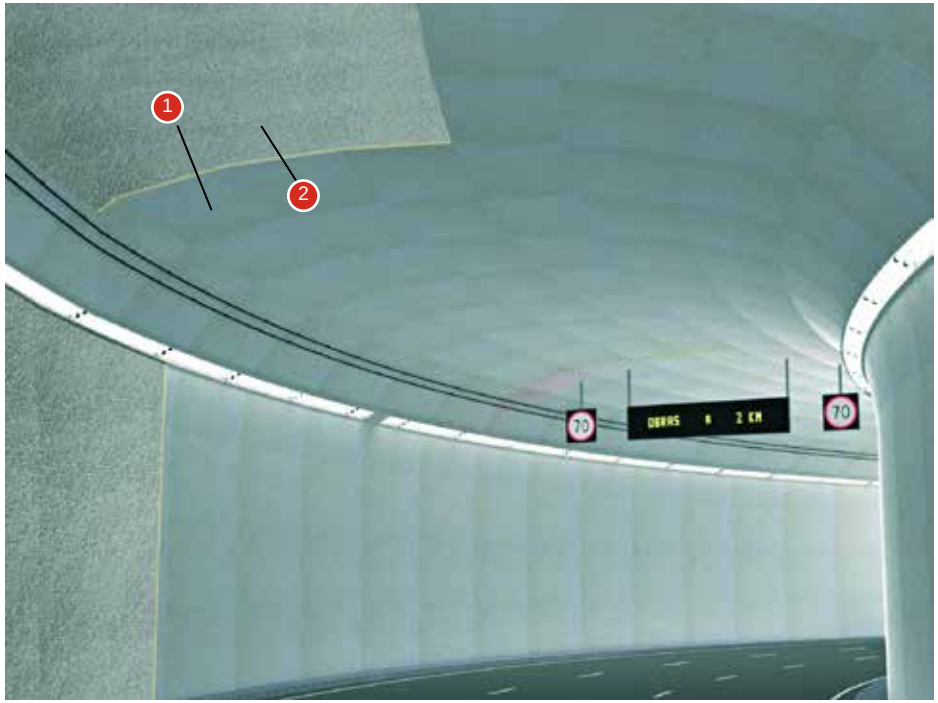
SOLUTION

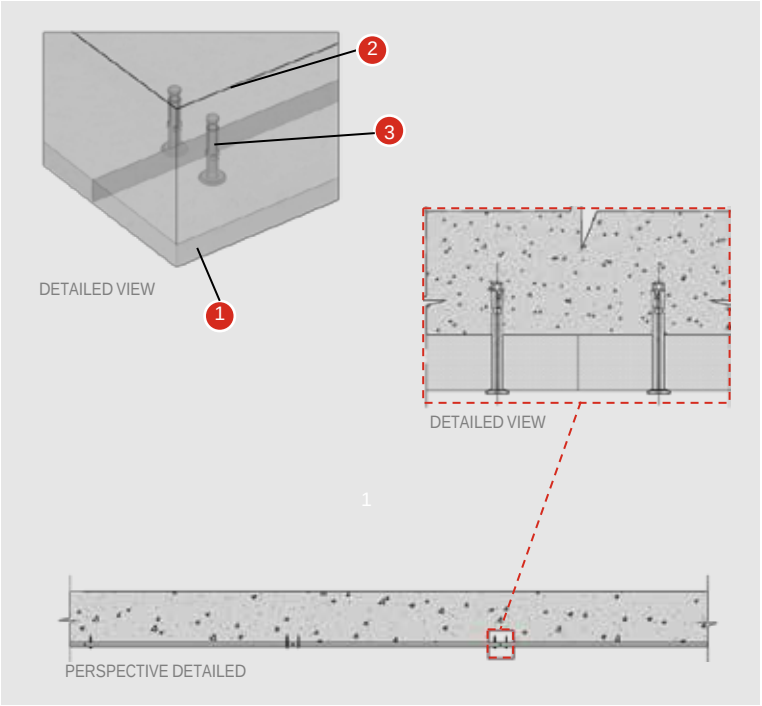
1 Tecbor® 25 mm boards. 2 Concrete slab. 3 6x10 mm metal plug.

DESCRIPTION OF ASSEMBLY

Attach Tecbor® 25 mm board directly to concrete slab using a FNA II 6x30/30 mm metal plug.

TECBOR® 25 - REI 60 – 170
TUNNEL POST FIXED APPLICATION





TEST

Standard: RABT-ZTV Curve **Laboratory:** EFECTIS NEDERLAND **Test Nº:** 2015 – Efectis - R000909

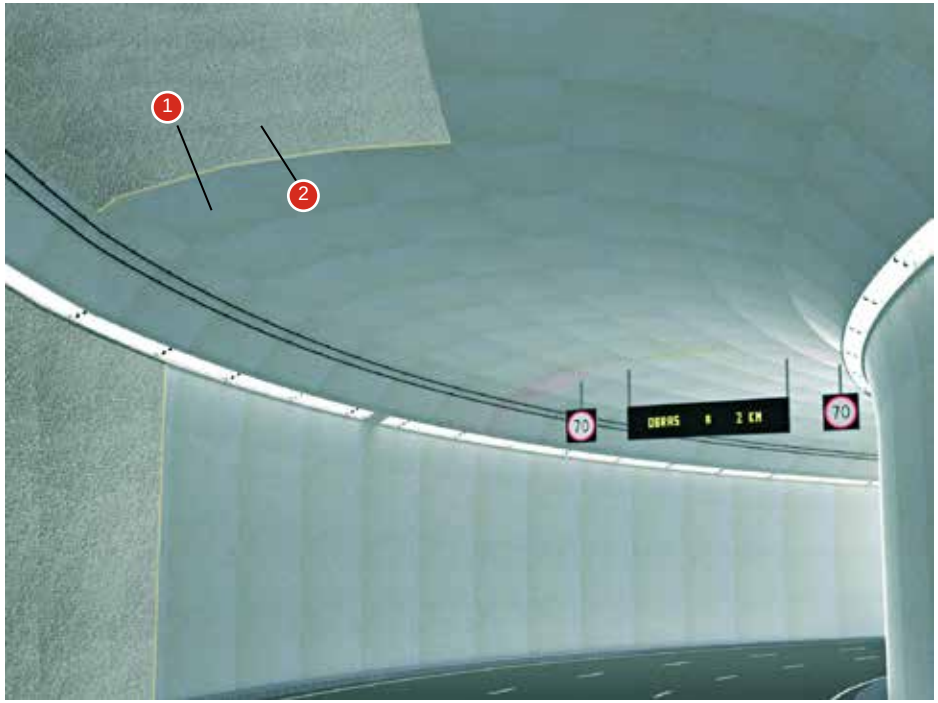
SOLUTION

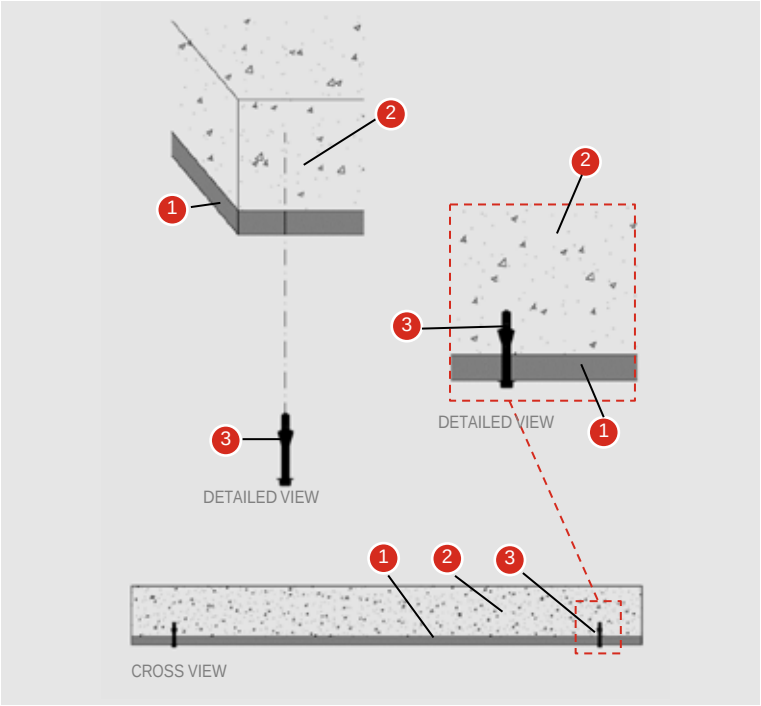
1 Tecbor® 25 mm boards. 2 Concrete slab 3 6x10 mm metal plug.

DESCRIPTION OF ASSEMBLY

Attach Tecbor® 25 mm board directly to concrete slab using FNA II 6x30/30 mm metal plug.

TECBOR® 30 - REI 120 / REI 180
TUNNEL POST FIXED APPLICATION





TEST

Standard: RWS / HCM Fire Curve **Laboratory:** EFECTIS **Test Nº:** 2011-Efectis-R0386

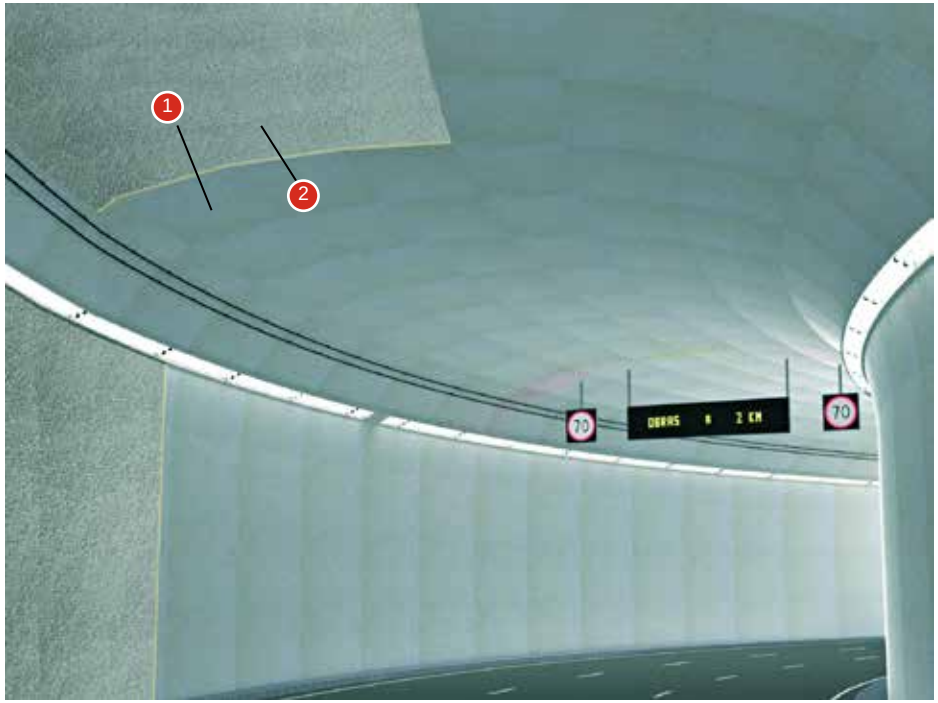
SOLUTION

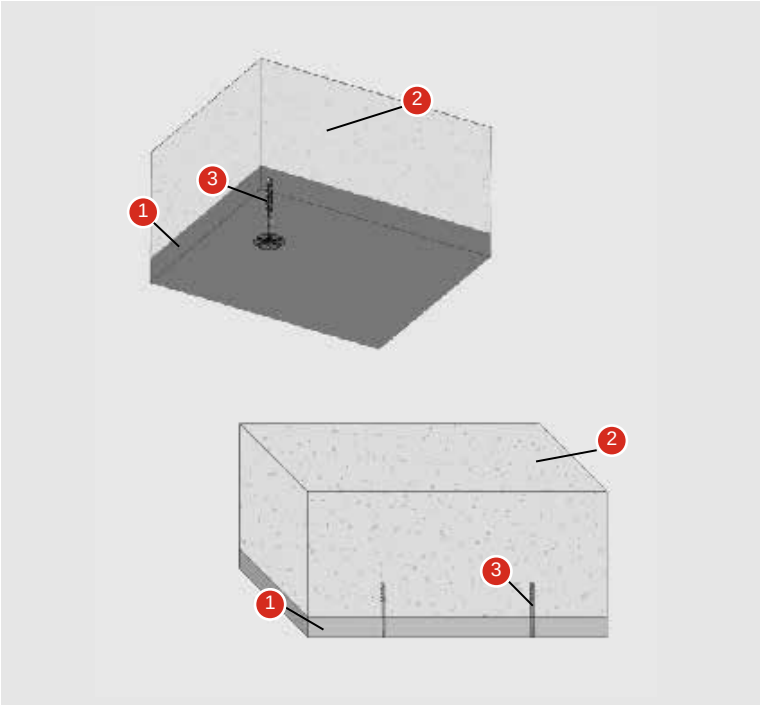
1 Tecbor® 30 mm boards. 2 Concrete slab. 3 M6x85 metal anchors. 4 Tecsel® intumescent mastic

DESCRIPTION OF ASSEMBLY

Attach Tecbor® 30 mm board directly to concrete slab using M6x85 mm metal anchors. Apply Tecsel® intumescent mastic to joints between boards, both in the ceiling and the walls.

TECBOR® 30 - REI 120
TUNNEL LOST FORMWORK APPLICATION





TEST

Standard: RWS Fire Curve **Laboratory:** TECNALIA **Test Nº:** 29232

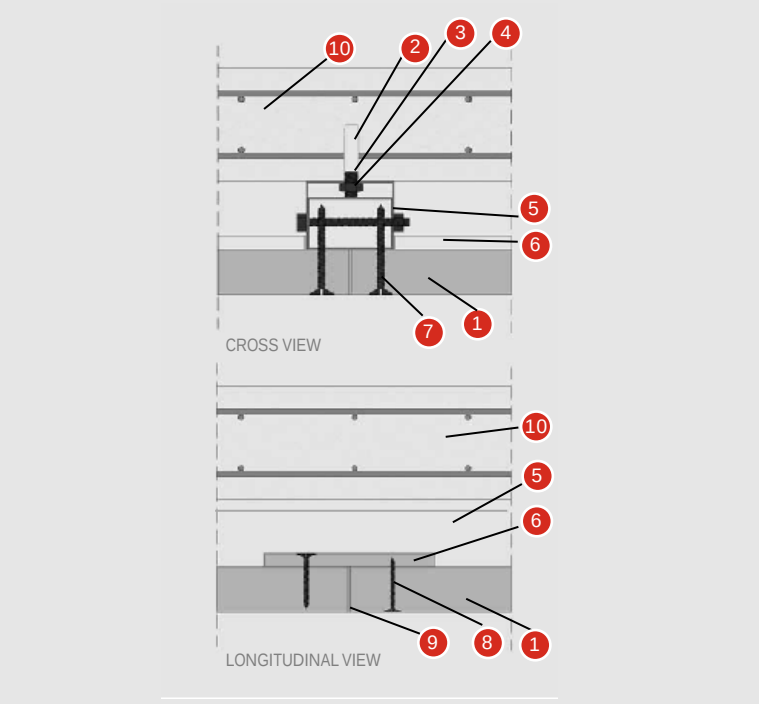
SOLUCIÓN

1 Tecbor® 40 mm boards. 2 Concrete slab 3 Stainless steel IDMR 3/6 anchors.

DESCRIPTION OF ASSEMBLY

Prior to installation, pre-drill Tecbor® 40 mm boards using an M8 drill bit. Insert stainless steel IDMR 3/6 anchors on the pre-drilled holes and seal the central gaps with mastic. Place Tecbor® 40 mm board as a lost formwork with butted joints. Afterwards proceed to concrete slab casting.

TECBOR® 40 – REI 120 AND REI 180
TUNNEL SUSPENDED CEILING ON METAL STRUCTURE



TEST

Standard: RWS Fire Curve / HCM **Laboratory:** EFECTIS **Test No:** 2009-Efectis-R0998 /R0999

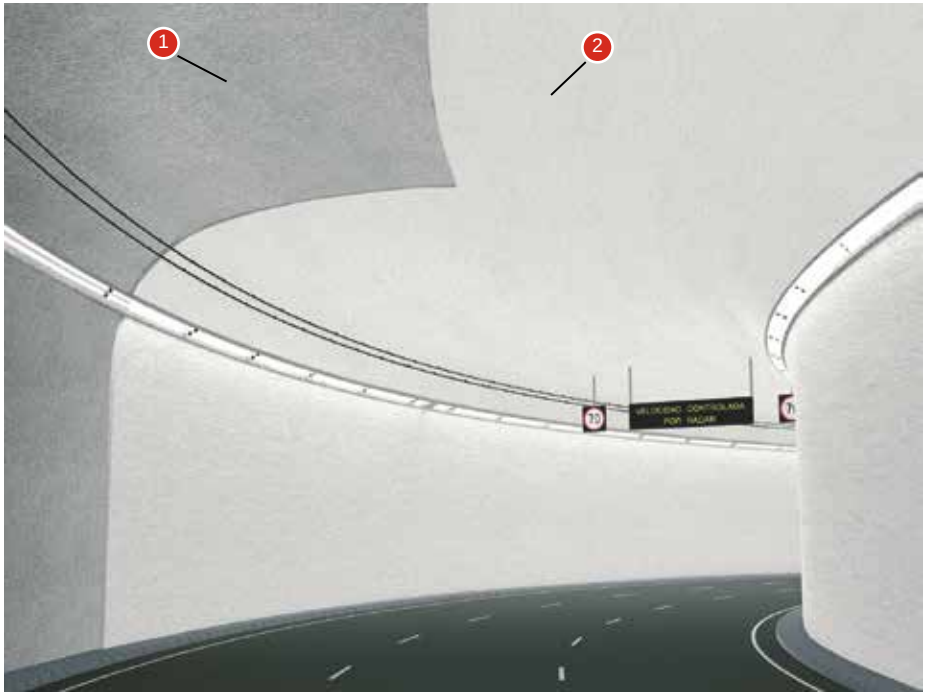
SOLUTION

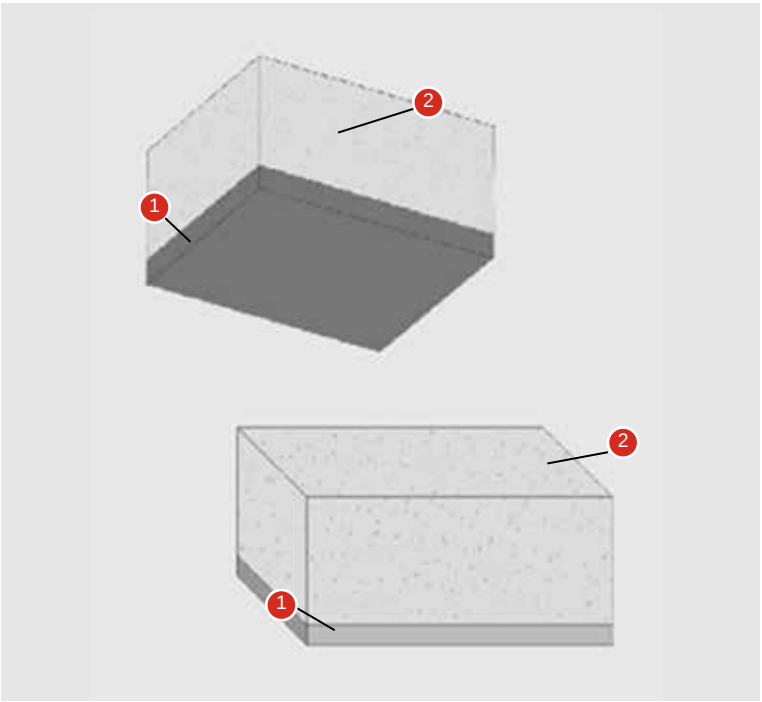
1. Tecbor® 40 mm boards for tunnel.
2. Expanding metal anchor with inner thread.
3. Steel threaded road Ø 12 mm.
4. Zinc coated nut Ø 12 mm.
5. 75x46x1.2 mm metal profile.
6. Tecbor® A 12 mm boards.
7. 6.3x65 mm screw.
8. 4.5x50 mm Hi-Low screw.
9. Tecsel® Intumescent Mastic for joints.
10. Reinforced concrete slab / walls.

DESCRIPTION OF ASSEMBLY

Install the metal structure that will support the suspended ceiling forming a grid (refer to Technical Department for sizes) using primary profiles 75x46x1.2 mm in size. The secondary profile is replaced with a strip of Tecbor® A 12 mm board 150 mm wide. Once the metal structure is in place, attach the Tecbor® 40 mm board to it using 6.3x65 mm self-drilling screws.
For different assembly options please contact the Technical Department.

TECWOOL® 825– REI 180
TUNNEL SPRAYED APPLICATION





TEST

Standard: Protocolo RWS / HCM / Efectis Fire testing procedure for concrete tunnel **Laboratory:** Efectis Netherland **Test No:** 2010-Efectis-R0531

SOLUTION

1 Concrete walls or slabs.

2 Tecwool® 825 (thickness is depending on the fire resistance required and construction characteristics.

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APPLICATION

Tecwool® 825 is sprayed with a pneumatic machine pursuant to the following technical specifications: The surface to be protected requires no prior primer, mesh or any other type of support for the mortar adherence. The surface to be protected should be free from dust, oil, waste, poorly attached particles, paint leftovers, etc. It is recommended to use water with the application hose to wash dirt away from the faces. This will also help achieve a thermal balance between the mortar and the applied surface.

For further information, please contact:

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