REMEDIEREA DEFECTELOR DE TIP DSA – DEFECTE IN STRATUL DE ACOPERIRE AL ARMATURILOR

RETRIEVAL OF DEFECTS TYPE DSA – DEFECTS IN THE REINFORCEMENT CONCRETE COVER LAYER

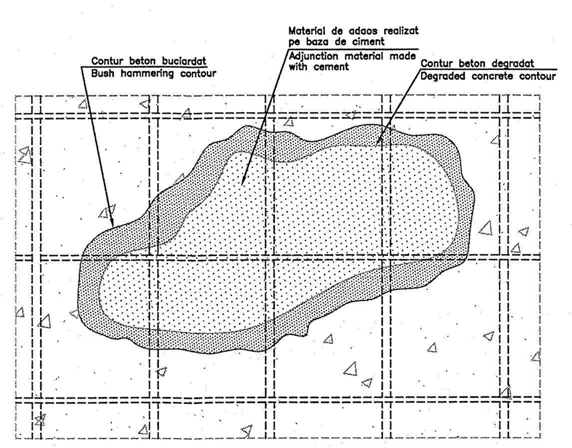

FIG. 1 MARCAREA SUPRAFETEI DEGRADATE SI BUCIARDAREA ZONEI ADIACENTE PE CCA. 10CM.
MARKING THE DEGRADED SURFACE AND 10CM ADITIONAL AREA BUSH HAMMERING

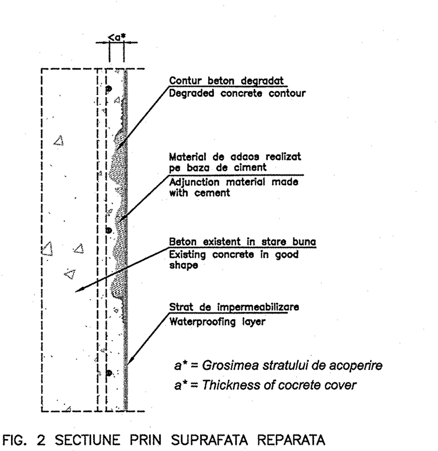

FIG. 2 SECTIUNE PRIN SUPRAFATA REPARATA
SECTION THRU THE REPARED SURFACE

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

1. Se identifica si se marcheaza suprafetele de beton degradate;
2. Se inlatura zonele de beton degradate cu ciocanul de zidar;
3. Se buciardeaza suprafetele adiacente celei degradate pe 10cm stanga–dreapta;
4. Se curata cu jet de aer sub presiune;
5. Se aplica stratul de aderenta astfel incat toti porii din masa betonului existent sa fie inchisi;
6. Se aplica mortarul prin tencuire in straturi de max. 10mm si se preseaza cu mistria;
7. Se protejeaza suprafata contra evaporarii rapide a apei;
8. Se aplica stratul de impermeabilizare si uniformizare a aspectului betonului (aplicarea stratului de impermeabilizare se va face dupa uscarea intregii zone reparate).

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

1. Identifying and marking the damaged concrete areas;
2. Removing the damaged concrete areas by using the brick hammer
3. Granulating the areas adjacent to the damaged one on 10 cm left–right side;
4. Cleaning with compressed air stream;
5. Placing on the adherence layer such as to close all the voids of the existent mass;
6. Placing on the mortar by plastering in max. 10 mm layers and pressing it with trowel;
7. Protecting the area against sudden evaporation of water;
8. Placing on the waterproofing and leveling layer of the concrete surface (the waterproofing layer shall be placed on when the entire repaired area is dried).

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. *Amorsa conform caietului de sarcini si cu urmatoarele caracteristici:*
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 1 de 1mm grosime;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 18%;
- Rezistent la inghet–dezghet;
- Aplicabil pe suport umed;

B. *Material de adaos pe baza de ciment conform caietului de sarcini si avand urmatoarele caracteristici:*
- Dimensiunea agregatelor 0.1÷2.0mm;
- Grosimea stratului aplicat 6÷40mm;
- Rezistenta la tractiune >1.5N/mm^2;
- Rezistenta la compresiune >60N/mm^2 la 28zile;
- Rezistenta la tractiune din incovoiere >6.0N/mm^2
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiunea <0.5%

C. *Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretat si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Numar minim de straturi 2;
- Grosimea min. a stratului aplicat 0,5mm;
- Vascozitate la 10°C cca. 1000–1500 MPas;
- Vascozitate la 20°C cca. 500–700 MPas;
- Durata lucrabilitate la 20°C >45min;
- Temperatura min. de aplicare pe stratul suport +10°C;

TECHNICAL SPECIFICATION OF THE USED MATERIALS:

A. *Primer according to technical specification shall have the following requirements:*
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20°C >45min;
- Number of necessary layer 1 of 1mm thickness;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 18%;
- Frost cleftness resistance;
- Aplicable on wet surfaces;

B. *Adjunction material made with cement according to technical specification shall have the following requirements:*
- Granulosity 0.1÷2.0mm;
- Thickness of the layer 6÷40mm;
- Stretching resistance >1.5N/mm^2;
- Compression resistance >60N/mm^2 la 28zile;
- Stretching resistance from bending >6.0N/mm^2
- Time before hardening at 20°C >45min;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 11%;
- Expansion <0.5%

C. *Waterproofing layer according to technical specification which will be applied using paintbrush or shotcrete gun and shall have the following requirements:*
- Base material cement;
- Number of necessary layer 2;
- Minumum thickness of the layer 2mm;
- Viscosity at 10°C cca. 1000–1500 MPas;
- Viscosity at 20°C cca. 500–700 MPas;
- Time before hardening at 20°C >45min;
- Minimal temperature for applying of support layer +10°C;

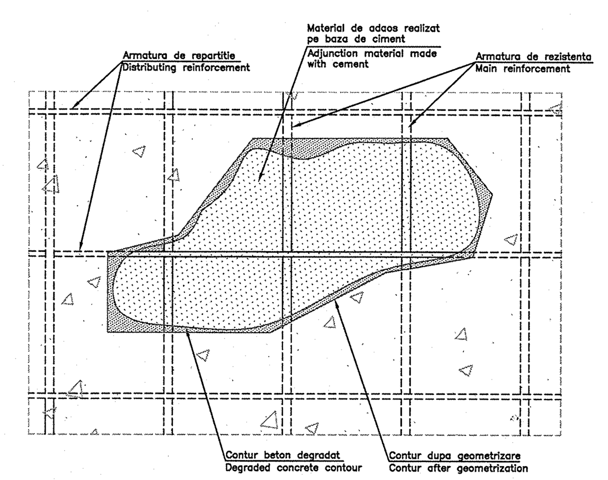

FIG. 3 VEDERE LATERALA A SUPRAFETELOR CU ARMATURI NECORODATE
LATERAL VIEW OF SURFACES WITH UNACTED UPON REINFORCEMENT

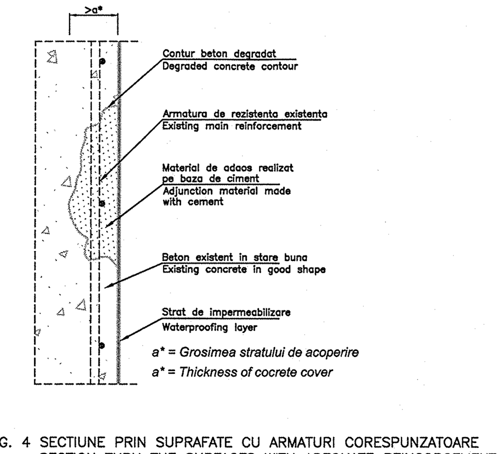

FIG. 4 SECTIUNE PRIN SUPRAFATE CU ARMATURI CORESPUNZATOARE
SECTION THRU THE SURFACES WITH ADEQUATE REINCORCEMENT

Tehnologia lucrarilor de reparatie a suprafetelor de beton cu defecte de tip DASR conf. C149-87 (fig.3, fig.4), cazul armaturilor cu sectiune corespunzatoare:

1. Se identifica si se marcheaza suprafetele de beton degradate;
2. Se repereaza si se marcheaza pozitia armaturilor (pentru evitarea deteriorarii acesteia pe durata realizarii lucrarilor de inlaturare a betonului degradat);
3. Se inlatura betonul degradat prin spituire si se creiaza un contur regulat al zonei degradate;
4. Se inlatura praful rezultat cu jet de aer sub presiune;
5. Se curata armaturile pana la luciul metalic;
6. Se curata intreaga suprafata degradata cu jet de aer sub presiune;
7. Se aplica stratul de protectie anticoraziv pe armaturi;
8. Se uda suprafata de beton curatata pana la saturatie;
9. Se aplica stratul amorsa care va asigura legatura cu betonul existent;
10. Se aplica mortarul prin tencuire;
11. Se netezeste suprafata reparata;
12. Se protejeaza suprafata contra epavorarii rapide a apei;
13. 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).

Technology of repair works to the concrete areas with type DASR damages, acc. to C149-87, case with adequate section of reinforcement (fig.3, fig.4),:

1. Identifying and marking the damaged concrete areas;
2. Finding and marking the reinforcements position (in order to avoid deterioration during the execution of the damaged concrete removal works);
3. Removing the damaged concrete by chiselling and creating a regular perimeter of the damaged area;
4. Cleaning the entire surface with compressed air stream;
5. Rubbing off the rust from reinforcements to the iron glance;
6. Cleaning the entire surface with compressed air stream;
7. Laying on the anti corrosion protection layer on reinforcements;
8. Wetting the area to saturation;
9. Placing on the adherence layer such as to close all the voids of the existent mass;
10. Placing on the mortar by plastering;
11. Smoothing the repaired area;
12. Protecting the area against sudden evaporation of water;
13. 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).

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. *Material de protectie anticoroziv conform caietului de sarcini, ce se aplica cu pensula si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 2;
- Grosimea min. a stratului aplicat 0,5mm;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 16%;

B. *Amorsa conform caietului de sarcini si cu urmatoarele caracteristici:*
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 1 de 1mm grosime;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 18%;
- Rezistent la inghet–dezghet;
- Aplicabil pe suport umed;

C. *Material de adaos pe baza de ciment conform caietului de sarcini si avand urmatoarele caracteristici:*
- Dimensiunea agregatelor 0.1÷2.0mm;
- Grosimea stratului aplicat 6÷40mm;
- Rezistenta la tractiune >1.5N/mm^2;
- Rezistenta la compresiune >60N/mm^2 la 28zile;
- Rezistenta la tractiune din incovoiere >6.0N/mm^2
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiunea <0.5%

D. *Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretat si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Numar minim de straturi 2;
- Grosimea min. a stratului aplicat 2mm;
- Vascozitate la 10°C cca. 1000–1500 MPas;
- Vascozitate la 20°C cca. 500–700 MPas;
- Durata lucrabilitate la 20°C >45min;
- Temperatura min. de aplicare pe stratul suport +10°C;

TECHNICAL SPECIFICATION OF THE USED MATERIALS:

A. *Anticorrosive material protection according to technical specification which will be applied using paintbrush and shall have the following requirements:*
- Base material cement;
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20° >45min;
- Number of necessary layer 2;
- Minumum thickness of the layer 0.5mm;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 16%;

B. *Primer according to technical specification shall have the following requirements:*
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20°C >45min;
- Number of necessary layer 1 of 1mm thickness;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 18%;
- Frost cleftness resistance;
- Applicable on wet surfaces;

C. *Adjunction material made with cement according to technical specification shall have the following requirements:*
- Granulosity 0.1÷2.0mm;
- Thickness of the layer 6÷40mm;
- Stretching resistance >1.5N/mm^2;
- Compression resistance >60N/mm^2 la 28zile;
- Stretching resistance from bending >6.0N/mm^2
- Time before hardening at 20°C >45min;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 11%;
- Expansion <0.5%

D. *Waterproofing layer according to technical specification which will be applied using paintbrush or shotcrete gun and shall have the following requirements:*
- Base material cement;
- Number of necessary layer 2;
- Minumum thickness of the layer 2mm;
- Viscosity at 10°C cca. 1000–1500 MPas;
- Viscosity at 20°C cca. 500–700 MPas;
- Time before hardening at 20°C >45min;
- Minimal temperature for applying of support layer +10°C;

REMEDIEREA DEFECTELOR DE TIP DASR – DEFECTE DE ADANCIME SI SUPRAFATA REDUSA

RETRIEVAL OF DEFECTS TYPE DASR – DEFECTS WITH REDUSED SURFACE AND DEPTH

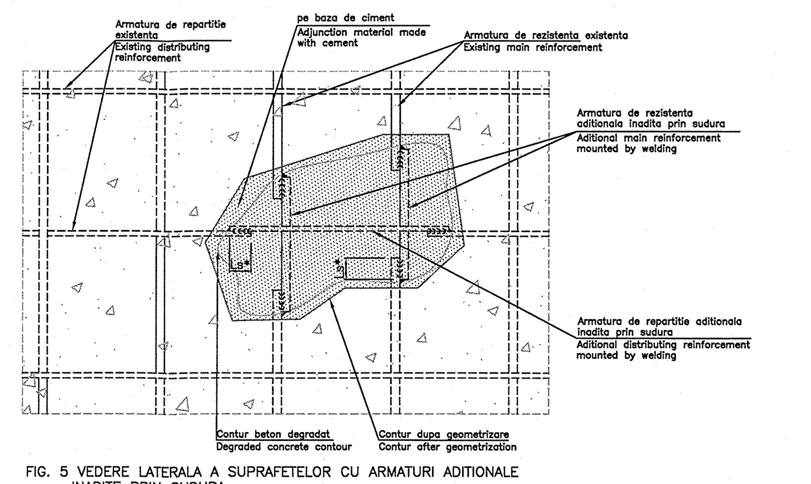

FIG. 5 VEDERE LATERALA A SUPRAFETELOR CU ARMATURI ADITIONALE INADITE PRIN SUDURA
LATERAL VIEW OF SURFACES WITH THE ADITIONAL REINFORCEMENT MOUNTED BY WELDING

Ls = Lungimea minima a cordonului de sudura conf. C28-85*
Ls = Minimum lenght of welding seam acc. to C28-85*

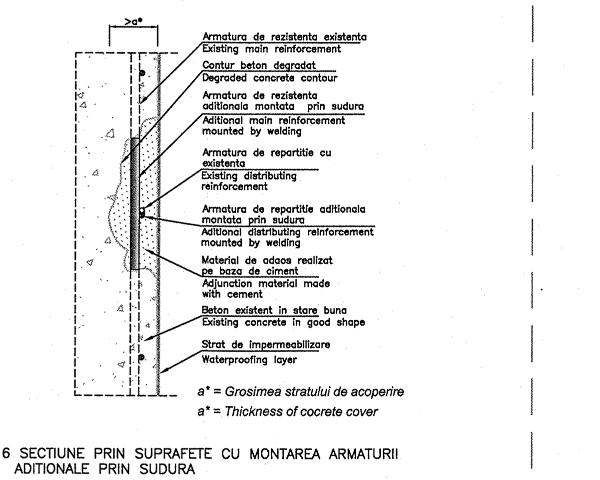

FIG. 6 SECTIUNE PRIN SUPRAFETE CU MONTAREA ARMATURII ADITIONALE PRIN SUDURA
SECTION THRU THE SURFACES WITH THE ADITIONAL REINFORCEMENT MOUNTED BY WELDING

Tehnologia lucrarilor de reparatie a suprafetelor de beton cu defecte de tip DASR conf. C149-87 (fig.5, fig.6), cazul armaturilor cu sectiune necorespunzatoare si montarii unor armaturi aditionale prin sudura:

1. Se identifica si se marcheaza suprafetele de beton degradate;
2. Se repereaza si se marcheaza pozitia armaturilor (pentru evitarea deteriorarii acesteia pe durata realizarii lucrarilor de inlaturare a betonului degradat);
3. Se inlatura betonul degradat prin spituire si se creiaza un contur regulat al zonei degradate;
4. Se inlatura praful rezultat cu jet de aer sub presiune;
5. Se curata armaturile de stratul corodat pana la luciul metalic;
6. Se taie armaturile cu sectiune necorespunzatoare;
7. Se monteaza armaturile aditionale inadite prin sudura. Functie de tipul si diametrul barelor se va stabili lungimea cordoanelor de sudura conf. C28–85;
8. Se curata intreaga suprafata degradata cu jet de aer sub presiune;
9. Se aplica stratul de protectie anticoraziv pe armaturi;
10. Se uda suprafata de beton curatata pana la saturatie;
11. Se aplica stratul amorsa care va asigura legatura cu betonul existent;
12. Se aplica mortarul prin tencuire;
13. Se netezeste suprafata reparata;
14. Se protejeaza suprafata contra epavorarii rapide a apei;
15. 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).

Technology of repair works to the concrete areas with type DASR damages, acc. to C149-87, case with improper section of reinforcement and mounting the additional reinforcement by welding (fig.5, fig.6):

1. Identifying and marking the damaged concrete areas;
2. Finding and marking the reinforcements position (in order to avoid deterioration during the execution of the damaged concrete removal works);
3. Removing the damaged concrete by chiselling and creating a regular perimeter of the damaged area;
4. Cleaning the entire surface with compressed air stream;
5. Rubbing off the rust from reinforcements to the iron glance;
6. Cutting the reinforcement with improper section;
7. Mounting the additional reinforcement by welding. Depending by the length and diameter of bars will be set the length of the welding seam in according with C25–85;
8. Cleaning the entire surface with compressed air stream;
9. Laying on the anti corrosion protection layer on reinforcements;
10. Wetting the area to saturation;
11. Placing on the adherence layer such as to close all the voids of the existent mass;
12. Placing on the mortar by plastering;
13. Smoothing the repaired area;
14. Protecting the area against sudden evaporation of water;
15. 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).

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. *Material de protectie anticoroziv conform caietului de sarcini, ce se aplica cu pensula si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 2;
- Grosimea min. a stratului aplicat 0,5mm;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 16%;

B. *Amorsa conform caietului de sarcini si cu urmatoarele caracteristici:*
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 1 de 1mm grosime;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 18%;
- Rezistent la inghet–dezghet;
- Aplicabil pe suport umed;

C. *Material de adaos pe baza de ciment conform caietului de sarcini si avand urmatoarele caracteristici:*
- Dimensiunea agregatelor 0.1÷2.0mm;
- Grosimea stratului aplicat 6÷40mm;
- Rezistenta la tractiune >1.5N/mm^2;
- Rezistenta la compresiune >60N/mm^2 la 28zile;
- Rezistenta la tractiune din incovoiere >6.0N/mm^2
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiunea <0.5%

D. *Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretat si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Numar minim de straturi 2;
- Grosimea min. a stratului aplicat 2mm;
- Vascozitate la 10°C cca. 1000–1500 MPas;
- Vascozitate la 20°C cca. 500–700 MPas;
- Durata lucrabilitate la 20°C >45min;
- Temperatura min. de aplicare pe stratul suport +10°C;

TECHNICAL SPECIFICATION OF THE USED MATERIALS:

A. *Anticorrosive material protection according to technical specification which will be applied using paintbrush and shall have the following requirements:*
- Base material cement;
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20° >45min;
- Number of necessary layer 2;
- Minumum thickness of the layer 0.5mm;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 16%;

B. *Primer according to technical specification shall have the following requirements:*
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20°C >45min;
- Number of necessary layer 1 of 1mm thickness;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 18%;
- Frost cleftness resistance;
- Applicable on wet surfaces;

C. *Adjunction material made with cement according to technical specification shall have the following requirements:*
- Granulosity 0.1÷2.0mm;
- Thickness of the layer 6÷40mm;
- Stretching resistance >1.5N/mm^2;
- Compression resistance >60N/mm^2 la 28zile;
- Stretching resistance from bending >6.0N/mm^2
- Time before hardening at 20°C >45min;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 11%;
- Expansion <0.5%

D. *Waterproofing layer according to technical specification which will be applied using paintbrush or shotcrete gun and shall have the following requirements:*
- Base material cement;
- Number of necessary layer 2;
- Minumum thickness of the layer 2mm;
- Viscosity at 10°C cca. 1000–1500 MPas;
- Viscosity at 20°C cca. 500–700 MPas;
- Time before hardening at 20°C >45min;
- Minimal temperature for applying of support layer +10°C;

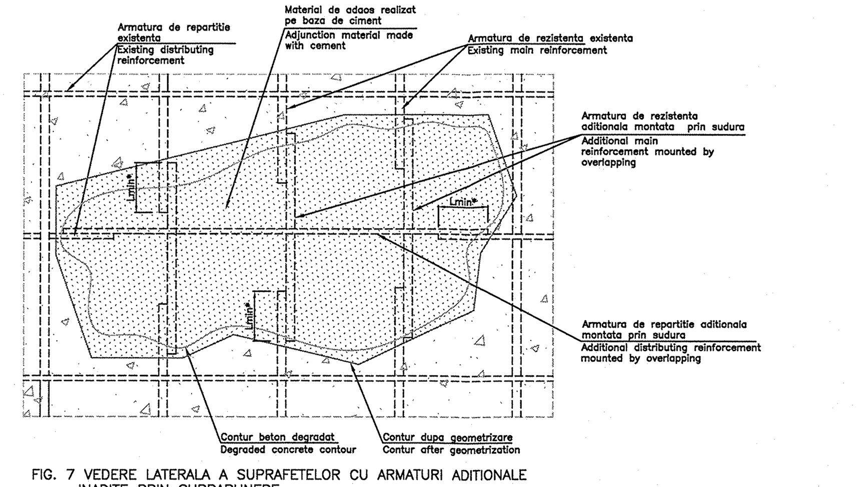

FIG. 7 VEDERE LATERALA A SUPRAFETELOR CU ARMATURI ADITIONALE INADITE PRIN SUPRAPUNERE
LATERAL VIEW OF SURFACES WITH THE ADITIONAL REINFORCEMENT MOUNTED BY OVERLAPING

Lmin = Lungimea minima de ancorare conf. tabel 25 STAS 10111/2-87*
Lmin = Minimum lenght of overlaping acc. to table no. 25 from STAS 10111/2-87*

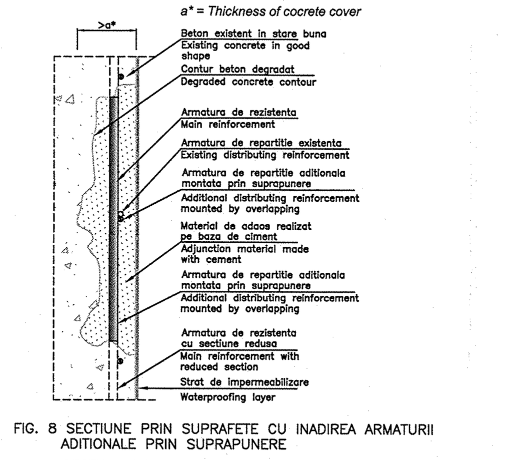

FIG. 8 SECTIUNE PRIN SUPRAFETE CU INADIREA ARMATURII ADITIONALE PRIN SUPRAPUNERE
SECTION THRU THE SURFACES WITH THE ADDITIONAL REINFORCEMENT MOUNTED BY OVERLAPPING

Tehnologia lucrarilor de reparatie a suprafetelor de beton cu defecte de tip DASR conf. C149-87 (fig.7, fig.8), cazul armaturilor cu sectiune necorespunzatoare si montarii unor armaturi aditionale prin suprapunere:

1. Se identifica si se marcheaza suprafetele de beton degradate;
2. Se repereaza si se marcheaza pozitia armaturilor (pentru evitarea deteriorarii acesteia pe durata realizarii lucrarilor de inlaturare a betonului degradat);
3. Se inlatura betonul degradat prin spituire si se creiaza un contur regulat al zonei degradate;
4. Se inlatura praful rezultat cu jet de aer sub presiune;
5. Se curata armaturile de stratul corodat pana la luciul metalic;
6. Se taie armaturile cu sectiune necorespunzatoare;
7. Se inadesc armaturile aditionale prin suprapunere;
8. Se aplica stratul de protectie anticoraziv pe armaturi;
9. Se uda suprafata de beton curatata pana la saturatie;
10. Se aplica stratul amorsa care va asigura legatura cu betonul existent;
11. Se aplica mortarul prin tencuire;
12. Se netezeste suprafata reparata;
13. Se protejeaza suprafata contra epavorarii rapide a apei;
14. 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).

Technology of repair works to the concrete areas with type DASR damages, acc. to C149-87, case with improper section of reinforcement and mounting the aditional reinforcement by overlapping (fig.7, fig.8):

1. Identifying and marking the damaged concrete areas;
2. Finding and marking the reinforcements position (in order to avoid deterioration during the execution of the damaged concrete removal works);
3. Removing the damaged concrete by chiseling and creating a regular perimeter of the damaged area;
4. Cleaning the entire surface with compressed air stream;
5. Rubbing off the rust from reinforcements to the iron glance;
6. Cutting the reinforcement with improper section;
7. Mounting the additional reinforcement by overlapping;
8. Laying on the anti corrosion protection layer on reinforcements;
9. Wetting the area to saturation;
10. Placing on the adherence layer such as to close all the voids of the existent mass;
11. Placing on the mortar by plastering;
12. Smoothing the repaired area;
13. Protecting the area against sudden evaporation of water;
14. 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).

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. *Material de protectie anticoroziv conform caietului de sarcini, ce se aplica cu pensula si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 2;
- Grosimea min. a stratului aplicat 0,5mm;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 16%;

B. *Amorsa conform caietului de sarcini si cu urmatoarele caracteristici:*
- Rezistenta la tractiune >1.5N/mm^2;
- Durata lucrabilitate la 20°C >45min;
- Numar straturi necesar 1 de 1mm grosime;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 18%;
- Rezistent la inghet–dezghet;
- Aplicabil pe suport umed;

C. *Material de adaos pe baza de ciment conform caietului de sarcini si avand urmatoarele caracteristici:*
- Dimensiunea agregatelor 0.1÷2.0mm;
- Grosimea stratului aplicat 6÷40mm;
- Rezistenta la tractiune >1.5N/mm^2;
- Rezistenta la compresiune >60N/mm^2 la 28zile;
- Rezistenta la tractiune din incovoiere >6.0N/mm^2
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiunea <0.5%

D. *Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretat si avand urmatoarele caracteristici:*
- Material de baza ciment;
- Numar minim de straturi 2;
- Grosimea min. a stratului aplicat 2mm;
- Vascozitate la 10°C cca. 1000–1500 MPas;
- Vascozitate la 20°C cca. 500–700 MPas;
- Durata lucrabilitate la 20°C >45min;
- Temperatura min. de aplicare pe stratul suport +10°C;

TECHNICAL SPECIFICATION OF THE USED MATERIALS:

A. *Anticorrosive material protection according to technical specification which will be applied using paintbrush and shall have the following requirements:*
- Base material cement;
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20° >45min;
- Number of necessary layer 2;
- Minumum thickness of the layer 0.5mm;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 16%;

B. *Primer according to technical specification shall have the following requirements:*
- Stretching resistance >1.5N/mm^2;
- Time before hardening at 20°C >45min;
- Number of necessary layer 1 of 1mm thickness;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 18%;
- Frost cleftness resistance;
- Applicable on wet surfaces;

C. *Adjunction material made with cement according to technical specification shall have the following requirements:*
- Granulosity 0.1÷2.0mm;
- Thickness of the layer 6÷40mm;
- Stretching resistance >1.5N/mm^2;
- Compression resistance >60N/mm^2 la 28zile;
- Stretching resistance from bending >6.0N/mm^2
- Time before hardening at 20°C >45min;
- Applying temperature +5° ÷ +40°C;
- Quantity of water 11%;
- Expansion <0.5%

D. *Waterproofing layer according to technical specification which will be applied using paintbrush or shotcrete gun and shall have the following requirements:*
- Base material cement;
- Number of necessary layer 2;
- Minumum thickness of the layer 2mm;
- Viscosity at 10°C cca. 1000–1500 MPas;
- Viscosity at 20°C cca. 500–700 MPas;
- Time before hardening at 20°C >45min;
- Minimal temperature for applying of support layer +10°C;

NOTA:
In cazul in care pentru suprafetele ce contin armaturi cu sectiuni necorespunzatoare reduse prin coroziune si nu este posibil montarea armaturilor aditionale prin suprapunere, (lungimea barei existente pe zona suprafetei degradate este mai mica decat dublul lungimii minime de ancoraj), atunci ele se vor inadi prin sudura la ambele capete conf. C28–85.

NOTE:
If is not possible to mount the additional reinforcement by overlapping for surfaces which are containing improper section of reinforcement reduced by corrosion (length of the existing bar is smaller then double of minimum length of the bar to be allow anchoring) then the mounting will be made by welding on both ends acc. to C28–85.

NOTA:
1. La executie se vor respecta cu strictete prevederile din "Codul de practica pentru executarea lucrarilor din beton, beton armat si beton precomprimat", indicativ NE 012–1/2007, 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 avute 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 provisions from "Practice code for plain concrete, reinforced concrete and prestressed concrete works execution" ind. NE012–1/2007, "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.

VOICU L. ION – ROMANIA – M.L.P.A.T. – NR. 128 – VERIFICATOR – INGINER

B			
A			
	Data / Date	Modificare / Modification / Revision	
BENEFICIAR/ BENEFICIARY: ROMANIAN RAILWAY NATIONAL COMPANY	AUTORITATEA DE IMPLEMENTARE/ IMPLEMENTUNG AUTHORITY – Ministerul Transporturilor / Ministry of Transports	AUTORITATEA CONTRACTANTA / CONTRACTING AUTHORITY – Ministerul Economiei si Finantelor Oficiul de Plati si Contractare Phare / Ministry of Economy and Finances Phare Payments &Contracting Office	CFCU – Contract / Contract: 1303/2007
prointec / CONSIS PROIECT		Proiect finantat de UNIUNEA EUROPEANA / Project financed by EUROPEAN UNION – POS Transport 2007–2013	Faza / Phase: PTh+DE
Intocmit / Designed: Ing. Adrian HAIDUCU	Scara / Scale: INDICATA / INDICATED	PORTOFOLIU DE PROIECTE PHARE CES 2005 / PHARE CES 2005 PROJECTS PORTFOLIO – LOT 1 – Asistenta tehnica pentru pregatirea unor lucrari de reabilitare pentru tunleuri si poduri de cale ferata / Technical assistance for preparing rehabilitation works required by railway tunnels and bridges	
Verificat / Checked: Ing. Bogdan SANDU	Data / Date: 09 2009	Denumire desen / Drawing Title – Linia ... Ploiesti Sud – Ploiesti Triaj – Pod / Bridge Km 57+540 DETALII REPARATII SUPRAFETE DE BETON ARMAT / DETAILS OF REINFORCED CONCRETE SURFACES REPAIRED	Cod desen / Drawing Code: PD 88 – Nr. / No: 05
Sef echipa / Team leader: Ing. Stelian Vara-Oros			