

REPOINTING DETAILS

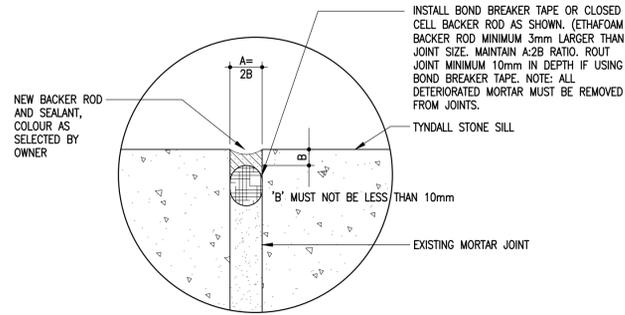
REPAIR METHOD A – FIXED PRICE: MORTAR JOINT REPOINTING PROCEDURE

1 S4.1 SCALE: NTS (FIXED PRICE)

A.1 REPOINT ALL DETERIORATED AND CAULKED MORTAR JOINTS IN TYNDALL STONE CONSTRUCTION ALONG THE NORTH, SOUTH, EAST AND WEST ELEVATION AT LOCATIONS SHOWN ON THE DRAWING S3.1 AND S3.2 UNDER FIXED PRICE.

– PROVIDE ACCESS TO ALL INDICATED EXTERIOR WALL SURFACES UNDER FIXED PRICE.

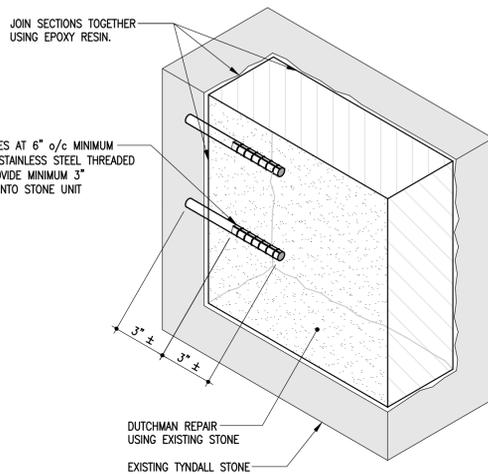
- (A) CONTRACT ADMINISTRATOR TO IDENTIFY MORTAR JOINTS FOR REPOINTING AS PART OF FIXED PRICE WORK. TYPES OF DETERIORATION INCLUDE:
 - i) OPEN JOINTS: THE MORTAR IS DEEPLY ERODED (MORE THAN 12mm FROM FACE OF MASONRY) OR HAS FALLEN OUT.
 - ii) CRACKED JOINTS: CRACKS OF HAIRLINE WIDTH OR LARGER HAVE FORMED IN MORTAR.
 - iii) SEPARATED JOINTS: MORTAR AND MASONRY DO NOT ADHERE, RESULTING IN GAP BETWEEN TWO, OR MORTAR SITTING LOOSE ON JOINT.
 - iv) TEST FOR VOIDS AND WEAKNESS BY USING HAMMERS OR OTHER APPROVED MEANS.
 - v) CAULKING HAS BEEN INSTALLED ON OR IN JOINT LINE. REMOVE ALL CAULKING/SEALANT.
- (B) RAKE UNSOUND JOINTS FREE OF DETERIORATED AND LOOSE MORTAR, DIRT AND OTHER UNDESIRABLE MATERIAL. ALL EXISTING CAULKING MUST BE REMOVED. JOINTS SHOULD BE RAKED TO A DEPTH OF 2 TO 2.5 TIMES THE VERTICAL JOINT WIDTH, BUT AT NO POINT LESS THAN 1". FLUSH OPEN JOINTS AND VOIDS CLEAN WITH WATER AND/OR AIR, AND IF NOT FREE DRAINING, BLOW CLEAN WITH COMPRESSED AIR.
- (C) MORTAR JOINTS ARE TO BE FILLED IN SUCCESSIVE LAYERS. DEEPER JOINTS SHALL BE FILLED FIRST COMPACTING NEW MORTAR IN SEVERAL LAYERS UNTIL BACK OF JOINT IS FLAT. SEVERAL 1/2" LAYERS WILL BE NEEDED TO FILL THE JOINT FLUSH WITH THE SURFACE OF THE MASONRY. ALLOW EACH LAYER TO REACH THUMBPRINT HARDNESS BEFORE THE NEXT.
- (D) FINISH MASONRY JOINTS TO MATCH EXISTING MORTAR JOINTS. LEAVE EXISTING WALL SURFACES CLEAN AND FREE OF MORTAR DROPPINGS.
- (E) ALL STONE MORTAR TO BE CSA TYPE 'N'. SEE SPECIFICATIONS FOR FURTHER DETAILS.



REPAIR METHOD 'B': TYPICAL JOINT DETAIL

3 S4.1 SCALE: NTS (FIXED PRICE)

NOTE: APPLIES TO TOP SURFACE OF HORIZONTAL STONE JOINTS AND CONTROL JOINTS ONLY.



REPAIR METHOD 'C': DUTCHMAN REPAIR OF TYNDALL STONE MASONRY

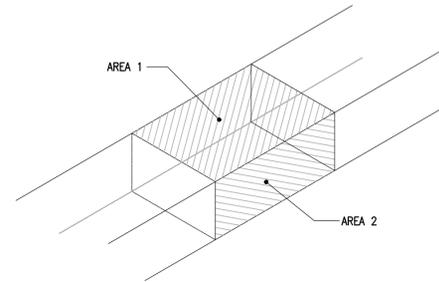
4 S4.1 SCALE: NTS (UNIT PRICE)

REPAIR METHOD C.1: DUTCHMAN USING EXIST STONE SEGMENT

- DRILL 3/8" HOLES, MINIMUM 3" LONG INTO EACH UNIT, BOTH EXISTING AND DUTCHMAN.
- DRILL HOLES AT MINIMUM 6" o/c HORIZONTAL AND VERTICAL. NOTE ADDITIONAL HOLES & DOWEL SIZES MAY BE REQUIRED AND SHALL BE INCORPORATED AT A UNIT PRICE FOR EACH ADDITIONAL DOWEL.
- BLOW OUT HOLES WITH OIL-FREE COMPRESSED AIR, THEN SUPPLY AND INSTALL SIKADUR 31 EPOXY RESIN INTO HOLES OF EXISTING STONE UNIT AND INSERT STAINLESS STEEL THREADED DOWELS. LET CURE.
- INSTALL SIKADUR 31 INTO DUTCHMAN ANCHOR HOLES AND BUTTER RESIN OVER ENTIRE SURFACE OF DUTCHMAN. ENSURE SUFFICIENT EDGE DISTANCE IS PROVIDED TO PREVENT RESIN FROM PENETRATING SURFACE UPON CLAMPING.
- PLACE DUTCHMAN INTO POSITION AND CLAMP TIGHT FOR A MINIMUM 24 HOURS OR GREATER AS REQUIRED TO ENSURE CURE OF RESIN. PROMPTLY REMOVE ANY RESIN FROM SURFACE WHICH MAY LEAK OUT OF JOINT.
- REPOINT MORTAR JOINTS & PATCH REMAINING VOIDS WITH APPROVED PATCH MORTAR AS REQUIRED TO MATCH EXISTING SURFACE PROFILE.
- FOLLOW EPOXY RESIN AND STONE PATCHING MORTAR MANUFACTURER'S SPECIFICATIONS FOR SURFACE PREPARATION, MIXING, INSTALLATION PROCEDURES AND CURING.
- PROVIDE UNIT PRICE PER 1.0 SQ. FOOT TYNDALL STONE SEGMENT DUTCHMAN (USING EXISTING SEGMENT) INCLUDE FOR MINIMUM 4 PINS PER 1.0 SQ. FOOT TYNDALL STONE SEGMENT.

REPAIR METHOD C.2: DUTCHMAN USING NEW STONE SEGMENT

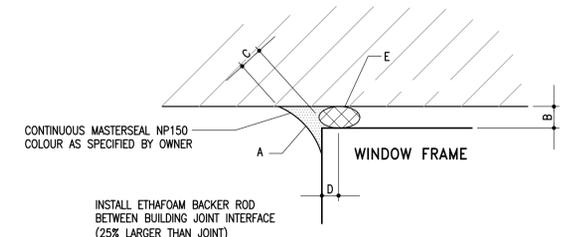
- PROVIDE NEW STONE SEGMENT UNDER REPAIR METHOD 'C.2' AS SHOWN ON SECTION 5 OF S4.1.



REPAIR METHOD 'C': SUPPLY OF REPLACEMENT STONE

5 S4.1 SCALE: NTS (UNIT PRICE)

- PROVIDE REPLACEMENT STONE DRESSED TO SUIT TO UP TO MEDIUM LEVEL OF DETAIL PER 1.0 SQUARE FOOT (APPROXIMATELY 0.1 sq.m.) OF FINISHED EXPOSED SURFACE AREA, EG. A = AREA 1 + AREA 2, UNDER UNIT PRICE.

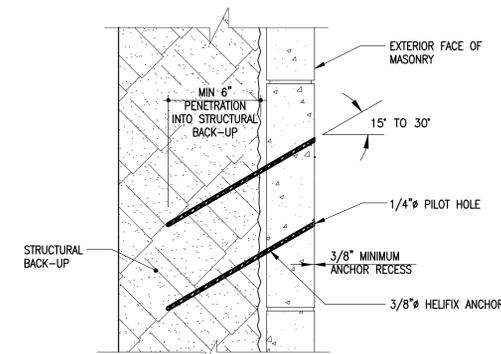


- A – SEALANT (COLOUR CHOSEN BY OWNER)
 - B – JOINT WIDTH
 - C – SEALANT DEPTH
 - D – SEALANT CONTACT DEPTH (MIN. 10mm)
 - E – BACKER ROD
- NOTE: RATIO OF B:C SHOULD BE 2:1 MINIMUM

WINDOW ROUGH OPENING CAULKING

7 S4.1 SCALE: NTS (FIXED PRICE)

- NOTES:
1. COMPLETELY REMOVE ALL EXISTING SEALANT FROM WINDOW ROUGH OPENINGS.
 2. CLEAN JOINT SURFACES IN ACCORDANCE WITH SPECIFICATIONS.
 3. INSTALL MANUFACTURER APPROVED PRIMER.
 4. INSTALL NEW CLOSED CELL BACKER ROD OR BOND BREAKER TAPE AS JOINT WIDTH PERMITS.
 5. INSTALL CONTINUOUS BEAD OF SEALANT IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
 6. REFER ALSO TO SPECIFICATION FOR A COMPLETE LIST OF METHODS AND MATERIALS.



REPAIR METHOD 'D': FACE PINNING OF STONE USING HELICAL ANCHOR

6 S4.1 SCALE: NTS (UNIT PRICE)

REPAIR METHOD 'B': FACE PINNING USING HELIFIX ANCHORS

HELIFIX INSTALLATION PROCEDURE:

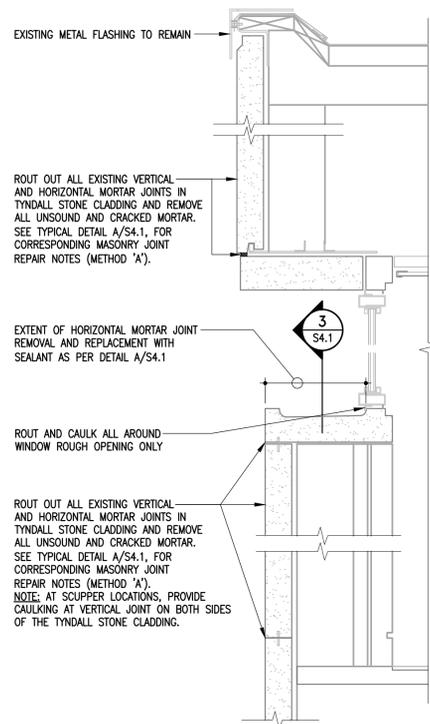
- CONTRACTOR TO OBTAIN ALL RELEVANT DRILL BITS AND SETTING TOOLS FROM BLOK-LOK LIMITED.
- SEE SPECIFICATION REGARDING FURTHER INFORMATION WITH RESPECT TO METHODS, MATERIALS AND TESTING.
- PROVIDE UNIT PRICE PER HELIFIX ANCHOR
- INSTALL HELIFIX STAINLESS STEEL TIES THROUGH THE TERRA COTTA INTO THE MASONRY BACKUP (DRYFIX TECHNIQUE) AT SPECIFIED SPACING. PATCH ALL PENETRATIONS USING JAHN RESTORATION MORTAR OR EMACO R-300 PATCHING MORTAR TO MATCH EXISTING SURFACE AS PER SPECIFICATIONS. INSTALL HELIFIX TIES AS PER THE FOLLOWING PROCEDURES:

UNDERSIDE PINNING

- A 6mm ENTRY HOLE SHALL BE PREDRILLED (BY MEANS OF A HIGH SPEED ROTARY PERCUSSION DRILL/3 JAW CHUCK TYPE) UP THROUGH THE STONE AND INTO THE MASONRY COURSE TO A DEPTH OF AT LEAST 6 INCHES (INTO MASONRY).

STRAIGHT CRACK STITCHING

- A 6mm ENTRY HOLE SHALL BE PREDRILLED (BY MEANS OF A HIGH SPEED ROTARY PERCUSSION DRILL/3 JAW CHUCK TYPE) THROUGH CRACKED SECTIONS TO A MINIMUM DEPTH OF 3 INCHES BEYOND THE CRACKED AREA.
- A HELIFIX 6mm/245mm STAINLESS STEEL REMEDIAL TIE SHALL THEN BE DRIVEN INTO POSITION BY MEANS OF A HELIFIX 'DRYFIX' ADAPTOR MOUNTED ON AN ELECTRIC HAMMER DRILL (S.D.S. TYPE) NOTE: AN UNDERSIZED RECESS (DRIVER ROD) WILL BE SUPPLIED SO THAT THE HELIFIX TIE IS POSITIONED JUST BELOW THE STONE FACE (5mm). ALL RELEVANT DRILL BITS AND SETTING TOOLS SHALL BE SUPPLIED BY HELIFIX.

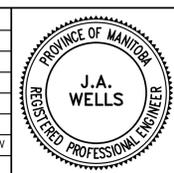


UPPER CORNICE DETAIL (METHOD A.2)

2 S4.1 SCALE: NTS (FIXED PRICE – BASE BID)



No.	Date	Issue/Revision	By
1	2015-07-29	ISSUED FOR CONSTRUCTION	JAW



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CONSULTING STRUCTURAL ENGINEERS

The General Contractor shall check & verify all dimensions and report any errors or omissions to the designers.

Project		COUNCIL CHAMBER BUILDING BUILDING ENVELOPE REPAIRS 510 MAIN STREET, WINNIPEG, MANITOBA			
Sheet Title		SECTIONS AND DETAILS			
Design		Drawn	Checked	Scale	Date
JAW		RBC	JAW	AS NOTED	2015-07-29
File		2015-0528		Sheet No.	
				S4.1	