Q. **Tab 38; Volume II: Upgrade Exterior of Building – Hydro Place**

Please provide the 2015 condition assessment of the precast concrete panels that form the outside cladding system for Hydro Place referenced on page 3, line 19.

A. A copy of the 2015 Exterior Precast Concrete Panel Assessment, referenced on Page 3, line 19, is attached as PUB-NLH-048 - Attachment 1.

SNC·LAVALIN

EXTERIOR PRECAST CONCRETE PANEL ASSESSMENT

HYDRO PLACE
500 Columbus Drvie, St. John's, NL A1B 4K7

NEWFOUNDLAND LABRADOR HYDRO

INFRASTRUCTURE AND BUILDINGS

15 | 04 | 2016

REPORT > ORIGINAL > FINAL
Rev. C01 > Internal ref. 632109-0001-t-44-rep-000-0001

HYDRO PLACE
EXTERIOR PRECAST CONCRETE PANEL ASSESSMENT
St. John's, NL

Prepared for:

NEWFOUNDLAND LABRADOR HYDRO

500 Columbus Drive
St. John's, NL
A1B 4K7

Prepared by:

SNC-LAVALIN INC.

1133 Topsail Road
Mount Pearl, NL
A1N 5G2

REGISTERED PROFESSIONAL ENGINEER
W. S. COLLINS
SIGNATURE
PROVINCE OF NEWFOUNDLAND

NEWFOUNDLAND AND LABRADOR
MEMBER
Nathaniel Salfas, NLAA
Expires Dec 31, 2016
Date 15April2016
LICENSED TO PRACTICE
ASSOCIATION OF ARCHITECTS

PROVINCE OF NEWFOUNDLAND
PERMIT HOLDER
CLASS "A"
This Permit Allows
SNC-LAVALIN Inc.
To practice Professional Engineering in Newfoundland and Labrador. Permit No. as issued by PEGNL N0458 which is valid for the year 2016.
ENGINEER IN RESPONSIBLE CHARGE

Final	2016/04/15	J.Green/ J.G. W.Collins/	N. Salfas, Architect/	N. Salfas, Architect/
Rev.	Date (y/m/d)	Prepared By:/initials	Reviewed By:/initials	Approved By:/initials

Contents

Appendices

1. EXECUTIVE SUMMARY

This condition investigation and review of the Hydro Place Office Building exterior which is now approaching its 30 year age was carried out as a visual observation of the exterior precast panels. Mostly, it involved a walk-around at ground level, but also included points of easy access at some upper levels. Particular attention was paid to the steel supports which tie the panels to the main steel building frame and to the condition of the caulking of the joints between the panels. Based on the information collected, it is with the hypothetical question of "What should be done to maintain the building's excellent appearance and usefulness over the next 30 years" in mind that this report has been prepared.

2. BACKGROUND

2.1 Client

Client: Newfoundland Labrador Hydro

Address: 500 Columbus Drive,
St John's, NL
A1B 4K7

2.2 Site

Location: 500 Columbus Drive, St John's, NL

2.3 Date of Inspections

Date: September - November, 2015

2.4 Persons Inspecting

Inspection By: Wilson Collins, Senior Structural Engineer
James Green, Senior Architectural Designer

3. INTRODUCTION

Newfoundland Labrador Hydro retained SNC-Lavalin Inc. (SLI) to provide consultant services to complete a site review to assess the exterior precast concrete panels at the Hydro Building located on 500 Columbus Drive in the City of St John's NL. SLI representatives were on site between September and November, 2015, to conduct a visual condition review of the panels reasonably visible from standing positions in and around the structure at ground level and from roof areas where accessible. SLI's project representative's on site at the time of site review were Wilson Collins, Senior Structural Engineer and James Green, Senior Architectural Designer.

This Report was completed following the visual site review and presents findings including discussion of the precast panels, caulked panel joints, panel anchors, identification of observed conditions (including photos), and recommendations for required remedial work or additional investigation as required. All work has been carried out in accordance with applicable current Canadian Codes and Standards. Architectural drawings were available at the time of assessment review; however, contractor supplied shop drawings for panel details and methods of attachment typically provided during building construction, could not be found. No other intrusive investigations, sampling or testing were completed at this time.

A preliminary on-site investigation was conducted by an SLI representative on November 03, 2014 at three (3) different panel locations. This was completed before providing Newfoundland Labrador Hydro with SLI's proposal and fee structure for the current assessment. The intent of that investigation was to determine the amount of time and level of difficulty in locating and exposing a panel anchor for assessment. At each location, the panel and one anchor were inspected. A limited number of panel anchors were found to be visible in the air space between the panel and insulation at ground level. Two (2) anchors were inspected at ground level from the exterior only, without the removal of wall construction. One (1) anchor was inspected on the seventh floor and included the removal of a small section of wall construction to expose a panel anchor from the interior of the building.

The scope of work for the current assessment included the removal of interior finishes to examine and photograph the condition of panel anchors at eight (8) separate locations (two (2) locations per building face). Newfoundland Labrador Hydro was responsible to make arrangements and pay for all interior demolition and repair required to expose the anchors. However, during the visual condition review, it was determined that a limited number of anchors on floors above ground level would also permit a visual inspection of the anchors from the

exterior, eliminating the need for any interior demolition and consequently, the disruption of daily activities of Newfoundland Labrador Hydro staff.

An inspection camera with a scope was used to visually inspect and photograph anchors exposed in the air space between the panels and the insulation at ten (10) different locations. A minimum of two (2) locations per building face were inspected with the exception of the South Elevation which provided very limited access and one suitable location for camera access.

4. DESCRIPTION

Hydro Place is a seven storey office building that includes a small mechanical penthouse on the roof of the third level and a full floor mechanical penthouse at the seventh level. Construction of the facility started in 1988 and the building comprises a total floor area of approximately 20,054 m² (215,780 sf). The building is currently occupied by approximately 510 employees.

The exterior of the building is primarily clad with precast concrete panels having an exposed aggregate finish. Joints between panels have been caulked with a sealant supported by a foam rod backer. The panels are supported on galvanized steel framing and anchors attached to the building structure. All building elevations have large window areas constructed of thermally broken aluminum curtain wall framing and hermetically sealed double glazed window units.

Refer to Appendix A for photographs taken at the time of site review. Architectural drawings were available at the time of the assessment. The drawings included as part of this report have been updated to show current panel and joint configurations but these drawings should not be considered to be as-builts. Refer to Appendix B for Building Elevation Drawings.

5. OBSERVATIONS

5.1 General

As previously noted the assessment was a visual condition review of the panels reasonably visible from standing positions in and around the structure at ground level and from roof areas where possible. Additional instances of identified conditions may be present at other unidentified locations because of the limited access to certain areas.

The following observations were found to be typical at each of the building elevations that were assessed. In specific instances where an identified issue is not typical, the issue and its location are identified on the Building Elevation Drawings in Appendix B.

5.1.1 Precast Concrete Panels

5.1.1.1 Description

Precast concrete panels refers to any concrete building element that is cast in a mold or form, typically in a factory environment, before being moved to its final location. The panels take on the shape of the mold or form into which they are poured. Precast concrete production consists of the same components used for standard cast-in-place concrete production and range in size from small spandrel units to entire wall units and is limited only by available transportation and erections methods.

5.1.1.2 Observations

Overall the panels appear to be in good condition considering the exposure and the age of the building. The exposed surfaces, including the embedded aggregate on the face of the panels, do not show any significant signs of deterioration or weathering. Some spalling has occurred in a limited number of locations (Photo 1 and 2). The extent and size of the spalling appears to be minor and does not seem to affect the structural integrity of the affected panels.

Some minor cracks are visible on the face of two (2) separate panels. Water migration around the cracks has led to the formation of efflorescence crystals which are visible from the exterior (Photo 3 and 4). Also, cracks at the top of a panel at another location are visible but efflorescence crystals have not formed (Photo 5). Efflorescence (white crystal deposits) is crusty, white, water-soluble salt deposits which are leached to the surface of concrete as water evaporates through it.

The ends of steel reinforcing/lift anchors are exposed at the sides of various panels and rust is visible (Photo 6 and 7). Patching with mortar to cover these exposed ends appears to have been done during the installation of the panels but some of the patching has disintegrated and/or fallen off. This does not appear to affect the structural integrity of the affected panels and can be considered to be more of an aesthetics issue at this time. However, over time the rusting may cause some minor spalling on exposed surfaces. At one (1) location the end of a section of steel is exposed on the face of a panel (Photo 8) and at another location, a horizontal section of steel rebar reinforcing is exposed at the top of a panel. The rebar may not have been properly placed during the manufacturing process which did not permit the minimum concrete cover typically required (Photo 9).

Misalignment of horizontal and vertical panels is visible in few locations (Photo 10) and may be attributed to allowable installation tolerances during the construction of the building. However, at one location on the South Elevation there appears to be a significant variation in the width of a panel joint from top to bottom which suggests there may be a issue with regard to movement (Photo 11 and 12). The panels in this area require further investigation.

Stains from various sources are visible on the surface of some panels. Stains that occur as a result of water runoff from adjacent window sills can be found on all sides of the building (Photo 13). Staining from water runoff has occurred around some of the mechanical system louvres as well. Some rust stains are visible around sleeves for building service equipment such fire protection standpipes, light fixtures, external alarms and around exposed anchors where equipment and or signage has been removed (Photo 14 and 15). The staining does not affect the structural integrity of the panels and is more of an aesthetic issue.

5.1.2 Joints between Precast Concrete Panels

5.1.2.1 Description

The joints between the panels contain a pliable sealant which is meant to seal and make joints weathertight to prevent water penetration into the wall cavity. The sealant is supported by a flexible foam rope-like backer rod to force the sealant into contact with the sides of the joint creating a better bond and to control the depth of the sealant.

5.1.2.2 Observations

Typical joint widths observed on site are approximately 13mm ± but vary from 6mm to 50mm ± depending on location (Photo 16). At some locations joint width appears to have increased

beyond original design intent since construction of the facility. Some of this movement may be attributed to shrinkage of the panels.

The overall condition of the joint sealant varies from fair to poor. The sealant in many of the joints that remain in fair condition is still pliable and attached to the precast panels but shows signs of aging and exposure to the elements (Photo 17 and 18). The degree of aging and exposure varies and depends upon the orientation of the building face.

Hairline cracks and small fissures are visible on the surface of the sealant in other locations which indicates a portion of the sealant has dried out and become brittle (Photo 19 and 20). Sealant at some locations has partially detached from the precast panels on one side and in some cases on both sides of the joint (Photo 21 and 22). Complete detachment has occurred in some locations with sagging sealant and exposed foam rod backing visible in the joints which may be a result of panel shrinkage. Sealant at a number of locations is a lighter colour and appears to be new which suggests that repairs have been previously completed.

5.1.3 Precast Concrete Panel Anchors

5.1.3.1 Description

Two different types of tie-back anchors that were used for securing the precast panels to the main building frame were observed during the assessment review: hollow structural steel and large diameter steel bolts. Wall mounted steel support angles located at the bottom of smaller precast panels were also observed.

A hollow structural steel (HSS) section is a type of metal profile with a hollow tubular cross section. HSS members can be square, rectangular, or circular sections and are only composed of structural steel as per code. The hollow structural steel panel anchors observed on site are rectangular. Steel bolts are a form of threaded fastener with an external male thread secured in place with a steel nut or screwed into a threaded sleeve.

5.1.3.2 Observations

Most of the building has hollow structural steel sections that have one end welded to the main steel frame and the panels have slots or holes that fitted over them and secured them in place (Photo 23 and 24). The exterior of these holes was then grouted and matching stone added. At a few locations, this material has fallen or weathered away and the ends of these supports are visible (Photo 25). The number of these supports probably varied as the size and weight of the panels varied.

The second anchoring system was only evident at the third floor penthouse. It consisted of using fairly large diameter bolts (Photo 26 and 27). Narrow width precast panels located mainly between windows are supported at the bottom with galvanized steel support angles (Photo 28).

All of these supports were initially hot dipped galvanized to a high level, as the galvanizing still remains in almost original condition. This is possibly due to the fact that there is an air space between the panels and the main building envelope. This allows air to circulate, so that any moisture and the local high saline content air are able to move through and be carried away.

From a visual observation, all of these support/anchor components appear to be sound and remain tightly fitted to their respective panels.

6. RECOMMENDATIONS

6.1 Recommendations

The exterior envelope of the building has now been exposed to the ambient atmospheric conditions and weather for 28 years. In general, it has stood up very well, considering the weather extremes and the relatively high salt content of the air in St. John's. However, as could be expected, some weathering has occurred, and to stabilize this and extend the service life and appearance of the building for say, another 30 years, it is recommended that the following steps be taken as soon as practically possible within the time frames described below:

1. That all of the joints between panels be revisited, and treated according to their existing state or condition – (A) where completely missing, put in new foam backer rod, treat the surfaces to be sealed, and apply a new latest technology or state of art sealant, (B) where pulled away on one side, sealant removed, surface cleaned and treated and replaced with new, (C) where still in service, surface cleaned, and re-parged with a compatible new sealant.

   The exact length of each of these categories is not currently known, and is perhaps best done with the selected contractor on an ongoing basis during the work program as access becomes available. To do this in advance of the work being awarded would require a costly access program which is considered impractical at this time. It is suggested that the work be given to the selected contractor on the basis of a unit price per lineal metre or foot for each of the categories.

2. Those panels showing signs of efflorescence be treated with an applicable solvent to remove existing efflorescent crystals and then treated with a sealer to inhibit future development of efflorescence. This is often done by the use of toluene or xenol to remove the crystals followed by an acrylic sealer. This will restore the appearance of the panel to original, but the efflorescence may reoccur. Another option is the direct application of an acid gel such as Spray-Lock which will remove the efflorescence for a longer period. Refer to the Spray-Lock Data Sheets in Appendix C of this report for more information.

3. All cases where panels are out of normal tolerance should be examined – each on its own merits, and a decision made as to whether to accept and stabilize if it is determined that all possible movement has stopped, or replaced or reinforced if there remains some

risk of future movement. It should be noted that there are very few of these cases. The extent of work to address these cases cannot identified until the additional work described above has been carried out.

4. The life of the panels themselves may be extended through the application of a surface gel sealer such as Spray-Lock providing it is shown that the PH of the existing concrete is compatible for this application. This would be spray applied over the exterior surface and would provide long term protection to the exposed concrete that holds the stones on the panels in place. It is noted that Spray-Lock can also stop and eliminate efflorescence if the concrete PH falls within certain limits.

5. That the cause of major stains be addressed and rectified and affected panels treated with an applicable cleanser to remove stains.

6. That non-shrink grout or flexible caulking be applied to exposed ends of anchors/lift devices, reinforcing, and steel framing.

6.2 Suggested Repair and Maintenance Timeframe:

For Recommendation Items 1, 2 and 3: - Work should be completed within the next two (2) years before the fall 2017. The work described is temperature and weather sensitive, and this provides two summer seasons.

For all other Recommendation items: - Should a decision be made to carry out any this work, it is considered to be less urgent than the previous three (3) items, but in the interest of building longevity and minimizing future maintenance, probably should be carried out in the next five (5) years before the end of 2020.

7. LIMITATIONS

7.1 Limits of Assessment

The scope of work defined in SLI's proposal for the Exterior Precast Concrete Panel Assessment included the condition assessment of a representative sampling of panel anchors at eight (8) separate locations. The proposal also indicated if anchors at these locations were found to be in good condition, it would be assumed the remaining are in a similar condition but a guarantee would not be provided as an investigation of all anchors would not be reasonable and would cause considerable disruption. At this time there is no way to be certain that every anchor is still capable of carrying the imposed loads.

8. COST ESTIMATE

Cost estimates to address identified issues and complete recommendation items are Class D 'Order of Magnitude' only and are exclusive of engineering fees and HST.

Item 1	Repair/replace panel joint sealant and backer	$300,000.00
Item 2	Remove efflorescence. Treat affected panels with sealant.	$20,000.00
Item 3	Investigate panel out of tolerance cases (investigation only).	$10,000.00
Item 4	Application of Spray-Lock (if panel PH is compatible)	$150,000.00
Item 5	Clean major stains	$10,000.00
Item 6	Application of non-shrink grout or flexible sealant over exposed anchor/lift devices and exposed reinforcing	$30,000.00
	20% Contingency	104,000.00
Total		$624,000.00

APPENDICES

A SITE PHOTOS

Photo 1: Spall at top of panel.

Photo 2: Spall and repair at lower left corner of panel.

Photo 3: Minor cracks and efflorescence crystal formation.

Photo 4: Minor cracks and efflorescence crystal formation.

Photo 5: Minor cracks in panel.

Photo 6: Exposed end of reinforcing/lift anchor and typical mortar repair beyond.

Photo 7: Exposed end of reinforcing/lift anchor.

Photo 8: Exposed end of steel section.

Photo 9: Exposed steel rebar reinforcing.

Photo 10: Misalignment of panels.

Photo 11: Width of joint varies from top to bottom of wall.

Photo 12: Width of joint varies from top to bottom of wall.

Photo 13: Water runoff stains adjacent to windows.

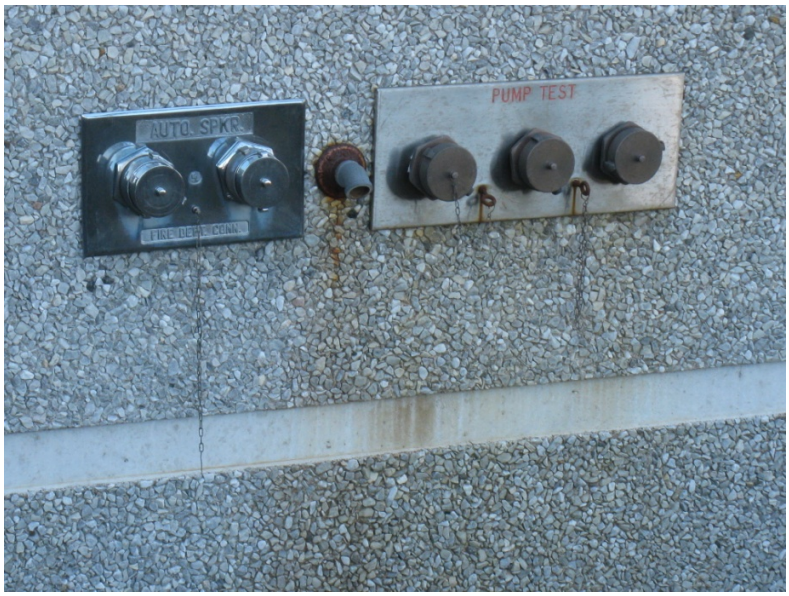


Photo 14: Stains/rust around building service equipment.

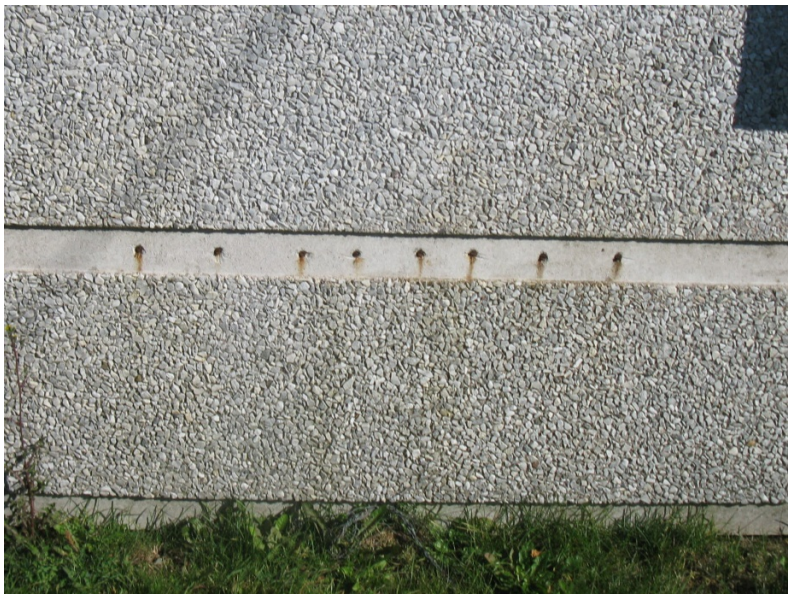


Photo 15: Rust at exposed anchors.

Photo 16: Various joint widths.

Photo 17: Joint sealant in fair but aged condition.

Photo 18: Joint sealant in fair but aged condition.

Photo 19: Hairline cracks in sealant.

Photo 20: Fissures in sealant.

Photo 21: Sealant partially detached on one side of joint.

Photo 22: Sealant detached on both sides of joint.

Photo 23: Hollow structural steel panel support.

Photo 24: Hollow structural steel panel support.

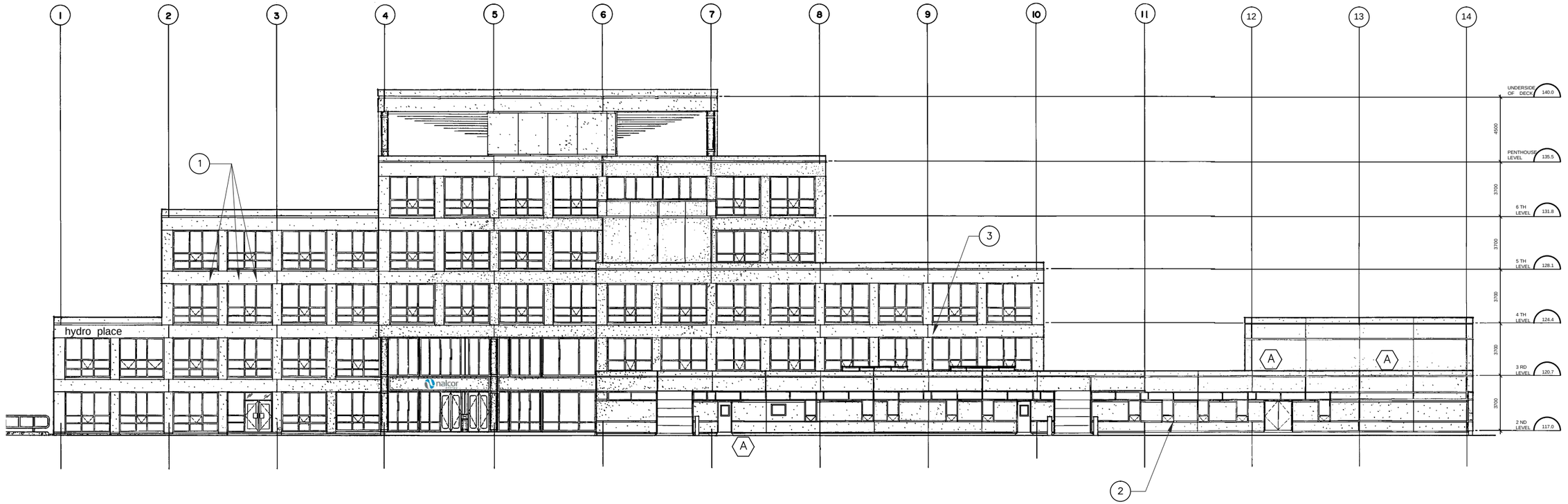
Photo 25: Visible panel support at exterior.

Photo 26: Large diameter panel support bolt.

Photo 27: Large diameter panel support bolt.

Photo 28: Galvanized steel angle at panel bottom.

B BUILDING ELEVATION DRAWINGS



WEST ELEVATION

N.T.S.

ITEMS IDENTIFIED AT PRECAST PANELS:
(approximate locations)

1. EFFLORESCENCE CRYSTALS AND MINOR CRACKS.
2. MINOR CRACKS.
3. MINOR SPALL.
4. EXPOSED END OF STEEL ON FACE OF PANEL.

ANCHOR INSPECTION LOCATION:
(approximate locations)

A. INSPECTION OF ANCHOR FROM EXTERIOR WITH INSPECTION CAMERA

CLIENT: NEWFOUNDLAND LABRADOR HYDRO

PROJECT: EXTERIOR PRECAST CONCRETE PANEL ASSESSMENT

DRAWING TITLE: WEST ELEVATION

SNC·LAVALIN

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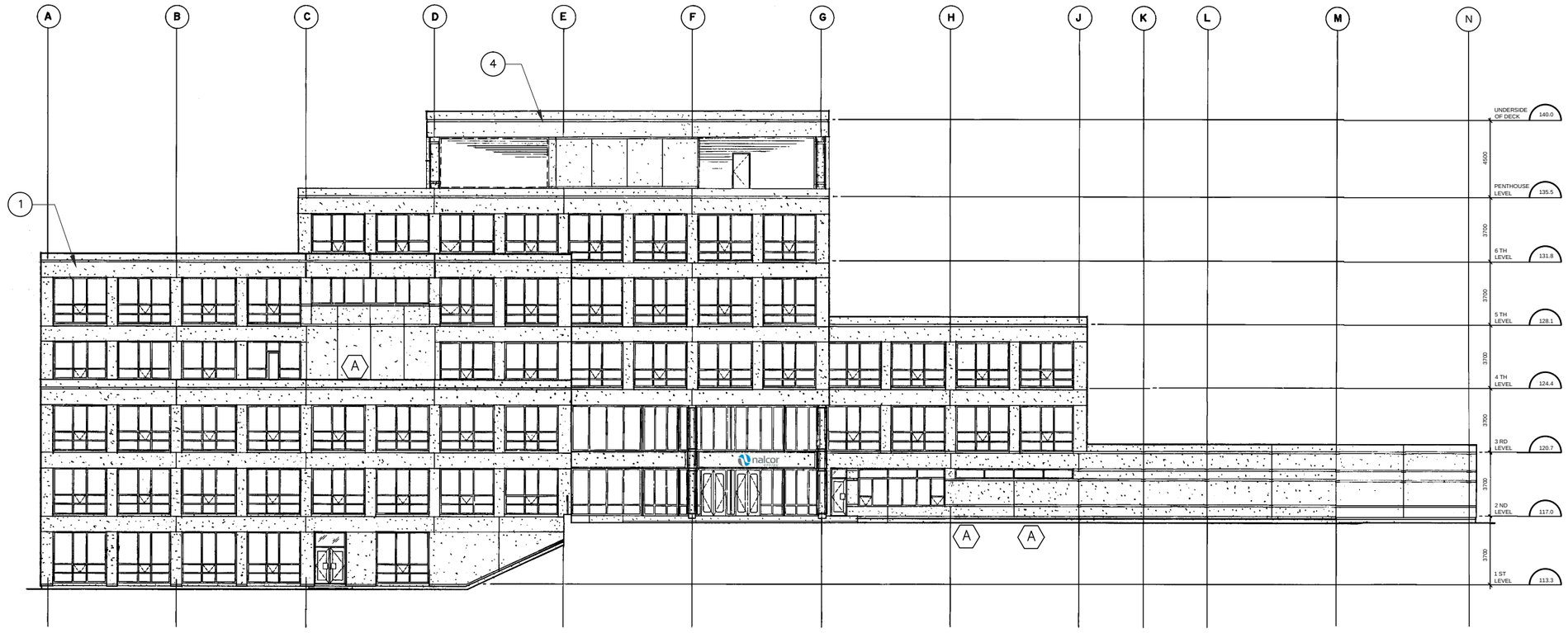

NORTH ELEVATION

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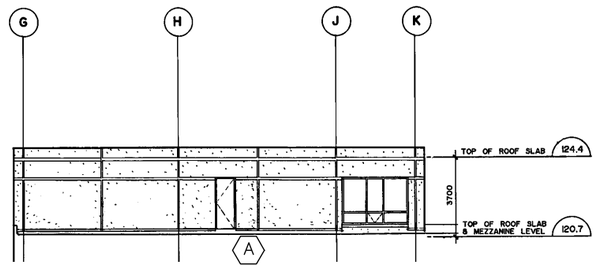

NORTH ELEVATION

N.T.S.

ITEMS IDENTIFIED AT PRECAST PANELS:
(approximate locations)

1. EFFLORESCENCE CRYSTALS AND MINOR CRACKS.
2. MINOR CRACKS.
3. MINOR SPALL.
4. EXPOSED END OF STEEL ON FACE OF PANEL.

ANCHOR INSPECTION LOCATION:
(approximate locations)

A. INSPECTION OF ANCHOR FROM EXTERIOR WITH INSPECTION CAMERA

CLIENT: NEWFOUNDLAND LABRADOR HYDRO

PROJECT: EXTERIOR PRECAST CONCRETE PANEL ASSESSMENT

DRAWING TITLE: NORTH ELEVATIONS

SNC·LAVALIN

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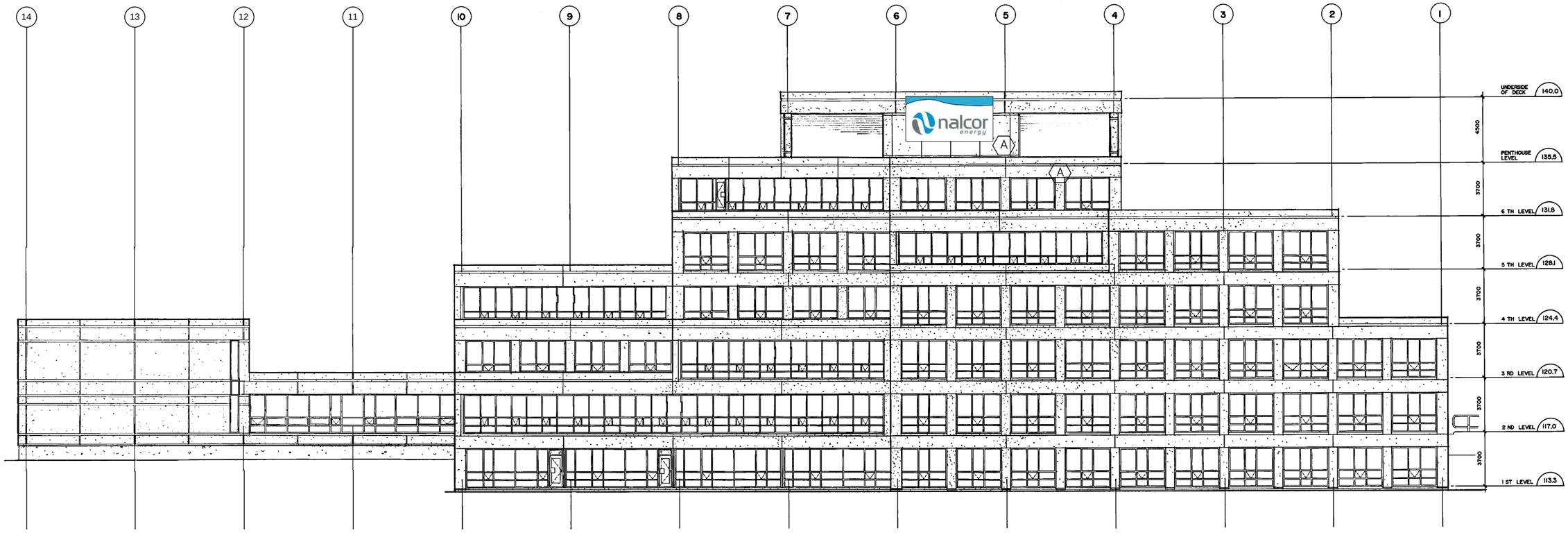

EAST ELEVATION

N.T.S.

ITEMS IDENTIFIED AT PRECAST PANELS:
(approximate locations)

1. EFFLORESCENCE CRYSTALS AND MINOR CRACKS.
2. MINOR CRACKS.
3. MINOR SPALL.
4. EXPOSED END OF STEEL ON FACE OF PANEL.

ANCHOR INSPECTION LOCATION:
(approximate locations)

A INSPECTION OF ANCHOR FROM EXTERIOR WITH INSPECTION CAMERA

CLIENT: NEWFOUNDLAND LABRADOR HYDRO

PROJECT: EXTERIOR PRECAST CONCRETE PANEL ASSESSMENT

DRAWING TITLE: EAST ELEVATION

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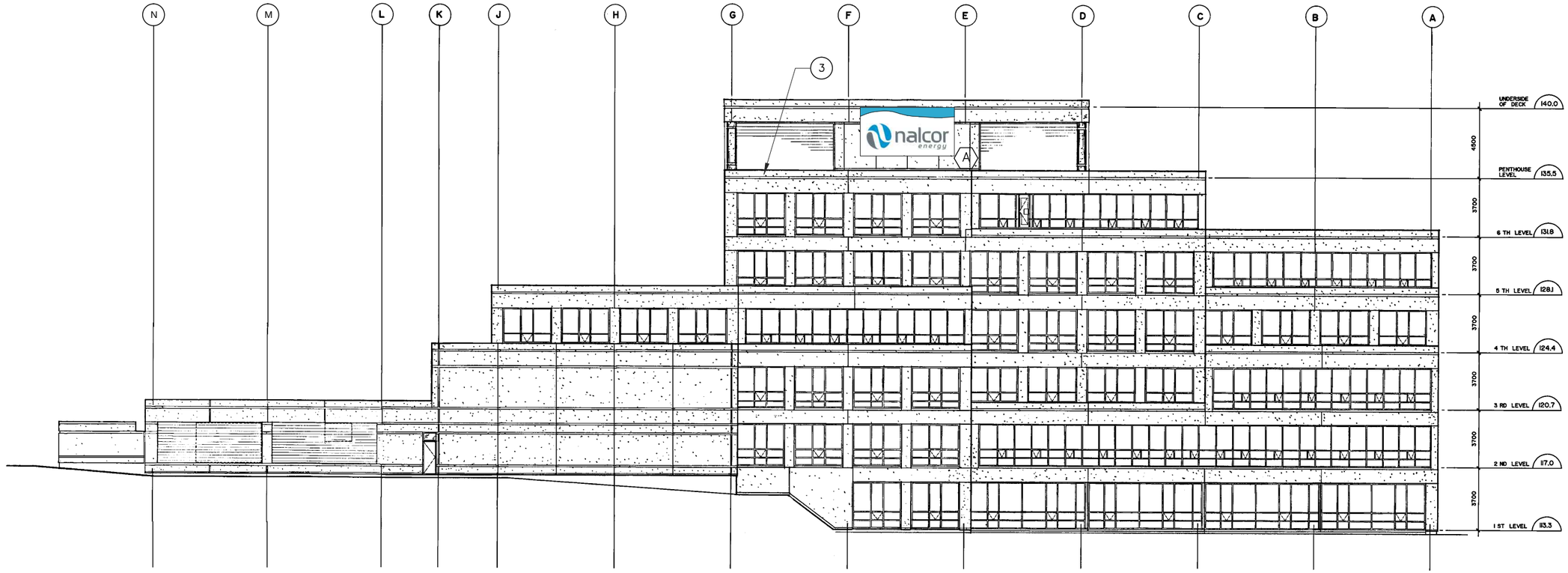

SOUTH ELEVATION

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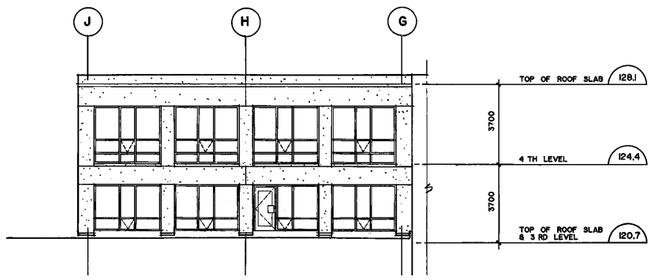

SOUTH ELEVATION

N.T.S.

ITEMS IDENTIFIED AT PRECAST PANELS:
(approximate locations)

1. EFFLORESCENCE CRYSTALS AND MINOR CRACKS.
2. MINOR CRACKS.
3. MINOR SPALL.
4. EXPOSED END OF STEEL ON FACE OF PANEL.

ANCHOR INSPECTION LOCATION:
(approximate locations)

A. INSPECTION OF ANCHOR FROM EXTERIOR WITH INSPECTION CAMERA

CLIENT: NEWFOUNDLAND LABRADOR HYDRO

PROJECT: EXTERIOR PRECAST CONCRETE PANEL ASSESSMENT

DRAWING TITLE: SOUTH ELEVATIONS

SNC·LAVALIN

REV.	REVISIONS	BY	APP.	DATE

DRAWN: JG | APPROVED: | DATE:

CLIENT PROJ. NO. | SLI PROJ. NO. 632109

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C SPRAY-LOCK DATA SHEETS

Spray-Lock®

CONCRETE PROTECTION

PERMANENT CONCRETE PROTECTION

Spray-Lock®
CONCRETE PROTECTION

SCP 743

Concrete Remediation

PERMANENT CONCRETE PROTECTION

Technical Data

PRODUCT CHARACTERISTICS

SCP 743 is a spray-applied treatment that is specifically engineered to penetrate into the capillaries and pores of reinforced concrete structures to condition the concrete and to improve pH to help protect embedded reinforcing steel.

SCP 743 is a one-time application that increases durability and provides permanent protection, reducing recurring maintenance saving time and money.

Concrete remediation practices are enhanced with SCP 743 application as it forms a gel structure within the concrete capillaries and pores to waterproof the concrete. Treated concrete has been tested to withstand over 250-feet of Head Pressure (75-meters). Depending on the mix design, SCP 743 can purge and/or encapsulate contaminants within the concrete capillary and pore structure, effectively removing their contribution to reinforced concrete distress.

SCP 743 technology addresses concrete durability issues such as de-icing chemical and freeze-thaw damage, concrete contamination, concrete permeability, moisture migration, concrete carbonation, and alkali-aggregate reactivity. SCP 743 also locks in free alkali to mitigate efflorescence.

Non-flammable with zero VOCs, Spray-Lock Concrete Protection® Technology is unique with over 35-years proven performance.

INSTALLATION ADVANTAGES

- Allows foot traffic in as little as 1-hour for most flatwork. Up to 3-hours for really dense concrete and/or extremely high moisture conditions
- Ready to accept coatings and/or coverings in as little as 24-hours on existing concrete
- Can purge and/or encapsulate contaminants in concrete
- 0.0 g/ml VOC content
- Water-based
- Non-flammable
- Non-toxic
- Odorless

PRODUCT BENEFITS

- Protects embedded reinforcing steel
- Rejuvenates concrete capillary & pore structure
- Ready to accept all coatings & coverings
- Improves resistance to chemical & environmental attack
- Permanent protection
- Access slabs in as little as 1-hour
- Increases durability
- Minimizes mold & mildew
- Saves time & money
- Non-flammable
- Zero VOC
- Easy to apply
- Safe to apply

Description: SCP 743 is a spray-applied, penetrating Portland cement concrete treatment. It provides benefits that include: waterproofing; densification, and surface hardening, resistance to salt and chemical attack, freeze-thaw damage and reinforcing steel corrosion.

Where to use: SCP 743 may be applied on any Portland cement concrete element that requires superior protection. These include, but are not limited to: • Precast Structures • Parking Decks & Ramps • Bridge Substructures & Superstructures • Mechanical Rooms • Roof Decks • Architectural Concrete

Packaging & Storage: SCP 743 is packaged in 5-gallon pails, 20-liter pails and 330-gallon totes. Product shall ideally be stored in a location that is dry and between 35 °F to 100 °F (2 °C to 38 °C) ambient temperature. Optimal storage is at the middle of the temperature range. Protect from freezing. 5-year shelf life under proper storage conditions.

Surface Preparation: **1.** Do not apply on frozen substrate or when temperature can fall below 32 °F within 24 hours of application. **2.** Curing membranes, wax, paint or foreign deposits of any kind restricting access to concrete's internal pore structure must be mechanically removed for SCP 743 to penetrate (i.e.- surface grinding, shot blasting, bush hammering, etc.). **3.** Test porosity by applying a few drops of clean water on the surface. Water should absorb within 1½ - 3 minutes. If unsure, contact SCP representative for guidance. **4.** Sweep and/or vacuum the surface thoroughly prior to application. *Note: It is very important to contact SCP for job specific advice regarding correct application before commencing use of this product.*

Application:

1. Use a low to medium pressure sprayer complete with an extension wand and 0.019 - 0.031 inch (0.48-0.79 mm) fan tip spray jet. Hold wand and spray 6 inches (15cm) from the surface of the substrate at a 90° angle.

IMPORTANT: Product MUST be applied using an overlapping spray pattern of 50% on the previous run.

2. For slab applications, product should hold a flooded appearance (swimming pool effect) for approximately 15 minutes. There are inherent variations in concrete density; some areas will absorb faster than others. Any area that absorbs product faster than 15 minutes will need to be reapplied until the product no longer absorbs faster than 15 minutes. This is called spraying to the "point of rejection."

a. If an area is re-applied more than 3 times, contact the SCP technical department for additional information.
b. If product has absorbed thoroughly in the majority of the area, but there is pooling in the low areas, use a broom to spread additional product into the areas already penetrated. Do not allow product to dry in pools. Remove excess with a damp mop.
c. After liquid absorption, treated area can be opened to foot traffic.
d. In the event of product drying on the surface, lightly and quickly sand the entire surface to remove any of the dried product. Remove dust with broom or vacuum.
e. Process is complete.

3. For vertical and overhead applications, work from lowest to highest elevation. Very light and repeated spray passes should be made on the same area until the concrete surface no longer accepts product. Move onto next area after achieving "point of rejection." Please contact your nearest SCP representative for additional technical support and/or training.

NOTES:

- Use of a dust mask or screen while applying the product is recommended.
- SCP 743 may be used as a superior curing medium for patches on existing concrete. Apply to newly placed and finished concrete as soon as it is hard enough for foot traffic or upon form removal. If placing on concrete after form removal, ensure that there are no form release oils or membranes on the concrete surface that could impede the penetration of SCP 743. Do not allow excess product to dry on the surface before leaving the site. Remove any excess by brooming.
- Areas of high porosity have a faster absorption rate and may dry immediately after spraying. It is important that the product is applied to achieve surface saturation. For slabs, tt should appear as total flooding (swimming pool effect) over the entire surface with a thickness of approximately 1/16 - inch (1.5mm). Frequently check coverage rates. Surface saturation should hold that appearance for approximately 15 minutes. If absorption continues to be excessive, contact the SCP representative.
- If applying coatings and/or coverings, wait a minimum of 24-hours from the time of final application of SCP 743 for existing concrete or until new concrete is fit for service. Then lightly sand and thoroughly vacuum the surface to remove any contaminants that may be on the surface. Do not flush with water as mechanical removal allows faster access to the surface.
- Like fresh concrete itself and other alkaline materials, SCP 743 may etch glass, shiny aluminum and brass if left to dry on the surface. Simply remove while wet.
- If considering application of this product over precast concrete products, contact SCP before use as precast concrete products vary widely in porosity and construction.
- Application rates and methods differ when applying overhead and vertically. Contact SCP for additional information.
- DO NOT apply on frozen substrate or when temperature is near freezing.
- DO NOT apply when substrate is 90°F (32°C) or higher. If surface temperature is higher than 90°F (32°C) then pre-wetting with water is required. Be sure to remove any puddles before applying of SCP.

General Information:
For safe handling information on this product, see the Material Safety Data Sheet (MSDS).

Storage:
Product shall ideally be stored in a location that is dry and between 35°to 100°F (2°to 38°C), ambient temperature. Optimal storage is at the middle of the temperature range. 5-year shelf life under proper storage conditions.

Warranty:
See Spray-Lock Concrete Protection® limited warranty.

Technical Data:

Color: Translucent Blue
Odor: None
Specific Gravity: 1.10
pH: +/- 11.5
Flammability: 0 (non flammable)
Toxicity: None

VOC/VOS Content: 0.0 g/ml
Surface Bond Quality: 100% of untreated concrete
Paintability: 100% of untreated concrete
Clean-up Solvent: Water
Environmental Impact: None/neutral
User Status: Friendly

Coverage* Guide SCP 743
70 - 90 ft² per 1 gallon
1.75 - 2.25 m² per 1 liter

* Coverage rates are a guide and figures may increase or decrease depending on the porosity of the concrete and spray technique.

Spray-Lock CONCRETE PROTECTION

About SCP

Spray-Lock Concrete Protection® (SCP) products are spray-applied treatments that penetrate into the concrete capillary and pore structure to provide permanent waterproofing and protection. SCP product features include: enhanced curing at time-of-placement; densification, strengthening and surface hardening; minimized shrinkage cracking and slab curl; and enhanced resistance to salt or chemical attack for the life of the concrete. Environmentally safe with zero VOC content, SCP allows coatings and coverings to be successfully installed 14-days after concrete placement with no failure due to moisture migration through the concrete.

Product Benefits	PRODUCT TESTING	SCP 327 Time of Placement	SCP 578 Premium Concrete Protection	SCP 743 Concrete Remediation
Superior Cure at Time of Placement	ASTM C157 | ASTM C39 | AS 1012.9	✓		
Reduces Shrinkage Cracking & Slab Curl*	ASTM C157	✓	✓	
Access Treated Areas in as little as 1-Hour	TESTIMONIALS	✓	✓	✓
Waterproofs Concrete From Time-of-Placement	DIN 1048, Part 5, Section 7.6	✓		
Waterproofs Existing Concrete	DIN 1048, Part 5, Section 7.6		✓	✓
Minimizes Scaling & Spalling	ASTM C666	✓		
Accepts All Coatings & Coverings	ASTM C1583/C1583M | ASTM E303	✓	✓	✓
Leaves Mechanical Key for Coatings	ASTM C1583/C1583M | ASTM E303	✓	✓	✓
Enhances Chemical & Environmental Attack Resistance	ACID TEST | DIN 1048, Part 5, Section 7.6 ASTM C1543 | ASTM C666 | ASTM C876	✓	✓	✓
Increases Durability	ACID TEST | DIN 1048, Part 5, Section 7.6 ASTM C1543 | ASTM C666 | ASTM C876	✓	✓	✓
Rejuvenates Concrete Capillary & Pore Structure	ACID TEST		✓	✓
Protects Embedded Reinforcing Steel	ASTM D4464 | DIN 1048, Part 5, Section 7.6 ASTM C1543 | ASTM C876			✓
Minimizes Mold & Mildew	TESTIMONIALS	✓	✓	✓
Permanent Protection	TESTIMONIALS	✓	✓	✓
Safe and Easy to Apply	EPA TEST METHOD 8260B	✓	✓	✓
Saves Time & Money	TESTIMONIALS	✓	✓	✓
Non-Flammable	MSDS	✓	✓	✓
Zero VOC	EPA TEST METHOD 8260B	✓	✓	✓
Coverage		140-180 ft² per gal	140-180 ft² per gal	70-90 ft² per gal

*At time-of-placement

Spray-Lock®
CONCRETE PROTECTION

CERTIFIED QUALITY MANAGEMENT SYSTEM
ISO 9001:2008

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Chattanooga, TN 37421
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www.spraylockcp.com

FSC www.fsc.org MIX Paper from responsible sources FSC® C004117

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