REMEDIEREA DEFECTELOR DE TIP DS - DEFECTE DE SUPRAFATA
RETRIEVAL OF DEFECTS TYPE DS - SURFACE DEFECTS

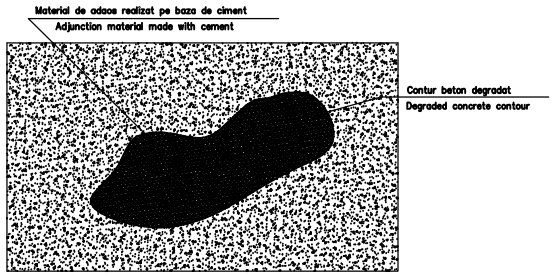

FIG.1 MARCAREA SUPRAFETEI DEGRADATE
MARKING OF THE DEGRADED SURFACE

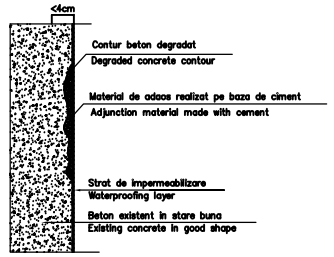

FIG.2 SECTIUNE PRIN SUPRAFATA REPARATA
SECTION THRU THE REPARED SURFACE

Tehnologia lucrarilor de reparatie a suprafetelor de beton cu defecte de tip DS, conf. C149-87

1. Se identifica si se marcheaza suprafetele de beton degradat;
2. Se periaza intreaga zona marcata cu o perie de sarma;
3. Se curata cu jet de aer sub presiune;
4. Se aplica stratul de amorsa care va asigura legatura cu betonul existent;
5. Se aplica pasta pe baza de ciment si se finiseaza cu mistria sau cu spaclul;
6. Se protejeaza suprafata contra evaporarii rapide a apei;
7. Se aplica stratul de impermeabilizare si uniformizare a aspectului betonului (aplicarea stratului de impermeabilizare se va face dupa uscarea intregii zone reparate)

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. Amorsa:
- Rezistenta la tractiune >1,5N/mm²;
- Durata lucrabilitate la 20°C > 45min;
- Numar straturi necesare 1;
- Temperatuara de aplicare +5°-40°C;
- Cantitatea de apa 18%
- Rezistent la inghet-dezghet;
- Aplicabil la suport umed;

B. Material de adaos pe baza de ciment
- Granulatia 0,1-2,0mm;
- Grosimea stratului aplicat 6-40mm;
- Rezistenta la tractiune >1,5N/mm²;
- Rezistenta la compresiune >60N/mm² la 28zile;
- Rezistenta la tractiune din incovoiere >6,0N/mm²;
- Durata lucrabilitate la 20°C > 45min;
- Temperatuara de aplicare +5°-40°C;
- Cantitatea de apa 11%
- Expansiunea 0,5%

C. Strat de impermeabilizare:
- Vascozitate la 10°C cca. 1000-1500MPas;
- Vascozitate la 20°C cca. 500-700MPas;
- Durata lucrabilitate la 20°C > 45min;
- Temperatura min. de aplicare pe stratul suport +10°C

Technology of repair works to the concrete areas with type DS, damages, acc. to C149-87:

1. Identifying and marking the damaged concrete areas;
2. Brushing the entire marked area with wire brush;
3. Cleaning with compressed air stream;
4. Placing on the adherence layer such as to close all the voids of the existent mass;
5. Placing on the cement-based paste and pressing it with either trowel or spatula;
6. Protecting the area against sudden evaporation of water;
7. Placing on the waterproofing and levelling layer of the concrete surface (the waterproofing layer shall be placed on when the entire repaired area is dried).

TECHNICAL SPECIFICATION OF THE USED MATERIALS:

A. Primer:
- Stretching resistance >1,5N/mm²;
- Time before hardening at 20°C >45min;
- Number of necessary layer 1;
- Applying temperature +5°-40°C;
- Quantity of water 18%
- Frost cleftness resistance
- Applicable on wet surfaces

B. Adjunction material made with cement:
- Granulosity 0,1-2,0mm;
- Thickness of the layer 6-40mm;
- Stretching resistance >1,5N/mm;
- Compression resistence >60N/mm² la 28zile;
- Stretching resistance from bending >6,0N/mm²;
- Time before hardening at 20°C > 45min;
- Applying temperature +5°-40°C;
- Quantity of water 11%
- Expansion 0,5%

C. Waterproofing layer:
- Viscosity at 10°C cca. 1000-1500MPas;
- Viscosity at 20°C cca. 500-700MPas;
- Time before hardening at 20°C > 45min;
- Minimal temperature for applying support layer +10°C

REMEDIEREA DEFECTELOR DE TIP DAS M- DEFECTE DE ADANCIME SI/SAU SUPRAFATA MARE
RETRIEVAL OF DEFECTS TYPE DASM - DEFECTS WITH LARGE SURFACE AND/OR HIGHT DEPTH

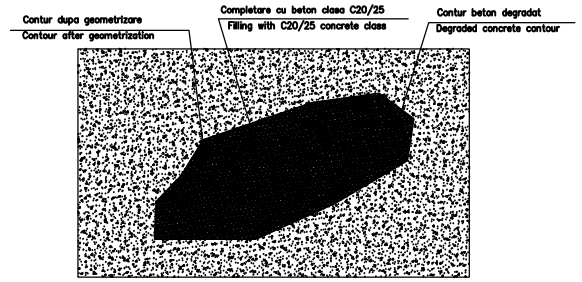

FIG.3 MARCAREA SUPRAFETEI DEGRADATE SI GEOMETRIZAREA ACESTEIA
MARKING OF THE DEGRADED SURFACE AND MAKEING THE GEOMETRIZATION

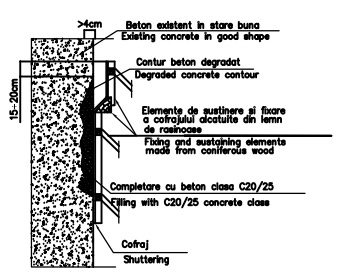

FIG.4 SECTIUNE PRIN SUPRAFATA IN CURS DE REPARARE
SECTION THRU THE SURFACE DURING THE REPAIRING WORKS

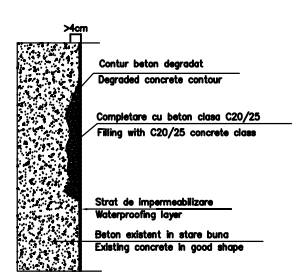

FIG.5 SECTIUNE PRIN SUPRAFATA REPARATA
SECTION THRU THE REPARED SURFACE

Tehnologia lucrarilor de reparatie a suprafetelor de beton cu defecte de tip DASM, conf. C149-87(fig.3,fig.4 si fig.5):

1. Se identifica si se marcheaza suprafetele de beton degradat;
2. Se inlatura betonul degradat prin spaturare si se ceeaza un contur regulat si suprafetei degradate;
3. Se inlatura praful cu jet de aer sub presiune;
4. Se uda suprafata de beton pana la saturatie;
5. Se montaeaza cofrajul;
6. Se completeaza golul cu beton clasa C20/25;
7. Se compacteaza betonul;
8. Se decofreaza;
9. Se inlatura surplusul de beton (numai dupa intarirea acestuia fara a avea rezistente ridicate);
10. Se protejeaza suprafata contra evaporarii rapide a apei;
11. Se finiseaza suprafata reparata si/sau se trateaza eventualele defecte dupa decofrare conf. remedierilor tip DS (fig.1 si fig.2);
12. Se aplica stratul de impermeabilizare si uniformizare a aspectului betonului (acest strat se va aplica la final pe intreaga suprafata de beton vizibila, dupa realizarea lucrarilor de reparatii).

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. Beton clasa C20/25:
- Agregate 0-16mm
- Ciment II A-S 32,5(R)
- Raport Apa/Ciment 0,55
- Tasare T3-T4
- Gelivitate G100
- Impermeabilitate P_4

C. Strat de impermeabilizare:
- Vascozitate la 10°C cca. 1000-1500MPas;
- Vascozitate la 20°C cca. 500-700MPas;
- Durata lucrabilitate la 20°C > 45min;
- Temperatura min. de aplicare pe stratul suport +10°C

Technology of repair works to the concrete areas with type DASM, damages, acc. to C149-87(fig.3,fig.4 si fig.5):

1. Identifying and marking the damaged concrete areas;
2. Removing the damaged concrete by chiselling and creating a regular perimeter of the damaged area;
3. Clearing the dust with compressed air stream;
4. Wetting the area to saturation;
5. Mounting the shuttering;
6. Filling the hole with C20/25 concrete class;
7. Vibrating the concrete;
8. Removing the shuttering;
9. Removing excessive concrete (only afterbake of the concrete);
10. Protecting the area against sudden evaporation of water;
11. Repaired surface finishing and/or repairing eventual defects occurred after the shuttering is removed in according to DS (fig.1 and fig.2);
12. Placing on the waterproofing and levelling layer of the concrete surface (this layer shall be placed on finally on the entire visible concrete area after executing the repairs works)

TECHNICAL SPECIFICATION OF THE USED MATERIALS:

A. Beton clasa C20/25:
- Aggregates 0-16mm
- Cement II A-S 32,5(R)
- Water/Cement ratio 0,55
- Settlement T3-T4
- Frost cleftness G100
- Proofing P_4

C. Waterproofing layer:
- Viscosity at 10°C cca. 1000-1500MPas;
- Viscosity at 20°C cca. 500-700MPas;
- Time before hardening at 20°C > 45min;
- Minimal temperature for applying support layer +10°C

NOTA
1. La executie se vor respecta cu strictete prevederile din "Normativ pentru producerea betonului si executarea lucrarilor din beton, beton armat si beton precomprimat. Partea 1: Producerea betonului",indicativ NE 012/1-2007 si "Normativ pentru producerea betonului si executarea lucrarilor din beton, beton armat si beton precomprimat. Partea 2: Executarea lucrarilor din beton",indicativ NE 012/2-2010, din "Instructiunile tehnice privind procedeele de remediere a defectelor pentru elementele de beton si beton armat" indicativ C149-87, din "Normativul pentru verificarea calitatii si receptia lucrarilor de constructii aferente" indicativ C56-85, si a Caietului de Sarcini.
2. Daca in timpul lucrarilor se vor constata anumite neconcordante intre datele ovute in vedere la proiectare si situatia de pe teren, va fi convocat proiectantul pentru adaptarea proiectului la noua situatie.

NOTE
1. There will be strictly respected the prevision from "Practice code for the concrete production and works execution, reinforced and pre-stressed concrete. Part 1: Practice code for concrete production" – NE012/1-2007 and "Practice code for the concrete production and works execution, reinforced and pre-stressed concrete. Part 2: The execution of concrete works" – NE012/2-2010 "Technicall instructions regarding remedial procedures of plain concrete and reinforced concrete" ind. C149-87, from "Normative for quality checking and works reception for afferent construction" ind. C56-85 and Technical Specifications of this project.
2. If unconformities between the designed data and the site situation are found out during works execution, the designer will be convened to adjust the design according to the new situation.

1. Conform H.G.766/1997 lucrarea se incadreaza in categoria "B" a constructiilor de importanta deosebita.
2. Proiectul va fi verificat de verificatori atestati MLPAT la exigentele A.4, B.2 si D.2.

1. Complying with H.G. 766/1997 this structure belongs to category "B" of importance.
2. The project will be verified at A.4, B.2 and D.2 requirements.

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Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR
D					
C					
B					
A	12.2011	Revizia 1 / Revision	Ioan Rentea		

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANTAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

C.N.C.F. "C.F.R." - S.A.

ITALFERR GRUPPO FERROVIE DELLO STATO Joint Venture leader
Scott Wilson
OBERMEYER PLANEN + BERATEN GmbH
TECNIC Consulting Engineers

CONSULTANT / CONSULTANT

			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza		
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli		
Verificat Checked	Expert Cheie Key Expert	V.Kallidromitis		

SUBCONTRACTANT / SUBCONTRACTOR

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Dinulescu Stanciu	10.2011	
Întocmit Elaborated	Proiectant Designer	Ioan Rentea	10.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia trenurilor cu viteza maximă de 160 km/h,
Tronsonul: Braşov - Sighişoara
Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section: Braşov - Sighişoara

Proiect/Project 2004/RO/16/P/PA/003

Faza / Phase: P.Th. / T.D.

Denumire desen / Drawing Title: Interval Statia Sighisoara

Pod km. 281+066.156 - Remedierea defectelor de suprafata mare si adancime la betoane
Bridge km. 281+066.156 - Retrieval of defects with large surface and hight depth in concrete

Codificare / Codification System	Scara / Scale	LOT / LOT	Nr. / No
EA51 01 E 21 BB PV 04 6 X 003			1