

1 **(September 8, 2020)**

2 **Column Jacketing**

3 The steel column jacket assembly for each column shown in the Plans shall be
4 fabricated in accordance with the shop drawings.

5
6 The Contractor shall excavate and shore as required to expose the column surface
7 below ground to the top of the existing footing or footing pedestal. Dirt, debris and
8 any surface attachments shall be removed from the surface of the column in
9 accordance with the Contractor's column jacket installation plan.

10
11 For specific columns for which the Engineer confirms a waiver of the pre-fabrication
12 field measuring of the column height dimension, the Contractor shall field measure
13 the column height upon completion of the excavation. The Contractor shall field cut
14 the top of the column jacket assembly using the method, template, and equipment
15 as specified in the pre-fabrication field measuring waiver request submittal.

16
17 The Contractor shall position the steel column jacket around the existing column
18 using spacers to center the assembly. The spacers may be welded to the inside of
19 the jacket and, if used, shall be placed and attached as shown in the shop
20 drawings.

21
22 Field welded complete penetration groove welds of the column jacket assemblies
23 shall be inspected in accordance with Section 6-03.3(25)A. Field weld inspection
24 shall be performed by a certified welding inspector (CWI). The Contractor shall not
25 begin welding until receiving acceptance of the joint fit-up from the CWI. The CWI
26 shall randomly monitor the intermediate stages of welding. The CWI's daily reports
27 and nondestructive testing reports indicating compliance with contract requirements
28 shall be submitted as a Type 1 Working Drawing upon completion of the last
29 column jacket in the Contract.

30
31 The Contractor shall install external grout injection valves for use in filling the cavity
32 with grout. The valves shall be spaced such that the grout will uniformly fill the gap
33 between the jacket assembly and the column surface. The grout pump shall be
34 equipped with a pressure gauge to monitor grout pressures. The grouting
35 equipment shall be sized to enable the grout to be pumped in one continuous
36 operation. The mixer shall be capable of continuously agitating the grout.

37
38 The production grout compressive strength shall be measured using four inch
39 diameter by eight inch cylinders, cast and cured in accordance with Section 6-
40 02.3(5)H. The cylinders shall attain a 7-day minimum compressive strength of
41 4,000 psi.

42
43 The gap between the column jacket assembly and the existing column surface at
44 the base of the assembly shall be sealed in accordance with the column jacket
45 installation plan.

46
47 The grouting operation shall conform to Section 6-02.3(6)A.

48
49 The grouting operation shall begin from the base of the assembly and from the
50 base of each successive lift. The Contractor shall pump grout into the assembly
51 while maintaining a uniform level grout head around the column.
52

1 The Contractor shall limit the height of each lift of grout to minimize undulations and
2 displacements of the surface of the column jacket assembly during grouting. For
3 column jacket assemblies of circular (constant radius) cross section, the height of
4 each lift of grout shall be limited to 20 feet maximum, except as otherwise accepted
5 by the Engineer. For column jacket assemblies with cross sections of all other
6 shapes, the height of each lift of grout shall be limited to 8 feet maximum, except as
7 otherwise accepted by the Engineer.

8
9 The Contractor may restrain the column jacket assembly within the specified
10 tolerances during grouting operations by using a bracing system in accordance with
11 the column jacket installation plan. Except as otherwise shown in the Plans,
12 restraints for the bracing system shall not pass through the column. Except when a
13 bracing system is used, placement of the next grout lift shall not begin until the
14 previous grout lift has hardened.

15
16 The Contractor shall contain and collect all grout outside the column jacket
17 assembly.

18
19 When the assembly is completely grouted to the top, the Contractor shall place
20 mortar conforming to Section 9-20.4(2) over the top of the grout at the top of the
21 assembly, and shall slope the mortar to drain.

22
23 All clamps, valves, injection ports, lifting ears, and other attachments shall be
24 removed not less than 24 hours after completing grouting operations at the column.
25 The Contractor shall fill all voids with mortar conforming to Section 9-20.4(2), and
26 shall finish them flush with the exterior surface of the column jacket assembly. The
27 Contractor shall not remove the attachments by flame cutting.

28
29 Seven calendar days after completing the grouting of a column jacket assembly,
30 the Engineer will inspect the assembly for voids between the steel casing and the
31 grout. The Contractor shall completely fill all voids detected by the Engineer by
32 injecting epoxy bonding agent into the lowest point of each void and venting at the
33 highest point. The exposed epoxy bonding agent shall be finished flush with the
34 exterior surface of the column jacket assembly.

35
36 After inspection for voids and epoxy injection of voids is complete, steel surfaces
37 with damaged primer coat shall be repaired with field primer in accordance with
38 Section 6-07.3(9). The primer repair shall be followed by application of the
39 intermediate and finish field coats of paint to all exposed steel surfaces in
40 accordance with Section 6-07.3(9) and Section 6-03.3(30) as supplemented in
41 these Special Provisions.

42
43 Backfill shall not be placed against the column jacket assembly until the finish coat
44 of paint is completely cured, based on the cure duration recommended by the paint
45 manufacturer. The Contractor shall fill and compact the excavation with native
46 backfill, except as otherwise specified in the Plans, in accordance with Section 2-
47 09.3(1)E.