



# ICC-ES Evaluation Report

## ESR-5089

Issued February 2023

This report is subject to renewal February 2024.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**

**Section: 07 81 00—Applied Fireproofing**

**REPORT HOLDER:**

ALBI MFG, DIV OF STANCHEM, INC.

**EVALUATION SUBJECT:**

ALBI CLAD TF+

### 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2021, 2018, 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see [ESR-5089 LABC and LARC Supplement](#).

**Properties evaluated:**

- Fire-resistance-rated construction
- Surface burning characteristics

### 2.0 USES

Albi Clad TF+ is an intumescent fire-resistant coating that provides protection, with up to a four-hour fire-resistance rating, for interior structural steel columns in accordance with IBC Section 703.2 and 2021, 2018, 2015, 2012 and 2009 IBC Section 704 (2006 IBC Section 714). When installed in accordance with this report, the products are suitable for use in buildings of Type I and II construction in accordance with 2021, 2018, 2015 and 2012 IBC Section 603.1 Exception 21 [2009 IBC Section 603.1 Exception 20 (2006 IBC Section 603.1 Exception 18)].

### 3.0 DESCRIPTION

Albi Clad TF+ coating is a water-based intumescent coating that has a shelf life of twelve months when stored indoors at temperatures between 45°F (7°C) and 105°F (40°C). When installed in accordance with this report, Albi Clad TF+ has a Class A interior finish classification, as set forth in IBC Section 803, when tested in accordance with ASTM E84.

### 4.0 INSTALLATION

#### 4.1 General:

Installation is applicable to Interior General Purpose (interior surfaces).

#### 4.2 Surface Conditions:

All structural steel to be coated with Albi Clad TF+ intumescent coating must be primed with a phenolic modified alkyd resin primer, as specified in Figures 1 through 4. The primer must be recommended for use by the manufacturer. Primed surfaces must be free of any grease, oil, dirt, loose mill scale, rust or any other contaminant that would inhibit bonding of the Albi Clad TF+ coating to the primer.

#### 4.3 Application of Albi Clad TF+:

Albi Clad TF+ intumescent material is applied by brush, roll, trowel or spray application in accordance with the manufacturer's published installation instructions.

**4.3.1 Thickness:** Minimum average required dry-film thicknesses of the intumescent coating applied directly to structural steel columns are indicated in Figures 1 through 4. Thicknesses must be verified using a calibrated dry-film thickness gauge.

**4.3.2 Minimum Tolerance:** The thickness of the coating must be corrected by applying additional material at any location where the average measured thickness of the material is less than that indicated in this report, or where an individual measured thickness reading is less than 80 percent of the thickness specified in this report.

**4.3.3 Maximum Tolerance:** An individual measured thickness exceeding the thickness specified in this report by 20 percent or more must be recorded as the thickness specified in the design plus 20 percent. The average dry-film thickness must not exceed by more than 10 percent the maximum thickness listed for the fire-resistance-rated assemblies indicated in this report.

#### 4.4 Special Inspection:

Application of Albi Clad TF+ as described in this report requires special inspection as described in 2021 IBC Section 1705.16 (2018 and 2015 IBC Section 1705.15, 2012 IBC Section 1705.13, 2009 IBC Section 1704.13 or 2006 IBC Section 1704.11), as applicable. The special inspector must verify the cleanliness of the substrate, site conditions, product designation, application procedures, and applied material thickness.

The thickness of the coating must be determined using the methods prescribed in Technical Manual 12-B, "Standard Practice of the Testing and Inspection of Field Applied Thin-Film Intumescent Fire Resistive

Materials: An Annotated Guide,” published by the Association of the Wall and Ceiling Industries (AWCI). The special inspector must verify that the application complies with the manufacturer’s instructions and this report.

## 5.0 CONDITIONS OF USE

The Albi Clad TF+ described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report and the manufacturer’s published installation instructions. If there are differences between this report and the manufacturer’s published installation instructions, the more restrictive governs.
- 5.2 Application must be limited to dry interior locations.
- 5.3 Thickness of the intumescent coating material must comply with Section 4.3 and Figures 1 through 4 of this report.
- 5.4 Special inspection is required as set forth in Section 4.4.
- 5.5 The Albi Clad TF+ described in this report is permitted to be used on steel columns and beams, as specified in Figures 1 through 4.
- 5.6 The Albi Clad TF+ described in this report is produced under a quality control program with inspections by ICC-ES.

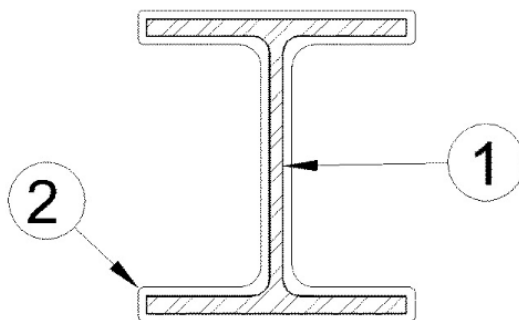
## 6.0 EVIDENCE SUBMITTED

Reports of testing in accordance with ICC-ES Acceptance Criteria for Sprayed Fire-resistant Materials (SFRMs), Intumescent Fire-resistant Coatings and Mastic Fire-resistant Coatings Used to Protect Structural Steel Members (AC23), dated June 2019 (Editorially revised March 2021).

## 7.0 IDENTIFICATION

- 7.1 The ICC-ES Mark of Conformity, electronic labeling, or the evaluation report number (ICC ESR-5089) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 The report holder’s contact information is the following:

**ALBI MFG, DIV OF STANCHEM INC.**  
**401 BERLIN STREET**  
**EAST BERLIN, CONNECTICUT 06023**  
**(860) 828-0571**  
[www.stanchem-inc.com](http://www.stanchem-inc.com)

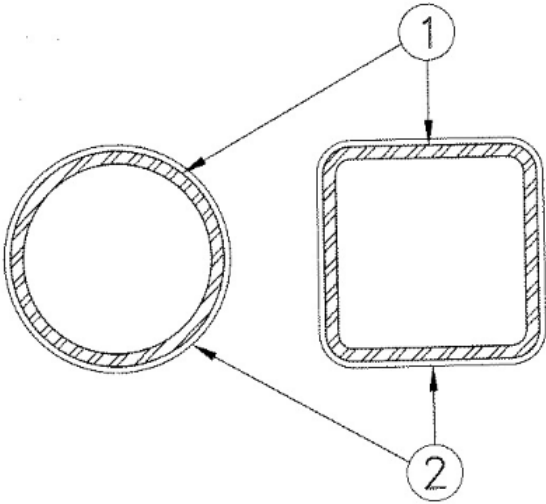


For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

- Steel Column** — Wide flange steel columns with the minimum sizes shown in the tables below. Columns shall be free of dirt, loose scale and oil. Columns shall be primed with a phenolic modified alkyl resin primer.
- Mastic and Intumescent Coatings**— Albi Clad TF+ coating applied in accordance with manufacturer's instruction to the minimum dry film thickness specified in the table below for the applicable fire-resistance-rating.

Steel Size	W/D	1-Hour	1½-Hour	2-Hour	3-Hour	4-Hour
		Min. Coating Thickness, in.	Min. Coating Thickness, in.	Min. Coating Thickness, in.	Min. Coating Thickness, in.	Min. Coating Thickness, in.
W8 X 10	0.33	0.145	0.266	--	--	--
W12 X 14	0.36	0.133	0.263	--	--	--
W12 X 16	0.41	0.117	0.230	--	--	--
W6 X 12	0.44	0.109	0.215	0.338	--	--
W8 X 15	0.48	0.100	0.197	0.310	--	--
W10 X 22	0.52	0.092	0.182	0.286	--	--
W4 X 13	0.55	0.087	0.172	0.271	--	--
W6 X 16	0.58	0.083	0.163	0.257	0.504	--
W8 X 24	0.59	0.075	0.130	0.213	0.504	--
W14 X 34	0.63	0.075	0.130	0.213	0.489	--
W8 X 28	0.68	0.070	0.130	0.213	0.453	--
W8 X 35	0.74	0.065	0.128	0.201	0.416	--
W10 X 39	0.78	0.061	0.121	0.191	0.395	--
W10 X 49	0.84	0.057	0.113	0.177	0.367	--
W10 X 45	0.89	0.054	0.106	0.167	0.346	--
W16 X 57	0.95	0.050	0.099	0.157	0.324	--
W8 X 48	1.00	0.048	0.095	0.149	0.308	--
W14 X 90	1.07	0.045	0.088	0.139	0.288	--
W10 X 68	1.14	0.042	0.083	0.131	0.270	--
W18 X 97	1.21	0.040	0.078	0.123	0.255	--
W10 X 77	1.28	0.038	0.074	0.116	0.241	--
W16 X 100	1.36	0.036	0.069	0.109	0.227	--
W10 X 88	1.45	0.034	0.065	0.103	0.213	--
W14 X 132	1.54	0.032	0.061	0.097	0.200	--
W12 X 120	1.64	0.030	0.058	0.091	0.188	--
W14 X 159	1.77	0.028	0.056	0.085	0.187	--
W14 X 176	1.95	0.025	0.051	0.077	0.178	--
W14 X 193	2.12	0.023	0.047	0.071	0.164	--
W14 X 211	2.30	0.023	0.043	0.066	0.151	--
W14 X 233	2.52	0.023	0.040	0.060	0.138	--
W14 X 257	2.75	0.023	0.036	0.055	0.126	--
W14 X 283	3.00	0.023	0.033	0.050	0.116	0.194

FIGURE 1— 1-, 1½-, 2-, 3- AND 4- HOUR FIRE-RESISTANCE RATED STEEL BEAMS



For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

- 1. **Steel Column** — Steel tube (ST) or steel pipe (SP) with the minimum sizes shown in the table below. Columns shall be free of dirt, loose scale and oil. Columns shall be primed with a phenolic modified alkyd resin primer.
- 2. **Mastic and Intumescent Coatings** — Albi Clad TF+ coating applied in accordance with manufacturer's instruction to the minimum dry film thickness specified in the table below for the applicable fire-resistance-rating.

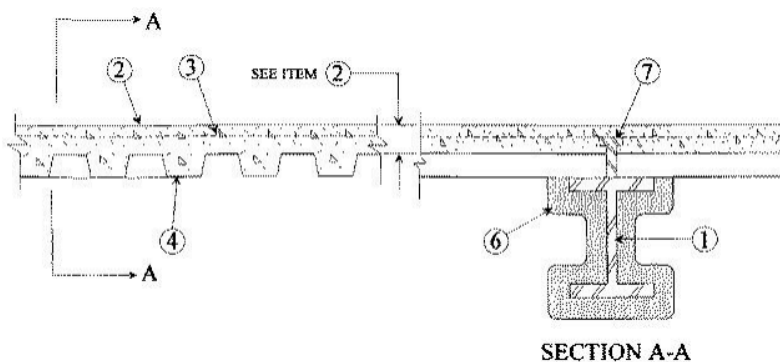
FOR STEEL PIPE (SP) COLUMNS

Steel Size	A/P	Hp/A	1-Hour		1½-Hour		2-Hour	
			Min. Coating Thickness		Min. Coating Thickness		Min. Coating Thickness	
			in.	mm	in.	mm	in.	mm
SP 4.5 X 0.313	0.29	135	0.117	2.99	--	--	--	--
SP 8 X 0.875	0.79	49	0.097	2.46	0.097	2.46	0.120	3.05
SP 8.625 X 0.5	0.47	85	0.097	2.46	0.138	3.50	0.202	5.14

FOR RECTANGULAR TUBE (ST) COLUMNS

Steel Size	A/P	Hp/A	1-Hour		1½-Hour		2-Hour		3-Hour	
			Min. Coating Thickness		Min. Coating Thickness		Min. Coating Thickness		Min. Coating Thickness	
			in.	mm	in.	mm	in.	mm	in.	mm
ST 3.5 x 3.5 x 3/16	0.18	224	0.165	4.18	--	--	--	--	--	--
ST 5 X 3 X 1/4	0.23	169	0.104	2.65	0.252	6.39	0.400	10.15	--	--
ST 5 X 3 X 5/16	0.29	135	0.084	2.13	0.218	5.54	0.353	8.96	--	--
ST 8 X 6 X 3/8	0.35	114	0.074	1.87	0.173	4.40	0.280	7.12	--	--
ST 8 X 6 X 7/16	0.41	100	0.074	1.87	0.151	3.84	0.244	6.21	--	--
ST 5 X 3 X 1/2	0.44	93	0.074	1.87	0.127	3.23	0.207	5.27	--	--
ST 8 X 8 X 1/2	0.47	85	0.074	1.87	0.095	2.41	0.164	4.17	0.327	8.31

FIGURE 2 —1-, 1½-, 2- AND 3- HOUR FIRE-RESISTANCE RATED STEEL COLUMNS



Where noted with an “\*” in the description below, the product must bear the UL Classification Mark.

For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

1. **Beam** — W8 X 28, W8 x 24 or W6 x 12, min size, see Items 6 and 6A.
2. **Normal Weight or Lightweight Concrete** — Normal weight concrete, carbonate or siliceous aggregate, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale or slate aggregate by rotary-kiln method or expanded clay aggregate by rotary-kiln or sintered-grate method, 3000 psi compressive strength, vibrated, 4 to 7 per cent entrained air.

Restrained Assembly Rating Hour	Concrete (Type)	Concrete Unit Weight, pcf	Concrete Thickness, in.
2	Normal Weight	147-153	4 <sup>1</sup> / <sub>2</sub>
3	Normal Weight	147-153	5 <sup>1</sup> / <sub>4</sub>
2	Lightweight	107-113	3 <sup>1</sup> / <sub>4</sub>
2	Lightweight	107-116	3 <sup>1</sup> / <sub>4</sub> *
2	Lightweight	114-120	3 <sup>1</sup> / <sub>2</sub>
3	Lightweight	107-113	4 <sup>3</sup> / <sub>16</sub>
3	Lightweight	114-120	4 <sup>7</sup> / <sub>16</sub>

\*With 2 and 3 in. deep steel floor units only.

3. **Welded Wire Fabric** — 6x6 10/10 SWG.
4. **Steel Floor and Form Units\*** — Composite or non-composite, 1<sup>1</sup>/<sub>2</sub>, 1<sup>5</sup>/<sub>8</sub>, 2 or 3 in. deep galv. units or 4<sup>1</sup>/<sub>2</sub> in. deep non-composite galv. units. Fluted units may be phos/ptd. Min. gauges are 22 MSG for fluted and 20/20 for cellular and partial cellular units. The following combinations of units may be used: (1) All 24, 24, 28 or 36 in. wide cellular or partial cellular. (2) All fluted. (3) One or two 3 in. deep, 12 in. wide, 18/18 MSG min cellular alternating with 3 in. deep fluted or other cellular. (4) Any blend of fluted and 24, 26, 28 or 36 in. wide cellular or partial cellular.
5. **Joint Cover** — (Not Shown) — 2 in. wide cloth adhesive tape applied following the contour of the units.
6. **Mastic and Intumescent Coatings** — For use with fluted steel floor and form units only. Min. size W8 x 24 or W6 x 12 beams shall be primed with a phenolic modified alkyd primer at a thickness of 1 mil. Albi Clad TF+ coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the 1 mil of primer. Flutes above beam to be completely filled with minimum 6 pcf mineral wool insulation, or the top flange of the beam to be protected with the same thickness of coating as required on the beam.

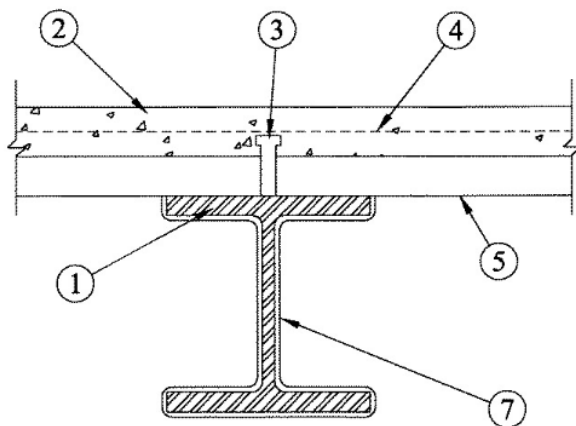
Minimum Dry Thickness, mils	Beam Size	Unrestrained Beam Rating Hour	Restrained Assembly Rating Hour
53	W8 X 24	1	2
95	W8 X 24	1 <sup>1</sup> / <sub>2</sub>	3
73	W6 X 12	1	2
123	W6 X 12	1 <sup>1</sup> / <sub>2</sub>	3

- 6A. As an alternate to Item 6. For use with normal weight concrete. Min. size W8 x 28 beams shall be primed with a phenolic modified alkyd primer at a thickness of 1 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the 1 mil of primer. The top surface of the top flange where fluted units are used must be protected with the coating material at the same min dry thickness at a min distance of 1 in. (25 mm) inward from the flange tip on both sides of the beam. Mineral wool insulation optional above top surface of the beam.

Minimum Dry Thickness, mils	Steel Floor Units	Unrestrained Beam Rating Hour	Restrained Assembly Rating Hour
103	Fluted or Cellular	1 <sup>1</sup> / <sub>2</sub>	2
179	Cellular	1 <sup>1</sup> / <sub>2</sub>	3
341	Cellular	2	3

7. **Shear Connector Studs** — Optional — Studs, <sup>3</sup>/<sub>4</sub> in. diam by 3 in. long, for 1<sup>1</sup>/<sub>2</sub> in. deep form units to 5<sup>1</sup>/<sub>4</sub> in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

FIGURE 3— 1-, 1<sup>1</sup>/<sub>2</sub>-, 2- AND 3- HOUR FIRE-RESISTANCE RATED ASSEMBLIES: RESTRAINED AND UNRESTRAINED



For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

1. **Steel Beam** — W8 x 24 or W6 x 12 min size. Beams shall be free of dirt, loose scale and oil. Beams shall be primed with a phenolic modified alkyd resin primer at a nominal thickness of 1 mil.
2. **Normal Weight or Lightweight Concrete** — Compressive strength 3500 psi. For normal weight concrete either carbonate or siliceous aggregate may be used. Unit weight 146 lbs/cu ft. for normal weight concrete and 116 lbs/cu ft. for lightweight concrete. Min concrete thickness, as measured from top plane of steel floor and form units is 2 $\frac{1}{2}$  in.
3. **Sheer Connector** — (Optional) Studs,  $\frac{3}{4}$  in. diam headed type or equivalent per AISC specifications welded to the top flange of beam through the steel floor units.
4. **Welded Wire Fabric** — 6 x 6-10/10 SWG
5. **Steel Floor or Form Units** — 1 $\frac{1}{2}$ , 2 or 3 in. deep fluted units, welded to beam
6. **Mineral Wool Insulation** — (Not shown) — Min 6 pcf mineral wool insulation cut into pieces and firmly packed into, and completely filling the spaces between the flutes of the steel floor and form units and the top flange of the beam. Mineral wool is not required when the top flange of the beam is protected with intumescent coating at the same thickness shown in the table in Item 7.
7. **Mastic and Intumescent Coatings** — Albi Clad TF+ coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the 1 mil of primer. When mineral wool (Item 6) is used, the top surface of the beam need not be protected with coating.

Beam Size	Beam W/D	Unrestrained Beam Rating, Hour.	Minimum Dry Thickness, (mils)
W8 X 24	0.70	1	1.34
W8 X 24	0.70	1 $\frac{1}{2}$	1.67
W8 X 24	0.70	2	2.92
W6 X 12	0.52	1	1.83
W6 X 12	0.52	1 $\frac{1}{2}$	2.50
W6 X 12	0.52	2	4.34

Beam Size	Beam W/D	Restrained Beam Rating, Hour.	Minimum Dry Thickness, (mils)
W8 X 24	0.70	1	1.34
W8 X 24	0.70	1 $\frac{1}{2}$	1.34
W8 X 24	0.70	2	1.78
W8 X 24	0.70	3	4.00
W6 X 12	0.52	1	1.83
W6 X 12	0.52	1 $\frac{1}{2}$	1.83
W6 X 12	0.52	2	2.56

FIGURE 4—1-, 1 $\frac{1}{2}$ -, 2- AND 3- HOUR FIRE-RESISTANCE RATED ASSEMBLIES:  
UNRESTRAINED AND RESTRAINED

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION  
Section: 07 81 00—Applied Fireproofing

**REPORT HOLDER:**

ALBI MFG, DIV OF STANCHEM, INC.

**EVALUATION SUBJECT:**

ALBI CLAD TF+

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Albi Clad TF+, described in ICC-ES evaluation report [ESR-5089](#), has also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2020 *City of Los Angeles Building Code* (LABC)

**2.0 CONCLUSIONS**

The Albi Clad TF+, described in Sections 2.0 through 7.0 of the evaluation report [ESR-5089](#), complies with the LABC Sections 703.2, 704 and 803, and is subject to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Albi Clad TF+ described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-5089](#).
- The design, installation, conditions of use and identification of the Albi Clad TF+ are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-5089](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 7, 8 and 17, as applicable.

This supplement expires concurrently with the evaluation report, issued February 2023.

# ICC-ES Evaluation Report

# ESR-5089 CBC Supplement

Issued February 2023

This report is subject to renewal February 2024.

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**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**

**Section: 07 81 00—Applied Fireproofing**

## REPORT HOLDER:

ALBI MFG, DIV OF STANCHEM, INC.

## EVALUATION SUBJECT:

ALBI CLAD TF+

## 1.0 REPORT PURPOSE AND SCOPE

### Purpose:

The purpose of this evaluation report supplement is to indicate that the Albi Clad TF+, described in ICC-ES evaluation report ESR-5089, has also been evaluated for compliance with the code(s) noted below.

### Applicable code edition(s):

- 2022 and 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

## 2.0 CONCLUSIONS

### 2.1 CBC:

The Albi Clad TF+, described in Sections 2.0 through 7.0 of the evaluation report ESR-5089, complies with CBC Sections 603.1 (Item 21), 703.2, 704 and 803.1, provided the design and installation are in accordance with the 2021 and 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 7, 8 and 17, as applicable.

**2.1.1 OSHPD:** The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

**2.1.2 DSA:** The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

This supplement expires concurrently with the evaluation report, issued February 2023.