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 pidon;
3. Se buciardeaza suprafetele adiacente celei degradate pe 10cm stanga-dreapta;
4. Se curata armatura de pe ceafa presiune;
5. Se aplica stratul de ancoranto cetfil incat toti porii din masa betonului existent sa fie inchisi;
6. Se aplica mortarul prin tencuire in straturi de max. 10mm si se presezca 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 dupo uscarea intregii zone reparate).

CARACTERISTICI TEHNICE ALE MATERIALELOR UTILIZATE:

A. Amorsa conform caietului de sarcini si cu umatoarele caracteristici:
- Rezistenta la tractiune >1.5N/mm²;
- 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/mm²;
- Rezistenta la compresiune >16N/mm² la 28zile;
- Rezistenta la tractiune din incovoiere>6.0N/mm²
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiune <0.5%

C. Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretet 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;

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. Rubbing off the adherence layer such as to close all the voids of the existent concrete;
6. Applying 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 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 according to technical specification which shall have the following requirements:
- Stretching resistance >1.5N/mm²;
- 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;

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/mm²;
- Compression resistance >16N/mm² to 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 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;
- Minimum 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

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 reparesca si se marcheaza pozitia armaturilor (pentru evitarea deterioranti ocestei pe durata realizarii lucrarilor de inlaturare a betonului degradat);
3. Se inlatura betonul degradat prin spiturie si se creiaza un contur regulat al zonei degradate;
4. Se inlatura proful rezultat cu jet de cer sub presiune;
5. Se curata armatura de stratul corodat pana la lucios metalic;
6. Se taie armaturile cu sectiune necorespunzatoare;
7. Se montezza armaturile additionale inadite prin sudura. Functie de tipul si diametrul barelor se va stabili lungimea coronarelor de sudura conf. C28-85;
8. Se curata intreaga suprafata degradata cu jet de cer sub presiune;
9. Se aplica stratul de protectie anticoroziv 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 evaporarii 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, dupo realizarea lucrarilor de reparatii).

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 cimenti;
- Rezistenta la tractiune >1.5N/mm²;
- 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 umatoarele caracteristici:
- Rezistenta la tractiune >1.5N/mm²;
- 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/mm²;
- Rezistenta la compresiune >16N/mm² la 28zile;
- Rezistenta la tractiune din incovoiere>6.0N/mm²
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiune <0.5%

D. Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretet si avand urmatoarele caracteristici:
- Material de baza cimenti;
- 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;

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. Mounting the additional reinforcement by welding. Functie de tipul si diametrul barelor se va stabili lungimea coronarelor de sudura conf. C28-85;
8. Placing on the entire surface such as to close all the voids of the existent concrete;
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);

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/mm²;
- Time before hardening at 20° >45min;
- Number of necessary layer 2;
- Minimum 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/mm²;
- 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/mm²;
- Compression resistance >16N/mm² to 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%

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;
- Minimum 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

La = *Lungimea minima a continuului de sudura conf. C28-85*

La = *Minimum lenght of welding seam acc. to C28-85*

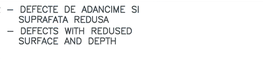

FIG. 6 SECTIUNE PRIN SUPRAFETE CU MONTAREA ARMATURI ADITIONALE PRIN SUDURA
SECTION THRU THE SURFACES WITH THE AOTIONAL REINFORCEMENT MOUNTED BY WELDING

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 additionale prin sudura:

1. Se identifica si se marcheaza suprafetele de beton degradate;
2. Se reparesca si se marcheaza pozitia armaturilor (pentru evitarea deterioranti ocestei pe durata realizarii lucrarilor de inlaturare a betonului degradat);
3. Se inlatura betonul degradat prin spiturie si se creiaza un contur regulat al zonei degradate;
4. Se inlatura proful rezultat cu jet de cer sub presiune;
5. Se curata armatura de stratul corodat pana la lucios metalic;
6. Se taie armaturile cu sectiune necorespunzatoare;
7. Se montezza armaturile additionale inadite prin sudura. Functie de tipul si diametrul barelor se va stabili lungimea coronarelor de sudura conf. C28-85;
8. Se curata intreaga suprafata degradata cu jet de cer sub presiune;
9. Se aplica stratul de protectie anticoroziv 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 evaporarii 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, dupo realizarea lucrarilor de reparatii).

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 cimenti;
- Rezistenta la tractiune >1.5N/mm²;
- 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 umatoarele caracteristici:
- Rezistenta la tractiune >1.5N/mm²;
- 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/mm²;
- Rezistenta la compresiune >16N/mm² la 28zile;
- Rezistenta la tractiune din incovoiere>6.0N/mm²
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiune <0.5%

D. Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretet si avand urmatoarele caracteristici:
- Material de baza cimenti;
- 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;

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 C28-85;
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 mortar by plastering;
12.Smoothing the repaired area;
13.Protecting the area against sudden evaporation of water;
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);

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/mm²;
- Time before hardening at 20° >45min;
- Number of necessary layer 2;
- Minimum 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/mm²;
- 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/mm²;
- Compression resistance >16N/mm² to 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%

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;
- Minimum 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 OVERLAPPING

Lmin = *Lungimea minima de ancorare conf. tabel 25 STAS 10111/0-87*

Lmin = *Minimum lenght of overlaping acc. to table no. 25 from STAS 10111/0-87*

FIG. 8 SECTIUNE PRIN SUPRAFETE CU INADIREA ARMATURI 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 additionale prin suprapunere:

1. Se identifica si se marcheaza suprafetele de beton degradate;
2. Se reparesca si se marcheaza pozitia armaturilor (pentru evitarea deterioranti ocestei pe durata realizarii lucrarilor de inlaturare a betonului degradat);
3. Se inlatura betonul degradat prin spiturie si se creiaza un contur regulat al zonei degradate;
4. Se inlatura proful rezultat cu jet de cer sub presiune;
5. Se curata armatura de stratul corodat pana la lucios metalic;
6. Se taie armaturile cu sectiune necorespunzatoare;
7. Se inodesc armaturile additionale prin suprapunere;
8. Se curata intreaga suprafata degradata cu jet de cer sub presiune;
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 evaporarii 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, dupo realizarea lucrarilor de reparatii).

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 cimenti;
- Rezistenta la tractiune >1.5N/mm²;
- 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 umatoarele caracteristici:
- Rezistenta la tractiune >1.5N/mm²;
- 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/mm²;
- Rezistenta la compresiune >16N/mm² la 28zile;
- Rezistenta la tractiune din incovoiere>6.0N/mm²
- Durata lucrabilitate la 20°C >45min;
- Temperatura de aplicare +5° ÷ +40°C;
- Cantitatea de apa 11%;
- Expansiune <0.5%

D. Strat de impermeabilizare conform caietului de sarcini ce se va aplica cu pensula sau cu pistolul de torcretet si avand urmatoarele caracteristici:
- Material de baza cimenti;
- 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;

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 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 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 overlapping;
8. Laying on the anti corrosion protection layer on reinforcements;
9. Wetting the area to saturation;
10.Placing on the mortar by plastering;
12.Smoothing the repaired area;
12. 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);

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/mm²;
- Time before hardening at 20° >45min;
- Number of necessary layer 2;
- Minimum 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/mm²;
- 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/mm²;
- Compression resistance >16N/mm² to 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%

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;
- Minimum 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 corozune si nu este posibil montarea armaturilor additionale prin suprapunere, (lungimea barei existente pe zona suprafetei degradate este mai mica decat dublul lungimii minime de ancoraj), atunci ele se vor inodi prin sudura la ambele capete conf. C28–85.

NOTE:
It 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 than 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 executia se vor respecta cu stricteta prevederile din "Codul de practica pentru executarea lucrarilor din beton, beton armat si beton precomprimat", indicativ NE 012–2007, 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. Daco 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 provisions from "Practice code for plain concrete, reinforced concrete and prestressed concrete works execution" ind. NE012–2007, "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 Technicall 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.

Pentru plan anuleaza si inlocuieste versiunea anterioara
This plan cancels and replaces previous version

Verificator / Expert Checker / Expert	Cerinta Requirement	Semnatura Signature	Referat / Expertiza Report / Expertise

European Investment Bank

MINISTERUL TRANSPORTURILOR

BENEFICIAR / BENEFICIARY : CFR

COMPANIA NAŢIONALĂ DE CĂI FERATE "CFR" SA

PROIECTANT / DESIGNER:	PÖYRY	Data Date	Semnatura Signature
Aprobat Approved	Sef de echipa Team leader	C. Teodorescu	01.2013
Verificat Checked	Expert Cheie Key Expert	R. Tudorascu	01.2013
Subcontractant / Subcontractor	IOTOP		
Aprobat Approved	Adjunct Sef de echipa Deputy Team leader	A.M. Baicu	01.2013
Proiectat Designer	Inginer Engineer	F. Ioanidi	01.2013

"Reabilitarea liniei c.f. Frontier à - Curtici - Simeria, parte componentă a Coridorului IV Pan - European pentru circula ţia trenurilor cu viteză maximă de 160 km/h"
Tronsonul 3: Gurasada - Simeria

"Rehabilitation of the Railway Line Border - Curtici - Simeria , component Part of the IV Pan - European Corridor for the Trains Circulation with maximum speed of 160 km/h"
Section 3: Gurasada - Simeria

Denumire desen / Drawing name:			
REPARATII BETON ARMAT REINFORCED CONCRETE REPARATION			
Scara / Scale 1:50 1:100	Revizia / Revision 1/05.2013	Cod desen / Drawing Code PT.03.02.00.PO.005	Nr / No 05

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Faza / Phase: PTH+CS / TD+TS