



Transbay Transit Center
San Francisco, CA
CM/GC Contract No. 08-04-CMGC-000
Project No. 30100

**BID PACKAGE TG13.2
ADDENDUM #8**

DATE: 04/02/2015
TO: All Qualified Bidders
FROM: Webcor/Obayashi Joint Venture
BID DUE DATE: April 7, 2015 at 2:00 p.m.

COMMUNICATION WITH WEBCOR/OBAYASHI JOINT VENTURE

At no time during the bid process (defined as the time between issuance of the IFB until award of Subcontract to Trade Subcontractor) shall Bidders contact any person(s) or staff of the TJPA, TJPA Program Management/Program Controls (PMPC) team, Webcor/Obayashi Joint Venture, CM Oversight (CMO), or other TJPA Consultants regarding the IFB. The only contact is for submission of questions using the contact directions as described in Exhibit A, Section III. "Communication with Webcor Obayashi Joint Venture".

The QBD and Pre-bid Request for Substitution submission time frame expired on **Thursday, February 19, 2015 at 2:00 p.m.**

Bids are due during **Tuesday, April 7, 2015 at 2:00 p.m. (formerly, Tuesday, March 24, 2015 at 2:00 p.m.)**

Reference the Project Bidding Manual, Section III.B.1 regarding document availability and how to obtain the documents.

MODIFIED DOCUMENTS PER ADDENDUM #8

The items listed below make up the TG13.2 – Roofing/Waterproofing Construction Bid Package Addendum #8. This Addendum shall supersede all previously issued Bidding Documents. All other conditions and requirements remain unchanged.

- a. Exhibit A – Trade Subcontractor Bid Package Manual and Forms – Subcontracts #301001302, Addendum #8, dated 04/02/2015.
 - 1) Revised Table of Contents
 - 2) Revised Section VII. “Contract Document List”
 - 3) Added Attachment 3 “Ground Level WP Detail @ Termination”
- b. Questions on Bid Documents (QBD) Responses
 - 1) The attached IFB Questions and Answers are incorporated into the Bid Documents by this Addendum.

END OF ADDENDUM #8

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|---------------|---------------------|---|--|
| TG13.2-001 | 9/18/2014 | Sheet A1-9601 | 09 67 00 | <p>REFERENCE: (ASI 127 dated 9/12/14)</p> <p>Specification Section 09 67 25</p> <p>Sheet A1-9601</p> <p>Specification Section 09 67 25 of ASI 127 indicates that Composition Resin Flooring (FC-4) is for Transformer Vaults and where shown on Room Finish Schedule.</p> <p>Sheet A1-9601 of ASI 127 does not show Composition Resin Flooring (FC-4) being installed within Rooms B1223 and B1224.</p> <p>Please confirm the locations of Composition Resin Flooring (FC-4).</p> | <p>The Finish Schedules have been updated to show floor finish as FC-4 for transformer vault rooms B1223, B1224, B1323, B1324, B1561 and B1562. Refer to attached SKA-4165 and SKA-4166. Locations of FC-4 are shown in details 10 & 11 on drawing sheet A1-8717 and detail 5 on drawing sheet A1-9255 issued for ASI 127.</p> |

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

| ROOM NUMBER | ROOM NAME | FLOOR | | BASE | WALLS | | CEILING | | COMMENTS |
|---|---|----------|--------|-------|----------|--------|------------|--------|--|
| | | MATERIAL | FINISH | | MATERIAL | FINISH | MATERIAL | FINISH | |
| B2200 | TRAIN BOX | CONC | - | - | CONC | - | EXP STRUCT | - | TEMPORARY STAIRS, RAILING, PLATFORM AND GUARDRAILS: GALVANIZED METAL. |
| B2202 | STAIR 202 | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | - | REFER TO DRAWING A1-7003 FOR PLANS. METAL CHECKER PLATE INTERMEDIATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B2203 | STAIR 203 | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | - | REFER TO DRAWING A1-7005 FOR PLANS. METAL CHECKER PLATE INTERMEDIATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2221 | ELECTRICAL ROOM | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | - | |
| B2222 | SERVICE CORRIDOR | CONC | - | - | CONC | - | EXP STRUCT | - | |
| B2223 | FIRE PUMP WATER STORAGE TANK | CONC | WTL | WTL | CONC | WTL | EXP STRUCT | WTL | |
| B2224 | FIRE PUMP ROOM | CONC | FC-1 | FC-1* | CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO 6" (MIN.) ABOVE FF LEVEL. |
| B2225 | DOMESTIC BOOSTER & IRRIGATION PUMP ROOM | CONC | FC-1 | FC-1* | CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO 6" (MIN.) ABOVE FF LEVEL. |
| B2226 | OZONE TREATMENT & BUILDING PUMP SYSTEM ROOM | CONC | FC-1 | FC-1* | CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO 6" (MIN.) ABOVE FF LEVEL. |
| B2227 | TREATED WATER STORAGE TANK | CONC | WTL | WTL | CONC | WTL | EXP STRUCT | WTL | |
| B2228 | IDF ROOM | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. *TAKE FLOOR FINISH UP THE WALLS TO 6" (MIN.) ABOVE FF LEVEL. |
| B2230 | SEWAGE EJECTOR ROOM | CONC | FC-1 | FC-1* | CONC | PT | EXP STRUCT | - | |
| B2261 | WEST FSR | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | - | |
| B2280 | EMERGENCY ELECTRICAL ROOM | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2403 | STAIR 403 | CONC | FC-3 | ** | GB | PT | EXP STRUCT | - | REFER TO DRAWING A1-7013 FOR PLANS. METAL CHECKER PLATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). *4'-0" HIGH ALUMINUM CHECKER PLATE BASE ON GB PARTITIONS (CLEAR ANOZIDED), REFER TO DRAWING A1-7501 TO 7505 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B2420 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B2421 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2440 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2441 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2442 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B2460 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2461 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2462 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2463 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2480 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2481 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2501 | STAIR 501 | CONC | FC-3 | ** | CMU/GB | PT | EXP STRUCT | - | REFER TO DRAWING A1-7010 FOR PLANS. METAL CHECKER PLATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). **RB AT CMU WALL, 4'-0" HIGH ALUM. CHECKER PLATE BASE ON GB PARTITIONS (CLEAR ANOZIDED), SEE DRAWING A1-7501 TO 7505 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B2520 | IDF CLOSET | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2521 | EXIT PASSAGEWAY | CONC | SC | PT | CMU/GB | PT | GB | PT | METAL STAIR (LANDING, TREADS, RISERS, RAILINGS and STRINGERS): GALVANIZED. |
| B2540 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B2560 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2580 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2620 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2621 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2622 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2623 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2640 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B2641 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2660 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2661 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B2662 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B2680 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B2760 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B2761 | MECHANICAL PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| <div>GENERAL NOTES:</div> <div>1. ALL EGRESS STAIRS and EXIT PASSAGEWAYS SHALL RECEIVE PHOTOLUMINESCENT EGRESS MARKINGS.</div> <div>2. DESIGNATED RETAIL SPACES SHALL RECEIVE SEALED CONCRETE FLOOR. ALL FINISHES BY TENANT FIT-OUT.</div> <div>3. FOOD HALL and FOOD COURTS SHALL RECEIVE SEALED CONCRETE FLOOR. ALL FINISHES BY TENANT FIT-OUT.</div> <div>4. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS OF ALL ELECTRICAL and IDF ROOMS. REFER TO 061053.</div> | | | | | | | | | |

ROOM FINISH SCHEDULE ABBREVIATIONS

| | | | | | |
|------|--|--------|-------------------------------------|------------|------------------------|
| AF | ACCESS FLOORING | HM | HOLLOW METAL DOOR | SC | SEALED CONCRETE |
| AL | ALUMINUM | HPL | HIGH PRESSURE LAMINATE | SGL | SOLID GRADE LAMINATE |
| ACT | ACOUSTIC CEILING TILE | INSUL | INSULATION | (SP) | SPECIAL PAINT |
| AP | ACCESS PANEL | IS | INSULATED SOFFIT (@ U/S SLAB ABOVE) | SS | STAINLESS STEEL |
| AWP | ACOUSTIC WALL PANEL | ME | METAL | STI | STONE (INTERIOR) |
| B | BRICK | MD | METAL DECK | STL | STEEL |
| CONC | CONCRETE | MDF | MEDIUM DENSITY FIREBOARD | TERR | TERRAZZO |
| CP | CONCRETE PAVERS | MP | METAL PANEL | T/O STRUCT | TOP OF STRUCTURE |
| CPT | CARPET | | MECHANICAL ROOM FIREPROOFING | V | VINYL |
| CMU | CONCRETE MASONRY UNIT | (N) | NATURAL | VT | VINYL TILES |
| CJ | CONTROL JOINT | (N/A) | NOT APPLICABLE | VSF | VINYL SHEET FLOORING |
| CET | CERAMIC CRYSTALLINE CONCRETE WATERPROOFING | (NIC) | NOT IN CONTRACT | U/S | UNDERSIDE/UNDERSLAB |
| EP | EPOXY | PT | PAINT | WD | WOOD |
| EXP | EXPOSED | PC | PRECAST CONCRETE | WPM | WATERPROOFING MEMBRANE |
| FAB | FABRIC | PL | PLASTER | WTL | TANK LINER |
| FC | FLOOR COATING SYSTEM | P LAM | PLASTIC LAMINATE | | |
| FL | FLOOR | POR | PORCELAIN TILE | | |
| FS | FIRE STOP | PR | PRIMED | | |
| GB | GYPSUM BOARD | PREFIN | PREFINISHED | | |
| GL | GLASS | RFC | RESIN FLOOR COATING | | |
| GLV | GALVANIZED | RB | RUBBER BASE (COVERD) | | |
| GRG | GLASS REINFORCED GYPSUM BOARD | RUB | RUBBER | | |

| ROOM NUMBER | ROOM NAME | FLOOR | | BASE | WALLS | | CEILING | | COMMENTS |
|----------------|---|------------|--------|--------|--------------|--------|------------|--------|--|
| | | MATERIAL | FINISH | | MATERIAL | FINISH | MATERIAL | FINISH | |
| B1200 | TRAIN BOX | CONC | - | - | CMU/CONC | - | EXP STRUCT | - | METAL RAILINGS AROUND SLAB OPENINGS: GALVANIZED, REFER TO DRAWING 7027 FOR DETAILS |
| B1202 | STAIR 202 | CONC | FC-3 | RB | CONC | PT | EXP STRUCT | PT | REFER TO DRAWING A1-7004. METAL CHECKER PLATE INTERMEDIATE LANDINGS, TREADS AND RISERS, METAL RAILINGS AND STRINGERS: PAINTED (PT-2). REFER TO DRAWING A1-7501 TO 7503 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. ALUMINUM CLADDING TO STEEL COLUMN: PREFINISHED. |
| B1203 | STAIR 203 | CONC** | FC-3 | RB | CMU | PT | EXP STRUCT | PT | REFER TO DRAWING A1-7005 FOR PLANS. METAL CHECKER PLATE INTERMEDIATE LANDINGS, TREADS AND RISERS, METAL RAILINGS AND STRINGERS: PAINTED (PT-2). REFER TO DRAWING A1-7501 TO 7503 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B1220 | SERVICE CORRIDOR | CONC | FC-3 | RB | CMU/CONC | PT | EXP STRUCT | PT | |
| B1221 | FILE ROOM | CONC | POR-4 | POR-4 | GB | PT | ACT-1 | - | 3" HIGH BULLNOSE BASE |
| B1222 | MAIN SWITCHGEAR ROOM | CONC | FC-3 | RB | CMU/CONC | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON BOTH EAST & WEST SIDE WALLS AND ON SOUTH WALL FROM GRID 3 TO THE DOOR AT EAST SIDE, COORDINATE WITH ELECTRICAL. PREFINISHED ALUMINUM CLADDED STEEL COLUMNS (PT-XX), REFER TO DRAWING A1-9205 AND 9206 FOR DETAILS. |
| B1223 | TRANSFORMER VAULTS | CONC | FC-4 | - | CONC | - | EXP STRUCT | - | STEEL GRATINGS C/W FRAMES AND LADDERS: GALVANIZED. REFER TO DRAWING A1-3001 FOR DETAILS. |
| B1224 | TRANSFORMER VAULTS | CONC | FC-4 | - | CONC | - | EXP STRUCT | - | STEEL GRATINGS C/W FRAMES AND LADDERS: GALVANIZED. REFER TO DRAWING A1-3001 FOR DETAILS. |
| B1225 | MEN'S RESTROOM & LOCKER ROOM | CONC | POR-2 | POR-1* | GB | POR-1A | GB | PT | SOLID GRADE LAMINATE COUNTER TOP & APRON (W/ TOP MOUNT SINKS): LAM-3. TOILET PARTITIONS AND DOORS: STAINLESS STEEL. METAL LOCKERS & BENCHES: PREFINISHED. *1 1/4" COVE BASE. REFER TO DRAWINGS A1-9061. |
| B1226 | CORRIDOR | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1227 | BREAK ROOM | CONC | POR-4 | POR-4 | GB | PT | ACT-1 | - | SOLID GRADE LAMINATE COUNTER TOP W/SS SINK: LAM-1, Top AND BOTTOM CABINETS: LAM-2. CERAMIC TILE BACK SPLASH: CET-1. FRIDGE, MICROWAVE and DISHWASHER BY OTHERS. REFER TO DRAWING A1-9802 FOR DETAILS. |
| B1228 | WOMEN'S RESTROOM & LOCKER ROOM | CONC | POR-2 | POR-1* | GB | POR-1A | GB | PT | SOLID GRADE LAMINATE COUNTER TOP & APRON (W/ TOP MOUNT SINKS): LAM-3. TOILET PARTITIONS AND DOORS: STAINLESS STEEL. METAL LOCKERS & BENCHES: PREFINISHED. *1 1/4" COVE BASE. REFER TO DRAWINGS A1-9061. |
| B1229 | PLUMBING INTAKE ROOM/ STORAGE ROOM | CONC | FC-1 | FC-1* | CMU/CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1230 | SCC VESTIBULE | CONC*/AF-2 | CPT-1 | RB | GB | PT | ACT-1 | - | *SEAL CONCRETE FLOOR BELOW THE ACCESS FLOORING. |
| B1231 | WORKSPACE | | | | | | | | |
| B1232 | SCC | *CONC/AF-2 | CPT-1 | RB | GB | PT | ACT-1 | - | *SEAL CONCRETE FLOOR BELOW THE ACCESS FLOORING. ACOUSTIC WALL PANELS AWP-1 WITH FABRIC FINISH (FAB-2), REF TO DWG A1-9840 FOR LOCATIONS. ACOUSTIC HM WINDOW FRAME: PAINTED TO MATCH DOOR FRAME. |
| B1233 | VEHICLE STORAGE | CONC | FC-3 | RB | CMU/CONC | PT | EXP STRUCT | - | PREFINISHED ALUMINUM CLADDED STEEL COLUMN (PT-XX), REFER TO DRAWING A1-9205 AND 9206 FOR DETAILS. POWDER COATED, METAL OVERHEAD DOOR: PREFINISHED (PT-XX), STEEL JAMBS/FRAME (WHERE SHOWN ON DETAILS), PAINTED (PT-XX) TO MATCH DOOR. METAL SCREEN WITH A SLIDING GATE: GALVANIZED. |
| B1234 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1235 | RECEPTION | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1236 | LIBRARY | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1237 | SERVICE ELEVATOR VESTIBULE FOR SOC | CONC | FC-3 | RB | CMU/CONC | PT | EXP STRUCT | - | PAINTED ELEVATOR DOORS AND FRAMES: PT-XX. POWDER COATED METAL OVERHEAD DOORS: PREFINISHED. |
| B1238 | SERVICE ELEVATOR VESTIBULE FOR BUILDING | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PAINTED ELEVATOR DOORS AND FRAMES: PT-XX. POWDER COATED METAL OVERHEAD DOORS: PREFINISHED. |
| B1239 | SOM ROOM | *CONC/AF-2 | CPT-1 | RB | GB | PT | ACT-1 | - | *SEAL CONCRETE FLOOR BELOW THE ACCESS FLOORING. ACOUSTIC WALL PANELS AWP-1 WITH FABRIC FINISH (FAB-2), REF TO DWG A1-9840 FOR LOCATIONS. ACOUSTIC HM WINDOW FRAME: PAINTED TO MATCH DOOR FRAME. REFER TO DRAWING A1-9804. |
| B1240 | MEN'S RESTROOM & LOCKER ROOM | CONC | POR-2 | POR-1* | GB | POR-1A | GB | PT | SOLID GRADE LAMINATE COUNTER TOP & APRON (W/ TOP MOUNT SINKS): LAM-3. TOILET PARTITIONS AND DOORS: STAINLESS STEEL. METAL LOCKERS & BENCHES: PREFINISHED. *1 1/4" COVE BASE. REFER TO DRAWINGS A1-9064. |
| B1241 | ENG OFFICE 1 | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1242 | ENG OFFICE 2 | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1243 | WOMEN'S RESTROOM & LOCKER ROOM | CONC | POR-2 | POR-1* | GB | POR-1A | GB | PT | SOLID GRADE LAMINATE COUNTER TOP & APRON (W/ TOP MOUNT SINKS): LAM-3. TOILET PARTITIONS AND DOORS: STAINLESS STEEL. METAL LOCKERS & BENCHES: PREFINISHED. *1 1/4" COVE BASE. REFER TO DRAWINGS A1-9065. |
| B1244 | JANITORIAL OFFICE | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1245 | JANITORIAL BREAK ROOM | CONC | POR-4 | POR-4* | GB | PT | ACT-1 | - | SOLID GRADE LAMINATE COUNTER TOP W/SS SINK: LAM-1, Top AND BOTTOM CABINETS: LAM-2. CERAMIC TILE BACK SPLASH: CET-1. FRIDGE, MICROWAVE & DISHWASHER BY OTHERS. REFER TO DRAWING A1-9802 FOR DETAILS. *3" HIGH BULLNOSE BASE. |
| B1246 | ENGINEERING EQUIPMENT STORAGE | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | ALUMINUM CLADDING TO STEEL COLUMNS: PREFINISHED, REFER TO DRAWING 9206 FOR DETAILS. POWDER COATED METAL OVERHEAD DOOR: PREFINISHED. |
| B1247 | JANITORIAL EQUIPMENT STORAGE | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | POWDER COATED, METAL OVERHEAD DOOR: PREFINISHED. |
| B1248 | TECH OFFICE | *CONC/AF-2 | CPT-1 | RB | GB | PT | ACT-1 | - | *SEAL CONCRETE FLOOR BELOW THE ACCESS FLOORING. |
| B1249 | TECH SUPPORT ROOM | *CONC/AF-1 | LAM-5 | RB | CONC/GB | PT | ACT-1 | - | *SEAL CONCRETE FLOOR BELOW THE ACCESS FLOORING. |
| B1250 | UPS ROOM | *CONC/AF-1 | LAM-5 | RB | CONC/GB | PT | ACT-1 | - | *SEAL CONCRETE FLOOR BELOW THE ACCESS FLOORING. ALUMINUM CLADDING TO STEEL COLUMN: PREFINISHED. |
| B1251 | ENTRY | CONC | FC-3 | RB | CMU | PT | ACT-1 | - | |
| B1252 | SOC MECHANICAL ROOM | CONC | FC-1 | FC-1* | CMU/CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. ALUMINUM CLADDING STEEL COLUMNS: PREFINISHED, REFER TO DRAWING 9206 FOR DETAILS. PAINT STEEL JACKET AROUND COLUMN TO MATCH WALLS. |
| B1253 | EMERGENCY EQUIPMENT STORAGE | CONC | FC-1 | FC-1* | CMU/CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1254 | SECURITY OFFICE 3 | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1255 | CORRIDOR | CONC | FC-3 | RB | CMU/CONC /GB | PT | EXP STRUCT | - | |
| B1256 | VEHICLE RAMP | CONC | FC-2 | FC-2* | CMU/CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. POWDER COATED METAL OVERHEAD DOOR and JAMB ENCLOSURE (WHERE SHOWN): PREFINISHED TO MATCH CLADDING AROUND UON OR SPECIFIED. |
| B1257 | CORRIDOR | CONC | CPT-1 | RB | GB | PT | EXP STRUCT | - | |
| B1258 | PRE-ACTION & FM 200 SYSTEM ROOM | CONC | FC-3 | RB | CMU/GB | PT | EXP STRUCT | - | |
| B1259 | CORRIDOR | | | | | | | | |
| B1260 | FUTURE WEST FAN ROOM | CONC | FC-3 | RB | CMU/CONC | PT | EXP STRUCT | - | |
| B1261 | PLENUM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1262 | SECURITY OFFICE 2 | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1263 | SECURITY ADMIN STAFF | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1264 | SECURITY OFFICE 1 | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1265 | CONFERENCE ROOM | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | OPERABLE PARTITION WITH FABRIC FINISH: FAB-1, REFER TO DRAWING A1-9858 FOR DETAILS. |

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

| ROOM NUMBER | ROOM NAME | FLOOR | | BASE | WALLS | | CEILING | | COMMENTS |
|-------------|--|----------|--------|--------------|--------------|---------------|------------|--------|---|
| | | MATERIAL | FINISH | | MATERIAL | FINISH | MATERIAL | FINISH | |
| B1266 | CONFERENCE ROOM | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | OPERABLE PARTITION WITH FABRIC FINISH: FAB-1, REFER TO DRAWING A1-9858 FOR DETAILS. |
| B1267 | STORAGE & COPY ROOM | CONC | POR-4 | POR-4 | GB | PT | ACT-1 | - | 3" HIGH BULLNOSE BASE |
| B1268 | RECEPTION | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | GLASS WINDOW WITH TRANSACTION TRAY. REFER TO DRAWING A1-9855 FOR DETAILS AND FINISHES OF MILLWORK. |
| B1269 | ENTRY | CONC | FC-3 | RB | CMU | PT | ACT-1 | - | GLASS WINDOW WITH TRANSACTION TRAY. REFER TO DRAWING A1-9855. |
| B1270 | CORRIDOR | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1271 | SFPD ADMIN STAFF | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1272 | SFPD OFFICE | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1273 | SFPD BREAK ROOM | CONC | POR-4 | POR-4 | GB | PT | ACT-1 | - | 3" HIGH BULLNOSE BASE. SOLID GRADE LAMINATE COUNTER TOP W/SS SINK: LAM-1, Top AND BOTTOM CABINETS: LAM-2, CERAMIC TILE BACK SPLASH: CET-1, FRIDGE, MICROWAVE and DISHWASHER by OTHERS. REFER TO DRAWING A1-9802 FOR DETAILS.. |
| B1274 | RESTROOM | CONC | POR-3 | POR-1* | GB | POR-1A | GB | PT | REFER TO DRAWING A1- 9060 FOR DETAILS. *1 1/4" COVE BASE. |
| B1275 | RESTROOM | CONC | POR-3 | POR-1* | GB | POR-1A | GB | PT | REFER TO DRAWING A1- 9060 FOR DETAILS. *1 1/4" COVE BASE. |
| B1276 | MEN'S LOCKER ROOM | CONC | CPT-1 | RB | GB | PT-1 | GB | PT-1 | METAL LOCKERS & BENCHES: PREFINISHED. |
| B1277 | WOMEN'S LOCKER ROOM | CONC | CPT-1 | RB | GB | PT-1 | GB | PT-1 | METAL LOCKERS & BENCHES: PREFINISHED. |
| B1278 | STORAGE & COPY ROOM | CONC | POR-4 | POR-4 | GB | PT | ACT-1 | - | 3" HIGH BULLNOSE BASE |
| B1279 | ENGINEERING STORAGE ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |
| B1280 | SERVICE CORRIDOR | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | PT | |
| B1281 | WET JANITORIAL STORAGE | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | PT | |
| B1282 | MUSTER ROOM | CONC | CPT-1 | RB | GB | PT | ACT-1 | - | |
| B1283 | FAN ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | PT | |
| B1284 | IDF ROOM | CONC | FC-3 | RB | CMU/CON C/RB | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED- REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1285 | ELEVATOR CONTROL ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | PT | |
| B1286 | INTERVIEW ROOM | CONC | POR-4 | POR-4 | CMU/GB | PT | ACT-1 | - | 3" HIGH BULLNOSE BASE |
| B1287 | INTERVIEW ROOM | CONC | POR-4 | POR-4 | CMU/GB | PT | ACT-1 | - | 3" HIGH BULLNOSE BASE |
| B1288 | LANDSCAPE ROOM | CONC | FC-3 | CMU/CON C/GB | CMU/CON C/GB | PT | EXP STRUCT | - | ALUMINUM CLADDING TO STEEL COLUMNS: (PREFINISHED), REFER TO DRAWING A1-9205 FOR DETAILS. POWDER COATED METAL OVERHEAD DOOR: PREFINISHED. |
| B1289 | NORTH ELECTRICAL ROOM | CONC | FC-3 | RB | CONC/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3010 FOR ENLARGED PLAN. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B1290 | FIRE MAIN P.O.E. | CONC | FC-1 | FC-1* | CONC | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1291 | JANITORIAL CLOSET | CONC | POR-3 | POR-1 | GB | POR-1A*/PT-XX | GB | - | * WALL TILE UP TO 5'-0" ABOVE BASE, PAINT WALLS ABOVE. |
| B1299 | WEST THROAT PLENUM | | | | | | | | |
| B1322 | MAIN SWITCHGEAR ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON EAST, NORTH AND SOUTH WALLS - COORDINATE WITH ELECTRICAL. PREFINISHED ALUMINUM CLADDING TO STEEL COLUMN (P-XX) - REFER TO A1-9207 FOR DETAILS. |
| B1323 | TRANSFORMER VAULTS | CONC | FC-4 | - | CONC | - | EXP STRUCT | - | STEEL GRATINGS C/W FRAMES AND LADDERS: GALVANIZED. REFER TO DRAWING A1-3002 FOR DETAILS. |
| B1324 | TRANSFORMER VAULTS | CONC | FC-4 | - | CONC | - | EXP STRUCT | - | STEEL GRATINGS C/W FRAMES AND LADDERS: GALVANIZED. REFER TO DRAWING A1-3002 FOR DETAILS. |
| B1325 | EMERGENCY ELECTRICAL ROOM | CONC | FC-3 | RB | CONC/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3009 FOR ENLARGED PLAN. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B1326 | IDF ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1341 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1348 | SERVICE CORRIDOR | CONC | - | - | CMU/CON C | - | EXP STRUCT | - | METAL GUARDRIL: GALVANISED. |
| B1360 | IDF ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1361 | BICYCLE RAMP | CONC | FC-2 | FC-2* | CMU/CON C | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB (OR TO 6" MIN) AFF. POWDER COATED METAL OVERHEAD DOOR and JAMB ENCLOSURE (WHERE SHOWN): PREFINISHED TO MATCH CLADDING AROUND UNON OR SPECIFIED. |
| B1365 | OVERSIZED EQUIPMENT STORAGE | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | POWDER COATED METAL OVERHEAD DOORS: PREFINISHED. |
| B1366 | PARKING AREA | CONC | FC-2 | FC-2* | CMU/CON C | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE |
| B1380 | ELEV CONTROL ROOM | CONC | FC-3 | RB | GB | PT | EXP STRUCT | - | |
| B1381 | UPS ROOM | CONC | FC-3 | RB | CONC/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3009 FOR ENLARGED PLAN. |
| B1382 | MECHANICAL ROOM | CONC | FC-1 | FC-1* | CMU/CON C | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB/PAD OR FIRST MASONRY COURSE. |
| B1383 | TSER ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1384 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1385 | WEST MDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | PT | SECURITY SCREEN DIVISIONS WITH SLIDING GATES: GALVANIZED - REFER TO DWG A1-2203 FOR LAYOUT. |
| B1386 | CORRIDOR | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |
| B1387 | MAINTENANCE EQUIPMENT REPAIR SHOP | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | ALUMINUM CLADDING TO STEEL COLUMN: (PREFINISHED) - REFER TO A1-9205 FOR DETAILS |
| B1388 | LOCK SHOP | CONC | FC-3 | RB | CMU | PT | ACT-1 | - | |
| B1389 | STORAGE & COPY ROOM | CONC | POR-4 | POR-4 | GB | PT | ACT-1 | - | 4" HIGH BULLNOSE BASE |
| B1390 | MAINTENANCE WORKSHOP | CONC | FC-3 | RB | GB | PT | EXP STRUCT | - | SOLID GRADE LAMINATE COUNTER TOP W/SS SINK: LAM-1, Top AND BOTTOM CABINETS: LAM-2, CERAMIC TILE BACK SPLASH: CET-1, FRIDGE, MICROWAVE and DISHWASHER BY OTHERS. REFER TO DRAWING 9802 FOR PLAN DETAILS. |
| B1391 | WATER HEATER | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1403 | STAIR 403 | CONC | FC-3 | ** | GB | PT | EXP STRUCT | PT | REFER TO DRAWING A1-7011 FOR PLANS. METAL CHECKER PLATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). **4'-0" HIGH ALUMINUM CHECKER PLATE BASE ON ALL GB PARTITIONS (CLEAR ANODIZED). REFER TO DRAWING A1-7501 TO 7505 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B1424 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1440 | FAN ROOM | CONC | FC-3 | RB | GB | PT | EXP STRUCT | - | |
| B1441 | SOUTH ELEC ROOM | CONC | FC-3 | RB | CONC/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3010 FOR ENLARGED PLAN. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. ALUMINUM CLADDING TO STEEL COLUMN: (PREFINISHED), REFER TO A1-9207 FOR DETAILS. |
| B1444 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1445 | MECHANICAL ROOM | CONC | FC-3 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1460 | FAN ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |
| B1461 | ELEV CONTROL ROOM | CONC | FC-3 | RB | GB | PT | EXP STRUCT | - | |
| B1462 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: GALVANIZED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1482 | FAN ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1485 | EAST FSR | CONC | FC-1 | RB | CONC/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3008 FOR ENLARGED PLAN. |
| B1501 | STAIR 501 | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | *REFER TO DRAWING A1-7010 FOR PLANS. METAL CHECKER PLATE INTERMEDIATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). REFER TO DRAWING A1-7501 TO 7505 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B1501 | STAIR 501B | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | PT | *REFER TO DRAWING A1-7010 FOR PLANS. METAL CHECKER PLATE INTERMEDIATE LANDINGS, TREADS AND RISERS, METAL RAILINGS and STRINGERS: PAINTED (PT-2). REFER TO DRAWING A1-7501 TO 7505 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B1521 | FAN ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1522 | RECLAIMED WATER TREATMENT SYSTEM & PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. PREFINISHED ALUMINUM CLADDING TO STEEL COLUMN: (PREFINISHED), REFER TO A1-9205 FOR DETAILS. |
| B1523 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |

| ROOM NUMBER | ROOM NAME | FLOOR | | BASE | WALLS | | CEILING | | COMMENTS |
|-------------|---------------------------------|----------|--------|-------|---------------|--------|------------|--------|---|
| | | MATERIAL | FINISH | | MATERIAL | FINISH | MATERIAL | FINISH | |
| B1524 | ELEV CONTROL ROOM | CONC | FC-3 | RB | CMU/GB | PT | EXP STRUCT | - | |
| B1525 | LOWER CONCOURSE EXIT PASSAGEWAY | CONC | FC-3 | RB | CMU/GB | PT | EXP STRUCT | PT | |
| B1526 | FAN ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1540 | JANITOR'S CLOSET | CONC | FC-3 | RB | CMU/GB | PT | EXP STRUCT | - | |
| B1544 | FAN ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1545 | IDF ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1560 | MAIN SWITCHGEAR ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON NORTH WALL, WEST WALL AND TURN ON SOUTH WALL TO THE DOOR - COORDINATE WITH ELECTRICAL. |
| B1561 | TRANSFORMER VAULTS | CONC | FC-4 | - | CONC | - | EXP STRUCT | - | STEEL GRATINGS C/W FRAMES AND LADDERS: GALVANIZED. REFER TO DRAWING A1-3003 FOR DETAILS. |
| B1562 | TRANSFORMER VAULTS | CONC | FC-4 | - | CONC | - | EXP STRUCT | - | STEEL GRATINGS C/W FRAMES AND LADDERS: GALVANIZED. REFER TO DRAWING A1-3003 FOR DETAILS. |
| B1563 | EMERGENCY ELECTRICAL ROOM | CONC | FC-3 | RB | CONC/CM U/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3009 FOR ENLARGED PLAN. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON EAST, WEST AND NORTH WALLS - COORDINATE WITH ELECTRICAL. |
| B1564 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN (NO GATE): PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1567 | LOWER CONCOURSE EXIT PASSAGEWAY | CONC | FC-3 | RB | CMU/GB | PT | EXP STRUCT | PT | |
| B1580 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN (NO GATE): PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1582 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B1584 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1620 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1621 | RECLAIMED WATER PUMP ROOM | CONC | FC-1 | FC-1* | CMU | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1640 | MECHANICAL ROOM | CONC | FC-1 | FC-1* | CMU/CON C | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1641 | MDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO A1-9338 FOR DETAILS. |
| B1642 | UPS ROOM | CONC | FC-3 | RB | CONC/STL | PT | EXP STRUCT | - | REFER TO DRAWING A1-3009 FOR ENLARGED PLAN. ALUMINUM CLADDING TO STEEL COLUMN (PREFINISHED), REFER TO A1-9207 FOR DETAILS. |
| B1643 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1644 | EMERGENCY ELECTRICAL ROOM | CONC | FC-3 | RB | CONC/STL | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. REFER TO DRAWING A1-3009 FOR ENLARGED PLAN. |
| B1660 | ELECTRICAL ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B1662 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1680 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1760 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1761 | TSER ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | |
| B1772 | ELEV CONTROL ROOM | CONC | FC-3 | RB | GB | PT | EXP STRUCT | - | |
| B1774 | ELEC ROOM | CONC | FC-3 | RB | GB | PT | EXP STRUCT | - | PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON ALL WALLS - COORDINATE WITH ELECTRICAL. |
| B1780 | IDF ROOM | CONC | FC-3 | RB | CMU | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1901 | STAIR 901 | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | PT | REFER TO DRAWING A1-7023 FOR PLANS. METAL CHECKER PLATE TREADS AND RISERS, METAL RAILINGS AND STRINGERS: PAINTED (PT-2). REFER TO DRAWING A1-7501 TO 7505 FOR TYPICAL DETAILS. REFER TO SPECIFICATION SECTION 10 14 43 FOR LOCATIONS OF PHOTO-LUMINESCENT STRIPS. |
| B1920 | BUILDING STORAGE ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |
| B1921 | SUPPLY STORAGE | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |
| B1922 | COOLING TOWERS | CONC | FC-1 | FC-1* | CMU/CON C | PT | EXP STRUCT | - | *TAKE FLOOR FINISH UP THE WALLS TO T/O CURB OR FIRST MASONRY COURSE. |
| B1923 | IDF ROOM | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | SECURITY SCREEN WITH SLIDING GATE: PREFINISHED - REFER TO DWG A1-9338 FOR DETAILS. PROVIDE 3/4" THICK, 8'-0" HIGH PRESSURE TREATED, FIRE RETARDANT PLYWOOD BACKING PANELS ON WALLS WHERE SHOWN ON SM&W DRAWINGS. |
| B1924 | ELEC ROOM | | | | | | | | |
| B1925 | SERVICE CORRIDOR | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |
| B1981 | CLEANING SUPPLY STORAGE | CONC | FC-3 | RB | CMU/CON C | PT | EXP STRUCT | - | |

ROOM FINISH SCHEDULE ABBREVIATIONS

| | | | | | |
|------|------------------------------------|--------|------------------------------|------------|----------------------|
| AF | ACCESS FLOORING | HM | HOLLOW METAL DOOR | SC | SEALED CONCRETE |
| AL | ALUMINUM | HPL | HIGH PRESSURE LAMINATE | SGL | SOLID GRADE LAMINATE |
| ACT | ACOUSTIC CEILING TILE | INSUL | INSULATION | (SP) | SPECIAL PAINT |
| AP | ACCESS PANEL | IS | INSULATED SOFFIT (@ | SS | STAINLESS STEEL |
| AWP | ACOUSTIC WALL PANEL | | U/S SLAB ABOVE) | STI | STONE (INTERIOR) |
| | | | | STL | STEEL |
| B | BRICK | ME | METAL | | |
| | | MD | METAL DECK | | |
| CONC | CONCRETE | MDF | MEDIUM DENSITY FIREBOARD | TERR | TERRAZZO |
| CP | CONCRETE PAVERS | MP | METAL PANEL | T/O STRUCT | TOP OF STRUCTURE |
| CPT | CARPET | | MECHANICAL ROOM FIREPROOFING | | |
| CMU | CONCRETE MASONRY UNIT | | | V | VINYL |
| CJ | CONTROL JOINT | (N) | NATURAL | VT | VINYL TILES |
| CET | CERAMIC | (N/A) | NOT APPLICABLE | VSF | VINYL SHEET FLOORING |
| | CRYSTALLINE CONCRETE WATERPROOFING | (NIC) | NOT IN CONTRACT | | |
| EP | EPOXY | | | U/S | UNDERSIDE/UNDERSLA |
| EXP | EXPOSED | PT | PAINT | | |
| | | PC | PRECAST CONCRETE | WD | WOOD |
| FAB | FABRIC | PL | PLASTER | WPM | WATERPROOFING MEMB |
| FC | FLOOR COATING SYSTEM | P LAM | PLASTIC LAMINATE | | |
| FL | FLOOR | POR | PORCELAIN TILE | WTL | TANK LINER |
| FS | FIRE STOP | PR | PRIMED | | |
| | | PREFIN | PREFINISHED | | |
| GB | GYPSUM BOARD | | | | |
| GL | GLASS | RFC | RESIN FLOOR COATING | | |
| GLV | GALVANIZED | RB | RUBBER BASE (COVERED) | | |
| GRG | GLASS REINFORCED GYPSUM BOARD | RUB | RUBBER | | |

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set, or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|-------------|---------------------|---|--|
| TG13.2-002 | 9/18/2014 | | 07 18 14 | <p>REFERENCE: (ASI 127 dated 9/12/14)</p> <p>Specification Section 07 18 14 3.1 B 1</p> <p>Specification Section 07 18 14 3.6 A</p> <p>Specification Section 07 18 14 3.1 B 1 and Specification Section 07 18 14 3.6 A states, "...surfaces and conditions upon which Work is in any way dependent for perfect results."</p> <p>"Perfect results" have not been defined within the contract documents.</p> <p>Please confirm that "perfect results" is intended to direct that substrates shall be examined to assure they meet the manufacturer's written installation instructions.</p> | <p>Specification Section 07 18 14 (revision 1 issued for ASI 127) is now changed to delete the word "perfect," and add clarifications as marked; refer to items 3.1.B.1 and 3.6.A on attached copy of the updated specification section.</p> |
| TG13.2-003 | 10/10/2014 | | 07 13 54 | <p>REFERENCE: Specification 07 13 54 (ASI 123 dated 8/6/14)</p> <p>Specification Section 07 13 54 1.9 C PVC Waterproofing (WPM-3) shows a 2-year warranty. PMPC has indicated that a 20-year warranty is desired.</p> <p>Please revise Specification Section 07 13 54 1.9 C to require a 20-year warranty period.</p> | <p>Specification Section 07 13 54 PVC Waterproofing (WPM-3) has a typo in paragraph 1.9 C.1. The Warranty period is 20 years: see attached markup of Specification Section 07 13 54 PVC Waterproofing (WPM-3).</p> |

SECTION 07 18 14 –FLOOR COATINGS (FC-1, FC-2)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes liquid-applied waterproof floor coating system. See Finish Schedule for locations.
 - 1. FC-1 Liquid-applied waterproof floor coating system for mechanical rooms, pump rooms, vehicle storage, engineering equipment storage, janitorial equipment storage, oversize equipment storage, equipment repair shop and where shown on room finish schedule.
 - 2. **I . . .** FC-2 Liquid-applied waterproof floor coating system for loading bays, loading dock, slab at dock leveler, garbage rooms, ~~vehicular~~ **vehicle and bicycle** ramp, ~~eyelist ramp~~, parking area **at Lower Concourse (interior/unheated areas), Bus Plaza drive aisles, Bus Deck drive aisle** and where shown on room finish schedule.
- B. Refer to Division 01 Specification Section ~~08 01~~ **81 13**, “General LEED Building Design & Construction Requirements” for additional LEED requirements. **. . . I**

1.2 ABBREVIATIONS AND ACRONYMS:

- A. AHJ: Authorities Having Jurisdiction.
- B. ANSI: American National Standards Institute.
- C. ASTM: American Society for Testing and Materials
- D. BAAQMD: Bay Area Air Quality Management District.
- E. DFT: Dry film thickness.
- F. LEED: Leadership in Energy and Environmental Design; www.usgbc.org.
- G. MSDS: Material Safety Data Sheets.
- H. SCAQMD: South Coast Air Quality Management District.
- I. SSPC: Society for Protective Coatings
- J. VOC: Volatile Organic Compound.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings: Comply with Section 01 12 00 and Section 01 14 00. Where the provisions are in conflict, the more restrictive requirements apply.
- B. Performance Requirements:
 - 1. General: Provide installed coating system that resists foot traffic and thermally induced movement without failure.
 - 2. Material compatibility: Provide coating materials compatible with one another under conditions of service and application required, as demonstrated by manufacturer based on testing and field experience.

- C. Pre-application meeting: Convene a meeting before start of application of the coating system. Require attendance of parties directly affecting work of this Section, including Contractor, Architect, applicator, and manufacturer's representative. Review the following.
1. Environmental requirements.
 2. Protection of surfaces not scheduled to be coated.
 3. Surface preparation.
 4. Application.
 5. Repair.
 6. Field quality control.
 7. Cleaning.
 8. Protection of coating systems.
 9. One-year inspection.
 10. Coordination with other work.

1.4 SUBMITTALS - GENERAL

- A. Comply with the General Conditions and Section 01 13 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply. Do not submit items not requested.
- B. Product Data:
1. Submit coating system manufacturer's product data for proposed coating system, together with details of flashing at penetrations, coves and corners, and preparation and installation instructions.
 2. Submit "Qualified Applicator" certificate from coating system manufacturer.
- C. Samples:
1. Submit coating system manufacturer's standard color samples for initial color selection.
 2. Furnish minimum 6-inch square, stepped sample of the selected coating system mounted on plywood or hardboard, color of top coat shall match TIPA Representative's color sample.
- D. Test reports: Submit test reports from approved independent testing laboratory showing test results for moisture and pH levels of concrete subfloors. Provide quantity and type of tests per floor coating manufacturer's recommendations.
- E. Manufacturer's Quality Control:
1. Before start of installation, submit manufacturer's certification that coating is suitable for intended application.
 2. After installation is completed, submit manufacturer's certification that manufacturer provided technical assistance and that the installation complies with specified requirements.
- F. **I...** Applicator Qualifications: Submit **a project** list of a minimum of 5 completed projects of similar size and complexity to this work., ~~including~~ **Installer must provide proof that their company has been in business for a minimum of 10 years. Including** the following information as a minimum: **...I**
1. Project name and location.
 2. Name of owner.
 3. Name of contractor.
 4. Name of architect.
 5. Name of coating manufacturer.

6. Approximate area of coatings applied.
7. Date of completion.

G. **I . . .** Warranty: Submit coating manufacturer's warranty form **prior to starting application.**
. . . I

H. Closeout:

1. Submit recommendations for periodic inspections, and copy of care and maintenance recommendations.
2. Identify common causes of damage with instructions for temporary patching until permanent patching can be made.

1.5 LEED SUBMITTALS

- A. Within 30 days of contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheet" and forms provided in the Project Manual, together with all supplemental documentation required by LEED.
- B. Credit IEQ 4.2: If field applied, provide manufacturer's MSDS or technical data sheet showing a printed statement of VOC content for all paints and coatings used on the project and demonstrating compliance with Green Seal standard GS-11, Paints, May 20, 1993; with Green Seal GC-03, Anti-Corrosive Paints, January 7, 1997; with SCAQMD Rule #1113, effective January 1, 2004.

1.6 QUALITY CONTROL

- A. Regulatory Requirements: In addition to LEED requirements comply with BAAQMD requirements referenced in Section 01 14 10.
- B. Manufacturer Qualifications:
 1. Firm that specializes in manufacture of floor coatings similar to those specified with a minimum of 5 years successful experience.
 2. Firm must be able to demonstrate successful performance on comparable projects.
- C. Applicator Qualifications:
 1. Firm experienced in application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this work.
 2. Applicator's personnel: Persons trained for application of specified coatings. Must be approved in writing by manufacturer of waterproofing system.
- D. Single Source Responsibility: Coatings and coating application accessories shall be products of a single manufacturer.
- E. **I . . .** Mockup: Prepare a ~~10~~ **20** foot square on-site mockup of coating system using same materials, tools, equipment, and procedures intended for actual surface preparation and application. Obtain TJPA Representative's approval of mockup. Retain mockup to establish intended standards by which coating system will be judged **and/or tested for performance.**
- F. **DELETED** ~~Compatibility with Cleaning Products: Ensure that materials used / finished as compatible with the following cleaning products:~~
 1. **DELETED** ~~Hydrogen Peroxide (50%)~~
 2. **DELETED** ~~Sodium Hypochlorite (50%)~~
 3. **DELETED** ~~Calcium Hypochlorite (68%)~~

- G. ~~DELETED Testing: In accordance with the Scientific Equipments and Furniture Associates Laboratory Casework, Shelving and Tables Recommended Practice (SEFA 8) Chemical Spot Test Procedure (paragraph 8.1.2) with no more than a Level 1 rating (slight change in color or gloss).~~ ... I

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying the following.
1. Coating or material name.
 2. Manufacturer.
 3. Color name and number.
 4. Batch or lot number.
 5. Date of manufacture.
 6. Mixing and thinning instructions.
- B. Storage and Handling:
1. Store materials in a clean dry area and within temperature range in accordance with coating system manufacturer's instructions.
 2. Keep containers sealed until ready for use.
 3. Do not use materials beyond manufacturer's shelf life limits.
 4. Protect materials during handling and application to prevent damage or contamination.

1.8 SITE CONDITIONS

- A. Follow coating system manufacturer's instructions.
- B. Ambient and surface temperatures shall be at least 60 degrees F for a minimum period of 48 hours before, during and after coating system application.
- C. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with coating system manufacturer's instructions.
- D. Dust and contaminants:
1. Schedule coating work to avoid excessive dust and airborne contaminants.
 2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

1.9 WARRANTY

- A. General:
1. The warranties are governed by the requirements herein, those of Section 01 17 40, and the General Conditions of the Contract.
 2. Warranties specified in this Article shall not deprive the TJPA of other rights the TJPA may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

B. Manufacturer Warranty:

1. Warrant work for 2 years against defects or deficiencies in accordance with the General Conditions of the Contract. Promptly correct defects or deficiencies which become apparent within warranty period to the satisfaction of TJPA Representative and at no expense to TJPA.
2. Defects include but are not limited to fading, pinholes, cracking, and peeling.

C. Applicators Warranty

1. Warrant work for 2 years against workmanship defects or deficiencies in accordance with the General Conditions of the Contract. Promptly correct defects or deficiencies which become apparent within warranty period to the satisfaction of TJPA Representative and at no expense to TJPA.

1.10 RECORD DOCUMENTS (AS-BUILT)

- A. General: The provisions of Article 3.09 of the General Conditions and Sections 01 17 20, apply to this Section.

1.11 DEFINITIONS

- A. General: In addition to definitions specified in Article 1.01 of the General Conditions, the following applies to this Section. Where the provisions are in conflict, the more restrictive requirements apply.

PART 2 - PRODUCTS

2.1 LEED REQUIREMENTS

- A. Credit IEQ 4.2: All VOC containing materials applied on site inside of the waterproofing barrier shall comply with LEED credits IEQ 4. Provide paints and coatings that comply with the limits defined by Green Seal Standard GS-11, effective May 20, 1993, GC-03, January 7, 1997, and SCAQMD Rule #1113, effective January 1, 2004, as applicable

2.2 MANUFACTURERS

- A. Manufacturers: Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:
1. Sherwin-Williams/General Polymers Brand (basis of design.)
 2. Neogard.
 3. ~~I . . . Tremco Incorporated.~~ **Rust-o-leum.**
 4. ~~Or equal. Tnemec.~~
 5. **Or equal. A 1,400sf test area is required for performance testing, prior to substitution submittal. . . . I**

2.3 COATING SYSTEM

- A. FC-1: General Polymers EPO-FLEX MER II, Mechanical Equipment Room Waterproofing System.

B. 1... FC-2 : General Polymers ~~EPO-FLEX INDUSTRIAL FLOOR SYSTEM~~ **1/4" FASTOP
S URETHANE CONCRETE FLOORING SYSTEM. ...1**

2.4 PERFORMANCE REQUIREMENTS

1...

A. FC-1: ...1

| | |
|--|-------------------------------------|
| Hardness, Shore D ASTM D 2240 | 50/40 |
| Tensile Strength ASTM D 412 | 1,700 psi |
| Elongation ASTM D 412 | 80% |
| Adhesion ACI 503R | 300 psi concrete failure |
| Abrasion Resistance ASTM D, CS-17 Wheel, 1,000 cycles | 100 mgs lost |
| Flammability | Self-Extinguishing over concrete |
| Thermal Cycling ASTM C 884 | No cracking |

1...

B. FC-2:

| | |
|--|---|
| Cure Time | Recoat - 4-5 hours Foot Traffic 6-8 hours Full Service 10-12 hours |
| Abrasion Resistance ASTM D 4060, CS-17 Wheel, 1,000 cycles | 20-30 mgs lost |
| Hardness, Shore D ASTM D 2240 | 75 |
| Tensile Strength ASTM C 307 | 550-600 psi |
| Compressive Strength ASTM C 579 | 5,000 psi |
| Flexural Strength ASTM C 580 | 3,700 psi |
| Adhesion ACI 503 R | 300 psi concrete failure |

| | |
|--|--|
| Flammability | Self Extinguishing over concrete |
| Smoke Density ASTM E 662 | 287-346 |
| Critical Radiant Flux ASTM E 648 | >1.0 |
| Coefficient of Friction ASTM 2047 | >0.80 |
| Service Temperature at 3/16" | -50°F - 300°F |
| Shrinkage | Nil |
| Water Absorption | Nil |
| Impact Resistance MIL-D-3134, Sec.4.7.3 | Withstands 16 ft lbs without cracking, delamination or chipping |

1.1.1

2.5 MATERIALS

- A. 1.1.1 EPO-FLEX MER II System (FC-1) 3/32-inch Chemical Resistant Coating consisting of the following: ~~Integral 6" High Epoxy Cove Base, as required at various locations. FC-1, 3579 Standard Primer / Binder as primer, one coat of 3555 EPO-FLEX HD Epoxy Coating as a waterproofing membrane, a second coat of 3555 EPO-FLEX HD Epoxy Coating as a wearcourse with 5310-8 Dry Silica (20-40 mesh) or other Hard Aggregate, and 3745 Self-Leveling Epoxy as the seal coat.~~
1. ~~3579 Standard Primer / Binder as primer.~~ **Integral Epoxy Cove Base 6" High (unless otherwise noted), 1/8" @ 1" Radius, as required at various locations FC-1:**
 - a. **3561V Epoxy Cove Paste As Primer, 5-6 mils**
 - b. **3561V Epoxy Cove Paste, 1.25 gal per 30 -35 ln ft.**
 - c. **Blended Aggregate 50lbs-60lbs per 30 -35 ln ft.**
 2. ~~One coat of 3555 EPO-FLEX HD Epoxy Coating as a waterproofing membrane.~~ **Floor System:**
 - a. **Prime: 3579 Standard Primer / Binder as primer.**
 - b. **One Coat: of 3555 EPO-FLEX HD Epoxy Coating as a waterproofing membrane.**
 - c. **A second coat of 3555 EPO-FLEX HD Epoxy Coating as a wear course with 5310-8 Dry Silica (20-40 mesh).**
 - d. **Finish Coat: 3744 or 3745 Chemical-Resistant Self-Leveling Epoxy as the seal coat.**
 3. ~~A second coat of 3555 EPO-FLEX HD Epoxy Coating as a wear course with 5310-8 Dry Silica (30 mesh) or other Hard Aggregate.~~ **Epo-Flex HD 3555V Vertical Membrane for use on vertical surfaces at FC-1.**

4. ~~DELETED~~ 3745 Chemical Resistant Self Leveling Epoxy as the seal coat.
- B. ~~EPO FLEX Industrial Floor System (FC-2) consisting of the following:~~ **1/4" Fastop S Urethane Concrete Floor System (FC-2) consisting of: Intergral Fastop Cove Base, 4040 FasTop Urethane Primer (Cove), 4060 FasTop Cove Base Binder Resin, and 5055 FasTop Cove Base Aggregate (Cove), 4050 FasTop S Binder Resin, with 5050 FasTop S Aggregate as slurry, 5310-8 Dry Silica Sand (20-40 Mesh) for broadcast and 4844 PAace-Cote as seal coat at a 1/4" nominal. Texture per area as directed by TJPA.**
1. ~~3579 Standard Primer.~~ **Intergral Fastop Cove Base 6" high (unless otherwise noted), 1/8" @ 1" Radius, as required at various locations FC-2:**
 - a. **4040 Fastop urethane primer, 5-6 mils wft.**
 - b. **4060 Fastop Cove Base Binder Resin, 1 unit per 15 -20 ln. ft.**
 - c. **5055 Fastop Cove Base Aggregate, 30 lbs per 15- 20 ln. ft.**
 2. ~~One coat of 355 EPO FLEX HD Epoxy Coating as waterproofing membrane.~~ **Floor System:**
 - a. **Primer: 3477 Waterbased Epoxy Sealer for outgassing.**
 - b. **Slurry Coat: 3/16" of 4050 Fastop S Binder Resin**
 - c. **Broadcast 5310-8 Silica Sand (20-40 Mesh) to refusal.**
 - d. **Grout Coat: 3744 or 3745 Chemical-Resistant Self-Leveling Epoxy.**
 - e. **Seal Coat: 4844 Pace Cote. Texture as directed per area by TJPA.**
 3. ~~DELETED A second coat of 355 EPO FLEX HD Epoxy Coating as a wear course with 5310-8 Dry Silica (30 mesh) or other Hard Aggregate.~~
 4. ~~DELETED 3745 Chemical Resistant Self Leveling Epoxy as the grout coat.~~
 5. ~~DELETED 3745 Chemical Resistant Self Leveling Epoxy as the seal coat.~~
- C. ~~DELETED Epo Flex HD 3555V Vertical Membrane for use on vertical surfaces at FC-1, and FC-2. Apply on 2 coats DFT 30 to 40 mils. ... I~~
- D. Miscellaneous Accessories: Items incorporated into this system shall be compatible with and approved by the coating manufacturer.
- E. I... Concrete Moisture Emission Reducer: Provide "FasTop S Urethane Slurry MVT" by Sherwin Williams, ~~or equal Tek-Crete TT by DEX-OTEX, or Urethane Concrete Floor Topping (8900 System) by Rust-O-Leum.~~ ... I
- F. Slip Resistance: To ADA Standards. Test patch is applied and inspected to ensure proper slip resistance is achieved.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. I... Verification of **Environmental** Conditions: ... I
1. Examine the areas and conditions under which work of this Section will be performed.
 2. Ensure concrete slab are properly cured and dry for minimum of 28 Days.
 3. Ensure that concrete tolerances for flatness and pitch to drain have been satisfied.
- I...
4. **Ensure required remedial work is completed and satisfactory.**

. Report any unsatisfactory condition and any condition that does not meet the manufacturer written installation instructions or may

- B. Notification: Notify General Contractor in writing, with copy to TIPA Representative, of conditions detrimental to the installation including unequal flatness of substrate.
1. Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions ~~upon which Work is in any way dependent for perfect results. Report all conditions which~~ affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces. Test and report for moisture level in substrate to verify compliance with manufacturer's requirements. Do not proceed unless acceptable test results are achieved.
- C. ~~Ensure required remedial work is completed and satisfactory.~~ Coating applicators shall be present, to examine substrates for compliance with requirements for conditions affecting performance of the work.
1. Verify that substrates comply with tolerances and other requirements specified that may interfere with bonding of coatings.
 2. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions.
 3. All manufacturers' installation instructions shall be implicitly followed.
 4. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
 5. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions by using the following methods as recommended by the resinous flooring manufacturer.
 6. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application of resinous flooring only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours and/or perform relative humidity test using in situ probes, ASTM F 2170 per manufacturer's written instructions.
 7. Proceed with installation only after substrates have a percent relative humidity level measurement as noted acceptable by resinous floor manufacturer.
- D. ~~Evaluation and Assessment: Commencement of work implies acceptance of previously completed work.~~ Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after test results are acceptable.
- E. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- F. Crack Isolation:
1. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

2. **Prior to application of an elastomeric system, control, contraction, construction joints, and cracks should be sealed with the selected system flexible sealant, i.e., 3580 Joint and Crack Filler, 4880 Polyurea Joint Sealant, EPO-FLEX flexible sealant. This coating shall extend a minimum of 6" on either side of the joint or crack. The entire surface area should then receive the specified crack isolation system. Detail isolation and/or expansion joints in accordance with the plans and specifications of the architectural or engineering design professionals for the type of structure being considered. Attain approval from the manufacturer in writing prior to installation.**

3.2 **DELETED PROTECTING ADJACENT SURFACES**

- A. **DELETED** ~~Mask adjoining surfaces not to be coated. Close off deck drains and other deck penetrations to prevent spillage and migration of liquid coatings and blast media.~~
- B. **DELETED** ~~Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings~~

3.3 **CONCRETE SLAB TESTING AND PREPARATION ...I**

- A. Allow sufficient time in the construction schedule for slabs to dry, force-dry slabs, or provide a compatible surface coating to bring water vapor emission to a level acceptable to manufacturers of materials to be applied over concrete floors.
- B. Test for moisture emission rate in accordance with ASTM F2170; obtain instructions if test results are not within limits recommended by flooring materials manufacturer.
- C. Test for pH level in accordance with ASTM F710, pH Testing ; obtain instructions if test results are not within limits recommended by flooring materials manufacturer. Provide one test for every 1,000 sq. ft.
- D. Prepare concrete floors according to SSPC-SP 13 for the following:
 1. Remove sealers, coatings, finishes, dirt, film-forming curing compounds, or other substances that may affect the rate of moisture dissipation from the concrete or the adhesion of coatings to the concrete.
 2. Comply with coating manufacturers' requirements for optimum performance of materials to be applied over concrete floors.
- E. Prepare concrete floors as recommended by manufacturer. Where this differs from SSPC-SP13, follow the most restrictive.

3.4 **I... DELETED VERIFICATION**

- A. **DELETED** ~~With coating applicators present, examine substrates for compliance with requirements for conditions affecting performance of the work.~~
- B. **DELETED** ~~Verify that substrates comply with tolerances and other requirements specified that may interfere with bonding of coatings.~~
- C. **DELETED** ~~Notification: Notify General Contractor in writing, with copy to TJPA Representative, of any nonconforming work or conditions.~~
- D. **DELETED** ~~Evaluation and Assessment: Commencement of work implies acceptance of previously completed work. ...I~~

3.5 PROTECTING ADJACENT SURFACES

- A. Mask adjoining surfaces not to be coated. Close off deck drains and other deck penetrations to prevent spillage and migration of liquid coatings.
- B. Prepare surfaces and apply coating system in accordance with its manufacturer's instructions, except as modified in this Section.
- C. Do not apply aggregates on vertical surfaces, and on top of equipment bases.
- D. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
- E. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

. Report any unsatisfactory condition and any condition that does not meet the manufacturer written installation instructions or may

3.6 1... SURFACE PREPARATION OF CONCRETE FLOORS INSPECTION

- A. ~~Ambient and surface temperatures shall be at least 50 degrees F for a minimum period of 48 hours before, during and after coating system application. Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins.~~
Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins.
- B. Commencement of Work constitutes acceptance of surfaces.
- C. Test and report for moisture level in substrate to verify compliance with manufacturer's requirements. Do not proceed unless acceptable test results are achieved.
- D. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile numbers as follows:
 - 1. Thin film, to 10 mils CSP-1 to CSP-3
 - 2. Thin and medium films, 10 to 40 mils CSP-3 to CSP-5
 - 3. Self-leveling mortars, to 3/16" CSP-4 to CSP-6
 - 4. Mortars and laminates, to 1/4" or more CSP-5 to CSP-9 ...1

3.7 COATING APPLICATION

- A. Follow coating system manufacturer's instructions for each system FC-1 and FC-2.
- B. 1... Only installers approved by the manufacturer in writing shall perform installation of the coating system.
- C. Crack control and coating system applications shall comply with detailed requirements recommended by coating system manufacturer.

- D. Apply primer at coverage rate recommended by coating system manufacturer for particular surface porosity.
- E. Apply 1/2-inch by 1/2-inch cant to internal angles, consisting of a 2 component urethane sealant compatible with the coating system. Allow cant to fully cure before proceeding with coating application
- F. Apply membrane system in thickness specified in addition to crack treatment.
- G. ~~Apply wear course at the recommended thicknesses to floors and up to the top of the concrete curbs or to the top of the first concrete block coursing. Broadcast manufacturer required amount of aggregate to floor surfaces only for slip resistance. NOTE: The thickness of the wear course is different in the 2 coating systems. Verify manufacturers system requirements Match approved mockup.~~ **Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping.**
- H. ~~Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated at each stage of application.~~ **Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.**
- I. **Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.**
- J. **Apply wear course at the recommended thicknesses to floors and up to the top of the concrete curbs or to the top of the first concrete block coursing.**
- K. **Broadcast manufacturer-required amount of aggregate to floor surfaces only for slip resistance. NOTE: The thickness of the wear course is different in the 2 coating systems. Verify manufacturers system requirements Match approved mockup.**
- L. **Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated at each stage of application.**
- M. **Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.**
- N. **Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application.**
- O. **Apply primer over prepared substrate at manufacturer's recommended spreading rate. Slip Resistant Finish: Provide grit for slip resistance.**
- P. **Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.**
- Q. **Notification: Notify General Contractor in writing, with copy to TJPA Representative, of any nonconforming work or conditions.**
- R. **Evaluation and Assessment: Commencement of work implies acceptance of previously completed work. ...I**

3.8 FIELD QUALITY CONTROL

- A. Request the manufacturer's presence as required to review installation procedures and completed work, and to issue warranty specified.

- B. Unsatisfactory conditions disclosed by the manufacturer's visits to the site shall be promptly and satisfactorily repaired and the areas re-inspected by the manufacturer before work starts or resumes in affected areas.
- C. Restore damaged or nonconforming areas to match adjacent areas as recommended by the manufacturer, and as approved by the Architect.
- D. Protect traffic coating from damage and wear during remainder of construction period.

3.9 CLEANING AND PROTECTING

- A. On completion of installation, clean the work of marks and other foreign substances.
- B. Protect work against stains and damages acceptance until acceptance by TJPA.

END OF SECTION 07 18 14

SPECIFICATION ISSUE LOG

| Revision | Date |
|----------|----------|
| 0 | 03/31/14 |
| 1 | 09/12/14 |
| | |

SECTION 07 13 54 – PVC WATERPROOFING (WPM-3)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Provide materials, labor, equipment, and services necessary to furnish, deliver and install all work of this section as indicated on the drawings, as specified herein, and/or as required by job conditions.
 - 1. Waterproofing the Park Level with a two-ply PVC waterproofing membrane, separation layer, grounding screen and protection layers all loose laid.
 - 2. Flashing PVC waterproofing at terminations, penetrations, upset beams expansion joints and drains.
 - 3. Control drains
 - 4. Drainage composites over PVC waterproofing membrane protection layer.
 - 5. Expansion joints. including wood blocking.
 - 6. Electronic Quality Control Testing.
- B. Related Sections: Following description of work is included for reference only and shall not be presumed complete:
 - 1. Submittal forms required to be submitted by this Section: Section 00 62 00, Certificates and Other Forms.
 - 2. Provision of general LEED™ requirements: Section 01 33 29, General LEED™ Requirements.
 - 3. Provision of general LEED™ product requirements: Section 01 62 13, LEED™ Product Requirements.
 - 4. Waste management and disposal requirements: Section 01 74 19, Waste Management and Disposal.
 - 5. Concrete fill and protection slab: Section 03 33 00, Concrete.
 - 6. Bent angle pour stops at expansion joints: Section 05 58 00 Metal Fabrications.
 - 7. Roof and Floor drains: Division 22, Plumbing.

1.2 REFERENCES

- A. Abbreviations and Acronyms:
 - 1. LEED: Leadership in Energy and Environmental Design; www.usgbc.org.
 - 2. MSDS: Material Safety Data Sheets.
 - 3. SCAQMD: South Coast Air Quality Management District; www.aqmd.gov.
 - 4. VOC: Volatile Organic Compound.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings:
 - 1. Preinstallation Meetings: Comply with Section 01 12 00 and Section 01 14 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply.

2. Prior to but not less than 30 days before beginning work, and not less than 5 days following approval of all shop drawings, the TJPA Representative will meet with the Contractor, the Waterproofing Subcontractor, his Superintendent or Foreman who will be engaged full time on the Project, the manufacturer's technical representative and the Leak Detection Firm to review the earlier submitted and acceptable materials and submittals and procedures to be followed in performing the work. At this time, submit samples and progress schedule. The Contractor shall keep the minutes of the meeting and distribute same as noted.
3. The minutes of the conference shall be submitted by the Contractor to all attendees and interested parties no less than 3 days after the conference.
4. Prior to, but not more than seven days before beginning work, a second meeting of the TJPA Representative will meet with the Contractor, the Waterproofing Subcontractor, his Superintendent or Foreman who will be engaged full time on the Project, the Leak Detection Firm and the manufacturer's technical representative will be held at the job site to review storage locations, operating procedures and inspect the concrete deck. At this time, the Waterproofing Contractor shall note, in writing, all items and conditions that are unacceptable and which would preclude proper application of his materials. Failure to do so will be construed as acceptance of the deck as suitable for waterproofing installation.

B. Sequencing:

1. Work shall be in accordance with the TJPA schedule and sequences.
2. Sequence work to avoid traffic by equipment or personnel over completed waterproofing. Where such access is absolutely required, provide necessary protection and/or barriers to segregate the work area and to prevent damage to adjacent areas.
3. Do not store materials on completed membrane surfaces. Where storage or traffic is unavoidable provide plywood, additional protection boards or similar protection to prevent damage to the membrane. Notify the membrane manufacturer that traffic or storage is anticipated.
4. All conduit, utilities boxes, inserts, penetrations and drains shall be in place, grouted where required and permanently fixed to the substrate before the insulation and membrane are installed.
5. If reinforcing for the topping slab is not installed immediately following testing, ballast the drainage composite to prevent displacement from the wind.

1.4 SUBMITTALS

A. Comply the General Conditions and Section 01 13 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply. Do not submit items not requested.

B. Submittals General:

1. Submit in triplicate the Shop Drawings, Product Data, Samples, and Quality Control Submittals specified below at the same time as a package. All submittal packages must be submitted prior to the Pre-Installation conference.
2. Product Data:
 - a. Prior to purchasing materials or beginning work, submit for approval in triplicate:
 - 1) Membrane manufacturer's literature including complete description of materials, installation methods and equipment.
 - 2) Product Data

3. Shop Drawings:
 - a. In addition to the shop drawing requirements in General Requirements, project specific shop drawings for all membrane types shall be prepared by the waterproofing contractor on sheets containing his name and job number. Details of terminations, penetrations, etc. shall be specifically prepared for this Project. Submission of cuts of manufacturer's standard details will not be acceptable substitutes for shop drawings. The Contract drawing details may not be reproduced as shop drawings on the Architect's drawings.
 - b. Shop drawings shall bear the manufacturer's review stamp.
 - c. Submit shop drawings of methods for flashing internal and external corners, penetrations, terminations and related conditions. Shop drawings shall be at least 1/4 full size.
 - d. Submit shop drawings of grid strip arrangements for each compartment.
4. Samples: Submit in triplicate: 12 in. square pieces of membrane and protection sheet.
5. Certificates:
 - a. Prior to starting work, furnish certificates from the manufacturer stating that materials to be furnished will comply with the standards specified and that all materials in the system are physically and chemically compatible.
 - b. If the Contractor intends to deviate in any way from the Contract drawings, or the manufacturer takes exception to them, submit a separate letter stating the proposed deviation.
6. Manufacturers' Instructions:
 - a. Printed specifications and installation instructions prepared by the waterproofing membrane manufacturer. Deviations from the Contract specifications shall be specifically noted in a separate letter if the manufacturer takes exception to them.
7. Source Quality Control Submittals:
 - a. Site Quality Control Submittals: Following completion submit in triplicate:
8. Record drawings marked to indicate deviations between the work indicated and installed.
9. Dates each area was begun and completed.
10. Qualification Statements:
 - a. Letter from the manufacturer verifying its acceptance of the applicator and acceptance of substrates as satisfactory to receive this work
 - b. Letter with the bid that the manufacturer has licensed or approved the applicator for the specified membrane.
 - c. Name, address and telephone number of two buildings where the applicator has installed the specified membrane and system on which the manufacturer's warranty was issued.
 - d. Letter certifying that the foremen or crew chief and at least one other member of the waterproofing crew have installed one or more similar membranes and are familiar with the system.

1.5 LEED SUBMITTALS

- A. Within 30 days of Contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheets" and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.

- B. Credit IEQ 4.1: If field applied, provide manufacturer's MSDS or technical data sheet showing a printed statement of VOC content for all adhesives and sealants used on the project and demonstrating compliance with SCAQMD Rule #1168, effective July 1, 2005 and amended January 7, 2005. Provide manufacturer's product data for aerosol adhesives, including printed statement of VOC content that demonstrates compliance with the limits defined in Green Seal standard GS-36, in effect October 19, 2000.
- C. Credit IEQ 4.2: If field applied, provide manufacturer's MSDS or technical data sheet showing a printed statement of VOC content for all paints and coatings used on the project and demonstrating compliance with Green Seal standard GS-11, Paints, May 20, 1993; with Green Seal GC-03, Anti-Corrosive Paints, January 7, 1997; with SCAQMD Rule #1113, effective January 1, 2004.

1.6 QUALITY ASSURANCE

- A. The manufacturer shall provide a field advisor for a minimum of 40 working hours per phase who is certified in writing to be technically qualified in design, installation, and servicing of the required products. Personnel involved solely in sales do not qualify. The field advisor shall be present at the beginning of the actual membrane installation to render technical assistance to the Contractor regarding installation procedures of the system and answer questions that may arise.
- B. Immediately following the second pre-waterproofing conference, the manufacturer's field representative shall conduct a one day, minimum 6 hour, on-site seminar to instruct the Contractor's superintendant, foreman and waterproofing crew as to the proper installation of the system. The seminar shall conclude with the construction of a minimum 10' x 10' on-site mock up of the full waterproofing assembly (exclusive of the concrete protection slab) including a 2-ply horizontal membrane, a reentrant angle at a rising wall and a typical penetration flashing.
- C. The contractor and manufacturer's field representative shall independently test all seams and issue reports on their integrity.
- D. Unsatisfactory conditions disclosed by the manufacturer's visits to the site shall be promptly and satisfactorily repaired and the areas re-inspected by him before work starts or resumes in affected areas.
- E. Installers: All work under this Section shall be performed by a single firm with a minimum of five years experience in the installation of the specified type of waterproofing and shall have been approved by the manufacturer for 5 years prior to the date of his bid.
- F. Leak Detection Quality Assurance Scans
 - 1. Perform quality assurance electronic conductance scanning following each membrane layer application as specified hereinafter.
- G. Regulatory Requirements: In addition to LEED requirements, comply with BAAQMD requirements referenced in Section 01 14 10.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Deliver materials in sufficient quantity to permit work to continue without interruption.

- B. Storage and Handling Requirements:
 - 1. Store materials in dry areas protected from the sun and Weather. Store in trailers or on raised platforms covered with weatherproof tarpaulins. Plastic sheeting is not permitted.
 - 2. Remove shrink wrapping as soon as material is delivered to the site.
 - 3. Store materials containing solvents in dry, well ventilated spaces. Keep lids on tight.
 - C. Provide proper fire protection for flammable materials.
 - D. Use materials before expiration of their shelf life.
 - E. Avoid damage or embedment of foreign materials.
 - F. All materials shall be in manufacturer's unopened packages, wrappings or containers, clearly labeled with all pertinent information. Labels on uncured materials shall include date of manufacturer, shelf life and open time.
 - G. Materials improperly stored or which become wet, warped or damaged shall be identified, conspicuously marked as rejected and removed from the job site.
 - H. Do not unnecessarily encumber the premises with apparatus, storage of materials and operations of workmen. Confine work within the limits designated by the TJPA Representative.
- 1.8 SITE CONDITIONS
- A. Ambient Conditions:
 - 1. Check daily and long-range weather forecasts before planning each day's work.
 - 2. Be prepared to cover unfinished work with temporary covers in the event of an unexpected rainfall.
 - B. ~~1 . . . DELETED At the end of each day, leave the building in a completely watertight condition. Make unfinished work watertight. . . .1~~
 - C. At completion of each day's work or when rain is imminent, install temporary seals between the membrane and the deck to maintain watertight integrity. Use sprayed polyurethane or equal seal as recommended by the manufacturer. Remove seals before continuing.
 - D. Existing Conditions:
 - 1. Do not close or obstruct passageways, drives, streets or entrances without permission from the TJPA's Representative. Erect barriers, lights required for safety and as required by local laws and regulations.
 - 2. Leave access to hydrants, standpipes and entrances.
 - E. Special Conditions:
 - 1. Keep liquids in airtight containers. Store above 60°F for 24 hours prior to use. Keep lids on except when removing material. Do not dilute unless recommended by manufacturer. Use manufacturer's recommended solvents, not cleaners, for thinning.
 - F. Prevent damage to membrane from hard soled shoes, sharp edged equipment, tools and fasteners. Take precautions to prevent debris from lodging under membrane or being tracked on surfaces.

- G. Provide generators for hot air welders. Building's power supply shall not be used. Generators shall be capable of maintaining 240 volts during welding operation. Use minimum #8AWG conductors. Do not extend more than 150'. Do not operate hand welders when automatic seam welders are in operation unless minimum 220 volts can be maintained at automatic seam welder.

1.9 WARRANTY

- A. The warranty is governed by the requirements herein, those of Section 01 74 40, and the General Conditions of the Contract.
- B. Warranty specified in this Article shall not deprive the TJPA of other rights the TJPA may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
- C. Manufacturer Warranty:
 - 1. Furnish to the TJPA Representative, duplicate executed copies of the membrane manufacture's 20 year Warranty signed by the applicator and manufacturer and notarized providing to replace or repair defective materials and workmanship resulting in significant leakage within the warranty period. Warranty shall include all costs of investigation and remediation by application of negative side waterproofing or injection of resins as required
- D. Waterproofing Contractor's Warranty:
 - 1. Furnish to the TJPA Representative, duplicate executed copies of the Warranty at the end of this Section signed by the applicator providing to remediate leaking in the Park Roof (including flowing water or damp areas) for a period of 2 years.
- E. Both warranties shall include all costs in connection with investigating leaks including removal and replacement of overburden, pumping, applying crystalline waterproofing to the negative side and/or injecting urethane or acrylate resin grouts from above or below.

1.10 RECORD DOCUMENTS (AS-BUILT)

- A. General: The provisions of Article 3.09 of the General Conditions and Sections 01 17 20 apply to this Section.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. 1. . . . This Specification is based on products produced by Sika Sarnafil Waterproofing Systems, Inc., Canton, MA. ~~Products of other manufacturers that meet or exceed their physical property specifications will be considered.~~
- B. **Available Products: Subject to compliance to compliance with the criteria and performance requirements specified, provide products by one of the following manufacturers:**
 - 1. **Sarnafil G 476-20; A glass fiber reinforced, multi-layer, synthetic waterproofing sheet based on premium-quality polyvinyl chloride (PVC), as manufactured by Sika Sarnafil Waterproofing Systems, Inc., Canton, MA.**

2. **FiberTite: A nominal 60 mil PVC membrane coated with a proprietary compound with the principle polymer ketone ethylene ester (KEE) reinforced with a 18x19/840 x 1000 denier weft reinforced polyester knit fabric, manufactured by Seaman Corporation, Wooster, OH under the trade name Fiber-Tite 8552-SM.**
3. **CoreFlex 60; A 60 mil (1.5 mm) nominal thermoplastic membrane reinforced with a 5.0 oz weft inserted knit polyester fabric integrally bonded to an Active Polymer Core (APC) as manufactured by the CETCO Corp., Hoffman Estates, Illinois under the trade name CoreFlex 60. ... I**

2.2 MATERIALS

- A. Membrane: A total system of compatible materials designed for loose-laid waterproofing consisting of two plies of 80 mil thick glass fiber reinforced PVC G476-20 as manufactured by Sika Sarnafil Waterproofing Systems, Inc., Canton, MA.
- B. Related materials:
 1. Provide all additional related materials required for a total installation equal to Sarnafil System 3000.
 2. Sarnafil NWP-HD Separation layer and leveling course
 3. Sarnafil Grounding screen.
 4. Protection Membrane: Sarnafil PVC .51 mils thick.
 5. Flashings: Fiberglass reinforced thermoplastic flashing PVC 59 mils thick G476-15.
 6. Adhesives for flashing: Sarnafil's Sarnacol 2170VC.
 7. Sarnafil G459 Grid Strip Membrane.
 8. Sarnafil Grid Adhesive vertical and horizontal grades.
- C. Accessories
 1. **I . . . Drainage Composite: Three-dimensional plastic rolls bonded to a geotextile on one or both faces: ~~Mirafi Miradrain 9900 or equal~~ with a minimum compressive strength of 30,000 psi. **Carlisle Coatings & Waterproofing CCW Miradrain 9900 (Basis of Design); JDR Enterprises J-Drain 990 or, Sika Sarnafil Drainage Panel 990. ... I****
 2. Filter fabric: Rufon P3B, Confil D 689H or Fabrene VIE.
 3. Wood blocking: Wood blocking and nailers: Hem-Fir, PS 20, 19% max. moisture content, AWPI, Std. C2 pressure treated with ACQ or CBA waterborne salts.
 4. Fasteners:
 5. For securing bent plate pour stops to treated wood at expansion joints, hot dip galvanized G185 or stainless steel self-drilling pan head screws.
 6. For securing top of flashing to bent plates: termination bars and stainless steel rivets.
 7. For securing top of flashing at perimeter terminations: termination bars and stainless steel drive pins.
 8. Termination Bars: Stainless steel; AISI Type 302/304, 1" x 1/8", punched 8" o.c.
 9. Control Drain: Sarnacontrol Drain: a four component pipe assembly consisting of a stainless steel top plate, a PVC pipe with extensions as required by the deck thickness, a plumbing fitting and a glass collection jar.

2.3 LEED REQUIREMENTS

- A. Credit IEQ 4.1: All VOC containing materials applied on site inside of the waterproofing barrier shall comply with LEED credits IEQ 4. Provide adhesives and sealants with VOC content and chemical component limits not exceeding the content limits defined by SCAQMD Rule #1168, July 1, 2005, amended January 1, 2005, and Green Seal GS-36, effective October 19, 2000 for aerosol adhesives as applicable.

- B. Credit IEQ 4.2: All VOC containing materials applied on site inside of the waterproofing barrier shall comply with LEED credits IEQ 4. Provide paints and coatings that comply with the limits defined by Green Seal Standard GS-11, effective May 20, 1993, GC-03, January 7, 1997, and SCAQMD Rule #1113, effective January 1, 2004, as applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to which insulation and waterproofing will be applied prior to beginning work. Report to the TJPA Representative, in writing, surfaces not properly prepared to receive work of this Section. Beginning work will constitute acceptance.

3.2 PREPARATION

- A. Sweep and clean surfaces of loose material. Pressure wash, if required to remove embedded dirt.
- B. Scrape, chip or grind fins, and surface irregularities that would prevent membrane from laying flat. Notify the TJPA Representative if depressions greater than 1/4" in 10' exist that may cause membrane to bridge.
- C. In areas to receive grid strips, grind protrusions smooth. Fill voids and depressions with Grid Adhesive.
- D. Grid Installation Strip.
 - 1. Install a 12'x 48" strip of G459 in Grid Adhesive to test adhesion per the manufacturer's written instructions.
 - 2. Following successful test results, install 12" wide Grid Strips in adhesive to form square or rectangular compartments and at terminations as follows:
 - a. On the ridge from east to west at column line E.
 - b. On even numbered column lines from north to south beginning with column line 2 and ending with column line 32.
 - c. At perimeter and interior parapet walls
 - d. At each side of north/south expansion joints
 - e. At upset beams
 - f. At rising walls
 - g. At drains as indicated
 - h. At curbs and penetrations
 - 3. Weld ends. Roll strips to ensure uniform adhesion.
- E. After grid strip adhesive has cured, install leveling layer over the clean, dry, smooth concrete deck. Lap edges 4". Terminate at edge of grid strips. Install only as much leveling layer as can be made watertight before day's end.
- F. Control Test Drain:
 - 1. Install one control test drain in valley approximately 24" from the roof drain.
 - 2. Drill a 1" diameter hole through the concrete slab.
 - 3. Install plywood under the slab to prevent spalling where the slab will remain exposed. Ensure that the area is clear of conduits, ducts and similar obstructions.

4. Assemble the pipe and plate. Install the plate/pipe through the hole. Seal the plate to the slab with a neoprene seal and bed in grid adhesive. Extend the pipe to a location as directed and install the collection vessel.

3.3 APPLICATION

- A. General: The waterproofing sequence in general shall be as follows: install the first ply of the membrane to serve as temporary waterproofing until the building is ready to receive the overburden at Park level. Following installation of the first ply, the membrane shall be electronically tested and repaired to ensure that it is watertight. The membrane shall be temporarily protected with a protection layer. Additional protection in areas where construction will occur above the membrane will be installed and removed by other Contractors.
- B. When notified, the Waterproofing Contractor shall remove all temporary protection, clean and electronically retest the membrane. Following repairs, if required, the grounding screen and NWP-HD Separation Layer shall be installed followed by the second PVC ply and heat welded to the first ply. The top ply shall be electronically tested as well as the seams. The protection layer, drainage composite, and insulation (in locations indicated) shall be installed and covered with a filter fabric by the Waterproofing Contractor prior to casting the concrete protection slab by other Contractors.
- C. Surfaces to receive waterproofing shall be free of debris, free water, dirt and similar foreign substances that would inhibit the membrane installation. The leveling layer shall be in place and wrinkle free.
- D. Install the membrane and flashing per manufacturer's printed instructions. Where they differ from these specifications the more stringent provisions apply.
- E. Unroll and position membrane without stretching and allow to relax.
- F. Lap sides and edges 3" wide when machine welding and 4" when hand welding. Use approved hot air welding machines.
- G. Hand and/or machine weld using equipment recommended by the PVC manufacturer and per his written instructions. Probe seams on a daily basis. Sample seams at least three times per day: once shortly after beginning, once after lunch or an interruption of the seaming, and once near the end of the day. Correct and patch sample areas and defective seams. Seams shall be checked by the manufacturer's representative prior to electronic testing.
- H. Install the second ply over the first and weld the edges to it to provide watertight compartments around each roof (not control) drain, penetration and vertical surface. Weld seams in the second ply in a similar fashion as the first ply as specified above.
- I. Terminate each ply at vertical surfaces as indicated and secure with manufacturer's termination bar and fasteners spaced 6" o.c.
- J. Install a 24" wide strip of membrane on the top ply centered on the grid strips.
- K. At upset beams, parapets and elsewhere where indicated, carry the flashing membrane up and over and terminate with a termination bar unless otherwise indicated.

3.4 FLASHING

- A. Install base flashing where waterproofing terminates at walls, expansion joints, upset beams, parapets and penetrations. Install base flashing at vertical surfaces per manufacture's recommendations and as indicated. Install concurrently with the membrane.

- B. Provide base flashing for each ply of membrane to ensure that phases will be individually watertight. Extend the base flashing for the first ply 8" up vertical surfaces. Extend the second the base flashing for the second ply over the first and 2" above its top edge.
- C. At drains flash per details. Prime all metal to receive flashing.
- D. Mechanically fasten the flashing along the top edge with termination bars as indicated. Hot air weld internal and external corners at seams and at the membrane.

3.5 SITE QUALITY CONTROL TESTS

- A. Membrane Integrity Verification Testing: Electronic Testing shall be performed by an independent firm who has performed the selected test method on at least three comparable projects. Acceptable firms: International Leak Detection. or Progeo Monitoring of North America as follows:
 - 1. After each section of the membrane is completed but prior to installation of protection or other sheets, test the membrane for watertightness by high and/or low voltage testing.
 - 2. Perform the tests using an independent testing firm with demonstrated experience in this type of testing. Testing personnel shall be trained in the equipment and procedures required for the test.
 - 3. Perform quality assurance electronic conductance scanning following each area of the membrane layer is completed. Share the results of the scan with the roofing contractor promptly, any identified breaches repaired and retested by the Leak Detection representative prior to installation of overburden. The Leak Detection technician shall perform a comprehensive scan of the horizontal and vertical areas of each section made available for testing, electronically test the seal on penetration boots, provide the roofing contractor with a daily field report and provide a scan map that clearly indicates the area scanned and certifies that the indicated areas are ready for subsequent cover. Do not cover any area of the membrane without written approval provided in the report from the testing firm.
 - 4. Mark all defects such as holes and unsealed seams in the membrane with a water-resistant paint.
 - 5. Repair defects in accordance with the membrane manufacturer's instructions and retest.
 - 6. Record the test results, including location, date, time and, location of any leaks and repairs.

3.6 PROTECTION

- A. As soon as each section of waterproofing is completed and tested, install sheet protection layer. Lap sides and ends 3" and hot air weld.

END OF SECTION 07 13 54

SPECIFICATION ISSUE LOG

| REVISION | DATE |
|----------|----------|
| 0 | 03/31/14 |
| 1 | 08/06/14 |
| | |

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|------------------|---------------------|---|---|
| TG13.2-005 | 11/4/2014 | Detail 6/A1-7552 | | <p>REFERENCE: Detail 6/A1-7552 (ASI 127 dated 9/12/14)</p> <p>Detail 6/A1-7552 calls for WPM-5 Crystalline Waterproofing on the closed cell foam rod at the base of the escalator.</p> <p>WPM-5 Crystalline Waterproofing Is a trowelled on material and cannot be applied to areas without a substrate.</p> <p>Additionally, Detail 6/A1-7552 does not depict a method of drainage at the location of the closed cell foam rod.</p> <p>Please revise the Detail 6/A1-7552 to show the extent of the WPM-5 Crystalline Waterproofing to be applied and method of drainage to be used at the closed cell foam rod.</p> | <p>WPM-5 was revised to WPM-10 at the Closed cell foam rod. The detail depicts the rod assembly lapping onto the top of the sloped concrete curb (protected with WPM-5), and covered with a drainage board.</p> |

TG13.2 – Roofing-Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|-------------|---------------------|---|---|
| TG13.2-006 | 12/2/2014 | | 07 13 26 | <p>Specification Section 07 13 26, the self-adhering sheet waterproofing (WPM-1A) at the Train Box lid requires a 5-year manufacturer's warranty.</p> <p>Per previous discussions with TJPA, Specification Section 07 13 26 should be required to provide a 10-year manufacturer's warranty.</p> <p>Please confirm that a 10-year manufacturer's warranty is required for the self-adhering sheet waterproofing (WPM-1A) and provide a revised specification.</p> | Refer to the attached markup of Specification Section 07 13 26 containing the revised Warranty paragraphs. The revised Warranty states that a 10-year Warranty is required. |

SECTION 07 13 26 – SELF-ADHERING SHEET WATERPROOFING (WPM-1A)

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section includes, but is not limited to, the following:
 - 1. Provide two plies of self-adhering rubberized asphalt waterproofing on concrete lid over train box covered with protection board where noted as WPM-1A.
 - 2. Insulation
 - 3. Drainage composite.
 - 4. Flashing penetrations through waterproofing.
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 01 General Requirements Specification Sections, apply to this Section.
 - 2. Section 03 10 00 – Concrete Formwork
 - 3. Section 03 30 00 - Cast-In-Place Concrete
 - 4. Submittal forms required to be submitted by this Section: Section 00 62 00, Certificates and Other Forms.
 - 5. Provision of general LEED™ requirements: Section 01 33 29, General LEED™ Requirements.
 - 6. Provision of general LEED™ product requirements: Section 01 62 13, LEED™ Product Requirements.
 - 7. Waste management and disposal requirements: Section 01 74 19, Waste Management and Disposal.
 - 8. Floor drains: Division 22, Plumbing.

1.2 SUBMITTALS

- A. Submit membrane manufacturer's literature including complete description of materials, installation methods and equipment.
- B. Certification: Letter from the manufacturer to verify its acceptance of the Trade Contractor and acceptance of substrates as satisfactory to receive this work
- C. Submit Shop Drawings, Product Data, Samples, and Quality Control Submittals specified below at the same time as a package. All submittal packages must be submitted prior to the Pre-Installation conference. Submit the following:
 - 1. Letter with the bid that the manufacturer has licensed or approved the applicator for the specified membrane.
 - 2. Name, address and telephone number of two buildings where the Trade Contractor has installed the specified membrane and system within the past 3 years on which the manufacturer's warranty was issued.
 - 3. Letter from the Trade Contractor certifying that the foremen or crew chief and at least one other member of the waterproofing crew have installed one or more similar membranes and are familiar with the system.

4. Prior to starting work, furnish certificates from the waterproofing manufacturer stating that materials to be furnished will comply with the standards specified and that all materials in the system are physically and chemically compatible.
 - a. If curing agents are used on the concrete, furnish joint certification from the manufacturer and the concrete curing manufacturer that the curing or form release agent is compatible with the membrane and primer and will not impair adhesion.
- D. If the Contractor intends to deviate in any way from the Contract drawings, or the manufacturer takes exception to them, submit a separate letter stating the proposed deviation.
- E. In addition to the shop drawing requirements in Division 1, shop drawings for all membrane types shall be prepared by the Trade Contractor on sheets containing his name and job number. Shop drawings shall also bear the waterproofing manufacturer's stamp of approval or review. Details of terminations, penetrations, etc. shall be specifically prepared for this Project. Submission of cuts of manufacturer's standard details will not be acceptable substitutes for shop drawings.
 1. Submit shop drawings of methods for flashing internal and external corners, penetrations and terminations, details of waterproofing rakers, walers, tie-backs, ties and form spreaders. Provide isometrics where required for clarification. Shop drawings shall be at least 1/4 full size.
 2. Submit shop drawings of waterproofing as a package.
- F. Prior to purchasing materials or beginning work, submit for approval in triplicate a letter from the manufacturer that they will issue a warranty for the work as indicated and specified in the Contract Documents, or noting exceptions thereto. Submit a sample warranty containing provisions required in par. 1.8.
- G. Following completion submit in triplicate:
 1. Contract drawings marked to indicate deviations between work indicated and installed.
 2. Dates each area was begun and completed.
- H. Submit joint certifications from the manufacturers of the membrane and concrete curing agent and form release that they are compatible with the membrane and primer and will not impair adhesion.

1.3 LEED SUBMITTALS

- A. Within 30 days of Contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheets" and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.

1.4 QUALITY ASSURANCE

- A. References:
 1. Grace Waterproofing Systems Contractor's Handbook, September 2010.
 2. ACI 515.1R-79, A Guide to the Use of Waterproofing, Dampproofing, Protective and Decorative Barrier Systems for Concrete.
 3. ASTM D 5295, Standard Guide for Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems
 4. ASTM D 5898 Standard Guide for Standard Details for Adhered Sheet Waterproofing.

- B. All work under this Section shall be performed by a single firm with a minimum of three years experience in the installation of the specified type of waterproofing and shall be approved or certified by the manufacturer.
- C. The manufacturer shall review the borings, chemical test results of ground water and the concrete drawings and specifications and shall confirm, in writing, that the specified system is suitable for the use intended.
- D. Technical representatives of the membrane manufacturer shall have reviewed the Contract drawings and specifications and inspected the first day's installation of each type of waterproofing, including waterproofing on mud mat and on walls to assure acceptability.
- E. Manufacturer's inspections: Request the manufacturer's presence before start of this work to verify substrate acceptability, and as required thereafter to review installation procedures and completed work, and to issue warranty specified.
 - 1. The manufacturer shall provide a field advisor for a minimum of 20 working hours. He shall be certified in writing to be technically qualified in design, installation, and servicing of the required products. Personnel involved solely in sales do not qualify. The field advisor shall be present at the beginning of the actual membrane installation to render technical assistance to the Trade Contractor regarding installation procedures of the system and answer questions that may arise.
 - 2. The manufacturer's technical representative shall make periodic (7 to 10 days during the installation) visits to the site and submit a written report. Unsatisfactory conditions disclosed by the manufacturer's visits to the site shall be promptly and satisfactorily repaired and the areas re-inspected by him before work starts or resumes in affected areas.
- F. Pre-Installation Conference
 - 1. Prior to but not less than 30 days before beginning work, and not less than 5 days following approval of all shop drawings representatives of the TJPA Representative, Contractor, Waterproofing Manufacturer and TJPA will meet with the Trade Contractor, his Superintendent or Foreman who will be engaged full time on the Project, to review the earlier submitted and acceptable materials and submittals and procedures to be followed in performing the work. At this time, submit samples and progress schedule. The Contractor shall keep the minutes of the meeting and distribute same as noted.
 - 2. Prior to, but not more than seven days before beginning work, a second meeting of the same parties will be held at the job site to review storage locations, operating procedures and inspect the surfaces to receive waterproofing. At this time, the Trade Contractor shall note, in writing, all items and conditions that are unacceptable and which would preclude proper application of his materials. Failure to do so will be construed as acceptance of the surface as suitable for waterproofing installation.
 - 3. Immediately following the second pre-waterproofing conference, the manufacturer's field representative shall conduct a one day, minimum 6 hour, on-site seminar to instruct the Contractor's superintendent, foreman and waterproofing crew as to the proper installation of each system. The seminar shall conclude with the construction of a minimum 8' x 8' on-site mock up of the full waterproofing assembly including a blindside and horizontal membrane, a reentrant angle between horizontal and vertical surfaces and a typical penetration flashing at a rock anchor or caisson. The mock-up shall remain in place and may be incorporated in the finished work.
- G. The Trade Contractor and manufacturer's field representative shall independently test all seams and issue reports on their integrity

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in sufficient quantity to permit work to continue without interruption.
- B. Store moisture-susceptible materials in dry areas. Store materials containing solvents in dry, well ventilated spaces. Keep lids on tight. Provide proper fire protection for flammable materials. Use materials before expiration of their shelf life. Store rolls of materials flat in their shipping tubes. Avoid damage or embedment of foreign materials.
- C. All materials shall be in manufacturer's unopened packages, wrappings or containers, clearly labeled with all pertinent information. Labels on uncured materials shall include date of manufacturer, shelf life and open time.
- D. Materials improperly stored or which become wet, warped or damaged shall be identified, conspicuously marked as rejected and removed from the job site.

1.6 SPECIAL PRECAUTIONS

- A. Keep liquids in airtight containers. Store above 60°F for 24 hours prior to use. Keep lids on except when removing material. Do not dilute unless recommended by manufacturer. Use manufacturer's recommended solvents, not cleaners, for thinning.
- B. Prevent damage to membrane from hard soled shoes, sharp edged equipment, tools and fasteners. Take precautions to prevent debris from lodging under membrane or being tracked on surfaces.

1.7 ENVIRONMENTAL CONDITIONS

- A. Do not apply materials when the ambient temperature is below the manufacturer's recommended minimum temperature and falling, in rain, snow or fog, blowing dust or on ice covered surfaces.

1.8 GUARANTEES, WARRANTIES

- A. Furnish to the TJPA duplicate executed copies of the membrane manufacture's 5 year Warranty signed by the applicator and manufacturer and notarized providing to replace or repair defective materials and workmanship resulting in leakage, premature aging within the warranty period. Warranty shall include responsibility for removing and replacing non-structural overlying materials which prevent access to the membrane. Warranty shall also include responsibility for remediating leaking (damp areas or flowing water) by means of application of crystalline waterproofing and/or resin injection.
- B. Furnish to the TJPA, duplicate executed copies of the Trade Contractor's 2 year Warranty providing to repair defective materials and workmanship resulting in visual dampness, and/or significant leakage as evidenced by flowing or dripping water within the warranty period. Warranty shall include responsibility for investigating leaks, removing water from the membrane surface and removing and replacing other work, such as concrete to expose the membrane. It shall also include application of crystalline waterproofing and/or drilling and injection of hydrophilic and hydrophobic urethane materials required to stop leaks.

1.8 WARRANTY

A. General:

1. The warranties are governed by the requirements herein, those of Section 01 17 40, and the General Conditions of the Contract.
2. Warranties specified in this Article shall not deprive the TJPA of other rights the TJPA may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Warranties:

1. Furnish to the TJPA, duplicate executed copies of the membrane manufacture's 10 year Warranty signed by the applicator and manufacturer and notarized providing to replace or repair defective materials and workmanship where leakage occurs within the warranty period.
2. Warranty shall include all costs of investigation and remediation by application of negative side waterproofing or injection of resins as required.
 - a. Waterproofing Subcontractor's Warranty: Furnish to the TJPA, duplicate executed copies of the Warranty at the end of this Section signed by the applicator providing to remediate leaking through the waterproofed surfaces, including flowing water or and damp areas.
 - b. Both warranties shall include all costs in connection with investigating leaks including removal and replacement of overburden, pumping, applying crystalline waterproofing to the negative side and/or injecting urethane or acrylate resin grouts from above or below.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Self-adhering rubberized asphalt: A total system of compatible materials designed for post-applied waterproofing including an HDPE film laminated to a pressure-sensitive modified bitumen, complete with primer, mastic and liquid membrane noted on the Drawings as self-adhering sheet waterproofing as produced by W.R. Grace Construction Products: Bituthene 3000 or 4000, Cetco: EnviroSheet, W. R. Meadows, Inc: Mel-Rol or Henry Co. Blueskin WP200.
- B. Primer: As specified the membrane manufacturer. If surfaces contain too much moisture, use the manufacturer's special primer for this condition.
- C. Insulation: ASTM C578 Type VI extruded polystyrene insulation with a minimum density of 60 pcf, 1-1/2" thick.
- D. Drainage composite: W. R. Grace Hydroduct 220 or JDR Enterprises Inc. J-Drain 700/720.
- E. Termination bar: 1/8" x 1" stainless steel punched 8" o.c.
- F. Protection Board: ASTM D6451, 1/8" thick.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine surfaces to which waterproofing will be applied prior to beginning work. Assure that they are prepared per ASTM D5295. Report to the TJPA Representative, in writing, surfaces not properly prepared to receive work of this Section. Beginning work will constitute acceptance.
- B. Examine substrates, areas, and conditions, with the Trade Contractor present, for compliance with requirements and other conditions affecting performance. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
 - 1. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Concrete surfaces shall be free of curing compounds, release agents containing tallow or animal fats, acrylic films, silicone coatings, wax, dirt and dust. Check surfaces in accordance with ASTM D 5295 par 7.5 and ACI 515.1R par 3.4.5. for dust, oil, acidity and laitance.
- D. Sweep and clean surfaces of loose material. Pressure wash, if required to remove embedded dirt.
- E. Scrape, chip or grind fins, do not sand.

3.2 EXECUTION

- A. Perform all work per manufacturer's specifications and as specified herein.

3.3 SELF-ADHERING RUBBERIZED ASPHALT INSTALLATION

- A. Install self-adhering sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D 6135.
- B. Prime concrete surfaces to receive membrane at required rate. If membrane is not installed the same day, re-prime. Allow primer to dry.
- C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2½-inch minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure watertight installation. Roll to obtain complete bond at seams. Reinforce corners at all plane changes, cold joints and cracks over 1/8" wide. Do not allow waterproofing to be exposed for more than one week.
- D. Seal exposed edges of sheets at terminations not concealed by metal counterflashings or ending in reglets with mastic or sealant. Seal exposed edges at end of day work.
- E. Repair tears, voids, and lapped seams in waterproofing. Slit and flatten blisters. Cut out and patch wrinkles and fishmouths. Do not attempt to flatten by rolling. Patch with sheets extending 6" beyond repaired areas in all directions.
- F. Cover the waterproofing with protection board within one week of its completion.

3.4 FLASHING

- A. Install flashing at terminations and penetrations prior to installation of field membrane in accordance with the drawings and manufacturer's recommendations. The more stringent apply. Use liquid membrane fillets at changes of plane except at cants.

3.5 DRAINAGE COMPOSITE PANEL INSTALLATION

- A. Install drainage composite panels on protection sheet dry with tight joints. Lap edges and ends of geotextile to maintain continuity.

3.6 INSULATION INSTALLATION

- A. Install insulation boards with tight joints, 3/8" max. Align long edges and stagger short edges. Install with rabbeted sides down and with long edges parallel to the long dimension of the roof.
- B. Trim insulation neatly around drain, curbs, stacks and similar projections.
- C. Temporarily ballast boards until permanent ballast is installed.

3.7 VERIFICATION OF MEMBRANE INTEGRITY

- A. After each section of the membrane is completed and before placing overburden or protection boards, verify membrane is watertight by testing to ensure it is free of any holes, open seams and capillary defects that will allow water to pass.
- B. Use one of the following low voltage tests:
 - 1. Electric Field Vector Mapping using a volt meter and probes on a moist surface within a perimeter cable loop.
 - 2. Electrical Conductance Leak Detection using a low voltage scanning platform on a moist surface.

- C. Perform the tests using an independent testing firm with demonstrated experience in this type of testing such as International Leak Detection, 866 282-5325 or 905 479-3386 or Detec Systems 253 272-3252.
 - D. Testing personnel shall be trained in the equipment and procedures required for the test with a minimum of three years experience.
 - E. The testing agency shall determine size and shape of area.
 - F. If there is no flow detected after a systematic search, the certified inspector shall report the installed membrane in that area tested free of holes, seam and capillary defects and is therefore waterproof at that time.
 - G. If there is flow detected during the search the technician shall identify the source of electricity
- 3.8 WASTE MANAGEMENT
- A. Separate and dispose of waste in accordance with the Project's Waste Management Plan.
- 3.9 CLOSEOUT
- A. Substantial Completion Requirements:
 - 1. Provide Final Cleaning immediately prior to Substantial Completion inspection.
 - 2. Corrective Work:
 - a. Remove, repair and reinstall, or restore in place damaged items.
 - b. Replace damaged materials or items with new if repair not acceptable to TJPA Representative.
 - 3. Provide product data to complete Operation & Maintenance Manuals.
 - 4. Submit executed Warranties.

END OF SECTION 07 13 26


SPECIFICATION ISSUE LOG

| Revision | Date |
|----------|----------|
| 0 | 03/31/14 |
| | |
| | |

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|-------------|---------------------|--|--|
| TG13.2-004 | 11/3/2014 | | 07 54 19 | <p>Attached is the Pre-Bid Request for Substitution for Specification Section 07 54 19 for the roof assembly. The approval we are seeking is for Flex MF/R60 PVC roofing membrane and associated accessories to be approved as an equal to the Sarnafil G410 60 mil PVC Roofing system.</p> <p>Also see attached for a comparison of the two products, product data sheets on the Flex products and accessories, and product brochure.</p> | <p>The substitution is preliminarily rejected pending receipt of information noted below.</p> <p>The statement in the cover letter that there are only three manufacturers of PVC roofing membrane who sell and warrant their own product should be verified by citations.</p> <p>The proposed documentation for the Flex FB60 Plus membrane submitted is insufficient; the TJPA and TJPA Representative may consider the proposed substitution after submission of a notarized statement from the Technical Director of this Company stating that this product:</p> <ul style="list-style-type: none"> - meets every standard specified for the Basis of Design membrane (Sarnafil G410), and that it is equal or better to this. - conforms to ASTM D 4434, Type II, Grade I. - is fiberglass-reinforced. - has a consistent minimum thickness of 60 mils in all batches. <p>Manufacturer shall provide test results from an independent testing agency showing the product meets the minimum standards stated in the manufacturer's literature.</p> |



October 30, 2014

TJAP
201 Mission Street, Suite 2100
San Francisco, CA 94105

Ref: Transbay Transit Center Project
Substitution Request for Roofing System

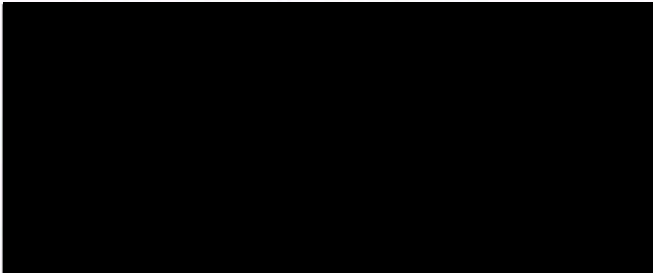


Attached is the Pre-Bid Request for Substitution for Specification Section 07 54 19 for the roof assembly. The approval we are seeking is for Flex MF/R60 PVC roofing membrane and associated accessories to be approved as an equal to the Sarnafil G410 60 mil PVC roofing system.

There are currently only three manufacturers of PVC roofing membranes that manufacture, sell, and warranty their own product. Sika/Sarnafil and Flex Membrane International are two of those three manufacturers.

Attached are a comparison of the two products, product data sheets on the Flex products and accessories, and product brochure. Including Flex in the specification as an approved equal will encourage a more competitive bidding environment among the preapproved contractors.

Thank you for your consideration.



00 04 41 – PRE-BID REQUEST FOR SUBSTITUTION

During the bidding period, a proposed change by a bidder of a product, equipment, or service required by the Contract Documents is considered a pre-bid request for substitution. A pre-bid request for substitution will be considered as part of the questions on bid documents (QBD) process. Refer to the CM/GC's Bid Manual for QBD instructions and forms.

During the bidding period and prior to the deadline for the submission of QBDs, Bidders may submit a request for a substitution of an "or equal" product, equipment, or service specified in the Contract Documents by completing and submitting this form as an attachment to a QBD, in accordance with the QBD process. The TJPA will respond in writing to a pre-bid request for substitution in accordance with the QBD process and deadlines specified in the bidding documents.

Pre-bid requests for substitution requested during the bidding period and accepted by Addendum prior to opening of bids are included in the Contract Documents.

Spec. Section: 07 54 19 Date: March 31, 2014
 Drawing Sheet: _____ Paragraph(s): 2.3.A
 Detail(s): _____

Proposed Substitution: Flex MF/R 60 PVC Roof System
 Manufacturer/Address/Phone: Flex Membrane International Corp., 2670 Leiscz's
 Trade Name/Model No.: Bridge Road, Suite 400, Leesport, PA 19533
MF/R 60 PVC
 Product History: _____ New _____ 2-5 years old _____ 5-10 years old ☒ More than 10 years old

Differences between proposed substitution and specified product (attach required point-by-point comparative data):

See attached comparison.

Reason for not providing specified item:

Competitive Pricing

Similar installation where proposed substitution has been used (Project/Address/Architect/Owner/Date Installed):

Proposed substitution affects other parts of the Work: _____ No ☒ Yes: explain

Changes or modifications needed to coordinate other parts of the Work that will be necessary to accommodate the proposed substitution:

No changes or modifications. Vapor barrier and polyisocyanurate are part of Flex's assembly.

Supporting data attached: ___ Product Data ☒ Drawings ___ Test Reports ☒ Samples

☒ Manufacturer's Standard Form of Warranty or Guarantee

Other: Test Reports are shown on Product Data Sheets

The Bidder certifies that

- The proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product.
- The proposed substitution conforms in all respects to the requirements of the Contract Documents and all applicable regulatory requirements and is appropriate for the application intended.
- The same warranty or guarantee for the specified product will be furnished for the proposed substitution.
- The proposed substitution does not affect dimensions or functional clearances.

Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Attachments _____

END OF SECTION 00 04 41

SPECIFICATION ISSUE LOG

| Revision | Date |
|----------|-----------------|
| 0 | August 11, 2014 |



Flex Membrane International, Inc. 2670 Leisch's Bridge Road, Suite 400, Leesport, PA 19533 Phone 610-916-9500 Fax: 610-916-9501

A COMPARISON OF PHYSICAL PROPERTIES FLEX FB 60 PLUS MEMBRANE TO SARNAFIL G410 Feltback MEMBRANE

ASTM Test methods listed below are required by the ASTM D 4434 Standard Specification for PVC (Polyvinyl Chloride) Sheet Roofing

| <u>Property</u> | <u>Test Method</u> | <u>Flex FB 60</u> | <u>G410 60</u> |
|-------------------------------|--------------------|-------------------|------------------|
| | | Feltback | Feltback |
| color | | white, gray | white, off white |
| Reinforcing Material | | polyester | fiberglass |
| Thickness | ASTM D638 | | 0.60" |
| | ASTM D751 | 0.60" | |
| Tensile Strength psi. | ASTM D638 | 1710 x 1830 | 1600 |
| Breaking Strength lbf | ASTM D751 | 406 x 317 | |
| Tear Strength lbf | ASTM D751 | 120 x 110 | |
| Tear Resistance lbf | ASTM D1004 | | 14 |
| Elongation at Break | ASTM D638 | 105 x 140 | 250 x 220 |
| Elongation | ASTM D751 | >100% | |
| Seam Strength lbf | ASTM D751 | 93% | |
| | D638 | 80% | 80% |
| Puncture Resistance (static) | D5602 | pass | pass |
| Puncture Resistance (dynamic) | D5635 | pass | pass |
| Puncture Resistance | FS101C | | |
| | Method 2031 | 448 lbs | |
| Retention of Properties after | | | |
| Heat Aging | ASTM D3045 | x | x |
| Breaking Strength | ASTM D751 | 100% x 100% | |
| Elongation | ASTM D751 | 100% x 99% | |
| Tensile | ASTM D638 | | 95% |
| Elongation | ASTM D638 | | 90% |
| Low Temperature Bend | ASTM D2136 | -40 | -40 |
| Accelerated Weathering | | | |
| (xenon arc) 10,000 hours | ASTM D2565 | no change | no change |
| Dimensional Stability | ASTM D1204 | 0.10% | 0.02% |
| Weight Change after | | | |
| water immersion | ASTM D570 | 1.50% | 2.50% |
| Solar Reflectivity | ASTM E903 | 0.811 | 0.83 |
| Emissivity | ASTM E408 | 0.919 | 0.9 |
| Solar Reflective Index (SRI) | ASTM E1980 | 109 | 104 |

Comparison of Elongation for Flex and Sarnafil Membranes

Flex polyester reinforced membrane is tested under ASTM D4434 as a Type III membrane and the Sarnafil fiberglass reinforced membrane is tested under ASTM D4434 as a Type II membrane. The testing protocol is different. The Type II membrane cannot equal or pass the requirements of the Type III testing standards because of the fiberglass scrim. The elongation property has nothing to do with the manufacturing process. The test is performed differently for the 2 membranes. Under Type III the property is valued when the scrim breaks under Type II the property is valued when the membrane tears.

It is essentially the value of elongation for a non-reinforced membrane which can be pictured as a big rubber band. The non-reinforced membrane was classified at one time in ASTM D4434 as a Type I membrane. It was eliminated years ago because of the problems associated with non-reinforced membranes shattering over time. No manufacturer in the US uses them for field membrane.



FLEX MF/R 60 PVC ROOF SYSTEM **(60", 78" and 120" Wide, Reinforced, Thermoplastic Roof Membrane)**

PRODUCT DESCRIPTION

The Flex MF/R 60 PVC (polyvinyl chloride) Roofing Membrane is a high-performance thermoplastic membrane designed for mechanically attached or adhered roofing applications. The Flex MF/R 60 PVC is produced with high grade polyvinyl chloride resins into a polyester reinforced roofing membrane with built in chemical, UV and fire resistance. The Flex MF/R 60 PVC white membrane results in a highly reflective, low maintenance roof surface that saves the Building Owner energy and labor costs and helps reduce pollution in the surrounding environment.

FEATURES AND BENEFITS

- 120" wide membrane saves in labor costs for installation - 20% less seams to weld.
- 120" wide membrane saves in material costs - 20% less fasteners and plates.
- Hot air welded seams are the strongest, most reliable seams in the roofing industry.
- Chemical, Ozone and UV exposure do not affect surface pliability or functional integrity.
- Energy Saving Reflective Roof Surface is more in demand than ever before.
- Effectively tested to perform in high wind situations - meets or exceeds FM Class 1-90 wind uplift requirements.
- Increased cold weather flexibility allows installation in below freezing temperatures.
- Available in White, Gray and Tan colors.

MECHANICALLY ATTACHED INSTALLATIONS

The Flex MF/R 60 PVC membrane is ideal for use as a mechanically attached membrane for new construction and re-roofing. Flex MF/R 60 PVC membrane is lightweight, just a few ounces per square foot, making it ideal for re-roofing projects where a tear off can be avoided. Flex has several fastener and plate options available to meet a wide range of wind uplift pressure requirements.

ADHERED INSTALLATIONS

The Flex MF/R 60 PVC Roofing Membrane can be installed with Flex Bonding Adhesive for a fully adhered installation. This system is ideal for installations with unusual or odd shaped contours. Fully adhered installations are the answer for design limitations on mechanical penetrations of the deck or for situations where increased wind uplift pressure requirements must be met.

APPROVALS

The Flex MF/R 60 PVC Roofing Membrane exceeds the requirements of ASTM D4434 standard for poly (vinyl chloride) thermoplastic sheet roofing. The Flex MF/R 60 PVC Roofing Membrane meets and exceeds Factory Mutual's 1-90 wind uplift requirements in numerous adhered and mechanically attached roof applications and meets Underwriters Laboratories Class A fire rating.

PHYSICAL PROPERTIES

| <u>Property</u> | <u>Test Procedure</u> | <u>Specification</u> |
|---|------------------------------------|----------------------|
| Color | | White, Gray, Tan |
| Thickness | ASTM D751 | .060 nominal |
| Roll Size | | 60' x 80' |
| | | 78' x 80' |
| | | 120' x 80' |
| Weight | | 6.55 oz./ft |
| Breaking Strength (minimum, lbf/in.) | ASTM D751 | 256 x 242 |
| Seam Strength | ASTM D751 | 297 lbf |
| Elongation @ Break | ASTM D751 | 57% x 54% |
| Heat Aging | ASTM D3045 | >90% |
| Tear Strength min. lbf. | ASTM D751 | 99 x 70 |
| Low Temperature Bend | ASTM D2136 | PASS (-40°F) |
| Static Puncture Resistance | ASTM D5602 | PASS @ 33 lbs. |
| Dynamic Puncture Resistance | ASTM D5635 | PASS @ 20 J |
| Dimensional Change (maximum %) | ASTM D-1204 (@ 176° F, 6 hours) | 0.25% |
| Water Immersion | ASTM D-570 | 1.96% |
| Accelerated Weathering | ASTM G-155 | PASS |
| Solar Reflectivity | ASTM C1549 | .82 (white) |
| Emissivity | ASTM C1371 | .91 (white) |
| SRI | ASTM E1980 | 109 |

Flex MF/R PVC membrane is thermoplastic in nature and exceeds the requirements of ASTM D4434 standard specification for poly (vinyl chloride) sheet roofing.

WARRANTY

The Flex MF/R 60 PVC Roofing Membrane may receive the manufacturer's standard five (5) year, ten (10) year, fifteen (15) year or twenty (20) year guarantee of watertightness.

Material & Workmanship Warranty

FLEX MEMBRANE INTERNATIONAL CORP. (Flex) warrants to the Building Owner named below, subject to the terms, limitations, and conditions set forth herein, for a period of ____* years, in which this Materials and Workmanship Warranty is effective, the Flex Roofing Materials installed on the Building Owner's building at the address and location shown below, shall be free from defects in materials supplied by Flex and/or defective workmanship provided by the Flex Authorized Applicator named below. *NO DOLLAR LIMIT/TOTAL SYSTEM

TERMS, LIMITATIONS, CONDITIONS

- 1) Installation of the Flex Roofing Materials must have been performed by a Flex Authorized Applicator and must have been inspected and approved for warranty by Flex. This warranty issuance will not relieve the Flex Authorized Applicator from performing additional work should final inspection discover any failure to comply with Flex current specifications and details or shortcomings in workmanship. This warranty is effective and valid only after final inspection and acceptance by Flex.
- 2) If, after inspection by Flex, leaks in the Flex Roof System are found by Flex to be the result of defects in Flex materials and/or the workmanship of the below named Flex Authorized Applicator in the installation of Flex's material, Flex will repair any leaks in the roofing system at its own expense.
- 3) The warranty stated herein is the SOLE AND EXCLUSIVE REMEDY for defects in or failure of the materials supplied by Flex, including insulation, accessories, etc. and/or defective workmanship provided by the below named Flex Authorized Applicator. Flex shall under no circumstances be liable for damage to the substrate (deck), the structure itself, contents of the structure, any other property, injury to persons or for any consequential damages or incidental damages or loss of any kind whatsoever, whether in contract or tort, including negligence.
- 4) This warranty does not cover failure of Flex Roofing Material if in Flex's good faith determination, the failure was caused by:
 - a) Natural disasters including, but not limited to, the direct or indirect effect of lightning, gales, earthquakes, floods, hail, fire, hurricanes, tornadoes, or other extraordinary natural occurrences.
 - b) Vandalism, acts of war, mechanical damage or abuse, traffic or storage of material on roof, negligence, accidents, structure settlement, defects or failure in other material or application of other material not supplied by Flex.
 - c) Metal work or other material not furnished by Flex or any workmanship not performed by a Flex Authorized Applicator.
- 5) This warranty does not apply and shall be null and void if any of the following occur:
 - a) Failure of Building Owner to confirm each leak event in writing to Flex, at the below address, within thirty (30) days of discovery of each leak in the Flex Roof System.
 - b) Failure of Building Owner or his lessee to use reasonable care in maintaining the roof, including that of sealants and caulking.
 - c) Additions, alterations, or repairs made on or through the roof or to any area or surrounding area affecting the roof, other than those approved in writing by Flex.
 - d) Failure of Building Owner, named below, to comply with every term, limitation, and condition stated herein.
- 6) During the term of this warranty, Flex, its agents and employees shall have free access to the roof during regular business hours to perform appropriate inspections and repairs authorized by Flex.
- 7) Flex shall have no liability under this warranty until all bills for installation, supplies, and service have been paid in full to the applicator of Flex materials and all material suppliers including Flex.
- 8) The Building Owner shall be responsible for the cost of investigation if any leak is determined not to be covered by this warranty.
- 9) Flex's sole obligation under this warranty shall terminate immediately in the event of a material change in use or a significant change in the use of the building itself.
- 10) This warranty is extended solely and exclusively to the Building Owner, named below, at the time the Flex material is installed. It does not extend nor is it otherwise assignable or transferable to any other party unless approved in advance and in writing by Flex and the costs to process the transfer and to inspect and repair the roof, if necessary, are paid for by the original Building Owner.
- 11) FLEX PROVIDES NO WARRANTY THAT THE FLEX ROOFING SYSTEM IS MERCHANTABLE OR FIT FOR ANY PARTICULAR PURPOSE. THIS AGREEMENT AND THE REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND GIVEN IN LIEU OF ALL WARRANTIES OR AGREEMENTS (WHETHER WRITTEN, ORAL, IMPLIED OR STATUTORY). NO REPRESENTATIVE OF FLEX HAS THE AUTHORITY TO MAKE ANY REPRESENTATIONS OR PROMISES EXCEPT AS STATED HEREIN.

Name of Building _____

Building Owner's Name _____

Address of Building _____

Flex Authorized Applicator _____

Flex Roof System Type _____ Area Warranted (Sq. Ft.) _____

Date Effective From _____ To _____

FLEX MEMBRANE INTERNATIONAL ROOFING SYSTEMS

ROOF MAINTENANCE, CARE REQUIREMENTS & RECOMMENDATIONS

The Flex Engineered Roofing System that now covers your building is a state-of-the-art roofing system that requires very little attention. You have chosen a roofing system that when properly installed on a well designed and functioning building and when properly maintained, will provide years of service. Flex recommends to the building owner that they take the following actions.

RECOMMENDATIONS

A. *REGULAR MAINTENANCE:*

- (1) The roof should be inspected at least twice yearly (in the Spring and Fall) and after any severe storms. Access to the roof should only be permitted to responsible personnel and a log kept of all times and parties working on the roof. Record maintenance procedures as they occur.
- (2) All counterflashing metal work, equipment curb and supports, pitch pockets, caulking, grease guards, traps, secondary sheets, walkpads and any other rooftop accessories functioning in conjunction with the membrane roofing system must be kept properly maintained at all times. Have all drains and rainspouts cleaned on a regular basis provide for proper water runoff.
- (3) Materials should not be stored on the roof, and the building owner should remove broken bottles, metal, etc., and report all damage and vandalism to Flex Membrane International Corp. Do not permit smoking on the roof.
- (4) Regular cleaning and maintenance must be done in areas where contaminants potentially harmful to the roof system may accumulate. Contact the Flex Technical Department on additional preventative maintenance as exposure to certain chemicals could void the warranty.
- (5) The Flex Roofing System is designed to be a waterproofing membrane. Protective walkways must be provided if there is to be regular foot traffic on the roof for maintenance of equipment or any other reason.

B. *IN THE EVENT THAT YOU HAVE A LEAK:*

- (1) Determine the cause of the leak (it may be the result of a clogged drain, broken pipes, loose counterflashing, broken skylights, open grills or vents, damages or vandalism). Failure to determine the cause may result in a service charge fee.
- (2) Call the roofing contractor who installed the roof and send written notification to Flex Membrane International Corp. within 30 days of discovery, per the terms of your warranty.
- (3) Note conditions resulting in leakage. Heavy or light rain, wind direction, temperature and time of day that the leak occurs are all important clues to tracing roof leaks. Note whether the leak stops shortly after each rain or continues to drip until the roof is dry. By being prepared with the facts, the diagnosis and repair of the leak can proceed more rapidly.
- (4) If necessary, make temporary repairs as required.
- (5) Permanent repairs to the roofing system must be made by an approved Flex contractor with Flex products.

NOTE

- A.** It is the Owner's responsibility to provide easy access to the roofing membrane surface by removing or moving rooftop equipment, pavers, severely ponded water, snow or any materials that prevent complete investigation and repair.
- B.** Flex Membrane International Corp. supports and recommends following the guidelines for good roofing practices found in the Single Ply Roofing Institute (SPRI) Manual of Roof Inspection, Maintenance and Emergency Repair for Existing Single-Ply Roofing Systems and National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.



Georgia-Pacific

DensDeck Prime[®]

Roof Board

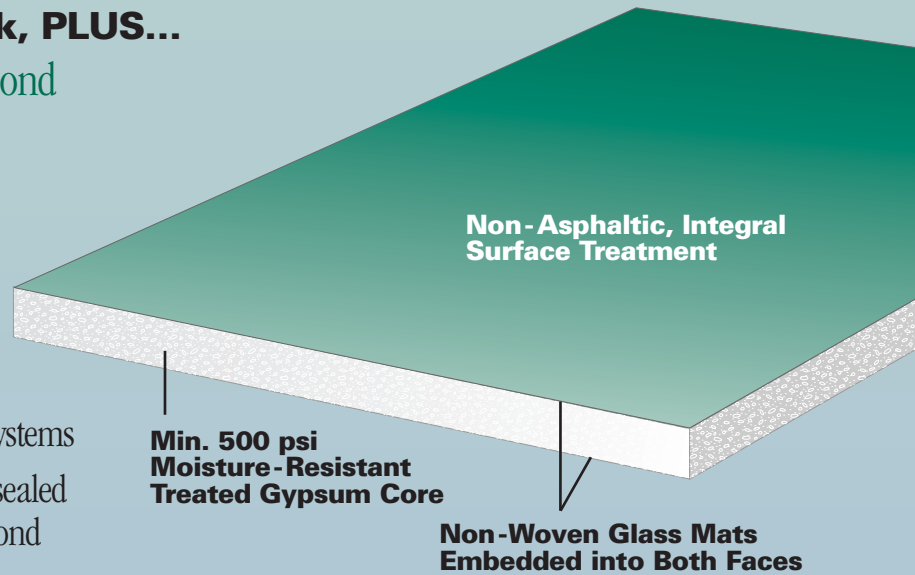
Featuring a non-asphaltic, integral surface treatment for an enhanced bond and reduced fasteners.

All the properties of DensDeck, PLUS...

- Creates a more consistent, stronger bond
- Reduces adhesive requirements
- Fewer fasteners required
- Allows for uniform drying time

Uses:

- Fully-adhered single-ply systems
- Torch and cold-applied modified bitumen systems
- Other commercial roofing systems where a sealed surface is desirable for a highly consistent bond



| Features | Benefits |
|---|--|
| Reduces adhesive use in single-ply systems by up to 50 percent | Significant cost savings |
| Fewer fasteners required for higher wind uplift resistance | Lower installation cost |
| Minimizes blistering during torch application of modified bitumens | Allows for a more consistent bond |
| Darker color that accelerates drying of surface after moisture exposure | Diminishes risk of trapped moisture |
| Glass mat is encapsulated with coating | Reduces skin irritation from exposed glass fibers |
| High-strength bonds with both adhesive and modified bitumen | Improves wind uplift performance and reduces fastener requirements |
| Allows uniform drying of single-ply adhesives and cold mastics | Facilitates a more consistent bond without blisters |
| Moisture-resistant core | Superior mold and fire resistance |
| Glass mats embedded into core on both faces | Results in dimensional stability and prevents warping |



Georgia-Pacific
Gypsum

DensDeck Prime® Properties, Standards and Classifications

| | 1/4" DensDeck Prime | 1/2" DensDeck Prime | 5/8" DensDeck Prime Fireguard® |
|---|--|--|---|
| Thickness, inches, nominal | 1/4" ± 1/16" | 1/2" ± 1/32" | 5/8" ± 1/32" |
| Width, standard | 4' ± 1/8" | 4' ± 1/8" | 4' ± 1/8" |
| Length, standard ⁸ | 4' and 8' ± 1/4" | 8' ± 1/4" | 8' ± 1/4" |
| Weight, lbs./sq. ft., nominal | 1.15 | 1.975 | 2.55 |
| Surfacing Treatment to one side | Glass mat Non-asphaltic coating | Glass mat Non-asphaltic coating | Glass mat Non-asphaltic coating |
| Flexural Strength ⁴ , parallel, lbs. min. | 40 ⁵ | 80 ⁵ | 100 ⁵ |
| Flute Spanability ¹ | 2 5/8" | 5" | 8" |
| Permeance ² , Perms | 50 | 35 | 32 |
| "R" Value ³ | .28 | .56 | .67 |
| Linear Variation with Change in Temp., in/in °F | 8.5x 10 ⁻⁶ | 8.5x 10 ⁻⁶ | 8.5x 10 ⁻⁶ |
| Linear Variation with Change in Moisture, in/in %RH | 6.25x 10 ⁻⁶ | 6.25x 10 ⁻⁶ | 6.25x 10 ⁻⁶ |
| Water Absorption ⁴ , % max | 10.0 | 10.0 | 10.0 |
| Compression Strength, psi nominal | 500-900 | 500-900 | 500-900 |
| Surface Water Absorption ⁴ , grams, nominal | 2.0 | 2.0 | 2.0 |
| Flame Spread, DFSmoke Developed (ASTM E 84) | 0 | 0 | 0 |
| Fire Classification | FM CLASS 1 (as overlayment) UL 1256, ULC S-126 UL Class A (UL 790) ULC S-107 | FM Class 1 (FM 4450) UL 1256, ULC S-126 UL Class A (UL 790) ULC S-107 | FM Class 1 (FM 4450) UL 1256, ULC S-126 UL Classified "P" assemblies ULC Classified "R" assemblies ULC S-101 Class A (UL 790), ULC S-107 |
| Mold and Mildew Resistance | No growth ⁷ | No growth ⁷ | No growth ⁷ |
| FM Approvals ⁶ | 60 and 90 psf uplift/ FM Class 1-90 as an overlayment | FM 1-60, 1-90, 1-135 | FM 1-60, 1-90, 1-180 |
| Bending Radius | 5' | 8' | 12' |

1. Tested in accordance with ASTM E 661 (400 lb. conc. load only for 1/2" and 5/8").

2. Tested in accordance with ASTM E 96 (dry cup method).

3. Tested in accordance with ASTM C 518 (heat flow meter).

4. Tested in accordance with ASTM C 473.

5. ASTM C 1177 minimums.

6. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using DensDeck Prime in their FMRC-approved construction designs.

7. Tested in accordance with ASTM D 3273.

8. 4' x 4' size available upon special request.

Distributed By:

Flex
Thermoplastic Single-Ply and Multi-Ply
Roofing & Waterproofing Systems

2670 Leisz's Bridge Road
Suite 400
Leesport, PA 19533
Phone: 610-916-9500
Fax: 610-916-9501
www.FlexRoofingSystems.com



SALES INFORMATION AND ORDER PLACEMENT

U.S.A. Midwest: **1-800-876-4746** West: **1-800-824-7503**
South: **1-800-327-2344** Northeast: **1-800-947-4497**

CANADA Canada Toll Free: **1-800-387-6823**
Quebec Toll Free: **1-800-361-0486**

TECHNICAL INFORMATION

Georgia-Pacific Gypsum Technical Hotline
U.S.A. and Canada: **1-800-225-6119**
Mon.-Fri., 8 a.m.-5 p.m. ET
www.gpgypsum.com

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UPDATES AND CURRENT INFORMATION The information in this document may change without notice. Visit our Web site at www.gpgypsum.com for updates and current information.



METRO DADE APPROVED
02.0102.01



LIMITATION OF REMEDIES AND DAMAGES Unless otherwise stated in our written limited warranty for this product, our sole liability for any product claim shall be limited to reimbursement of the cost of repair or replacement of the affected product, up to a maximum amount of two times the original purchase price for the affected product. We shall not be responsible under any circumstances for lost profits, damage to a structure or its contents, or indirect, incidental, special or consequential damages. Claims shall be deemed waived if they are not submitted to us in writing within ten days after discovery.

SAFETY CAUTION: This product contains fiberglass. Fibers and dust may be released from this product during normal handling and may result in skin, eye and respiratory irritation. Avoid breathing dust and contact with the skin and eyes.

Follow these standard work practices: Wear a loose-fitting, long-sleeved shirt and long pants, protective gloves and eye protection (goggles or safety glasses with side shields). Wear a dust mask when sanding. Additional protection may be needed when very dusty. Do not use a power saw. For Material Safety Data Sheet or additional information, call 1-800-225-6119 or visit our Web site.



UPDATED: 05.19.2014

Distributed By:
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Thermoplastic Single-Ply and Multi-Ply
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ACFOAM®-II INSULATION

PRODUCT DATA SHEET

DESCRIPTION: Closed-cell polyisocyanurate (polyiso) foam core integrally bonded to non-asphaltic, fiber-reinforced organic felt facers. ACFoam®-II is offered in a variety of thicknesses, providing long-term thermal resistance (LTTR) values from 5.7 to 26.8. Available in 4ft x 8ft (1220mm x 2440mm) and 4ft x 4ft (1220mm x 1220mm) panels. Manufactured in accordance with **ASTM C1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi) and CAN/ULC-S704 Type 2, Class 3 or Type 3, Class 3.**

ADVANTAGES: ACFoam®-II is manufactured using CFC-, HCFC- and HFC-free foam blowing technology with zero ozone depletion potential (ODP) and virtually no (negligible) global warming potential (GWP). ACFoam®-II contains between 52.9% and 27.6% recycled materials by weight (*Atlas Technical Bulletin: TB-2*).

APPLICATION: Manufactured and tested for use in new and re-roofing applications. ACFoam®-II is used in built-up (BUR), modified bitumen, metal, ballasted single-ply, mechanically attached single-ply and adhered single-ply roofing systems. These roofing systems depend on proper installation for successful performance. Refer to FM Approvals® RoofNav and UL Online Certifications Directory for additional application details.

INSTALLATION: ACFoam®-II shall be kept dry before, during and after installation. This product will burn if exposed to an ignition source of sufficient heat and intensity. Do not apply flame directly to ACFoam®-II insulation. Refer to PIMA Technical Bulletin 109: *Storage and Handling Recommendations for Polyiso Roof Insulation*. **An offset or staggered multi-layer application of ACFoam® is strongly recommended when the total insulation thickness exceeds 2.7"** (*Atlas Technical Bulletin: TB-5*). Typical field fastening requirements can be obtained from membrane system manufacturer or FM Global Property Loss Prevention Data Sheets 1-29.

Prior to installation, Atlas Roofing Corporation recommends that you consult your local building codes, contract documents, professional engineer, FM Global, Miami-Dade County and membrane manufacturer for additional installation guidelines as well as design enhancements.

PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | RESULTS |
|--------------------------|--------------------|--------------------------------------|
| DIMENSIONAL STABILITY | ASTM D2126 | < 2% |
| COMPRESSIVE STRENGTH | ASTM D1621 | 20 psi (140 kPa) or 25 psi (172 kPa) |
| WATER ABSORPTION | ASTM C209 & D2842 | < 1.5%, < 3.5% |
| WATER VAPOR TRANSMISSION | ASTM E96 | < 1.5 perm (85.5ng/(Pa*s*m²)) |
| PRODUCT DENSITY | ASTM D1622 | Nominal 2.0 pcf (32.04 kg/m³) |
| FLAME SPREAD | ASTM E84 (10 min.) | 140-60 |
| SMOKE DEVELOPMENT | ASTM E84 (10 min.) | 150-170 |
| TENSILE STRENGTH | ASTM D1623 | > 730 psf (35 kPa) |
| SERVICE TEMPERATURE | - | -100° to +250°F |

¹Numerical ratings are not intended to reflect performance under actual fire conditions. Flame spread index of ≤ 75 and smoke development ≤ 450 meet code requirements for foam plastic roof insulation. Codes exempt foam plastic insulation when used in FM 4450 or UL 1256. Physical properties listed above are presented as typical average values as determined by accepted ASTM test methods and are subject to normal manufacturing variation.

THERMAL DATA

| LTTR VALUE | THICKNESS | | ²RSI | FLUTE SPANABILITY | |
|------------|-----------|-------|------|-------------------|--------|
| | in | mm | | in | mm |
| 5.7 | 1.0 | 25.4 | 1.00 | 2.625 | 66.68 |
| 8.6 | 1.5 | 38.1 | 1.50 | 4.375 | 111.13 |
| 11.4 | 2.0 | 50.8 | 2.01 | 4.375 | 111.13 |
| 14.4 | 2.5 | 63.5 | 2.53 | 4.375 | 111.13 |
| 17.4 | *3.0 | 76.2 | 3.06 | 4.375 | 111.13 |
| 20.5 | *3.5 | 88.9 | 3.60 | 4.375 | 111.13 |
| 23.6 | *4.0 | 101.6 | 4.15 | 4.375 | 111.13 |

LTTR (long term thermal resistance) values were determined in accordance with CAN/ULC-S770-09. Test samples were third-party selected and tested by an accredited material testing laboratory. The LTTR results were reviewed by FM Global and certified by the PIMA Quality Mark Program. ²RSI is the metric expression of R-value (m² • K/W).

*To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

- **ASTM C1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi)**
- **CAN/ULC-S704, Type 2, Class 3 or Type 3, Class 3**
- **CCMC No. 12464-L**
- **UL Certified for Canada—** Insulated Roof Deck Assemblies Construction No. C38 and 52. Meet CAN/ULC-S126, CAN/ULC-S101 and CAN/ULC-S107
- **UL Standard 1256 Classification** Construction No. 120, 123 & 292
- **UL Standard 790 (ASTM E108)** Roofing Systems Classification
- **UL Standard 263 (ASTM E119)** Fire Resistance Classification
- **UL Standard 1897** Uplift Resistance
- **FM Standard 4450/4470 Approved**
Refer to FM Approvals® RoofNav for Specific System Details
- **IBC Chapter 26 & NBC Sections** on Foam Insulation
- **California State** Insulation Quality Standards and Title 25 Foam Flammability Criteria (License #TC 1231)
- **Miami-Dade County Approved**
- **State of Florida Product Approval** (FL6796)

Other than the aforementioned representations and descriptions, Atlas Roofing Corporation (hereafter, "Seller") makes no other representations or warranties as to the insulation sold herein. The Seller disclaims all other warranties, express or implied, including the warranty of merchantability and the warranty of fitness for a particular purpose. Seller does, however, have a limited warranty as to the LTTR-Value of the insulation, the terms of which are available upon request from the Seller. Seller shall not be liable for any incidental or consequential damages including but not limited to the cost of installation, removal, repair or replacement of this product. Buyer's remedies shall be limited exclusively to, at Seller's option, the repayment of the purchase price or resupply of product manufactured by Atlas in a quantity equal to that of the nonconforming product. Atlas distributors, agents, salespersons or other independent representatives have no authority to waive or alter the above limitation of liability and remedies.

Flex OlyBond Adhesive

For Efficient Insulation Installation

Flex OlyBond is the premiere insulation adhesive for low-slope roofing applications. Packaged in 5 gallon Bag-in-Box sets, Flex OlyBond is the perfect choice for new and re-roof applications.

Flex OlyBond is a fast-acting, dual-component, low-rise polyurethane foam adhesive designed to adhere most insulation types to a wide selection of common roof decks and materials. Flex OlyBond can be used in both new and re-roofing applications, including applications that require multiple insulation layers.

Flex OlyBond is dispensed in a semi-liquid bead that spreads to several inches before rising $\frac{3}{4}$ to 1 inch above the substrate. Place the insulation/cover board into the adhesive and walk into place. A chemical cure occurs within approximately 4 to 8 minutes depending on the temperature and weather conditions.

Features & Benefits

- Odor- and noise-free installation will not disturb building occupants.
- Easily applied with PaceCart 2 applicator tool.
- Ultra low VOC (< 5g/L).
- Flex OlyBond is made in temperature-optimized grades for year-round use:
 - Regular Grade – For use in temperatures from 60°–90°F;
 - Summer Grade – For use in temperatures above 90°F;
 - Winter Grade – For use in temperatures from 40°–60°F.
- Also available in an environmentally sensitive green formulation (Flex OlyBond Green).



Packaging & Coverage

Packaged in 5 gallon Bag-in-Box sets. Coverage is 10–20 squares/set depending on the substrate and insulation type.

Approvals

Flex OlyBond is approved by most roof system manufacturers and is Factory Mutual, Underwriters Laboratories, Florida Building Code and Miami Dade approved.



Florida Building Code



Flex

Thermoplastic Single Ply and Multi-Ply Roofing Systems

800-969-0108 • 610-916-9501 (Fax)
2670 Leisch's Bridge Road, Suite 400, Leesport, PA 19533
e-mail: flexroof@cs.com • www.flexroofingsystems.com

*Call for more information
and pricing today.*



RP1003B

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Question | Response |
|--------------|-----------------|---|--|
| TG13.2-007 | 1/26/2015 | Please see the attached Request for Substitution. | <p>The request for substitution proposes substituting a hot rubberized asphalt waterproofing membrane for the 2 layer (2-ply) PVC membrane specified for the Roof Park Level. This Request for Substitution is rejected for the following reasons:</p> <ol style="list-style-type: none">1. The specified system is loose-laid, avoiding the telegraphing of earthquake-generated or other concrete cracks. The proposed system is adhered to the structure, and the proposed waterproofing will shear when structural cracks exceed a certain size.2. Specified system is redundant—it contains two separate layers (2 plys) vs. the one layer (1 ply) of the proposed system.3. The proposed substitution system does not provide remediation in a manner similar to the specified system, i.e., from below to repair roof leaks, if they occur, without the removal of the park elements. |

TO: Webcor Obayashi Joint Venture

January 26, 2015

RE: Transbay Terminal / Projects changed from Sarnafil to MM 6125/ other references

Howard Hughes Medical Institute **HHMI**
Ashburn , VA
RVA
Turner Construction

This is a large 200,000 SF earth covered structure that was installed in 2003 with a Sarnafil Assembly, very similar to what is proposed on the Transbay Terminal. First layer of Sarnafil attached with grid method, and second layer loose laid. This was a failure and the Sarnafil was removed and MM 6125 installed starting in 2012. I can provide more documentation .

Children's Hospital of Philadelphia - **CHOP**
Philadelphia, PA

Sarnafil was originally specified on an Intensive Vegetated Roof . It was concluded that PVC would not work on many of the details. MM 6125 was suggested and accepted and work began 1Q14. This was a 15, 000 SF Intensive Vegetated Roof. We also installed MM 6125 on a 115,000 SF plaza on the project.

Duke Eye Center
Durham , NC

This was specified multiple layers of foam insulation and a fully adhered Sarnafil. This was switched to MM 6125 direct to the deck and 6 inches of Styrofoam insulation. This project is currently being installed.

There are also numerous projects at the Air Force Academy that were switched from Sarnafil to MM 6125 for performance reasons.

Other significant earth covered structures using MM 6125 are the **City Creek Project in SLC, UT**; the **California Academy of Sciences** in SFO, **Yerba Buena Park at Moscone** in SFO, and the **West Campus for Facebook** in Menlo Park (under construction).

Sincerely yours,

[Redacted Signature]

[Redacted Title]

00 04 41 – PRE-BID REQUEST FOR SUBSTITUTION

During the bidding period, a proposed change by a bidder of a product, equipment, or service required by the Contract Documents is considered a pre-bid request for substitution. A pre-bid request for substitution will be considered as part of the questions on bid documents (QBD) process. Refer to the CM/GC's Bid Manual for QBD instructions and forms.

During the bidding period and prior to the deadline for the submission of QBDs, Bidders may submit a request for a substitution of an "or equal" product, equipment, or service specified in the Contract Documents by completing and submitting this form as an attachment to a QBD, in accordance with the QBD process. The TJPA will respond in writing to a pre-bid request for substitution in accordance with the QBD process and deadlines specified in the bidding documents.

Pre-bid requests for substitution requested during the bidding period and accepted by Addendum prior to opening of bids are included in the Contract Documents.

Spec. Section: 07-13-14 Date: January 26, 2015
Drawing Sheet: PVC Waterproofing, WPM-3 Paragraph(s): _____
Detail(s): _____

Proposed Substitution: American Hydrotech Monolithic Membrane 6125
Manufacturer/Address/Phone: 303 Ohio Street, #2700, Chicago, IL 60611 312 337-4998
Trade Name/Model No.: MM6125FR Dual Membrane

Product History: ☐ New ☐ 2-5 years old ☐ 5-10 years old ☒ More than 10 years old

Differences between proposed substitution and specified product (attach required point-by-point comparative data):

MM6125 has a 50 year impeccable track record. Membrane is fully bonded to the deck and is overlaid with uncured neoprene. PVC sheet is loose laid.

Reason for not providing specified item:

Hydrotech applicators have extensive successful track record with MM6125 in the local market versus limited experience with loose laid PVC in a buried condition

Similar installation where proposed substitution has been used (Project/Address/Architect/Owner/Date Installed):

Please see attached

Proposed substitution affects other parts of the Work: ☒ No ☐ Yes: explain

Changes or modifications needed to coordinate other parts of the Work that will be necessary to accommodate the proposed substitution:

None

Supporting data attached: ☒ Product Data ☒ Drawings ☒ Test Reports ☒ Samples

☐ Manufacturer's Standard Form of Warranty or Guarantee

Other: Specification attached

The Bidder certifies that

- The proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product.
- The proposed substitution conforms in all respects to the requirements of the Contract Documents and all applicable regulatory requirements and is appropriate for the application intended.
- The same warranty or guarantee for the specified product will be furnished for the proposed substitution.
- The proposed substitution does not affect dimensions or functional clearances.

Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Attachments Product literature & data sheets; earth cover projects in San Francisco; San Francisco selected projects list; letter where switched to MM6125; performance advantages

END OF SECTION 00 04 41

SPECIFICATION ISSUE LOG


| Revision | Date |
|----------|-----------------|
| 0 | August 11, 2014 |

USA

earth covered

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|---|------------------------|-------------|--------------|--|------------|
| FACEBOOK | SAN FRANCISCO , | sqft | 300,000 sqft | Greiner | 50% |
| PLUM LIBRARY | LOMBARD , IL | sqft | 21,000 sqft | SKIDMORE, OWINGS & MERRILL | 11/1/77 |
| UNIVERSITY OF LOUISVILLE MEDICAL CENTER PARKING #1 | LOUISVILLE , KY | sqft | 45,000 sqft | RYAN COOKE & ZURN ASSOCIATES, INC. | 12/31/78 |
| NORTH RIVER WATER WASTE TREATMENT PLANT | NEW YORK , NY | sqft | 310,000 sqft | T.A.M.S. | 7/11/85 |
| UNIVERSITY OF UTAH MERRILL ENGINEERING BUILDING | SALT LAKE CITY , UT | sqft | 63,230 sqft | DEAN L. GUSTAVSON ASSOCIATES | 8/5/86 |
| THE OHIO HISTORICAL SOCIETY- PLAZA DECK REDESIGN | COLUMBUS , OH | sqft | 140,300 sqft | ROBERT J. BREGAR ASSOCIATES, INC. | 6/30/87 |
| ITASCA GARAGE PEDESTRIAN TUNNEL | MINNEAPOLIS , MN | sqft | 7,000 sqft | R.A. PETERSON | 4/1/88 |
| LEAVEY CENTER STUDENT ACTIVITIES & GUEST FACILITY | WASHINGTON , DC | sqft | 137,500 sqft | SKIDMORE, OWINGS & MERRILL | 11/15/88 |
| I-90 LID - 23 RD AVENUE TO LAKE WASHINGTON | SEATTLE , WA | sqft | 338,200 sqft | H.N.T.B. / ARAI JACKSON | 6/9/89 |
| WATERGARDENS - PHASE I | SANTA MONICA , CA | sqft | 410,000 sqft | MCLARAND, VASQUEZ & PARTNERS, INC. | 7/16/91 |
| OHIO STATEHOUSE RESTORATION - PHASE I | COLUMBUS , OH | sqft | 2,216 sqft | SCHOOLEY CALDWELL ASSOCIATES, ARCHITECTS | 8/15/91 |
| CODORNIU WINERY (currently known as ARTESIA WINERY) | NAPA , CA | 71,028 sqft | sqft | E.R. BOULIGNY, A.I.A. | 11/1/91 |
| OPUS ONE WINERY | YOUNTVILLE , CA | sqft | 33,900 sqft | ROSENBERG MCGINNIS | 12/1/91 |
| UNITED AIRLINES COMPUTER FACILITY | ELK GROVE , IL VILLAGE | sqft | 9,900 sqft | TENG & ASSOCIATES | 8/31/92 |
| TEXAS STATE CAPITOL - CAPITOL EXTENSION | AUSTIN , TX | sqft | 200,400 sqft | 3D/INTERNATIONAL, INC., FORD, POWELL & CARSON, INC. - JV | 10/29/92 |
| OHIO STATEHOUSE RESTORATION - PHASE 4 | COLUMBUS , OH | sqft | 65,214 sqft | SCHOOLEY CALDWELL ASSOCIATES | 4/1/93 |
| GALLIVAN CENTER (FORMERLY BLOCK 57) | SALT LAKE CITY , UT | sqft | 124,000 sqft | JOHN E PACE & ASSOCIATES | 6/1/93 |

* No completion date indicates ongoing project



| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|---|---------------------|-------------|----------------|------------------------------------|-------------------|
| LOYOLA MEDICAL CENTER TUNNEL | MAYWOOD , IL | sqft | 39,667 sqft | STANLEY CONSULTANT, INC. | 11/1/94 |
| GALLIVAN CENTER PLAZA EXTENSION | SALT LAKE CITY , UT | sqft | 24,700 sqft | EDWARDS & DANIELS ARCHITECTS, INC. | 8/21/98 |
| MASHANTUCKET PEQUOT MUSEUM & RESEARCH CENTER | MASHANTUCKET , CT | sqft | 75,000 sqft | POLSHEK & PARTNERS | 11/30/98 |
| LDS ASSEMBLY BUILDING | SALT LAKE CITY , UT | sqft | 343,805 sqft | ZIMMER GUNSUL FRASCA PARTNERSHIP | 8/1/00 |
| GROVE PARK INN & SPA | ASHEVILLE , NC | sqft | 44,963 sqft | LS3P ARCHITECTS | 2/15/01 |
| WASHINGTON PARK RENOVATION AND PARKING GARAGE | CINCINNATI , OH | sqft | 89,000 sqft | BHDP ARCHITECTURE | 7/6/12 |

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|---|--------------------|-------------|-------------|-------------------------------------|------------|
| CHINESE HOSPITAL | SAN FRANCISCO , CA | sqft | 1700 sqft | JACOBS | |
| 1180 4TH STREET | SAN FRANCISCO , CA | 20,700 sqft | sqft | DANIEL SOLOMON DESIGN PARTNERS | |
| UCSF MISSION BAY BLOCK 25 A | SAN FRANCISCO , CA | 1,200 sqft | sqft | WRNS STUDIO | |
| AVANT HOUSING - 900 FOLSOM | SAN FRANCISCO , CA | 10,045 sqft | sqft | ARCHITECTURE INTERNATIONAL | |
| AVANT HOUSING - 900 FOLSOM | SAN FRANCISCO , CA | sqft | 14800 sqft | ARCHITECTURE INTERNATIONAL | |
| SANSOME AND BROADWAY AFFORDABLE FAMILY HOUSING #339 | SAN FRANCISCO , CA | sqft | 1900 sqft | DANIEL SOLOMON DESIGN PARTNERS INC. | |
| SAN FRANCISCO INTERNATIONAL AIRPORT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER | SAN FRANCISCO , CA | sqft | 3800 sqft | FENTRESS ARCHITECTS | |
| SAN FRANCISCO PUBLIC SAFETY BUILDING | SAN FRANCISCO , CA | sqft | 10100 sqft | HOK | |
| SAN FRANCISCO PUBLIC SAFETY BUILDING | SAN FRANCISCO , CA | 11,100 sqft | sqft | HOK | |
| SAN FRANCISCO PUBLIC SAFETY BUILDING | SAN FRANCISCO , CA | 8900 sqft | sqft | HOK | |
| SAN FRANCISCO PUBLIC SAFETY BUILDING | SAN FRANCISCO , CA | 15800 sqft | sqft | HOK | |
| DR GEORGE DAVIS SENIOR BUILDING | SAN FRANCISCO , CA | 4700 sqft | sqft | DAVID BAKER ARCHITECTS | |
| 1400 MISSION STREET | SAN FRANCISCO , CA | 9500 sqft | sqft | BRAND + ALLEN ARCHITECTS | |
| 222 SECOND STREET | SAN FRANCISCO , CA | sqft | 5500 sqft | GENSLER | |
| FACEBOOK | SAN FRANCISCO , | sqft | sqft | | |
| INTERNATIONAL LONGSHOREMAN & WAREHOUSEMANS UNION | SAN FRANCISCO , CA | 23000 sqft | sqft | JOSEPH TAYLOR & ASSOCIATES | 12/31/73 |
| MARRIOTT (SAN FRANCISCO) | SAN FRANCISCO , CA | sqft | 26,000 sqft | DANIEL, MANN, JOHNSON, MENDEHALL | 9/1/89 |

* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|--|--------------------|-------------|--------------|----------------------------------|------------|
| SAN FRANCISCO FASHION CENTER | SAN FRANCISCO , CA | sqft | 112,500 sqft | JOHN PORTMAN & ASSOCIATES | 8/1/90 |
| RITZ CARLTON | SAN FRANCISCO , CA | sqft | 10,000 sqft | WHISLER-PATRI | 6/30/91 |
| PEDIATRICS CLINIC RELOCATION AND PLAZA RESTORATION | SAN FRANCISCO , CA | sqft | 5,500 sqft | THE RATCLIFF ARCHITECTS | 9/30/92 |
| YERBA BUENA GARDENS/VISUAL ARTS CENTER | SAN FRANCISCO , CA | 24,000 sqft | sqft | ROBINSON MILLS & WILLIAMS | 5/28/93 |
| BANK OF AMERICA - DATA CENTER | SAN FRANCISCO , CA | 34,300 sqft | sqft | ROSENBERG MCGINNIS, AIA, INC. | 1/10/94 |
| YERBA BUENA GARDENS - THEATRE | SAN FRANCISCO , CA | sqft | 15,100 sqft | JAMES STEWART POLSHEK & PARTNERS | 1/31/94 |
| SAN FRANCISCO MAIN LIBRARY | SAN FRANCISCO , CA | 5,100 sqft | sqft | PEI COBB FREED & PARTNERS | 10/1/95 |
| SAN FRANCISCO MAIN LIBRARY | SAN FRANCISCO , CA | sqft | 21,400 sqft | PEI COBB FREED & PARTNERS | 10/1/95 |
| SAN FRANCISCO MAIN LIBRARY | SAN FRANCISCO , CA | sqft | 4,500 sqft | PEI COBB FREED & PARTNERS | 10/1/95 |
| ONE HILLS PLAZA | SAN FRANCISCO , CA | 500 sqft | sqft | ROSENBERG MCGINNIS AIA INC. | 3/15/96 |
| ISABELLE TOWERS | SAN FRANCISCO , CA | 8000 sqft | sqft | DIVISION 7 CONSULTANTS, INC. | 8/15/96 |
| 360 POST L.P. | SAN FRANCISCO , CA | 800 sqft | sqft | ROSENBERG MCGINNIS, AIA INC. | 10/18/96 |
| 360 POST L.P. | SAN FRANCISCO , CA | sqft | 1,000 sqft | ROSENBERG MCGINNIS, AIA INC. | 10/18/96 |
| SAN FRANCISCO CIVIC CENTER | SAN FRANCISCO , CA | 16,000 sqft | sqft | SKIDMORE, OWINGS & MERRILL | 8/1/98 |
| SAN FRANCISCO CIVIC CENTER | SAN FRANCISCO , CA | sqft | 20,000 sqft | SKIDMORE, OWINGS & MERRILL | 8/1/98 |
| TEN MILLER PLACE APARTMENTS | SAN FRANCISCO , CA | 2,500 sqft | sqft | | 8/1/98 |
| MIDDLE HALL - UNIVERSITY OF CALIFORNIA AT BERKELEY | SAN FRANCISCO , CA | sqft | 1,100 sqft | | 5/7/99 |

* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|--|--------------------|-------------|-------------|--|------------|
| YERBA BUENA GARDENS ENTERTAINMENT CENTER | SAN FRANCISCO , CA | sqft | 50,500 sqft | SIMON MARTIN-VEGUE WINKELSTEIN MORRIS | 5/30/99 |
| THE CECIL WILLIAMS GLIDE COMMUNITY HOUSE | SAN FRANCISCO , CA | sqft | 2,143 sqft | MICHAEL WILLIS & ASSOCIATES | 7/19/99 |
| 101 SECOND STREET | SAN FRANCISCO , CA | sqft | 7,000 sqft | SKIDMORE OWINGS & MERRILL | 11/1/99 |
| 101 SECOND STREET | SAN FRANCISCO , CA | 26,000 sqft | sqft | SKIDMORE OWINGS & MERRILL | 11/1/99 |
| SAN FRANCISCO AIRPORT - BOARDING AREA G | SAN FRANCISCO , CA | sqft | 3,000 sqft | HOK HELLMUTH, OBATA & KASSABAUM/GROUP4/ROB ERT B. WONG | 12/1/99 |
| FIRST UNITARIAN CHURCH | SAN FRANCISCO , CA | sqft | 4,500 sqft | ROSENBERG MCGINNIS | 1/1/00 |
| 150 CALIFORNIA STREET | SAN FRANCISCO , CA | sqft | 6,200 sqft | HOK HELLMUTH, OBATA & KASSABAUM | 1/31/00 |
| SAN FRANCISCO MULTIMEDIA | SAN FRANCISCO , CA | sqft | 13,100 sqft | PFAU | 5/1/00 |
| RHODA HAAS GOLDMAN PLAZA | SAN FRANCISCO , CA | sqft | 6,800 sqft | B.A.R. | 6/7/00 |
| 215 FREMONT STREET BUILDING SF | SAN FRANCISCO , CA | 12,000 sqft | sqft | | 12/30/00 |
| GAP EMBARCADERO | SAN FRANCISCO , CA | sqft | 63,000 sqft | GENSLER | 12/31/00 |
| PACIFIC HEIGHTS | SAN FRANCISCO , CA | sqft | 1,000 sqft | HKS ARCHITECTS INC. | 8/30/01 |
| UNIVERSITY OF THE PACIFIC - SCHOOL OF DENTISTRY | SAN FRANCISCO , CA | sqft | 3,100 sqft | RATCLIFF ARCHITECTS | 8/31/01 |
| SAN FRANCISCO INTERNATIONAL AIRPORT - INTERNATIONAL TERMINAL | SAN FRANCISCO , CA | 64,500 sqft | sqft | JVA | 9/15/01 |
| FOUR SEASONS HOTEL | SAN FRANCISCO , CA | sqft | 5,000 sqft | SIMPSON, GUMPERTZ, HAGER / GARY EDWARD HANDEL ARCHITECTS | 12/1/01 |
| 55 SECOND STREET | SAN FRANCISCO , CA | 21,500 sqft | sqft | HKS ARCHITECTS | 2/1/02 |
| CHARLES SCHWAB | SAN FRANCISCO , CA | sqft | 2,500 sqft | SMITHGROUP | 3/24/02 |

* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|--------------------------------------|--------------------|-------------|----------------|-------------------------------------|-------------------|
| MISSION BAY BUILDING 28 | SAN FRANCISCO , CA | sqft | 3,500 sqft | STUDIOS ARCHITECTS | 5/15/02 |
| DOW PLACE | SAN FRANCISCO , CA | sqft | 8,000 sqft | KOTAS PANTALEONI ARCHITECTS | 6/30/02 |
| 560 MISSION | SAN FRANCISCO , CA | 5,000 sqft | sqft | KENDALL / HEATON ASSOCIATES INC. | 6/30/02 |
| 560 MISSION | SAN FRANCISCO , CA | sqft | 20,000 sqft | KENDALL / HEATON ASSOCIATES INC. | 6/30/02 |
| FIRST AND HOWARD STREET - BUILDING 2 | SAN FRANCISCO , CA | sqft | 33,900 sqft | STUDIOS ARCHITECTURE | 7/30/02 |
| BRIDGEVIEW | SAN FRANCISCO , CA | sqft | 16,500 sqft | HKS ARCHITECTS | 7/31/02 |
| 370 DORANTES | SAN FRANCISCO , CA | sqft | 1,500 sqft | AQUATECH CONSULTING INC. | 10/29/02 |
| ASIAN ART MUSEUM | SAN FRANCISCO , CA | 29,300 sqft | sqft | HOK / LDA / RWA | 12/6/02 |
| CLUB QUARTERS HOTEL | SAN FRANCISCO , CA | 13,800 sqft | sqft | MWM ARCHITECTS | 3/1/03 |
| AVALON AT MISSION BAY | SAN FRANCISCO , CA | sqft | 23,500 sqft | HKS ARCHITECTS | 4/1/03 |
| WILLIAM SONOMA | SAN FRANCISCO , CA | sqft | 1,000 sqft | HANNIVAL ASSOCIATES | 6/20/03 |
| KOKORO ASSISTED LIVING | SAN FRANCISCO , CA | 2,800 sqft | sqft | KODAMA DISENO ARCHITECTS & PLANNERS | 8/1/03 |
| MISSION BAY - BLOCK N1 | SAN FRANCISCO , CA | sqft | 80,000 sqft | HKS ARCHITECTS, INC. | 4/30/04 |
| THE J. DAVID GLADSTONE INSTITUTE | SAN FRANCISCO , CA | 32,400 sqft | sqft | NBBJ | 10/7/04 |
| THE J. DAVID GLADSTONE INSTITUTE | SAN FRANCISCO , CA | sqft | 2,200 sqft | NBBJ | 10/7/04 |
| 1366 TURK STREET | SAN FRANCISCO , CA | 3,800 sqft | sqft | N/A | 7/27/05 |
| SAN FRANCISCO CONSERVATORY OF MUSIC | SAN FRANCISCO , CA | 2,000 sqft | sqft | SMWM | 3/17/06 |

* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|---|-----------------------------|--------------|-------------|--|------------|
| SAN FRANCISCO CONSERVATORY OF MUSIC | SAN FRANCISCO , CA | sqft | 2,000 sqft | SMWM | 3/17/06 |
| 2630 DIVISADERO | SAN FRANCISCO , CA | sqft | 200 sqft | | 6/30/06 |
| 235 BERRY STREET CONDOMINIUMS | SAN FRANCISCO , CA | 11,700 sqft | sqft | LEDDY MATUM STACY ARCHITECTS | 1/1/07 |
| BENTLEY NOB HILL | SAN FRANCISCO , CA | 3,000 sqft | sqft | | 9/11/07 |
| SAINT IGNATIUS COLLEGE PREPATORY NEW MUSIC CENTER | SAN FRANCISCO , CA | 9,000 sqft | sqft | CSDA ARCHITECTS | 9/12/07 |
| SUMMIT PUMP STATION UPGRADE | SAN FRANCISCO , CA | 2000 sqft | sqft | CITY AND COUNTY OF SAN FRANCISCO DPW BUREAU OF ENGINEERING | 10/16/07 |
| CALIFORNIA ACADEMY OF SCIENCES | SAN FRANCISCO , CA | 116,000 sqft | sqft | CHONG PARTNERS ARCHITECTURE | 10/24/07 |
| CALIFORNIA ACADEMY OF SCIENCES | SAN FRANCISCO , CA | sqft | 27,860 sqft | CHONG PARTNERS ARCHITECTURE | 10/24/07 |
| FOUNDRY SQUARE | SAN FRANCISCO , CA | sqft | 29,800 sqft | STUDIOS ARCHITECTURE | 10/31/07 |
| SOMA GRAND | SAN FRANCISCO , CA | 0 sqft | sqft | ARCHITECTURE INTERNATIONAL | 11/26/07 |
| SOMA GRAND | SAN FRANCISCO , CA | sqft | 22,500 sqft | ARCHITECTURE INTERNATIONAL | 11/26/07 |
| 333 MARKET STREET PLAZA REMEDIATION | SAN FRANCISCO , CA | sqft | 17,300 sqft | HOK HELLMUTH OBATA & KASSABAUM INC. | 1/21/08 |
| ONE RINCON HILL | SAN FRANCISCO , CA | 50,000 sqft | sqft | SOLOMON CORDWELL BUENZ AND ASSOCIATES | 1/28/08 |
| SALA BURTON MARITIME MUSEUM | SAN FRANCISCO , CA | 1100 sqft | sqft | ARCHITECTURAL RESOURCES GROUP | 2/15/08 |
| BETH SHALOM NEW SANCTUARY AND SOCIAL HALL | SAN FRANCISCO , CA | 9,500 sqft | sqft | STANLEY SAIOWITZ ARCHITECTS | 2/28/08 |
| 55 PAGE STREET | SAN FRANCISCO , CA | sqft | 1100 sqft | HELLER MANUS ARCHITECTS | 3/1/08 |
| BRITANNIA OYSTER POINT II | SOUTH SAN , CA FRANCISCO | sqft | 26,200 sqft | DES ARCHITECTS AND ENGINEERS | 3/12/08 |

* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|--|-----------------------------|-------------|-------------|-------------------------------------|------------|
| 766 HARRISON STREET PROJECT | SAN FRANCISCO , CA | 4700 sqft | sqft | THE BAUMEISTER COLLECTIVE | 5/27/08 |
| JESSIE SQUARE PLAZA TENANT IMPROVEMENTS | SAN FRANCISCO , CA | sqft | 35,000 sqft | HANDEL ARCHITECTS | 6/8/08 |
| PALM ROYAL CONDOS | SAN FRANCISCO , CA | sqft | 1600 sqft | MCGINNIS CHEN ASSOC. | 8/12/08 |
| CATHEDRAL HILL HOA | SAN FRANCISCO , CA | 5000 sqft | sqft | ARCHITECTURAL RESOURCES GROUP, INC. | 9/15/08 |
| STATE COMPENSATION INSURANCE FUND PLAZA RESTORATION(AKA 1275 MARKET) | SAN FRANCISCO , CA | sqft | 9200 sqft | HOK | 10/27/08 |
| 348 CHURCH STREET CONDOMINIUM ASSOCIATION | SAN FRANCISCO , CA | 750 sqft | sqft | WISS JANNEY ELSTNER ASSOCIATES | 12/19/08 |
| CENTENNIAL TOWERS | SOUTH SAN , CA FRANCISCO | 10,000 sqft | sqft | SKIDMORE OWINGS MERRILL | 2/12/09 |
| 120 MONTGOMERY RECLAD | SAN FRANCISCO , CA | 8000 sqft | sqft | KENDALL/HEATON ASSOCIATES | 2/16/09 |
| 120 MONTGOMERY - LOBBY | SAN FRANCISCO , CA | sqft | 1500 sqft | KENDALL/HEATON ASSOCIATES | 2/16/09 |
| U.S. MINT CHILLER SUPPORTS | SAN FRANCISCO , CA | 300 sqft | sqft | | 2/20/09 |
| 631 FOLSOM STREET | SAN FRANCISCO , CA | 15,600 sqft | sqft | S.G.H. | 4/30/09 |
| SF MOMA SCULPTURE GARDENS | SAN FRANCISCO , CA | sqft | 10,000 sqft | JENSON ARCHITECTS | 5/1/09 |
| 201 MISSION STREET FLAGPOLE AREA | SAN FRANCISCO , CA | sqft | 1100 sqft | | 5/8/09 |
| PORTSMOUTH SQUARE | SAN FRANCISCO , CA | sqft | 1015 sqft | SIMPSON GUMPERTZ AND HEGER | 8/1/09 |
| BERRY STREET CONDOS | SAN FRANCISCO , CA | 22000 sqft | sqft | LEDDY MAYTUM STACY ARCHITECTS | 8/1/09 |
| ARMSTRONG PLACE | SAN FRANCISCO , CA | sqft | 21,200 sqft | DAVID BAKER AND PARTNERS | 8/1/09 |
| BRYANT SQUARE | SAN FRANCISCO , CA | sqft | 12,350 sqft | SB ARCHITECTS | 9/11/09 |

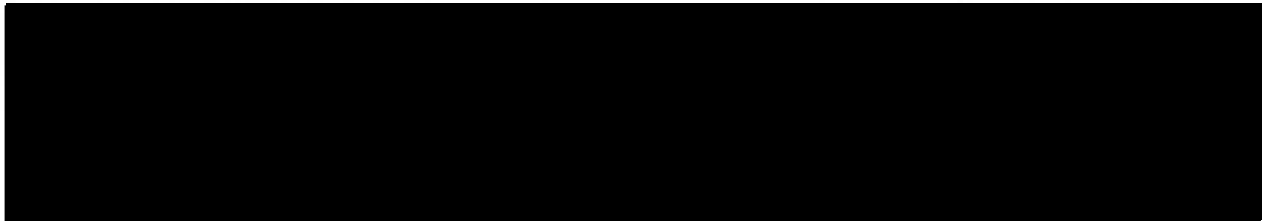
* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|---|--------------------|-------------|------------|------------------------------------|------------|
| PRESIDIO TRUST BUILDINGS 681-683 | SAN FRANCISCO , CA | sqft | 800 sqft | TOM ELIOT FISCH | 10/14/09 |
| MERCY HOUSING - 10TH AND MISSION FAMILY HOUSING | SAN FRANCISCO , CA | sqft | 8700 sqft | KAPLAN MCLAUGHLIN DIAZ | 12/10/09 |
| LAGUNA HONDA HOSPITAL REPLACEMENT PROJECT | SAN FRANCISCO , CA | 3,700 sqft | sqft | ANSHEN ALLEN | 2/28/10 |
| LAGUNA HONDA HOSPITAL REPLACEMENT PROJECT | SAN FRANCISCO , CA | sqft | 2,500 sqft | ANSHEN ALLEN | 2/28/10 |
| LAGUNA HONDA HOSPITAL REPLACEMENT PROJECT | SAN FRANCISCO , CA | sqft | 2,500 sqft | ANSHEN ALLEN | 2/28/10 |
| CESAR CHAVEZ STUDENT CENTER AMPITHEATRE | SAN FRANCISCO , CA | 4500 sqft | sqft | ALLANA AND BUICK AND BERS | 7/8/10 |
| MERCY HOUSING 9TH AND JESSE SENIOR HOUSING | SAN FRANCISCO , CA | sqft | 3,600 sqft | KAPLAN MCLAUGHLIN DIAZ | 7/29/10 |
| ARMSTRONG SENIOR HOUSING | SAN FRANCISCO , CA | 5000 sqft | sqft | DVID BAKER AND PARTNERS ARCHITECTS | 8/1/10 |
| INSTITUTE OF REGENERATION MEDICINE BUILDING, UNIVERSITY OF CALIFORNIA SAN FRANCISCO | SAN FRANCISCO , CA | 24,000 sqft | sqft | SMITHGROUP | 9/10/10 |
| 221 MAIN STREET - 4TH FLOOR ROOF GARDEN | SAN FRANCISCO , CA | 7200 sqft | sqft | NICHOLSBOOTH ARCHITECTS | 9/13/10 |
| MT. ZION | SAN FRANCISCO , CA | sqft | 3400 sqft | KAPLAN MCLAUGHLIN DIAZ | 9/30/10 |
| HOFFMAN RESIDENCE | SAN FRANCISCO , CA | sqft | 300 sqft | SIMPSON GUMPERTZ AND HEGER | 11/1/10 |
| ST. MARY'S CATHOLIC SCHOOL AND CENTER | SAN FRANCISCO , CA | 9,350 sqft | sqft | WRNS STUDIO | 4/24/11 |
| DREW SCHOOL | SAN FRANCISCO , CA | 3900 sqft | sqft | ROMA DESIGN GROUP | 5/12/11 |
| PARCEL G HOUSING | SAN FRANCISCO , CA | 6800 sqft | sqft | DAVID BAKER AND PARTNERS | 7/31/11 |
| ONE MONTGOMERY STREET | SAN FRANCISCO , CA | sqft | 5200 sqft | MCGINNIS CHEN ARCHITECTS | 8/18/11 |
| 3690 21ST STREET PROJECT | SAN FRANCISCO , CA | sqft | 200 sqft | BRUCE TOMB | 10/26/11 |

* No completion date indicates ongoing project

| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|---|---------------------------|-------------|------------|---|------------|
| 1840 WASHINGTON STREET CONDOMINIUMS | SAN FRANCISCO , CA | sqft | 1800 sqft | DE QUESADA ARCHITECTS | 12/31/11 |
| BETHANY UNITED METHODIST CHURCH | SAN FRANCISCO , CA | 900 sqft | sqft | GOLDMAN ARCH. | 2/28/12 |
| 1345 TURK STREET | SAN FRANCISCO , CA | 10,000 sqft | sqft | DAVID BAKER AND PARTNERS | 4/5/12 |
| SFPUC HEADQUARTERS BUILDING | SAN FRANCISCO , CA | sqft | 7,500 sqft | KAPLAN MCLAUGHLIN DIAZ | 6/8/12 |
| CONGREGATION CHIVRA THILLIM | SAN FRANCISCO , CA | sqft | 1,000 sqft | | 9/20/12 |
| GRAND HYATT EAST ENTRY SPILT SLAB WATERPROOFING REPAIR | SAN FRANCISCO , CA | sqft | 800 sqft | ALCAL | 11/7/12 |
| ARE - 259 EAST GRAND AVENUE | SO. SAN , CA FRANCISCO | 2,700 sqft | sqft | DGA | 1/7/13 |
| UNIVERSITY OF CALIFORNIA SAN FRANCISCO UCSF MSB BUILDING REROOF | SAN FRANCISCO , CA | 22000 sqft | sqft | HARLEY ELLIS DEVEREAUX | 2/1/13 |
| 1269 LOMBARD | SAN FRANCISCO , CA | 520 sqft | sqft | CHARLES F. BLOSZIES ARCHIECTURE | 2/20/13 |
| FLORIDA STREET HOA | SAN FRANCISCO , CA | sqft | 725 sqft | N/A | 5/29/13 |
| THE BATTERY | SAN FRANCISCO , CA | 16,000 sqft | sqft | FEE MUNSON EBERT ARCHITECTURE | 10/4/13 |
| 474 NATOMA | SAN FRANCISCO , CA | sqft | 4950 sqft | N/A | 11/25/13 |
| RENE CAZANAVE APARTMENTS - TRANSBAY 11 A | SAN FRANCISCO , CA | 5500 sqft | sqft | LEDDY MAYTUM STACY ARCHITECTS AND SULLIVAN DESIGN | 12/2/13 |
| FOUNDRY SQUARE 3 | SAN FRANCISCO , CA | sqft | 8500 sqft | STUDIOS ARCHITECTURE | 12/13/13 |
| UCSF MEDICAL CENTER OPB | SAN FRANCISCO , CA | 300 sqft | sqft | ANSHEN AND ALLEN | 12/23/13 |
| 401 GROVE | SAN FRANCISCO , CA | sqft | 4700 sqft | N/S | 1/12/14 |
| 333 FREEMONT ST. APARTMENTS | SAN FRANCISCO , CA | sqft | 2625 sqft | | 1/30/14 |

* No completion date indicates ongoing project



| Project Name | Location | Rfg. | Wtrpfg. | Architect | Completion |
|--|--------------------|-------------|----------------|---------------------------------------|-------------------|
| 1844 MARKET STREET APARTMENTS | SAN FRANCISCO , CA | sqft | 73700 sqft | CHRISTIANI JOHNSON ARCHITECTS INC. | 1/31/14 |
| TENTH AND MARKET RESIDENCES | SAN FRANCISCO , CA | 32300 sqft | sqft | HANDEL ARCHITECTS LLC | 2/1/14 |
| TENTH AND MARKET RESIDENCES | SAN FRANCISCO , CA | sqft | 20,000 sqft | HANDEL ARCHITECTS LLC | 2/1/14 |
| 650 CALIFORNIA STREET | SAN FRANCISCO , CA | sqft | 4,000 sqft | HELLER MANUS ARCHITECTS | 2/1/14 |
| NORTHPOINT APARTMENTS | SAN FRANCISCO , CA | sqft | 10800 sqft | MB ARCHITECTS | 2/28/14 |
| UCSF MEDICAL CENTER HOSPITAL BUILDING | SAN FRANCISCO , CA | 59,000 sqft | sqft | ANSHEN AND ALLEN | 3/3/14 |
| 1645 PACIFIC AVENUE CONDOMINIUMS | SAN FRANCISCO , CA | sqft | 4076 sqft | BAR ARCHITECTS | 5/30/14 |

* No completion date indicates ongoing project

APPLICATION: WATERPROOFING
ASSEMBLY: DUAL MEMBRANE

MONOLITHIC MEMBRANE 6125

LONG FORM SPECIFICATION

PART I GENERAL

1.01 SUMMARY

- A. This specification serves as a guideline and should be adapted to suit the needs of each individual project by the architect. It is prepared in accordance with the CSI three-part section format and should be included as a separate section under **DIVISION 7 - Thermal and Moisture Protection**. Improvements and other changes to the contents may be made only with the written approval of the architect.

1.02 RELATED SECTIONS (Edit to project requirements)

- A. DIVISION 2 - Sitework [Section 02500/02870] - Paving/Site
Furnishings as supplied by American Hydrotech, Inc. **See Division 7 for specific details.**

- B. DIVISION 3 - Concrete [Section 03300] - Roof Deck Surface/Substrate
The coordination of this section is necessary to facilitate the successful installation of the waterproofing membrane.

Cast In Place Concrete/Composite Deck

- A. Strength/density: minimum 2,500 psi (17,235 kPa)
compressive strength
minimum 115 pcf (1842 kg/m³) density
- B. Finish: Wood-float or wood-troweled finish. Steel troweled is not desirable.
- C. Concrete Hydration (Cure):
1. Method of Cure: Water cure, wet coverings, paper sheets, plastic sheets or approved liquid curing compound (sodium silicate preferred).
Contact Hydrotech for other alternatives.
 2. Duration of Cure/Dry:
 - a. Structural Weight Concrete: recommend 28 days, minimum 14 days, prior to application of the membrane.

- b. Lightweight Structural Concrete: recommend 60 days, minimum 28 days, prior to application of membrane. Venting of the deck from the underside is recommended to facilitate drying.

- B. DIVISION [] - Wood blocking and curbing
- C. DIVISION [] - Insulation
- D. DIVISION [] - Sheet metal flashing and counterflashing
- E. DIVISION [] - Caulking and sealants
- F. DIVISION [] - Plumbing specialties

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM).
- B. Canadian Government Specification Board CGSB-37.50-M89, Standard for "Asphalt, Rubberized, Hot Applied, for Roofing and Waterproofing."

1.04 SYSTEM DESCRIPTION

- A. Furnish and install a completed waterproofing assembly including surface conditioner, a monolithic, rubberized asphalt/elastomeric sheet membrane, protection course, flashings, extruded polystyrene insulation (if required), drainage course (if required) and pavers (if required). To ensure total system compatibility all products must be purchased from a single-source manufacturer.

1.05 SUBMITTALS

- A. Certification from an approved independent testing laboratory experienced in testing this type material, that the material meets the CGSB-37.50-M89 standard for rubberized asphalt membranes, including applicable ASTM procedures. Testing shall be done by Ortech International or other national testing laboratory acceptable to the engineer.
- B. Certification showing full time quality control of production facilities and that each batch of material is tested to insure conformance with the manufacturer's published physical properties.
- C. Evidence that extruded polystyrene insulation is free from CFC's.
- D. Certification showing that all waterproofing components are being supplied and warranted by a single-source manufacturer.
- E. The plant manufacturing this type material must have ISO 9001-2000 approval as evidenced by a notarized copy of the official certificate.

1.06 QUALITY ASSURANCE

- A. **Refer to Section 1.05 SUBMITTALS.** Include items A., B., C. & D.
- B. The Waterproofing Contractor shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:

1. Certification or license by the membrane manufacturer as a locally based, authorized applicator of the product the installer intends to use, for a minimum of five (5) years.
 2. List of at least three (3) projects, satisfactorily completed within the past five (5) years, of similar scope and complexity to this project. Previous experience submittal shall correspond to specific membrane system proposed for use by applicator.
- C. **Refer to Section 1.04 SYSTEM DESCRIPTION.** Include single-source for all components from the manufacturer.
- D. The rubberized asphalt membrane product shall contain an inert clay filler to enable the product to be resistant to acids (fertilizers, building washes and acid rain).
- E. Membrane Manufacturer shall have available an in-house technical staff to assist the contractor, when necessary, in application of the products and final inspection of the assembly.
- F. Membrane Manufacturer Qualification: Manufacturer shall demonstrate qualifications to supply materials of this section by certifying the following:
1. Membrane Manufacturer must show evidence that the specified rubberized asphalt has been manufactured by the same source for fifteen (15) years and successfully installed on a yearly basis for a minimum of fifteen (15) years on projects of similar scope and complexity.
 2. Membrane Manufacturer must not issue warranties for terms longer than they have been manufacturing their hot fluid rubberized asphalt membrane.
- G. Pre-Construction Conferences. The manufacturer will meet with the necessary parties at the jobsite to review and discuss project conditions as it relates to the integrity of the waterproofing assembly.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original unopened containers of packaging clearly labeled with manufacturer's name, brand name, instruction for use and all identifying numbers.
- B. Materials shall be stored in a neat, safe manner, not to exceed the allowable structural capacity of the storage area.
- C. Store materials in a clean, dry area protected from water and direct sunlight.
- D. Store all adhesives at temperatures between 60°F (15.5°C) and 80°F (26.6°C). If exposed to lower temperatures, restore materials to 60°F (15.5°C) minimum temperature before using.

1.08 PROJECT CONDITIONS

- A. Application of the membrane shall not commence nor proceed during inclement weather. All surfaces to receive the membrane shall be free of water, dew, frost, snow and ice.
- B. Application of membrane shall not commence nor proceed when the ambient temperature is below 0°F (-17.7°C).
- C. Preparation and application of membrane must be conducted in well ventilated areas.
- D. Over its service life, do not expose membrane or accessories to a constant temperature in excess of 180°F (82°C) (i.e., hot pipes and vents or direct steam venting, etc.).
- E. Adhesives contain petroleum distillates and are extremely flammable. Do not breathe vapors or use near an open fire. Do not use in confined areas without adequate ventilation. **Consult container or packaging labels and Material Safety Data Sheets (MSDS) for specific safety information.**
- F. Do not allow waste products (petroleum, grease, oil, solvents, vegetable or mineral oil, animal fat, etc.) to come in contact with the waterproofing membrane. Any exposure to foreign materials or chemical discharges must be presented to membrane manufacturer for evaluation to determine any impact on the waterproof membrane assembly performance.
- G. Concrete Deck/Wall Surface Condition. **IMPORTANT - Refer to 1.02 Related Sections.**
- H. Deck/Wall Preparation; **refer to Section 3.02 Preparation.**
- I. General contractor shall assure adequate protection during installation of the waterproofing assembly.

1.09 WARRANTY

- A. Upon completion of the work, the contractor must supply the owner with a single-source warranty of U.S. origin direct from the manufacturer.
- B. Each warranty varies in scope and terms. **Contact Hydrotech for exact warranty terms and conditions to meet the specific project requirements.**
- C. Warranties available from the manufacturer:
 - 1. **Material Warranties;** excludes labor.
Duration: 2-, 5-, 10-year
 - 2. **Watertightness Warranties;** includes labor and material.
Duration: 5-, 10-year

3. **Thermal Warranties;** includes 80% retention of the original thermal value.

Duration 5-, 10-year

****CONTACT HYDROTECH FOR EXACT WARRANTY TERMS AND CONDITIONS.****

PART II PRODUCTS

2.01 GENERAL

- A. **Refer to Section 1.04, System Description.** All components must be obtained as a single-source from the membrane manufacturer to ensure total system compatibility and integrity.

Manufacturer: American Hydrotech, Inc.
303 East Ohio Street
Chicago, Illinois 60611-3318
1/800-877-6125 or 1/312-337-4998
FAX: 312-661-0731
Web Site: <http://www.hydrotechusa.com>

2.02 MATERIALS

A. Membrane

1. Membrane shall be a hot, fluid applied, rubberized asphalt membrane meeting the CGSB-37.50-M89 standard and other pertinent physical properties:

- A. American Hydrotech, Inc., Monolithic Membrane 6125
B. American Hydrotech, Inc., Monolithic Membrane 6125-EV
(25% post consumer recycled content)

| PROPERTY | TEST METHOD | TYPICAL RESULT |
|--|---|--|
| Flash point | ASTM D-92, CGSB-37.50-M89 | 475°F (246°C) * |
| Low Temperature Crack Bridging Capability | CGSB-37.50-M89 | No cracking, adhesion loss, or splitting |
| Water Vapor Permeability | ASTM E-96, PROCEDURE E CGSB-37.50-M89 | 1.6 ng/Pa(s)M ² |
| Water Resistance (5 days/50EC) | CGSB-37.50-M89 | No delamination, blistering, emulsification, or deterioration |
| Water Absorption | CGSB-37.50-M89 | .22 g weight gain |
| Toughness | CGSB-37.50-M89 | 13.0 Joules |
| Ratio of Toughness to Peak Load | CGSB-37.50-M89 | 0.069 |

| | | |
|-------------------------------------|-----------------------------------|--|
| Viscosity | CGSB-37.50-M89 | 7.0 seconds |
| Heat Stability | CGSB-37.50-M89 | No change in viscosity, penetration, flow or low temperature flexibility |
| Low Temperature Flexibility (-25EC) | CGSB-37.50-M89 | No delamination, adhesion loss, or cracking |
| Penetration | ASTM D-1191 CGSB-37.50-M89 | 75.0 mm @ 77°F (25°C) 121.7 mm @ 122°F (50°C) |
| Flow | ASTM D-1191 CGSB-7.50-M89 | 0.0 mm @ 140°F (60°C) |
| Softening Point | ASTM D-36 | 180°F (82°C) |
| Elongation | ASTM D-1191 | 1000% minimum |
| Resiliency | ASTM D-3407 | 40% minimum |
| Bond to Concrete | ASTM D-3408 | Pass @ 0°F (-18°C) |
| Acid Resistance | ASTM D-896 Procedure 7.1 (N-8) | Pass-50% Nitric Acid 50% Sulfuric Acid |
| Resistance to Hydrostatic Pressure | ASTM D08.22 Draft 2 | 100 psi (equals 231 foot of head water) |

| | | |
|----------------------------|---|---|
| Resistance to Salt Water | ASTM D-896 similar 20% sodium chloride sodium carbonate calcium chloride | No delamination, blistering, emulsification or deterioration |
| Resistance to Fertilizer | ASTM D-896 similar undiluted, 15/5/5, nitrogen/phosphorus potash | No delamination, blistering, emulsification or deterioration |
| Resistance to Animal Waste | 3-year exposure | No deterioration |
| Solids Content | | 100%-no solvents |
| Shelf Life | | 10 years (sealed) |
| Specific Gravity | | 1.23 ± .02 |

*45°F more than the application temperature recommended by the manufacturer.

B. Surface Conditioner

1. A surface conditioner for concrete surfaces.
 - American Hydrotech, Inc., Surface Conditioner

C. Elastomeric Sheet

1. 60-mil (1.5 mm) thick, uncured neoprene flashing/reinforcing sheet.
 - American Hydrotech, Inc., Flex Flash UN

D. Flashing/Reinforcing

1. 60-mil (1.5 mm) thick, uncured neoprene flashing/reinforcing sheet.
 - American Hydrotech, Inc., Flex Flash UN
2. Spunbonded polyester fabric reinforcing sheet.
 - American Hydrotech, Inc., Flex Flash F

E. Adhesives/Sealant

1. Contact adhesive to bond flashing together.
 - American Hydrotech, Inc., Splicing Cement
2. Contact adhesive to bond flashing to an approved substrate.
 - American Hydrotech, Inc., Bonding Adhesive
3. Sealant to seal flashing seam edge.
 - American Hydrotech, Inc., Lap Sealant

F. Protection Course

1. A fiberglass reinforced rubberized asphalt sheet.
 - American Hydrotech, Inc., 4.5 mm Permaboard

***Certain project conditions may warrant additional protection.
CONTACT Hydrotech's Technical Service Department.***

G. Prefabricated Drainage Course (if required).

1. A composite drainage system consisting of a three-dimensional, crush-proof, drainage core and a filter fabric meeting the following physical properties.
 -American Hydrotech, Inc., Hydrodrain 100, 300, 400, 700 or 1,000 series

| PROPERTY | TEST METHOD | VALUES |
|--|-------------|--|
| CORE: | | |
| Compressive Strength | ASTM D-1621 | 100/300/1000 - 30,000 psf (14.66 kg/cm ²) 400 - 15,000 psf (7.32 kg/cm ²) 700 - 18,000 psf (8.79 kg/cm ²) |
| Thickness | ASTM D-1777 | 100/1000 - .25 in (.64 cm) 300 - .22 in (.56 cm) 400 - .375 in (.96 cm) 700 - .38 in (1.02 cm) |
| Flow, Q @ 3600 psf & hydraulic gradient of 1 | ASTM D-4716 | 100 - 8 gpm/ft width (99.34 lpmin/m width) 102 - 6.5 gpm/ft width (80.72 lpmin/m width) 300/1000 - 7 gpm/ft width (72.00 lpmin/m width) 302 - 5.5 gpm ft width (68.30 lpmin/m width) 400 - 15 gpm/ft/width (186.3 lpmin/m width) 700 - 18 gpm/ft width (223.52 lpmin/m width) |
| FABRIC: | | |
| Flow | ASTM D-4491 | 100/300/1000 - 205 gpm/ft ² (8349.62 lpmin/m ²) 400 - 160 gpm/ft ² (6516.7 lpmin/m ²) 700 - 110 gpm/ft ² (4887.6 lpmin/m ²) |
| U.V. Resistance | ASTM D-4355 | Fully Stabilized |
| Apparent Opening Size | CW-02215 | 30 |
| Grab Tensile | ASTM D-4632 | 100/300/1000 - 120 lbs. (54.48 kg) 400/700 - 105 lbs. (47.67 kg) |

H. Insulation

1. An extruded polystyrene rigid board insulation meeting the following physical properties.

-STYROFOAM⁷ Brand insulation (TYPE) as manufactured by The Dow Chemical Company, marketed by American Hydrotech, Inc.

- a. Insulation shall meet ASTM C-578, Type VI or VII.
- b. Minimum compressive strength, ASTM D-1621, 40 or 60 psi (276 or 414 kPa) (variance by type of product).
- c. Maximum water absorption by volume per ASTM C-272, 0.1%.
- d. Water vapor permeance for 1" product per ASTM E-96, 1.0 perm (max.) (63 ng/Pa/s/m²).
- e. Insulation shall have an R value of 5.0°F ft² h/Btu/in. (0.88 K m²/W) of thickness when tested at 75°F (23.9°C) mean temperature in accordance with ASTM C-518.
- f. Product shall be free of CFC's.

Product types available: STYROFOAM Brand Plaza Deck; and High Load 100. **CONSULT Hydrotech for recommended product type.**

I. Filter Fabric Sheet (if required)

1. Water permeable polymeric fabric.
- American Hydrotech, Inc., Filter Fabric Sheet

J. Topping Materials (Edit to project requirements)

1. Architectural Finish Pavers
- American Hydrotech, Inc., Terra Pavers-H, meeting the following physical properties:

| PROPERTY | TEST METHOD | VALUES |
|----------------------|-------------|-----------------------------------|
| Compressive Strength | ASTM C140 | 7,000 psi average min. |
| Flexural Strength | ASTM C293 | 600 psi average min. |
| Water Absorption | ASTM C140 | Not greater than 5% |
| Freeze/Thaw | ASTM C67 | 1% loss/dry weight (50 Cycles) |
| Centerload | - | Min. 1,750 lbs. |

2. Concrete Pour Topping

Dow Chemical Company, manufacturers of STYROFOAM® Brand insulation, recommends the incorporation of an air layer between the insulation and concrete. Hydrotech suggests the use of Hydrodrain AL for this purpose. **CONTACT Hydrotech for specific recommendations.**

K. Supportive Pedestals (Edit to project requirements)

1. Support and Spacing of Pavers.
- Terra-Tabs or
- Terra-Tabs with Terr-Adjust

L. Architectural Precast Site Amenities (Edit to project requirements)

- American Hydrotech, Inc., Site Pieces to match Terra-Pavers-H

PART III EXECUTION

3.01 INSPECTION

- A. The waterproofing contractor shall examine all surfaces to receive the waterproofing assembly to verify it is acceptable and proper for the application of the membrane. **Refer to American Hydrotech's Pre-Installation & Application Guidelines.**
- B. The waterproofing contractor shall not proceed with the installation of the waterproofing membrane assembly until all deck defects have been corrected.

3.02 PREPARATION

- A. All surfaces must be dry, smooth, free of depressions, voids, protrusions, clean and free of unapproved curing compounds, form release agents and other surface contaminants.
 - 1. Cast in-place concrete/Composite deck
 - a. Poured in place concrete must be monolithic, smooth, free of voids, spalled areas, laitance, honeycombs, and sharp protrusions.
 - b. **Refer to Section 1.02 of this specification, Division 3.**
For foundation wall waterproofing, contact Hydrotech.
 - 2. Precast concrete decks
 - a. Precast units shall be mechanically secured to minimize differential movement and all joints between units shall be grouted.
 - 3. Retrofit/Tear-Off Application
 - a. Asphalt, coal tar pitch or other existing membrane must be removed. **CONTACT Hydrotech.**
 - b. Deck type acceptable to Hydrotech.
- B. Substrate cleaning
 - 1. Thoroughly sweep the substrate, which is to receive the waterproofing membrane.
 - 2. Substrate must also be blown clean using an air compressor to remove any remaining loose debris.
 - 3. Final check to determine if concrete has been properly cleaned is to apply a test patch of Monolithic Membrane 6125 to the surface and check its adhesion.

3.03 INSTALLATION

A. Surface conditioner application (to concrete)

1. Apply the surface conditioner to the concrete using a hand held sprayer evenly at a rate of 300 to 600 SF/gallon (7.4 - 14.7 m²/L) depending on surface texture. Surface conditioner should "tan" the surface, not blacken it.
2. Allow sufficient time for the surface conditioner to thoroughly dry prior to the membrane application.

B. Membrane preparation

1. The membrane shall be heated in double jacketed, oil bath or air jacketed melter with mechanical agitation, specifically designed for the preparation of a rubberized asphalt membrane.
2. Heat membrane until membrane can be drawn-free flowing at a temperature range between 350°F (176°C) and 400°F (204°C).

C. Detailing/Flashing

1. All detailing and flashing shall be done in accordance with the manufacturer's standard guideline details.
2. All detailing and flashing shall be completed before installing the membrane over the field of the substrate.

D. Membrane Application

1. Apply the rubberized asphalt membrane at a rate to provide a continuous, monolithic coat of 90 mil minimum (approximately 2.3 mm), into which is fully embedded a layer of the spunbonded polyester fabric reinforcing sheet, followed by another continuous monolithic coat of membrane at an average thickness of 125 mil (approx. 3.2 mm). Total membrane thickness shall be 215 mils average (approx. 5.5 mm), 180 mils minimum.

Note to specifier: For foundation wall application woven fiberglass, fabric reinforcing sheet shall be used in lieu of spunbonded

Overlap fabric reinforcing sheet 1-2 inches (25.4 mm - 50.8 mm) with membrane between sheets.

2. While the membrane is still warm, unroll the Flex-Flash UN, fully embedding it into the membrane without air pockets. The sheet rubber will require backrolling to avoid embedding polyethylene release sheet into the membrane. Overlap adjoining sheets a minimum of 3 inches (76.2 mm), using membrane in the lap to form a tight seam. The polyethylene release sheet must be removed from the rubber sheet.

3.04 SEPARATION/PROTECTION LAYER INSTALLATION

- A. Separation/Protection layer shall be installed as follows:
 - 1. Fully adhere the Permaboard protection board the with another coat of MM 6125 membrane to ensure good bond.
 - 2. Overlap adjoining sheet edges (dry) a minimum of 2"-3" (50.8 mm - 76.2 mm) to insure complete coverage.
 - 3. The protections board will be covered by a layer of Hydrodrain 300. A final concrete protection slab will be installed over the Hydrodrain 300.

3.05 WATER TEST

- A. It is strongly recommended that the deck area or portions thereof be water tested by ponding water a minimum depth of 2" (50.8 mm) for a period of 48 hours to check the integrity of the membrane installation. EFVM testing is also accepted for quality assurance testing.
- B. **VERIFY** that the structure can support the deadload weight of a watertest before testing.
- C. If leaks should occur, the water must be drained completely and the membrane installation repaired.

3.06 DRAINAGE COURSE/INSULATION/FILTER FABRIC SHEET/PAVER PLACEMENT

- A. General
 - 1. Contractor shall examine the deck area to be covered with subsequent topping materials in order to insure that all deck areas have received the membrane, the membrane is free of damage, it is properly protected, and all flashing has been properly installed, before placing the insulation.
 - 2. It is recommended that the drainage course (if required), insulation (if required), and other subsequent topping materials be installed as each section is completed.
- B. Prefabricated Drainage Course Placement (if required)
 - 1. Install drainage course on horizontal and vertical surfaces in accordance with the manufacturer's recommendations.
 - 2. Layout and position drainage course and allow to lay flat. Cut and fit drainage course to perimeter and penetrations.
 - 3. Bond all geotextile overlap edges to adjacent drainage course geotextile with an acceptable adhesive to insure geotextile integrity.
 - 4. Place subsequent topping materials as soon as possible.

*** If drainage layer is being installed as an AIR LAYER, placement of the drainage course follows installation of insulation (if required). CONTACT Hydrotech.***

C. Insulation Placement (if required)

1. Loose lay in a staggered manner and tightly butt together all insulation boards. The maximum acceptable opening between insulation boards is 3/8" (9.5 mm). Insulation must be installed within 3/4" (19 mm) of all projections, penetrations, etc.
2. When multi-layer insulation applications are involved the bottom layer of insulation must be the thickest layer and must be a minimum of 2" thick (50.8 mm). All layers shall be installed unadhered to each other and all joints in relation to underlying layers staggered.

D. Architectural Finish Paver Placement (if required)

1. Install architectural finish pavers on Terra-Tabs or Terra-Adjust pedestals in accordance with manufacturer's recommendations and architectural layout.

3.07 JOB COMPLETION

- A. Contractor and a representative of the membrane manufacturer shall inspect the waterproofing assembly and notify the contractor of any defects. All defects must be corrected.
- B. Clean up all debris and equipment.

END OF SECTION

Monolithic Membrane 6125 advantages

1. MONOLITHIC – Application provides continuous **seamless membrane**.
2. BOND – Complete bond to the substrate eliminates lateral migration of water.
3. THICK – MM 6125 is applied at either 180 or 215 mils. This is 2 – 3 times thicker than other membranes. Thickness advantages:
 - a. Fills and seals rough concrete
 - b. Seals developing cracks
4. THERMOPLASTIC MEMBRANE means:
 - a. Self-sealing of minor construction damage
 - b. Sets quickly – ready for other trades immediately after installation.
 - c. Tolerates adverse weather immediately after installation.
 - d. Easy to patch damage.
 - e. Homogeneous day-to-day laps.
 - f. Easy to flash-in detailing.
5. ACID RESISTANCE – MM 6125 is highly resistant to fertilizers, building washes and acid rain.
6. PROVEN TRACK RECORD – MM 6125 has been in continuous service since 1960 with the same formulation.
7. SINGLE-SOURCE RESPONSIBILITY – AHI provides complete coverage of all system components.
8. EASE OF INSTALLATION – Foolproof application over wide range of substrate and climate conditions.
9. 100% SOLIDS – Means no curing time or in site chemistry required – no solvents.
10. APPROVED APPLICATOR PROGRAM – Selection of the best contractors in each market area ensures quality control in the field.
11. DETAILING – MM 6125 conforms to all project surface irregularities, filling and sealing all voids and crevices. Reinforcing sheets used to strengthen critical areas.
12. CODE APPROVALS – MM 6125 maintains CGSB-37.50, UL Class A, FM Class 1, Miami-Dade, M.E.A., City of Los Angeles, ISO, BBA and several International Approvals



American Hydrotech, Inc.
303 East Ohio | Chicago, IL 60611
800.877.6125
www.hydrotechusa.com

Dual Membrane Assembly

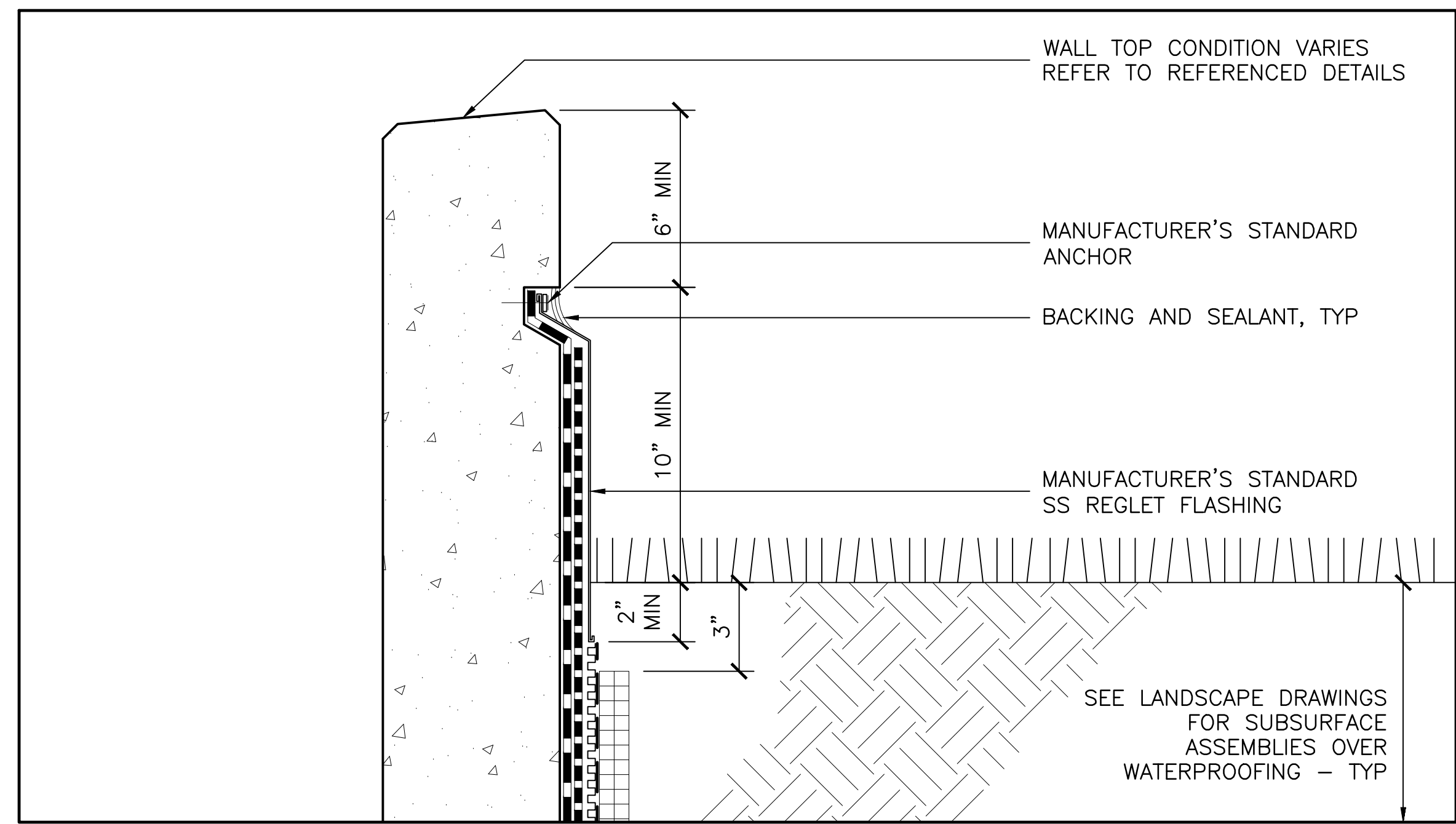
- **Permaboard (4.5 mm)**
- **Monolithic Membrane 6125[®] (125 mils)**
- **Flex Flash UN**
- **Monolithic Membrane 6125[®] (125 mils)**
- **Flex Flash F**
- **Monolithic Membrane 6125[®] (90 mils)**
- **Surface Conditioner**
- **Substrate**

TG13.2 – Roofing/Waterproofing

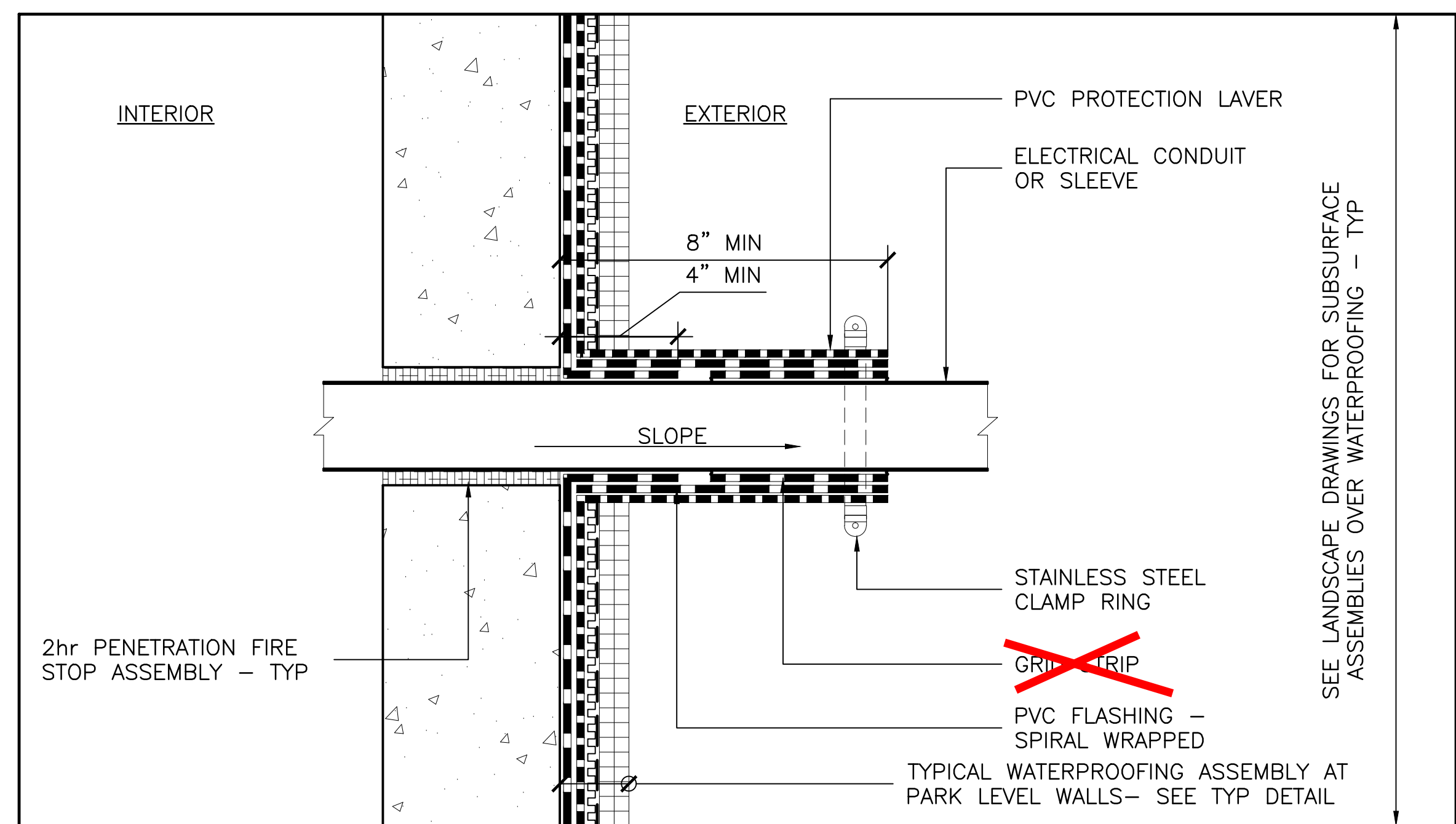
Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|-------------|---------------------|--|---|
| TG13.2-009 | 2/19/2015 | | 07 13 54 | 071354/2.2, C,9 and 3.2, F notes the installation of Control Test Drain and is again mentioned on #16 in Exhibit A (All monitoring drains and collection jars). Please provide pre-qualified Subcontractors that can perform this work. | Subtier (or Second tier trade subcontractors) are not prequalified for work on this project; Trade subcontractors are responsible for establishing their own means of providing the work. |
| TG13.2-011 | 2/19/2015 | | 07 13 54 (3.3) a | Please specify what is to be used as a temporary protection layer. | The temporary protection layer is specified in Section 071354 par 2.2 B 4. |
| TG13.2-012 | 2/19/2015 | | 07 13 54, 1/S1-2730 | Please provide waterproofing details for signage/lighting pylons (2' dia.), and Green screen Foundation pylons (1' dia.) ref 1/s1-2730. | Use the manufacturer's standard waterproofing details for these conditions. |
| TG13.2-013 | 2/19/2015 | | 07 13 54 (3.2) F.1 | Section calls for control drain 24" from drain. Do we assume one control drain for every drain, or one control drain for every grid? | There is one control drain for every grid compartment. |
| TG13.2-016 | 2/19/2015 | | 07 92 00, 07 92 14 | Please verify Bid requests for these scopes are only for sealants as they apply to TG13.2 Scope of work? | Specification Sections 07 92 00 and 07 92 14 are applicable to TG13.2 as described in the Exhibit A IV., Scope of the Package and Bid Item Information. |
| TG13.2-018 | 2/19/2015 | | 07 13 54 (2.2) B.6 | Specification calls for Sarnacol 2170vc. Cannot use this product in California. Stabond is Sarnafil's recommended replacement. Please confirm this is acceptable? | Sarnafil's replacement recommendation is acceptable. |
| TG13.2-020 | 2/19/2015 | | 07 13 54, 4/a1-8851 | Please clarify use of grid strip on penetration pipe? | Please see enclosed markup of detail 4/A1-8851; a grid strip is not required. |
| TG13.2-023 | 2/19/2015 | | | Confirm- if project documents do not supply a detail, we should use the manufacturers standard detail to achieve specified warranty? | Confirmed. |

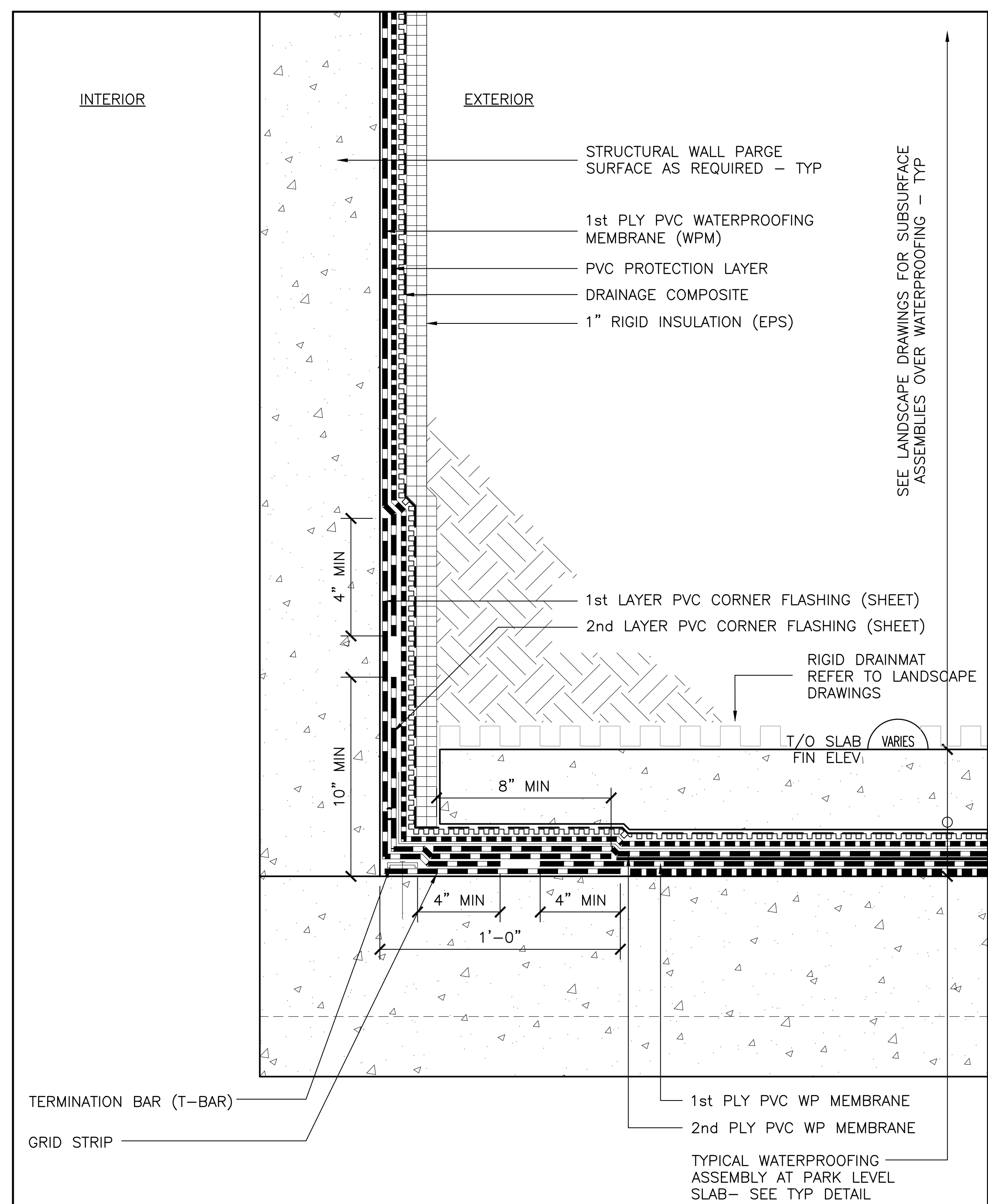
Notes: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.



1 ABOVE GRADE TERMINATION - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET



2 WPM-3 AT BURIED STRUCTURE - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET



3 WPM-3 AT PERIMETER PARAPET - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET

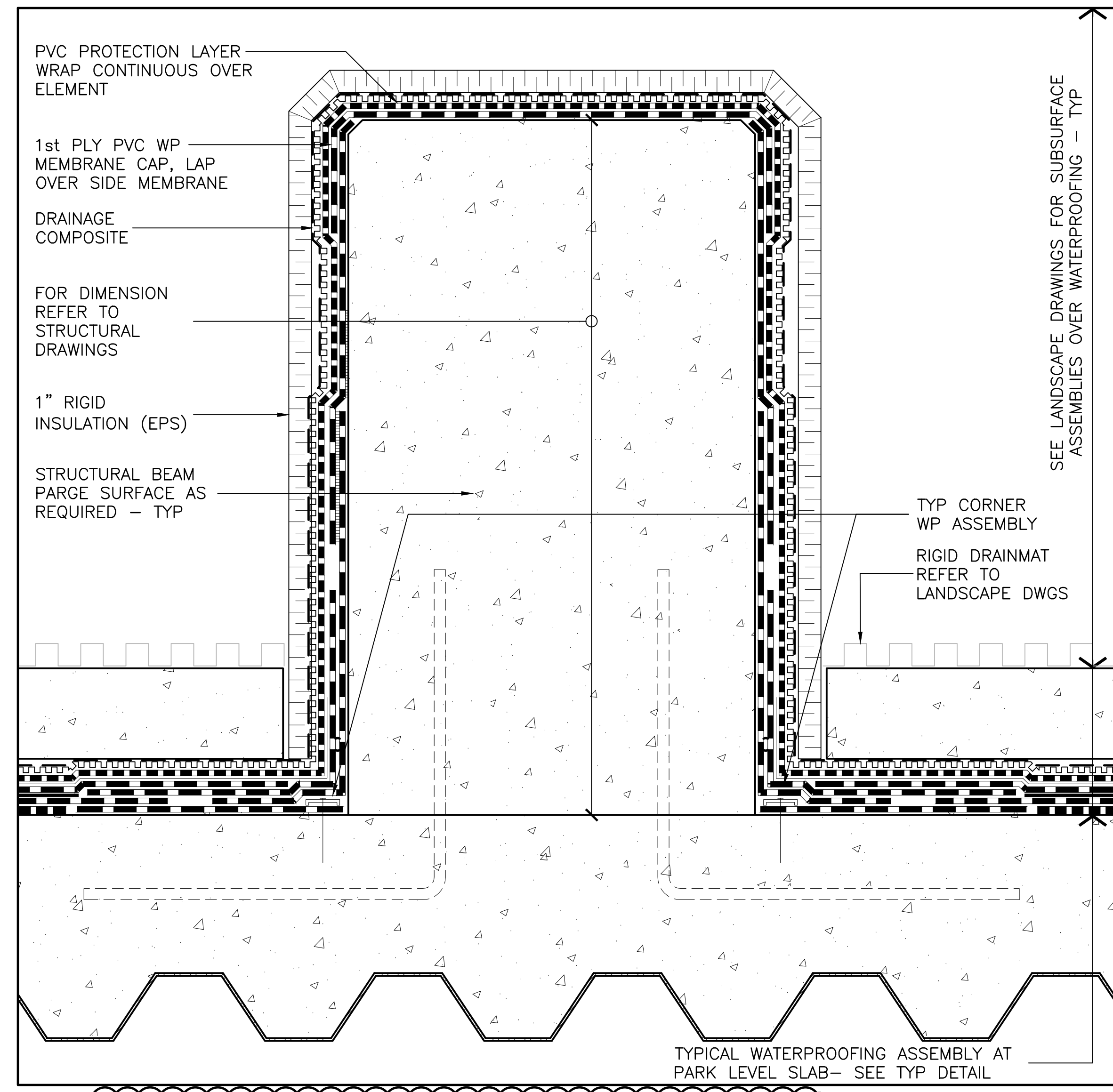
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REVISIONS

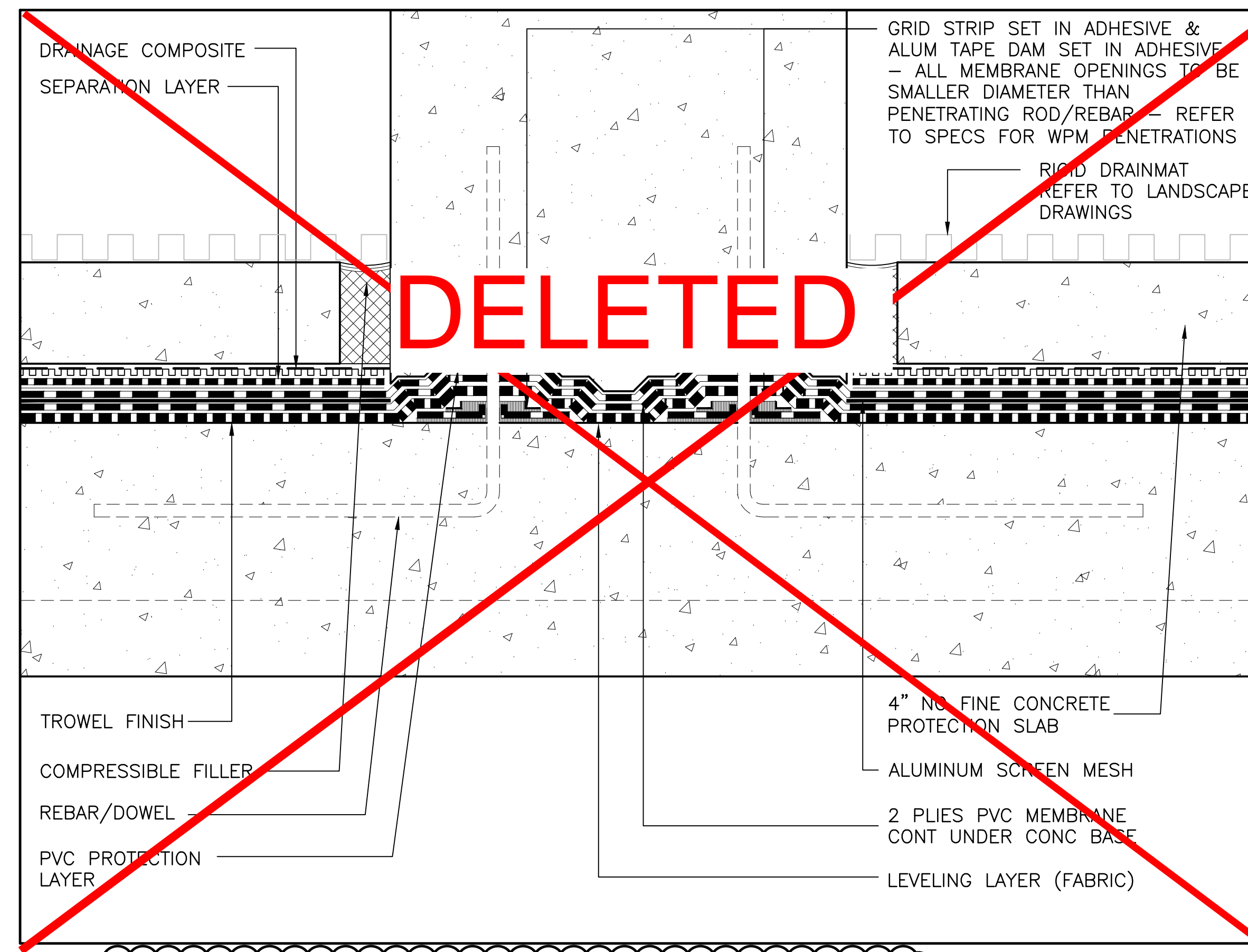
NO. DATE DESCRIPTION

1 03/21/14 ISSUED FOR CONSTRUCTION

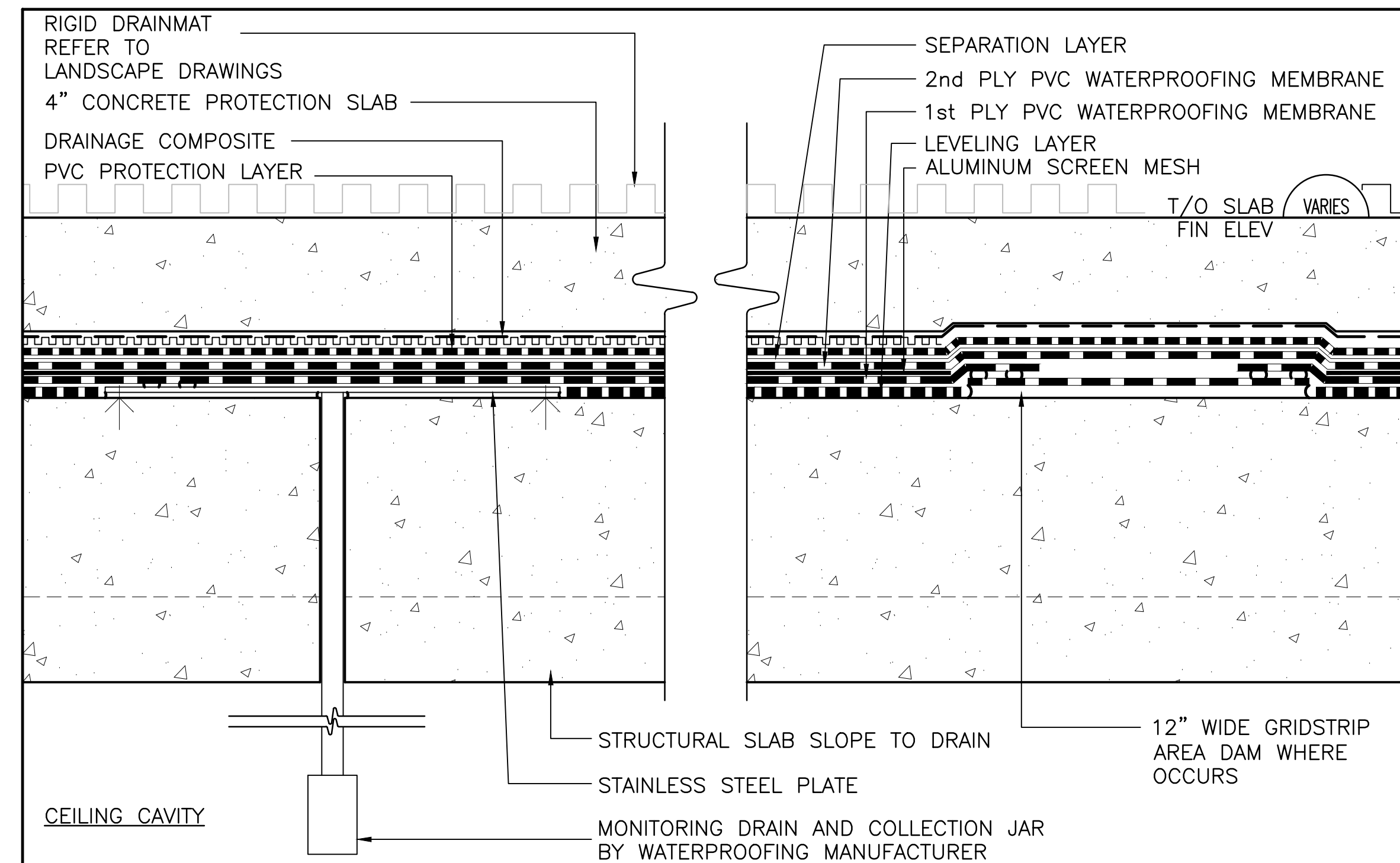
2 12/16/14 PER AD No. 0728



4 THROUGH WALL PENETRATION - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET



5 WPM-3 AT STRUCTURAL BASE - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET



6 WPM-3 AT VERTICAL SLEEVE - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET

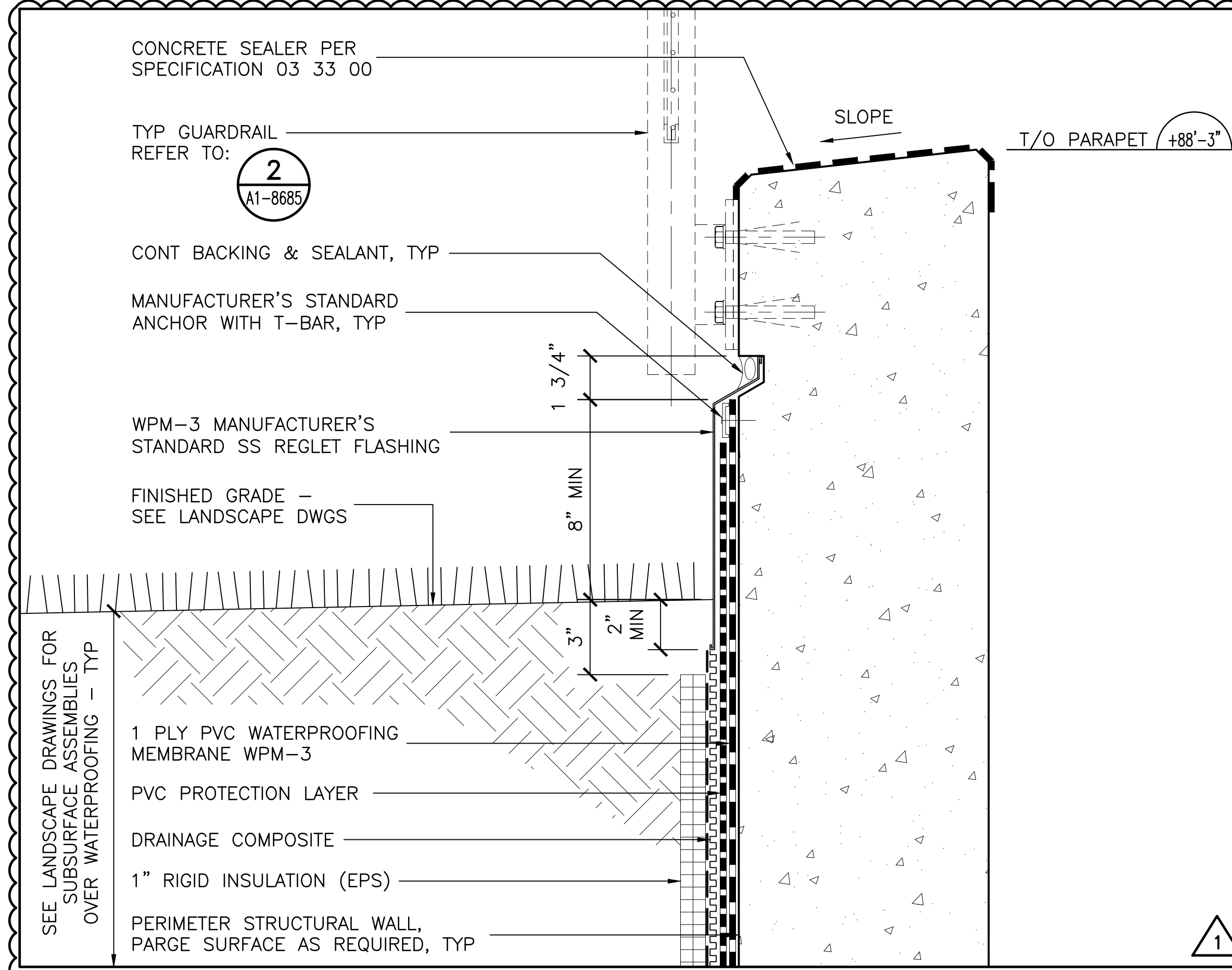
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REVISIONS

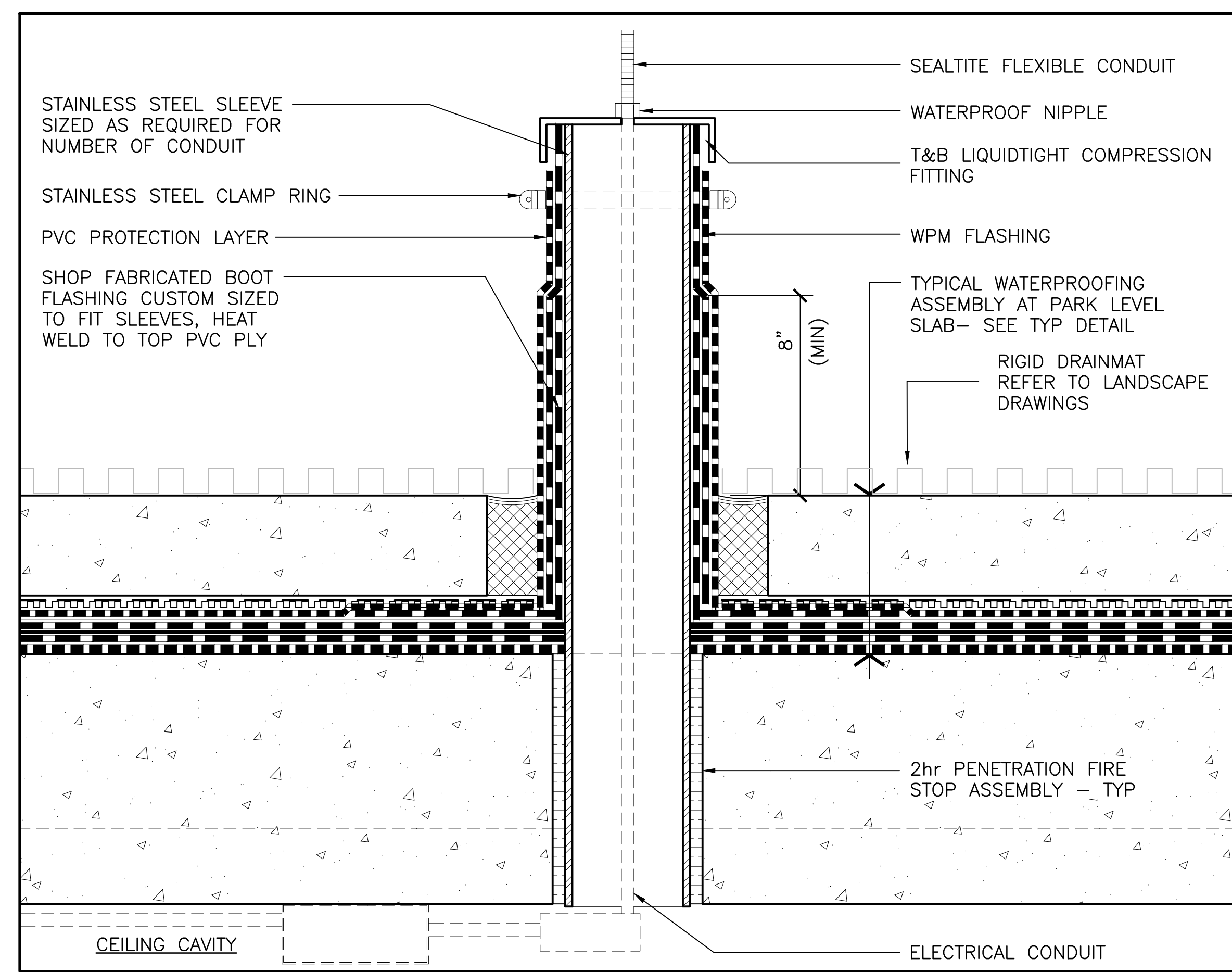
NO. DATE DESCRIPTION

1 03/21/14 ISSUED FOR CONSTRUCTION

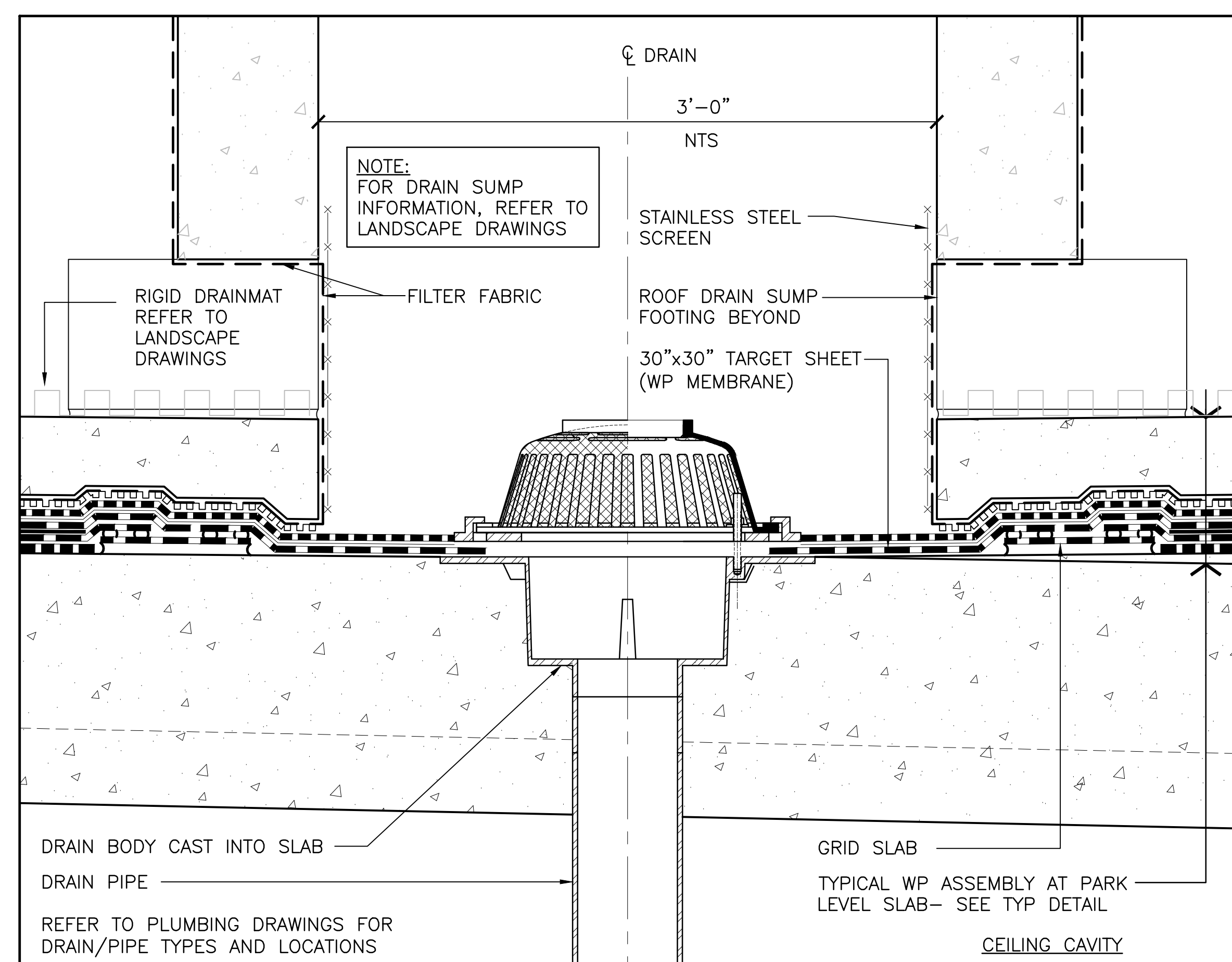
2 12/16/14 PER AD No. 0728



7 WPM-3 AT WALL & CORNER - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET



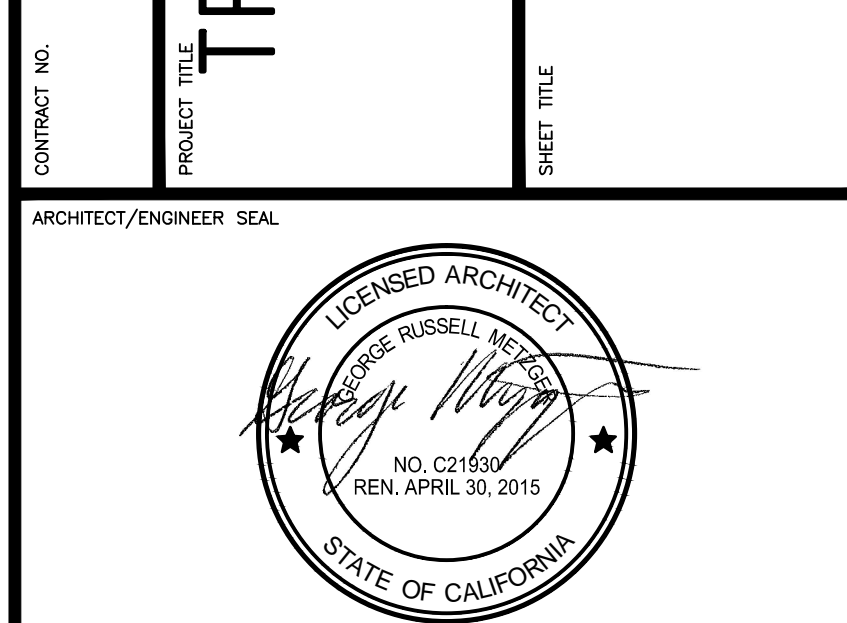
8 WATERPROOFING ASSEMBLY WPM-3 TYP
SCALE: 3" = 1'-0"
SCALE IN FEET



9 WPM-3 AT DRAIN - TYP
SCALE: 3" = 1'-0"
SCALE IN FEET

| NO. | DATE | DESCRIPTION |
|-----|----------|-------------------------|
| 1 | 03/21/14 | ISSUED FOR CONSTRUCTION |
| 2 | 12/16/14 | PER AD No. 0728 |

08-04-CMGC-000
TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA
ROOF PARK LEVEL
WATERPROOFING DETAILS



| | | |
|--------------|---------------------|--------------------------|
| APPROVED: | PRINCIPAL ARCHITECT | G. METZGER |
| APPROVED: | PROJECT MANAGER | S. ROTT |
| APPROVED: | PROJECT MANAGER | E. DEL ANGELO |
| DESIGNED BY: | E. DEL ANGELO | CHECKED BY: W.R. BRADLEY |
| DRAWN BY: | C. KEIM | DATE: 12/16/2014 |
| SCALE: | 3" = 1'-0" | FACILITY NO. 140 |
| SHEET NUMBER | | REVISION 1 |
| | | SEQUENCE NUMBER |

A1-8851 of

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|-------------|--|--|--|
| TG13.2-008 | 2/12/2015 | | Sika Sarnafil G410 Product Data 07 13 54 | <p>Per the contract documents, WPM-3 is to be used at the roof park level below grade. Per 07 13 54, WPM-3 is Sika Sarnafil Waterproofing System PVC G476-20. Per the product data for Sarnafil PVC G476, WPM-3 can be exposed for a maximum of 3 months.</p> <p>Significant portions of the roof park waterproofing will be exposed for significantly longer than 3 months (vertical surfaces).</p> <p>Please confirm Sika Sarnafil G410 (see attached product data), or equal by one of the other approved manufacturers, is acceptable to install in lieu of G476-20 at locations to remain exposed longer than the manufacturer allows G476 to be exposed.</p> | <p>Sika Sarnafil G410, or equal by one of the other approved manufacturers, is not acceptable to install in lieu of G476-20 at locations to remain exposed longer than the manufacturer allows for G476 to be exposed.</p> <p>During construction, there may be times when the protection (e.g. topping slab or other overburden) is not installed over the waterproofing assembly for durations exceeding the manufacturer's allowable exposure. As part of the base bid price, this Trade Subcontractor shall furnish, install, maintain, and remove temporary protection as required over all waterproofing assemblies to maintain compliance with the manufacturer's maximum allowable exposure.</p> |
| TG13.2-010 | 2/19/2015 | | 09 67 24 (1.7) B.2.a 09 67 24 | Is experience in application of similar coatings acceptable? | Yes, if experience is in projects of similar size and complexity. |

| | | | | | |
|------------|-----------|--|--------------------------------------|---|---|
| TG13.2-014 | 2/19/2015 | | 07 16 21, 1/A1-9303, 1/A1-9305 | <p>Please provide plan views for air vent box dimensions necessary to quantify wpm-5. Could not locate in slab edge, rcp, or plan views. Please provide dimensions for Air vent boxes at all Locations.</p> | <p>For locations of Air Vents at the ground floor level, refer to SKA-4453 to SKA-4457 (Floor Plans) and SKA-4458 to SKA-4461 (Ceiling Plans). All of the air vents are directly above Mechanical Rooms at the Lower Concourse Level except for three (3) locations (north and south of GL22 and GL 29) where the air vents have air plenums (concrete boxes which are located within the beam pockets and/or CMU walls). For dimensions of these plenums, refer to SKA-4465 to SKA-4467, SKA-4456, SKA-4457, and SKA-4461 to SKA-4463.</p> <p>Reference sheet nos. and ASI submission:</p> <p>SKA-4465 - A1-2204 was issued with ASI-128</p> <p>SKA-4466 - A1-2205 was issued with ASI-128</p> <p>SKA-4467 - A1-2206 will be issued with a future ASI</p> <p>SKA-4453 - A1-2304 will be issued with a future ASI</p> <p>SKA-4454 - A1-2305 will be issued with a future ASI</p> <p>SKA-4455 - A1-2306 was issued with ASI-128</p> <p>SKA-4456 - A1-3020 will be issued with a future ASI</p> <p>SKA-4457 - A1-3021 was issued with ASI-128</p> <p>SKA-4458 - A1-4204 was issued with ASI-128</p> <p>SKA-4459 - A1-4205 was issued with ASI-128</p> <p>SKA-4460 - A1-4206 was issued with ASI-128</p> <p>SKA-4461 - A1-4253 will be issued with a future ASI</p> <p>SKA-4462 - A1-9227 will be issued with a future ASI</p> <p>SKA-4463 - A1-9305 was issued with ASI-128</p> |
|------------|-----------|--|--------------------------------------|---|---|

| | | | | | |
|------------|-----------|--|-----------------------------|---|---|
| TG13.2-015 | 2/19/2015 | | 07 13 26 | How much clearance between bottom of 1st street and Fremont street bridges, and top of train deck lid? | At Fremont St. and First St., assume the minimum distance between the top of Train Box Lid to bottom of bridge steel beam is approximately 2'-6". Uprturned beams below the bridges will be inaccessible at the top until after the temporary bridge is removed. |
| TG13.2-017 | 2/19/2015 | | 07 13 54 | Please provide locations for the Vector mapping connector kits for both the 1st and 2nd layers of 476-20. | Please coordinate locations for the Vector mapping connector kits with the monitoring company. |
| TG13.2-019 | 2/19/2015 | | 07 13 54 (3.3) I, 2/a1-8851 | Specification states to terminate each ply at vertical surfaces as indicated and secure with termination bar. Does not match above referenced detail. Please provide matching detail. | The specification, which describes the standard method of terminating membrane on vertical surfaces, is correct. Terminate membrane at vertical surfaces following manufacturer's written recommendations and standard details. Matching detail will not be provided. |
| TG13.2-021 | 2/19/2015 | | 07 14 13 | Please provide waterproofing details? | Refer to Basis of Design Manufacturer standard typical details. For examples of specific transitions of WPM-2 and other non-typical conditions details, refer to sheets: A1-8675, A1-8895, A1-8896 & A1-9585. |
| TG13.2-024 | 2/19/2015 | | 07 14 13 | Bus deck level gets hot applied rubber, which cannot be pumped up to the deck. San Francisco Fire safety rules and practices state never place a kettle inside a building or on the roof of any structure. Please confirm use of a kettle on this level will not violate this rule. (see attached.) | Confirmed. Kettle can be used on this level. San Francisco Fire Department requirements for work involving kettles is available at: http://www.sf-fire.org/index.aspx?page=1006 . This Trade Subcontractor shall follow all City of San Francisco requirements, and all costs for this work shall be included in the base bid price. |
| TG13.2-025 | 2/19/2015 | | 07 13 54 | Please verify it is acceptable to leave the EFVM cable exposed for future access by running the cable under the vertical upturn of the system? | Coordinate with EFVM system manufacturer and follow manufacturer's written recommendations. |
| TG13.2-026 | 2/19/2015 | | Exhibit A, Inclusion #15 | Scope of work states "All surface prep for own work..." Where can we find the specified level of concrete finish at the train deck lid and Bus deck levels? | Regarding concrete finish at Train Box Lid refer to Cast-In-Place Concrete Specification Section 03 30 02, item 3.6.C. for finish of the concrete slabs, and refer to Architectural drawings A1-9526 to A1-9528 for finish of topping slabs. For concrete finish at Bus Deck Level refer to Cast-In-Place Concrete Specification Section 03 30 02, item 3.6.C. for finish of the concrete slabs, and refer to Architectural drawings A1-9532 to A1-9534 for finish of topping slabs. |

| | | | | | |
|------------|-----------|---------------|---------------------------|--|--|
| TG13.2-027 | 2/19/2015 | | 07 19 23 (1.1) A.1 & 3 | Specification references concrete paving(1.1,A,1) and concrete walls(1.1,A,3). Details do not call out repellants. Please provide more information as to extent of concrete paving to be coated. Also as to location (levels) of concrete walls, and interior surfaces versus exterior surfaces and or both. | Please refer to Spec Section 07 19 23, 3.3.B. for surfaces to receive Site Repellents for Site (external) conditions. Refer to Landscape Ground Level Material plans and Park Level Material plans for locations of landscape cast in place concrete paving, cobblestone paving, boulders, bollards, and landscape cast in place walls. |
| TG13.2-031 | 2/20/2015 | 5 & 8/A1-8851 | 07 13 54 | Detail 5/A1-8851 WPM-3 @ structural base typical detail at rebar or dowel don't show the first ply of PVC waterproofing membrane being welded to the grid membrane at the base tie-in locations as shown in the 8/A1-8851 typical waterproofing assembly WPM-3. Detail 5/A1-8851 also doesn't show the 2nd ply and the protection membrane sealed at the rebar above the grid strip aluminum tape dam. Please clarify how these other plies of PVC membrane are to terminate at the rebar? | Please refer to enclosed markup of Sheet A1-8851. Detail 5 does not occur and has been deleted. Refer to detail 2 for typical buried structures. Please use manufacturer's standard details and written recommendations for typical membrane penetrations. |
| TG13.2-033 | 2/26/2015 | | | I am requesting a bid date extension due to the large scope of Trade Package #TG13.2 and the overall size of the project. One of my sheet metal subs I was going to get pricing from will not be able to provide me with pricing because of the size of the project and time required to do a proper takeoff and prepare their bid. Have any other bidders made this request? Thank you. | Refer to Addendum #6, TG13.2 Roofing/Waterproofing Exhibit A, II Key Dates for Bidding Process, and the Package Timeline for the revised Bid Package Due Date. |
| TG13.2-034 | 3/3/2015 | A1-8618 | | Detail 4/A1-8618 calls for WPM-3 and WPM-10A waterproofing, 26ga SS base flashing, and closed-cell backing rod at the park/exterior side of the concrete parapet walls. Please confirm the waterproofing, base flashing, and backing rod illustrated in Detail 4/A1-8618 is included in the work of TG13.2. | Confirmed. All waterproofing, 26ga SS base flashing, and closed-cell backing rod, is included in the work of TG13.2. |

Product Data Sheet

Edition: 06/2011

Version no.: 0001

Sarnafil® G410 Roof Membrane

__48__60__72__80__Feltback

| | |
|-------------------------------|---|
| Overview: | The G410 roof membrane is a heat-weldable membrane produced with an integral fiberglass mat reinforcement for excellent dimensional stability, for use in a Sika Sarnafil Adhered System. |
| Composition: | The G410 roof membrane is a high-quality, thermoplastic PVC membrane with a fiberglass reinforcement. The G410 roof membrane has a unique lacquer coating applied to the top of the membrane to reduce dirt pick up. The colors available for G410 are: Copper Brown, Evergreen, and Lead Gray. For a listing of EnergySmart colors, refer to the EnergySmart data sheet. Custom colors are available subject to minimum volume requirements. |
| Features and Benefits: | <ul style="list-style-type: none">• Excellent dimensional stability• Lacquer coated to reduce dirt pick up• Hot-air welded seams for long-term performance• Proven membrane performance |
| Codes and Approvals: | Sika Sarnafil's Adhered Systems using G410 PVC membranes are classified by Underwriters Laboratories, Inc., Underwriters Laboratories of Canada, FM Global, Miami-Dade and Florida Building Code. Sika Sarnafil membranes also meet the material requirements of the International building code. For more information, please visit the "technical downloads" section of our website. |
| Packaging: | The G410 roof membrane rolls are wrapped in a protective film and strapped to a wood pallet. The G410 roof membrane is produced in 6.5 ft. (2 meters). The membrane rolls weigh between 161 - 195 lbs depending on thickness of membrane and feltbacking. |
| Installation: | G410 is installed by a Sika Sarnafil Authorized Applicator. After proper preparation of the substrate, G410 is unrolled into Sarnacol adhesive in accordance with Sika Sarnafil's Technical requirements and then pressed into place with a minimum 100 lb. linoleum roller. The G410 is then heat-welded together by trained operators using Sika Sarnafil's hot-air welding equipment. Different Sarnacol adhesives require different application methods. Please consult Sika Sarnafil's Applicator Handbook for detailed installation procedures. |
| Availability: | The G410 roof membrane is available directly from Sika Sarnafil Authorized Applicators. Contact your Sika Sarnafil Regional Office or visit our website for further information. |
| Warranty: | Upon successful completion of the installed roof by the Sika Sarnafil Authorized Applicator, Sika Sarnafil can provide a Warranty to the Building Owner via the Authorized Applicator. |
| Maintenance: | The G410 roof membrane requires no maintenance. As a prudent preventative measure, Sika Sarnafil recommends that the Owner or that the Owner's designated representative inspect the installed roof system for damage, plugged drains, weathered sealants, etc. at least twice a year and after each storm. |

**Sarnafil®**

Technical Support: Sika Sarnafil provides technical support. Please contact your local technical representative or technical manager if you need assistance.

Technical Data (as manufactured):

Parameters

Reinforcing Material
Overall Thickness, mil
Thickness Above Scrim, mil
Felt Weight oz/yd²
Tensile Strength, min., psi, (Mpa)
Machine Direction
Cross Direction
Elongation at Break, min.
Machine Direction %
Cross Direction %
Seam Strength, min., (% of original)*
Retention of Properties After Heat Aging
Tensile Strength, min., (% of original)
Elongation, min., (% of original)
Tearing Resistance (M.D.), min., lbf (N)
Low Temperature Bend, -40 °F (-40 °C)
Accelerated Weathering Test (Fluorescent Light, UV exposure)
Cracking (7x magnification)
Discoloration (by observation)
Crazing (7x magnification)
Linear Dimensional Change (C.D.), %
Weight Change After Immersion in Water, %
Static Puncture Resistance, 33 lbf (15 kg)
Dynamic Puncture Resistance, 7.3 ft-lbf (10 J)

* Failure occurs through membrane rupture not seam failure.

| ASTM Test Method | ASTM Type II D-4434 Spec. Requirement | Typical Physical Properties | | | |
|---------------------|---|-----------------------------|------------------|------------------|------------------|
| | | 48 Fiberglass | 60 Fiberglass | 72 Fiberglass | 80 Fiberglass |
| -- | -- | 48 | 60 | 72 | 80 |
| D638 | 45 | 48 | 60 | 72 | 80 |
| -- | 16 | 24 | 30 | 36 | 40 |
| -- | -- | 9 | 9 | 9 | 9 |
| D638 | | | | | |
| | 1500psi (10.4) | 1500 | 1575 | 1625 | 1675 |
| | 1500psi (10.4) | 1500 | 1550 | 1575 | 1625 |
| D638 | | | | | |
| | 250 | 250 | 250 | 250 | 250 |
| | 220 | 220 | 220 | 220 | 220 |
| D638 | 75 | Pass | Pass | Pass | Pass |
| D3045 | | | | | |
| D638 | 90 | Pass | Pass | Pass | Pass |
| D638 | 90 | Pass | Pass | Pass | Pass |
| D1004 | 10 (45.0) | 15 | 17.5 | 20.5 | 22 |
| D2136 | Pass | Pass | Pass | Pass | Pass |
| G154 | 5,000 Hours | 10,000 Hours | 10,000 Hours | 10,000 Hours | 10,000 Hours |
| | None | None | None | None | None |
| | Negligible | Negligible | Negligible | Negligible | Negligible |
| D1204 | None | None | None | None | None |
| | 0.10% max. | -0.02 | -0.02 | -0.01 | -0.01 |
| D570 | ± 3.0% max. | 2.4 | 1.9 | 1.8 | 1.7 |
| D5602 | Pass | Pass | Pass | Pass | Pass |
| D5635 | Pass | Pass | Pass | Pass | Pass |



Corporate Office

Sika Sarnafil
A Division of Sika Corporation
100 Dan Road
Canton, MA 02021

Tel.: (781) 828-5400
1-800-451-2504
Fax: (781) 828-5365
Web: usa.sarnafil.sika.com
Email: webmaster.sarnafil@us.sika.com



Canada Office

Sika Sarnafil
A Business Unit of Sika Canada
6820 Davand Drive
Mississauga, ON L5T 1J5

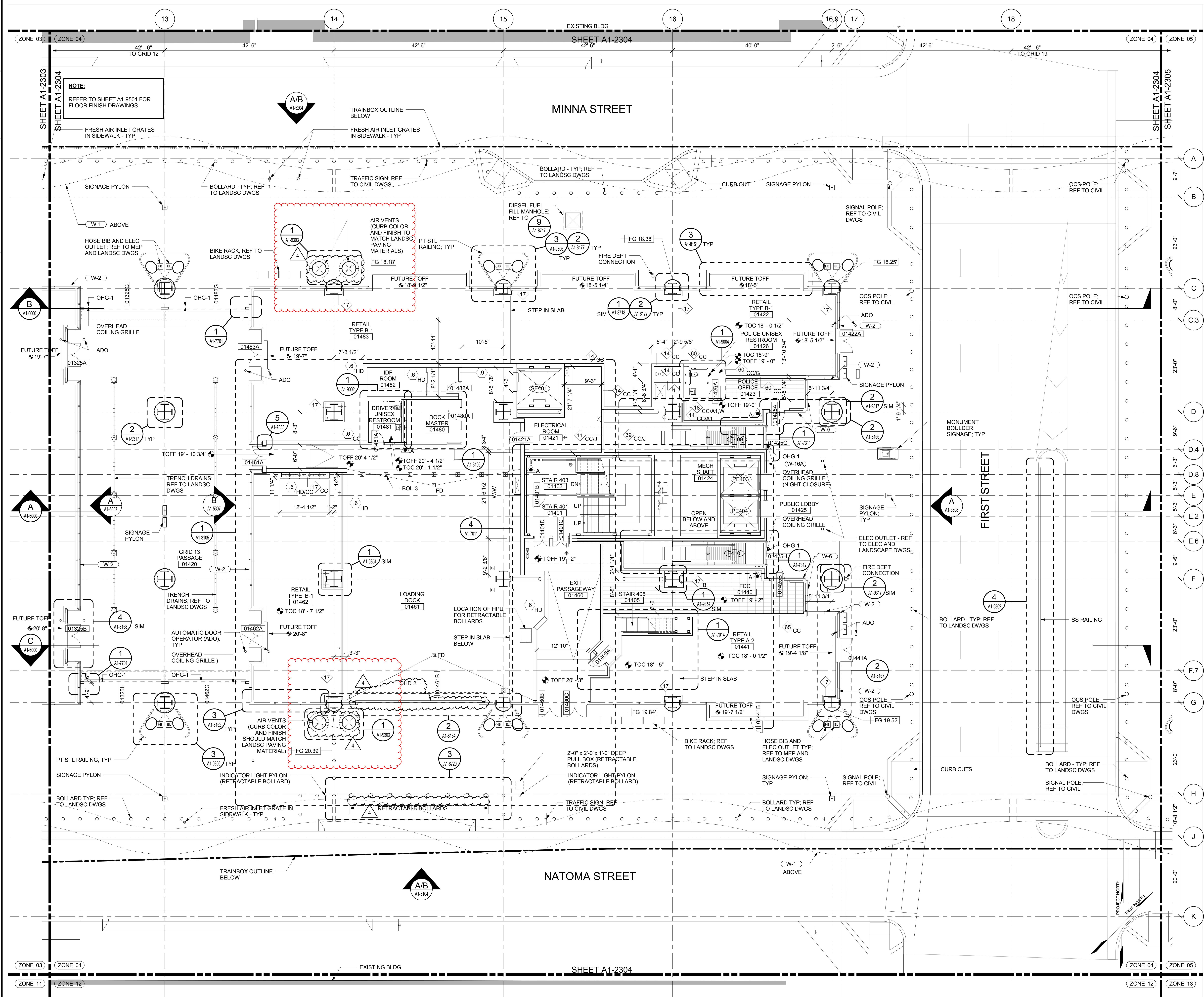
Tel.: (905) 670-2222
1-800-268-0479
Fax: (905) 670-5278
Web: can.sika.com



Disclaimer: The information, and, in particular, the recommendation relating to the application and end-use of Sika Sarnafil products, are given in good faith based on Sika Sarnafil's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika Sarnafil recommendations. In practice, the differences in materials, substrates and actual site conditions are such that **no warranty in respect of merchantability of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, may be inferred from this information.** The user of the product must determine the product's suitability for the intended application and purpose. Sika Sarnafil reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

NOTE: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

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1 GROUND LEVEL ZONE 04 FLOOR PLAN
SCALE: 1/8" = 1'-0"

Transbay Transit Center

TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT

Pelli Clarke Pelli Architects

adamson ASSOCIATES INC.

01 02 03 04 05 06 07 08

09 10 11 12 13 14 15 16

Key Map

N

| NO. | DATE | DESCRIPTION |
|-----|----------|------------------------------|
| 1 | 03/11/14 | ISSUED FOR CONSTRUCTION |
| 2 | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 |
| 3 | 09/24/14 | PER ASB NO. 0127 |
| 4 | 12/16/14 | PER ASB NO. 0128 |
| 5 | 02/27/15 | PER ASB NO. 0130 |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM

TRANSBAY TRANSIT CENTER

SAN FRANCISCO, CA

GROUND LEVEL

ZONE 04 FLOOR PLAN

NOT FOR CONSTRUCTION

APPROVED

PRINCIPAL ARCHITECT

G. METZGER

APPROVED

PROJECT MANAGER

S. ROTT

APPROVED

PROJECT MANAGER

E. DEL ANGEL

DESIGNED BY

S. ROTT

CHECKED BY

W.R. BRADLEY

DRAWN BY

K. WROBLEWSKI

DATE

02/27/2015

SCALE

1/8" = 1'-0"

SHEET NUMBER

4

SEQUENCE NUMBER

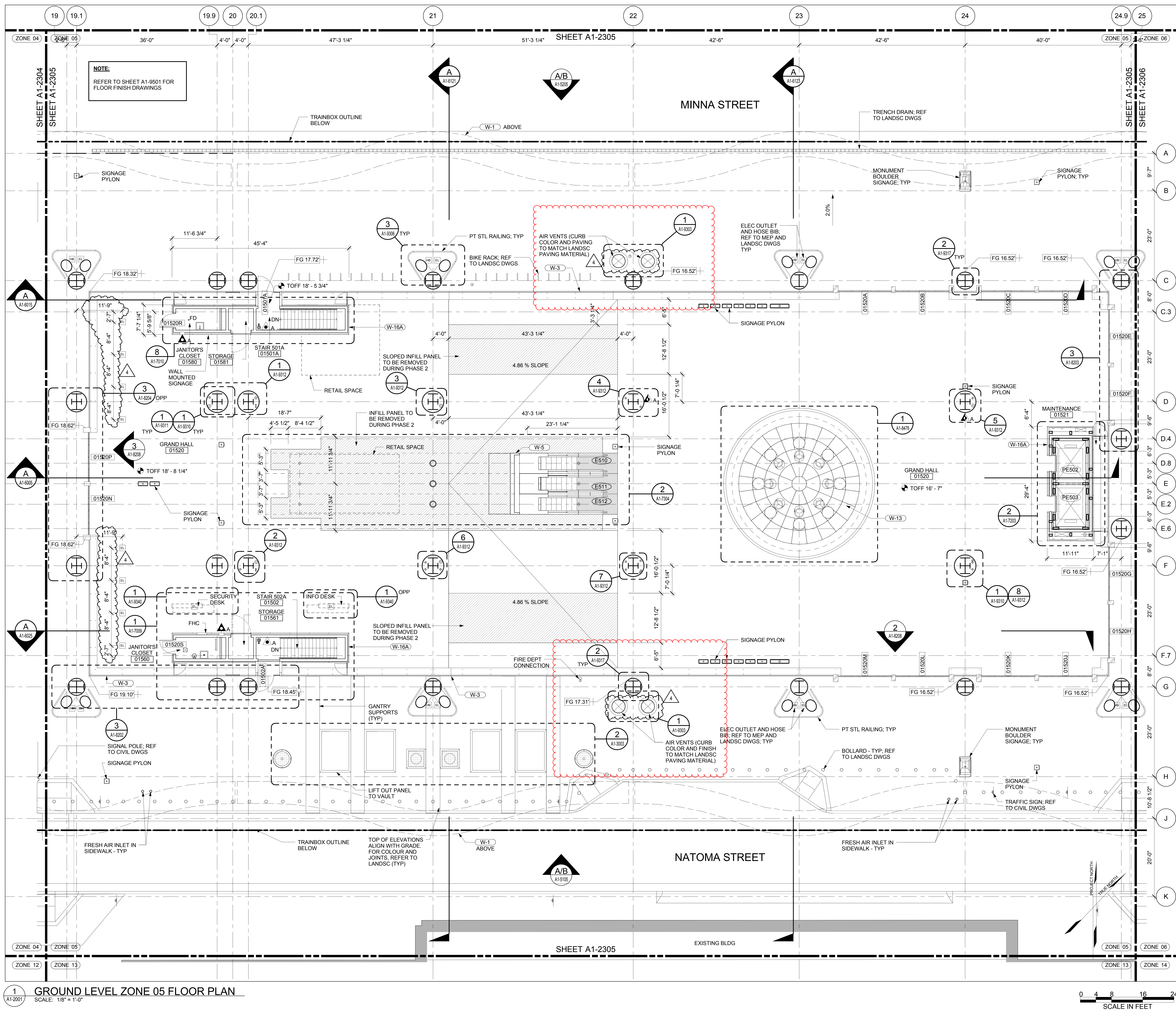
140

SKA-4453 of

BASED ON SHEET A1-2304

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

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Transbay Transit Center
TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT
Pelli Clarke Pelli Architects
adamson
ASSOCIATES, INC.

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Key Map

| NO. | DATE | DESCRIPTION |
|-----|----------|------------------------------|
| 1 | 03/11/14 | ISSUED FOR CONSTRUCTION |
| 2 | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 |
| 3 | 09/12/14 | PER ASB NO. 0127 |
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| 5 | 02/27/15 | PER ASB NO. 0130 |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA

GROUND LEVEL
ZONE 05 FLOOR PLAN

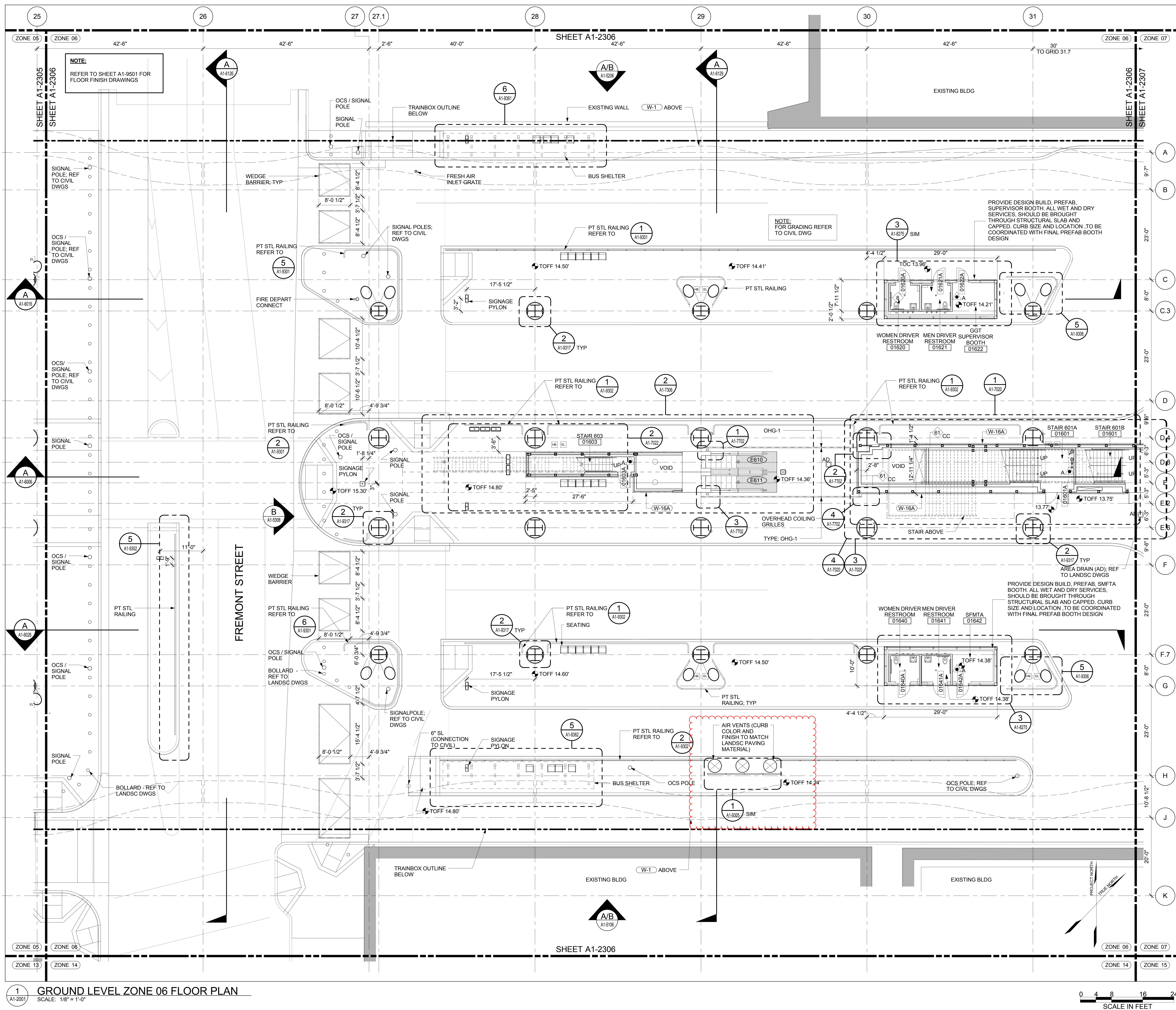
NOT FOR CONSTRUCTION

APPROVED
PRINCIPAL ARCHITECT
G. METZGER
PROJECT MANAGER
S. ROTT
PROJECT MANAGER
E. DEL ANGEL
DESIGNED BY
S. ROTT
DRAWN BY
K. WROBLEWSKI
SCALE
1/8" = 1'-0"
SHEET NUMBER
SKA-4454

CHECKED BY
W.R. BRADLEY
DATE
02/27/2015
SIZE
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FACILITY NO.
140
REVISION
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SEQUENCE NUMBER
of

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Transbay Transit Center

TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT

Pelli Clarke Pelli Architects

adamson ASSOCIATES, INC.

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Key Map

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| GM | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 |
| GM | 09/12/14 | UPD/2/14 PER AS NO. 0127 |
| GM | 12/16/14 | PER AS NO. 0128 |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA

GROUND LEVEL
ZONE 06 FLOOR PLAN

CONTRACT NO.

PROJECT TITLE

ARCHITECT / ENGINEER SEAL

NOT FOR CONSTRUCTION

APPROVED

PRINCIPAL ARCHITECT

G. METZGER

APPROVED

PROJECT MANAGER

S. ROTT

APPROVED

PROJECT MANAGER

E. DEL ANGEL

DESIGNED BY

S. ROTT

CHECKED BY

W.R. BRADLEY

DRAWN BY

K. WROBLEWSKI

DATE

12/16/2014

SCALE

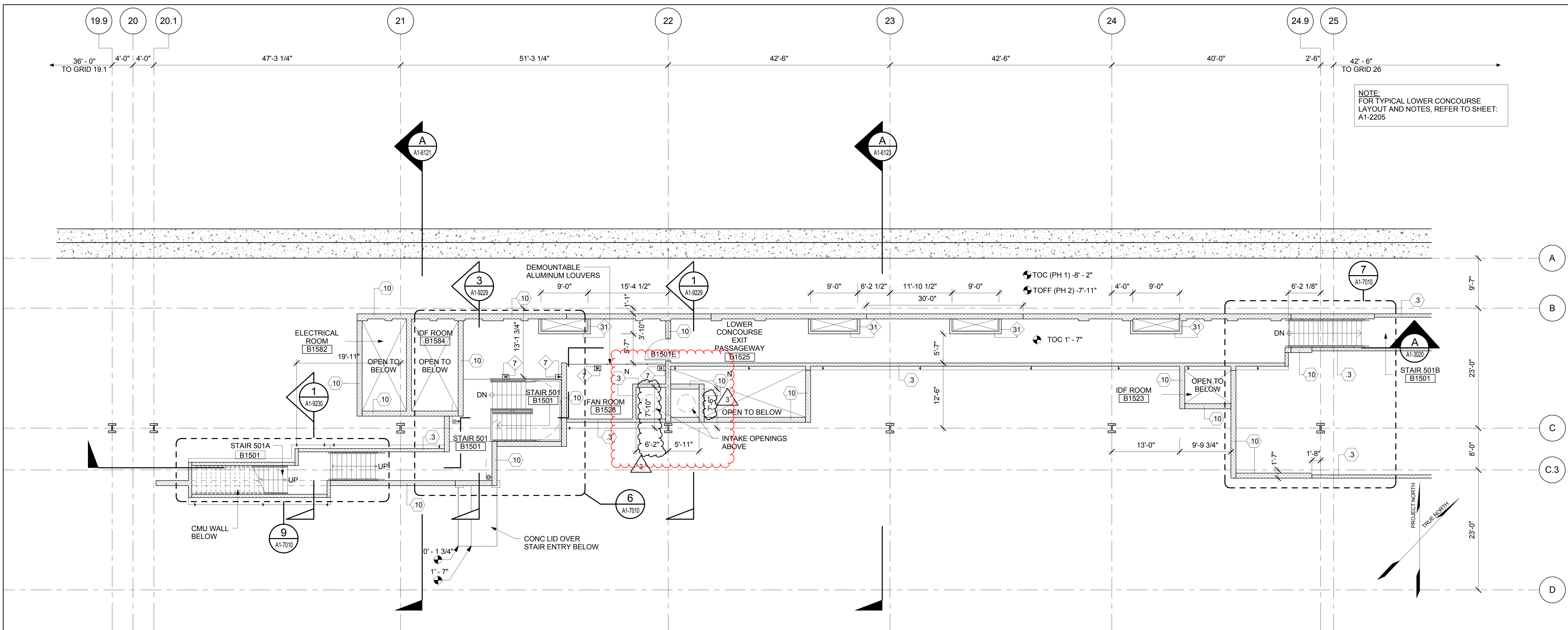
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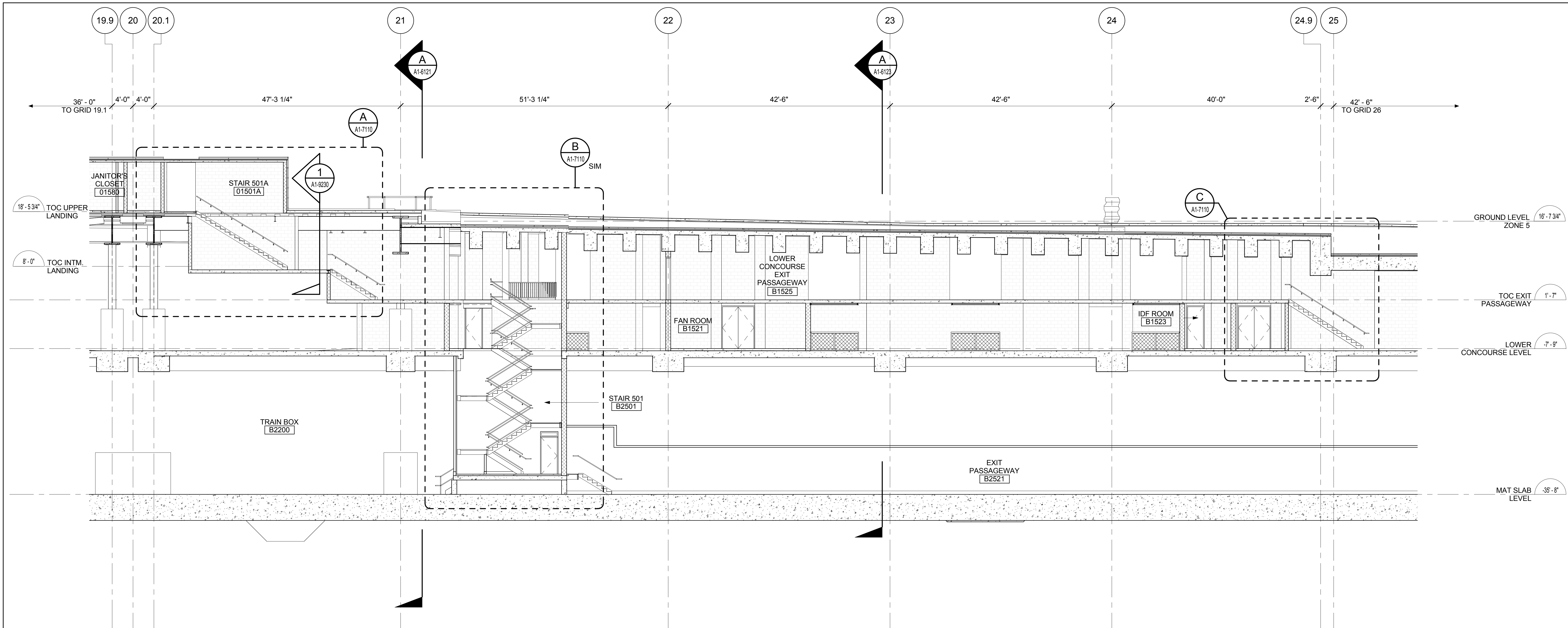
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A1-3020 SCALE: 1/8" = 1'-0"



A NORTH EXIT PASSAGEWAY SECTION (STAIR 501, 501A)
A1-3020 SCALE: 1/8" = 1'-0"

Transbay Transit Center

TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT

Pelli Clarke Pelli Architects

adamson ASSOCIATES, INC.

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Key Map

BY

GM

GM

GM

GM

NO

DATE

DESCRIPTION

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DESCRIPTION

03/14/14

06/20/14

09/12/14

12/16/14

ISSUED FOR CONSTRUCTION

ISSUED FOR BID - ADDENDUM #4

PER AS NO. 0127

PER AS NO. 0128

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM

TRANSBAY TRANSIT CENTER

SAN FRANCISCO, CA

LOWER CONCOURSE LEVEL

NORTH PASSAGEWAY

PLAN & SECTION

NOT FOR CONSTRUCTION

APPROVED

PRINCIPAL ARCHITECT

G. METZGER

APPROVED

PROJECT MANAGER

S. ROTT

APPROVED

PROJECT MANAGER

E. DEL ANGEL

DESIGNED BY

P. MACPHAIL

CHECKED BY

W.R. BRADLEY

DRAWN BY

S. PALAZOV

DATE

12/16/2014

SCALE

1/8" = 1'-0"

SIZE

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FACILITY NO.

140

REVISION

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SHEET NUMBER

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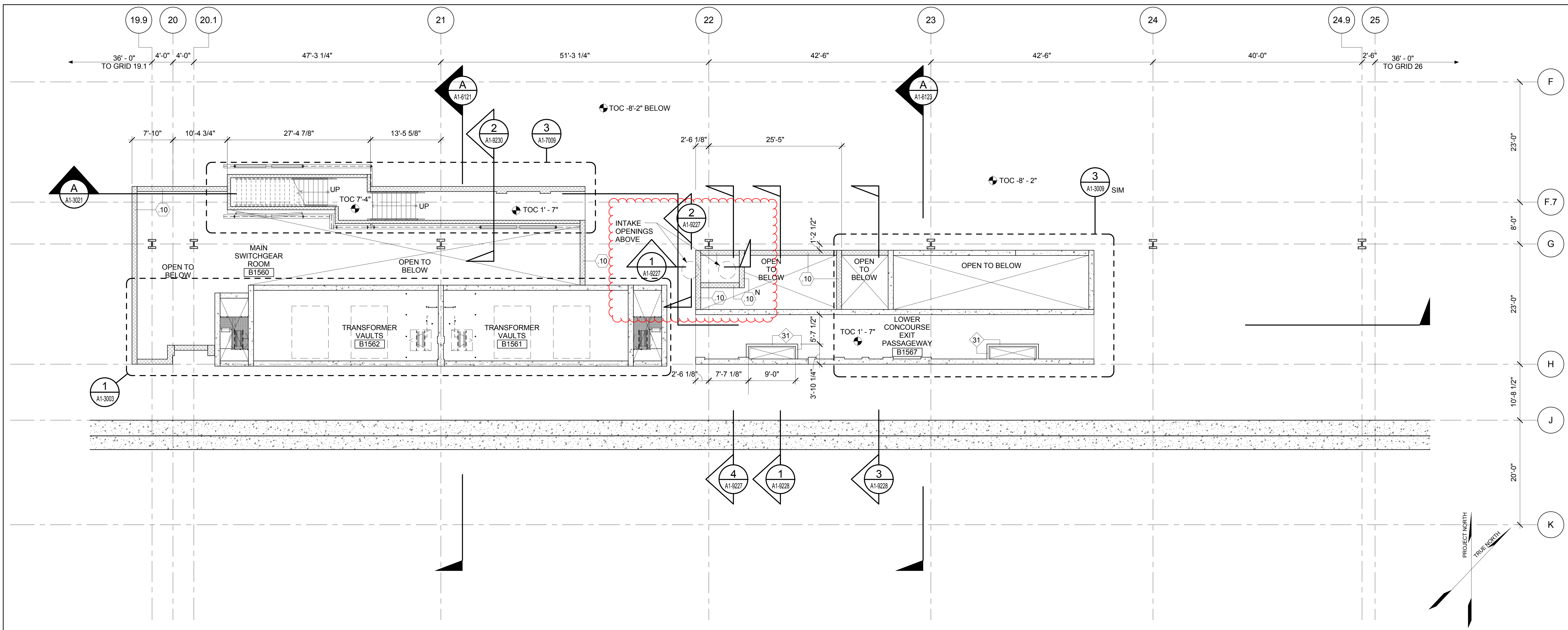
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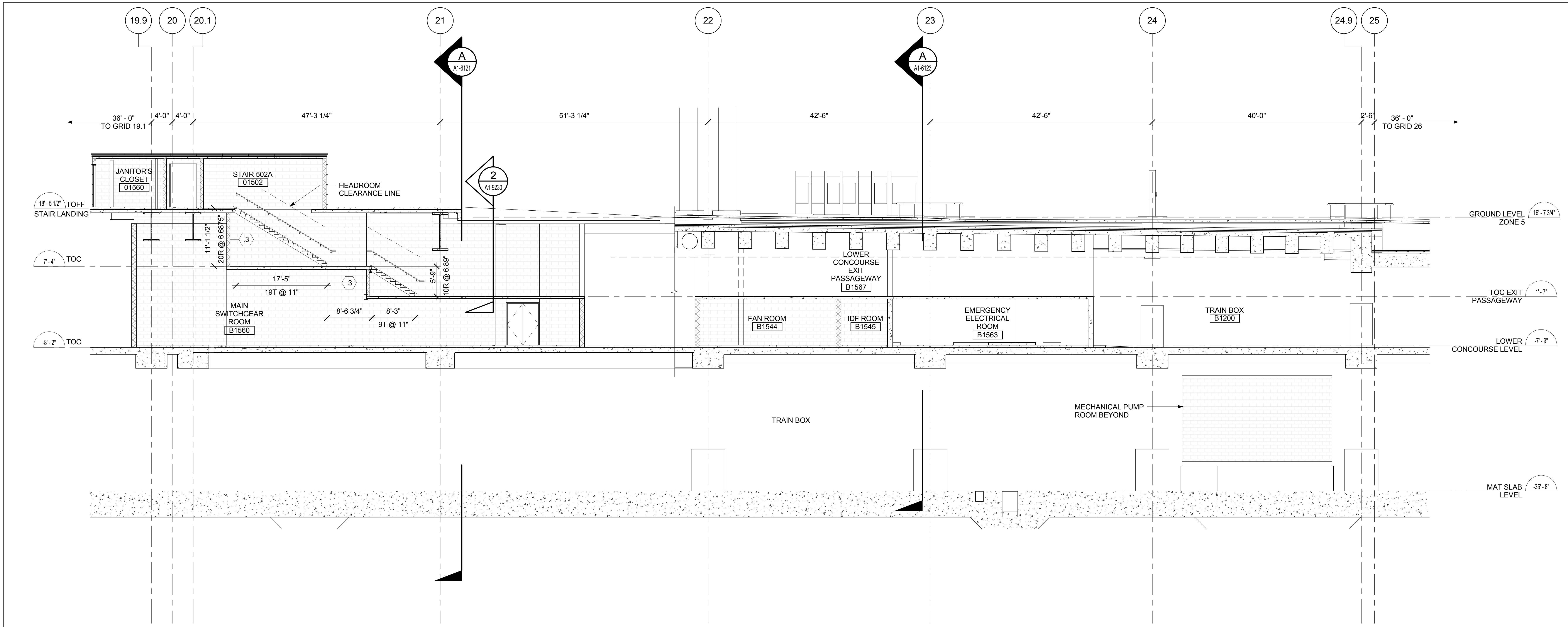
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1 SOUTH EXIT PASSAGEWAY PLAN
SCALE: 1/8" = 1'-0"



A SOUTH EXIT PASSAGEWAY SECTION
SCALE: 1/8" = 1'-0"

Transbay Transit Center

TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT

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adamson ASSOCIATES, INC.

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Key Map

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| 2 | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 | |
| 3 | 12/16/14 | PER ASB NO. 0728 | |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM

TRANSBAY TRANSIT CENTER

SAN FRANCISCO, CA

LOWER CONCOURSE LEVEL

SOUTH PASSAGEWAY

PLAN & SECTION

NOT FOR CONSTRUCTION

APPROVED

PRINCIPAL ARCHITECT

G. METZGER

APPROVED

PROJECT MANAGER

S. ROTT

APPROVED

PROJECT MANAGER

E. DEL ANGEL

DESIGNED BY

P. MACPHAIL

CHECKED BY

W.R. BRADLEY

DRAWN BY

S. PALAZOV

DATE

12/16/2014

SCALE

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SKA-4457

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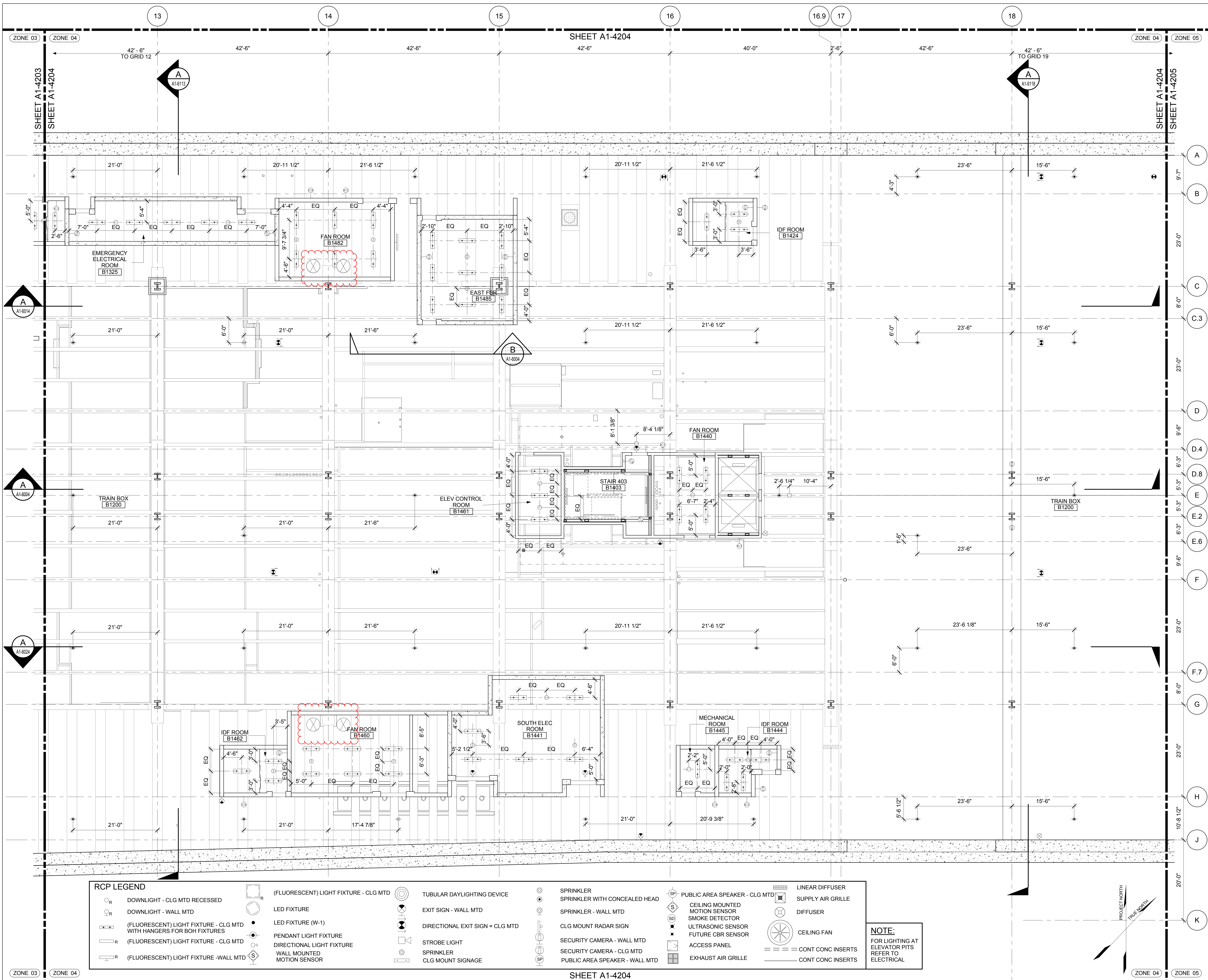
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| DOWNLIGHT - CLG MTD RECESSED | (FLUORESCENT) LIGHT FIXTURE - CLG MTD |
| DOWNLIGHT - WALL MTD | LED FIXTURE |
| (FLUORESCENT) LIGHT FIXTURE - CLG MTD WITH HANGERS FOR BOH FIXTURES | LED FIXTURE (W-1) |
| (FLUORESCENT) LIGHT FIXTURE - CLG MTD | PENDANT LIGHT FIXTURE |
| (FLUORESCENT) LIGHT FIXTURE - WALL MTD | DIRECTIONAL LIGHT FIXTURE |
| | WALL MOUNTED MOTION SENSOR |
| | TUBULAR DAYLIGHTING DEVICE |
| | EXIT SIGN - WALL MTD |
| | DIRECTIONAL EXIT SIGN = CLG MTD |
| | STROBE LIGHT |
| | SPRINKLER |
| | CLG MOUNT SIGNAGE |
| SPRINKLER WITH CONCEALED HEAD | PUBLIC AREA SPEAKER - CLG MTD |
| SPRINKLER - WALL MTD | CEILING MOUNTED MOTION SENSOR |
| CLG MOUNT RADAR SIGN | SMOKE DETECTOR |
| SECURITY CAMERA - WALL MTD | ULTRASONIC SENSOR |
| SECURITY CAMERA - CLG MTD | FUTURE CBR SENSOR |
| PUBLIC AREA SPEAKER - WALL MTD | ACCESS PANEL |
| | EXHAUST AIR GRILLE |
| | LINEAR DIFFUSER |
| | SUPPLY AIR GRILLE |
| | DIFFUSER |
| | CEILING FAN |
| | CONT CONC INSERTS |
| | CONT CONC INSERTS |

NOTE:
FOR LIGHTING AT
ELEVATOR PITTS
REFER TO
ELECTRICAL

TRANSBAY JOINT POWERS AUTHORITY

Pelli Clarke Pelli Architects

adamson ASSOCIATES, INC.

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| 2 | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 |
| 3 | 12/16/14 | PER ASB NO. 0728 |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM

TRANSBAY TRANSIT CENTER

SAN FRANCISCO, CA

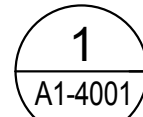
LOWER CONCOURSE LEVEL

ZONE 04 REFLECTED CEILING PLAN

NOT FOR CONSTRUCTION

| | | | |
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| APPROVED | PRINCIPAL ARCHITECT | G. METZGER | |
| APPROVED | PROJECT MANAGER | S. ROTT | |
| APPROVED | PROJECT MANAGER | E. DEL ANGEL | |
| DESIGNED BY | P. MACPHAIL | CHECKED BY | W.R. BRADLEY |
| DRAWN BY | T. CUNHA | DATE | 12/16/2014 |
| SCALE | 1/8" = 1'-0" | SHEET NUMBER | 140 |
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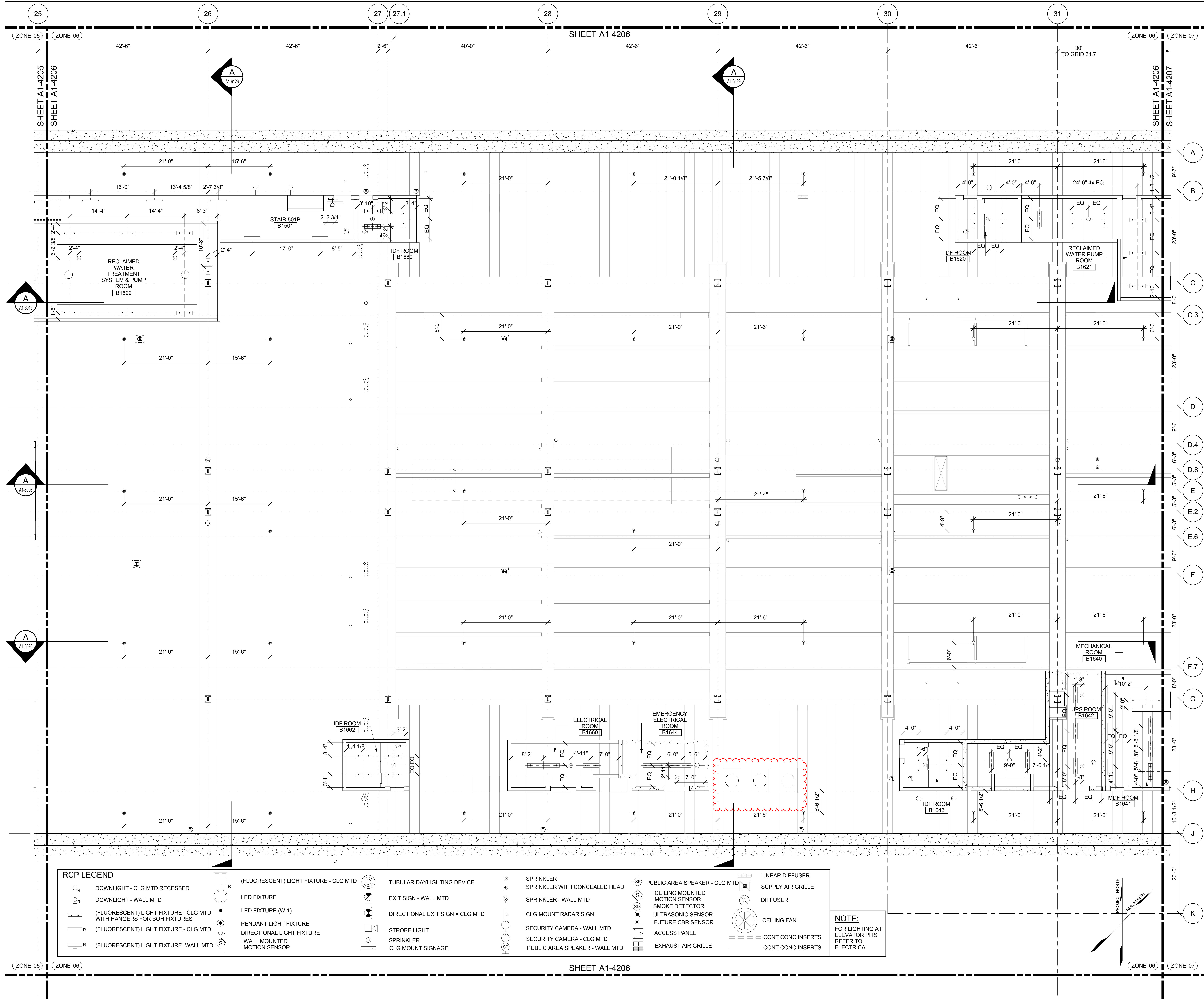
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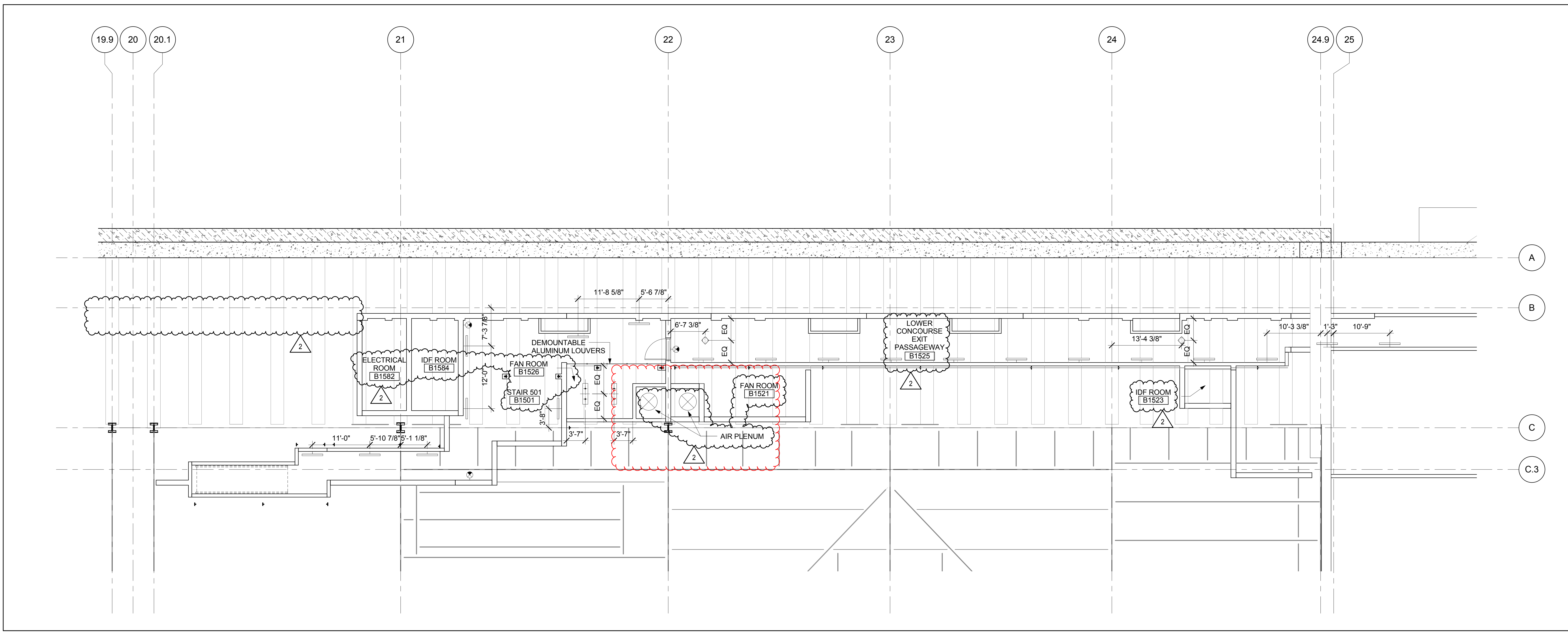
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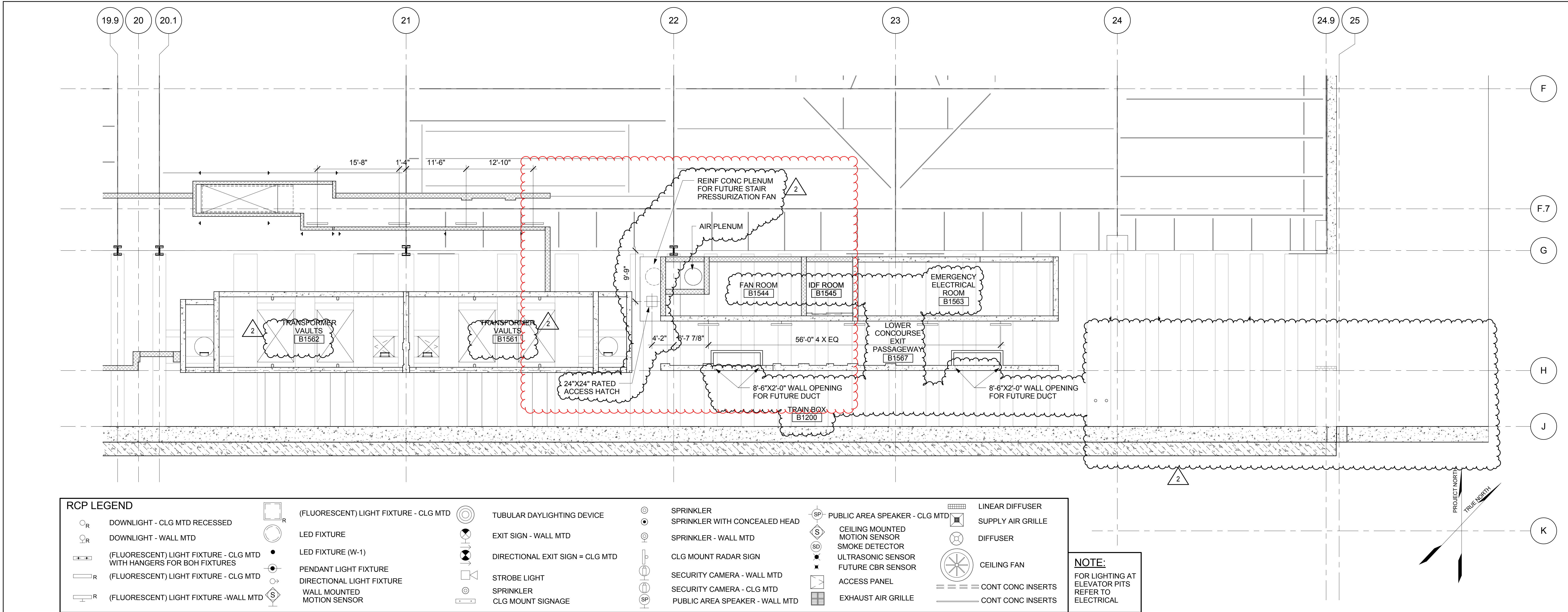
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SCALE: 1/8" = 1'-0"



2 SOUTH EXIT PASSAGEWAY RCP
SCALE: 1/8" = 1'-0"

TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT

Pelli Clarke Pelli Architects

adamson
ASSOCIATES, INC.

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| 06/20/14 | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 | GM |
| 02/27/15 | 02/27/15 | PER AS NO. 0130 | GM |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM

TRANSBAY TRANSIT CENTER

SAN FRANCISCO, CA

LOWER CONCOURSE LEVEL

EXIT PASSAGEWAY

REFLECTED CEILING PLAN

NOT FOR CONSTRUCTION

| | | | |
|--------------|---------------------|-----------------|--------------|
| APPROVED | PRINCIPAL ARCHITECT | G. METZGER | |
| APPROVED | PROJECT MANAGER | S. ROTT | |
| APPROVED | PROJECT MANAGER | E. DEL ANGEL | |
| DESIGNED BY | P. MACPAILL | CHECKED BY | W.R. BRADLEY |
| DRAWN BY | A. SUN | DATE | 02/27/2015 |
| SCALE | 1/8" = 1'-0" | SHEET | 140 |
| SHEET NUMBER | SKA-4461 | SEQUENCE NUMBER | 2 |

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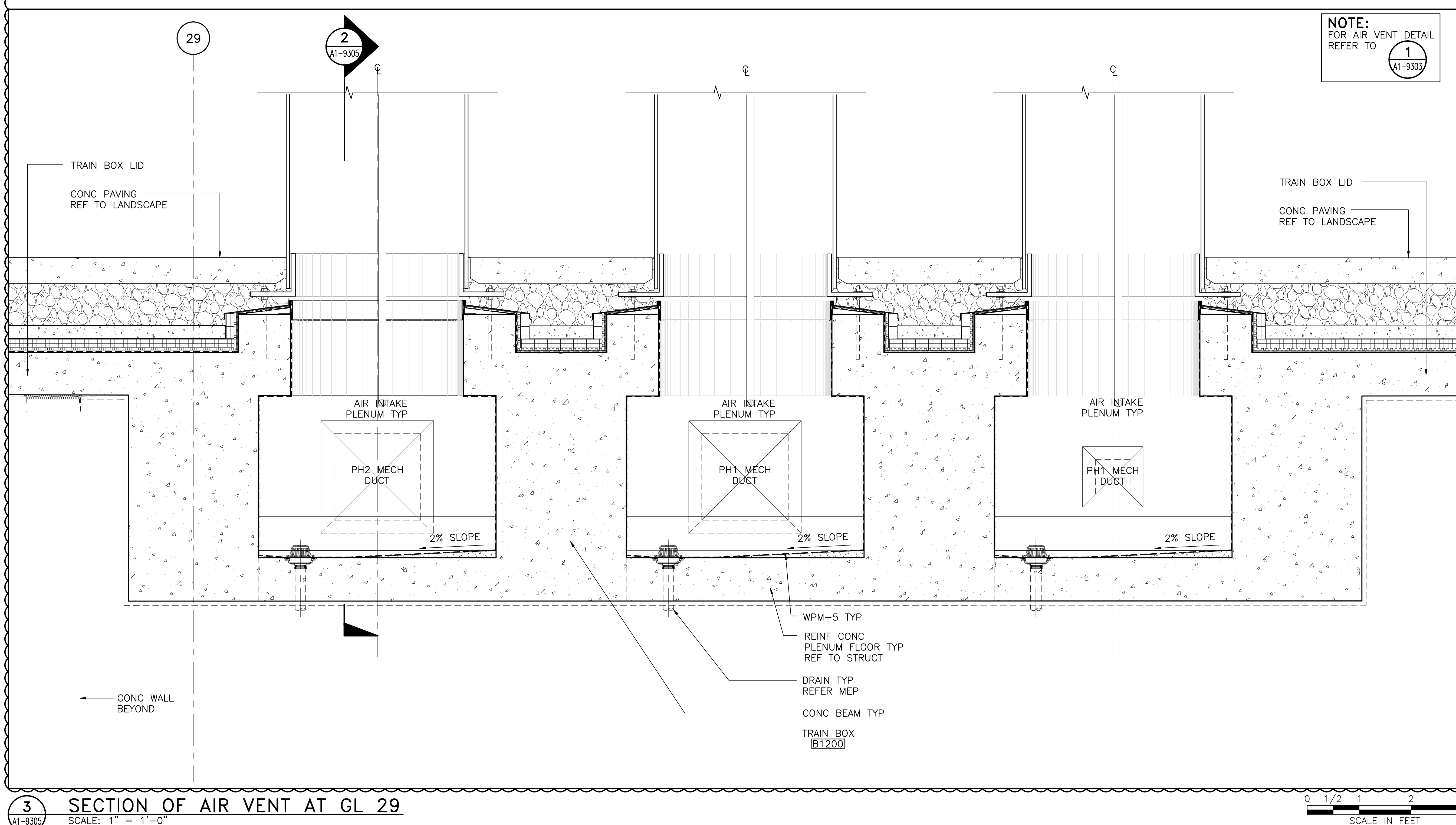
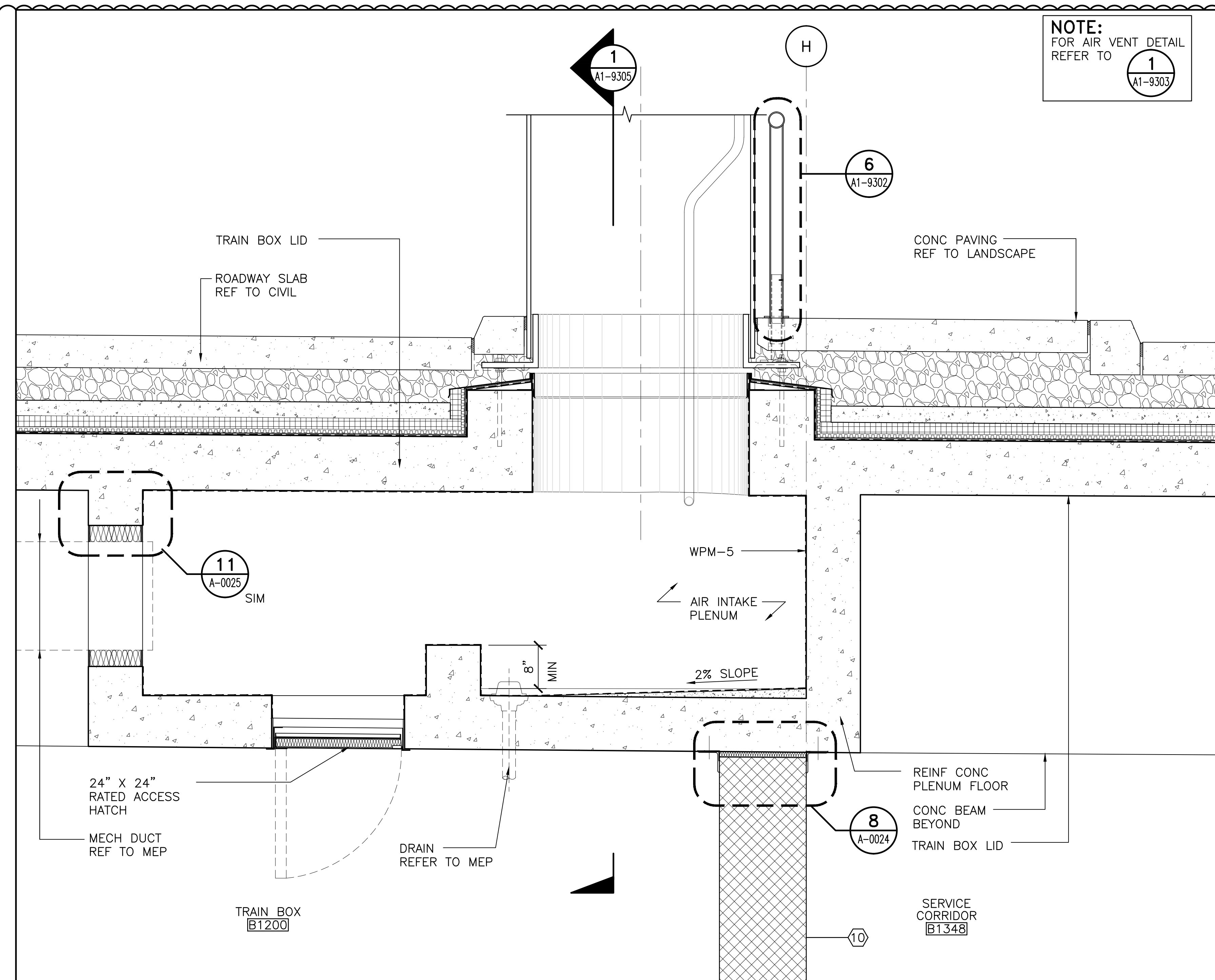
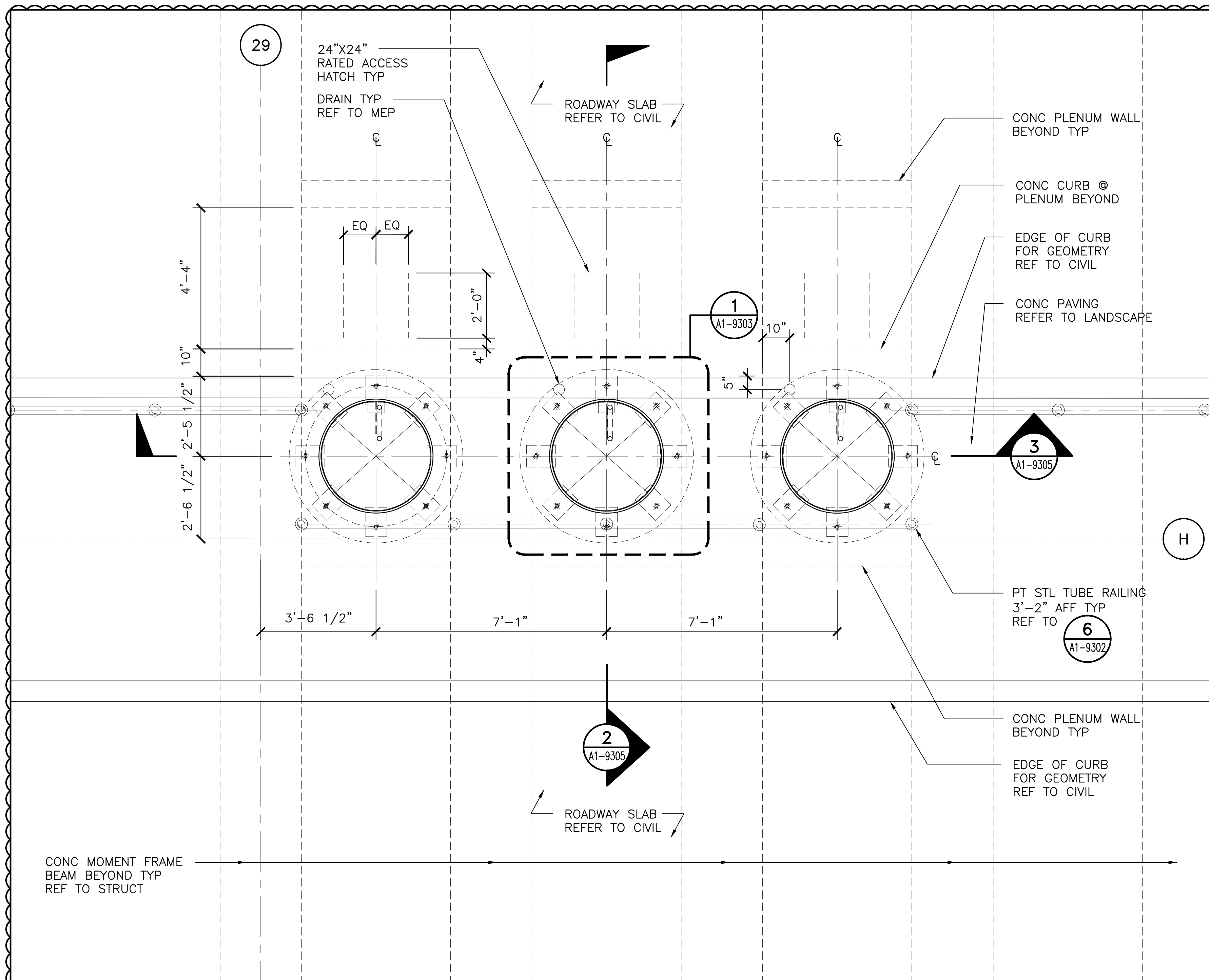


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| LOWER CONCOURSE LEVEL SOUTH EXIT PASSAGEWAY SECTION-DETAILS | SHEET TITLE |

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| PRINCIPAL ARCHITECT | | G. METZGER | |
| APPROVED: | | | |
| PROJECT MANAGER | | S. ROTH | |
| APPROVED: | | | |
| PROJECT MANAGER | | E. DEL ANGELO | |
| DESIGNED BY: | | CHECKED BY: | |
| P. MACPHAIL | | W.R. BRADLEY | |
| DRAWN BY: | | DATE: | |
| P. MERCADO | | 02/27/2015 | |
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LOWER CONCOURSE LEVEL
GL29 AIR VENT PLENUM
SECTION DETAILS

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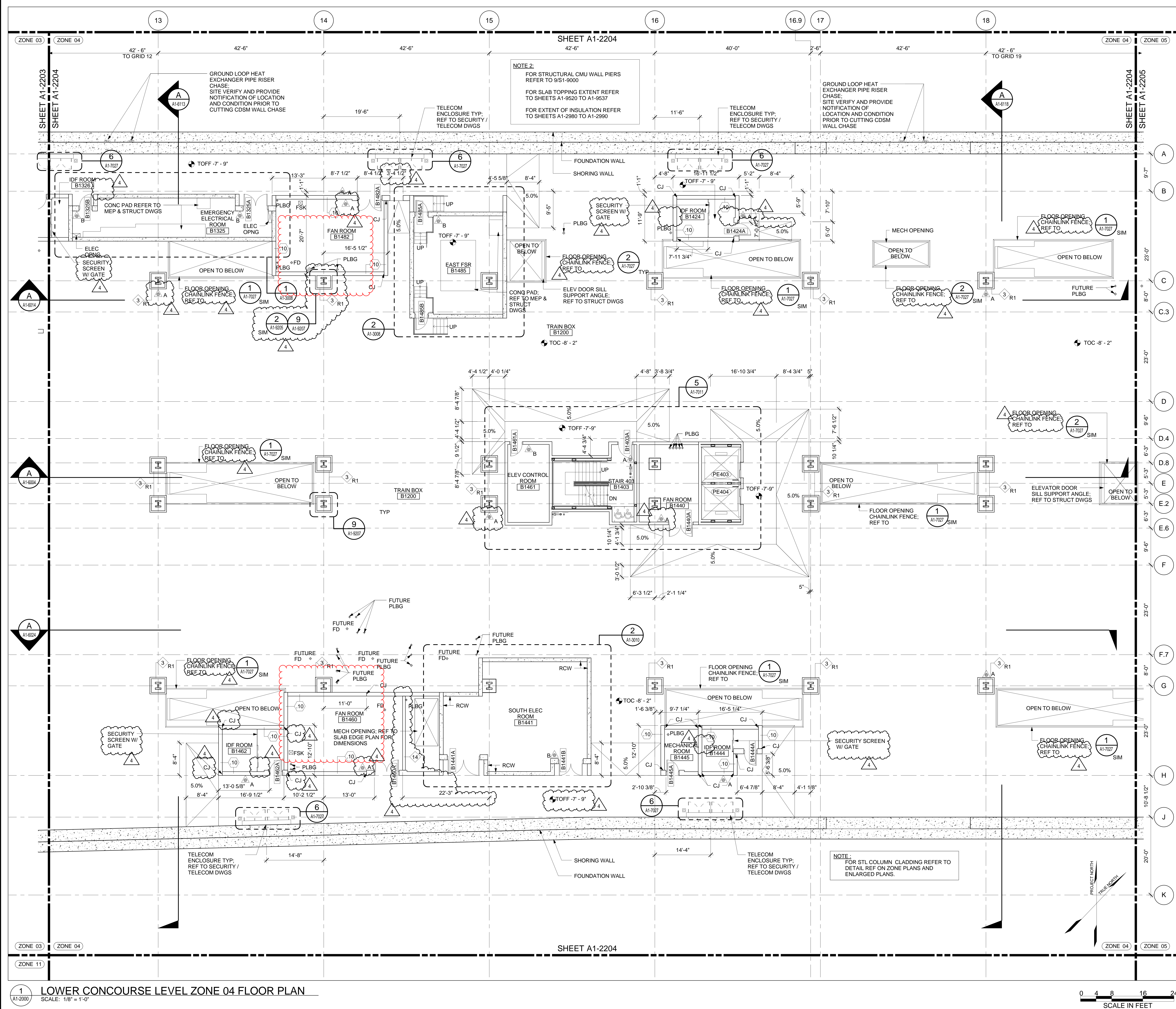
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| APPROVED: | | E. DEL ANGELO | |
| PROJECT MANAGER | | | |
| DESIGNED BY: | | CHECKED BY: | |
| P. MACPHAIL | | W.R. BRADLEY | |
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Transbay Transit Center

TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT

Pelli Clarke Pelli Architects

adamson
ASSOCIATES, INC.

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Key Map

| NO. | DATE | DESCRIPTION |
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| 2 | 06/23/14 | ISSUED FOR BID - ADDENDUM #3 |
| 3 | 06/23/14 | ISSUED FOR BID - ADDENDUM #4 |
| 4 | 07/16/14 | PER ASB NO. 0721 |
| 5 | 12/16/14 | PER ASB NO. 0728 |

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA

LOWER CONCOURSE LEVEL
ZONE 04 FLOOR PLAN

APPROVED

PRINCIPAL ARCHITECT

G. METZGER

APPROVED

PROJECT MANAGER

S. ROTT

APPROVED

PROJECT MANAGER

E. DEL ANGEL

DESIGNED BY

P. MACPAIL

CHECKED BY

W.R. BRADLEY

DRAWN BY

K. WROBLEWSKI

DATE

12/16/2014

SCALE

1/8" = 1'-0"

SIZE

4

FACILITY NO.

140

SHEET NUMBER

SKA-4465

SEQUENCE NUMBER

of

REGISTERED ARCHITECT

JOSEPH RUSSELL MCMILLAN

NO. C21600

RES. APRIL 30, 2015

STATE OF CALIFORNIA

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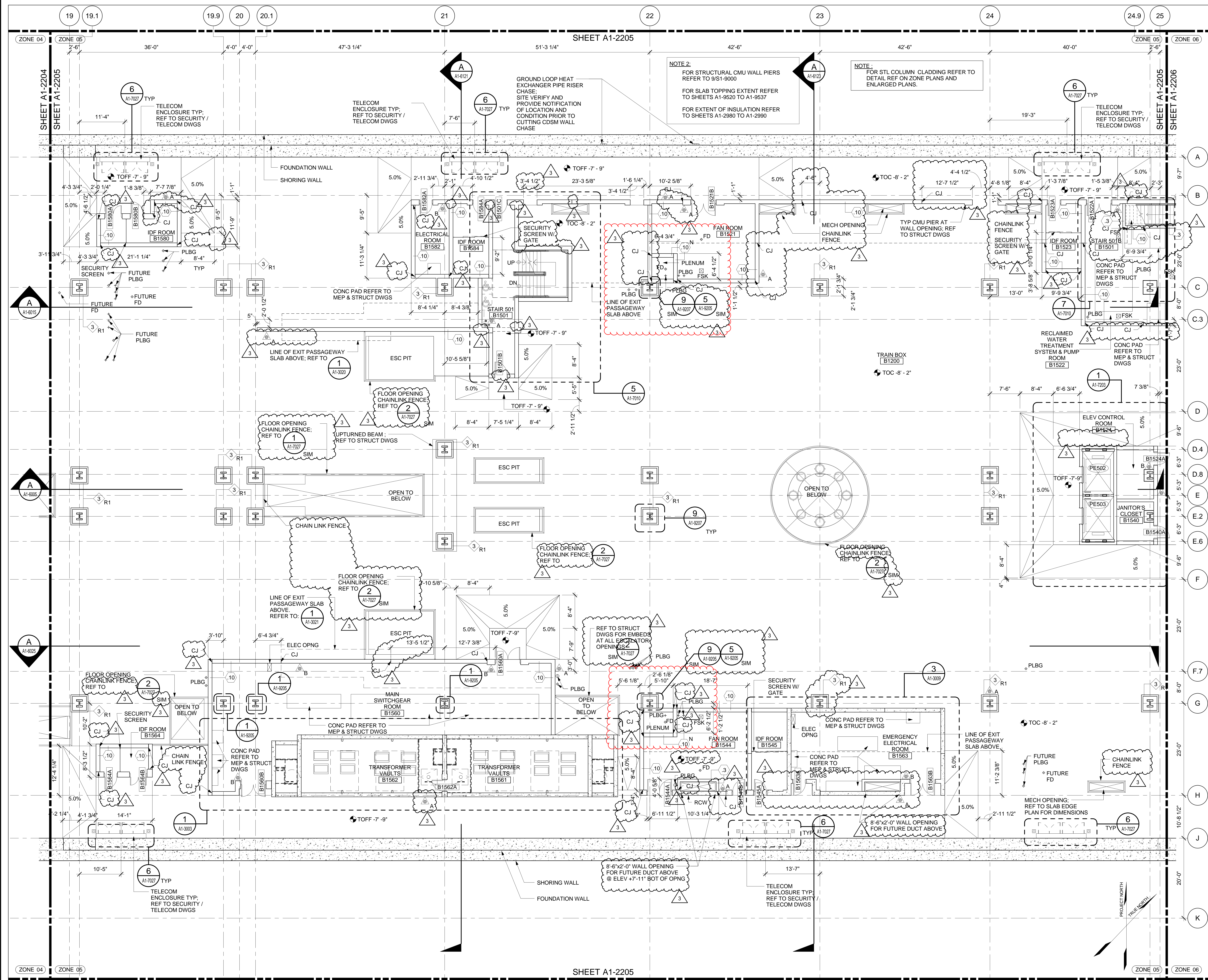
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BASED ON SHEET A1-2204

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1 LOWER CONCOURSE LEVEL ZONE 05 FLOOR PLAN
SCALE: 1/8" = 1'-0"

Transbay Transit Center
TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT
Pelli Clarke Pelli Architects
adamson ASSOCIATES, INC.

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| NO. | DATE | DESCRIPTION |
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| 3 | 06/20/14 | ISSUED FOR BID - ADDENDUM #4 |
| 4 | 12/16/14 | PER ASB NO. 0728 |

08-04-CMGC-000
TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA
LOWER CONCOURSE LEVEL
ZONE 05 FLOOR PLAN

APPROVED
PRINCIPAL ARCHITECT
PROJECT MANAGER
PROJECT MANAGER
DESIGNED BY
DRAWN BY
SCALE
SHEET NUMBER

G. METZGER
S. ROTT
E. DEL ANGEL
P. MACPHAIL
K. WROBLEWSKI
1/8" = 1'-0"
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CHECKED BY
DATE
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REVISION
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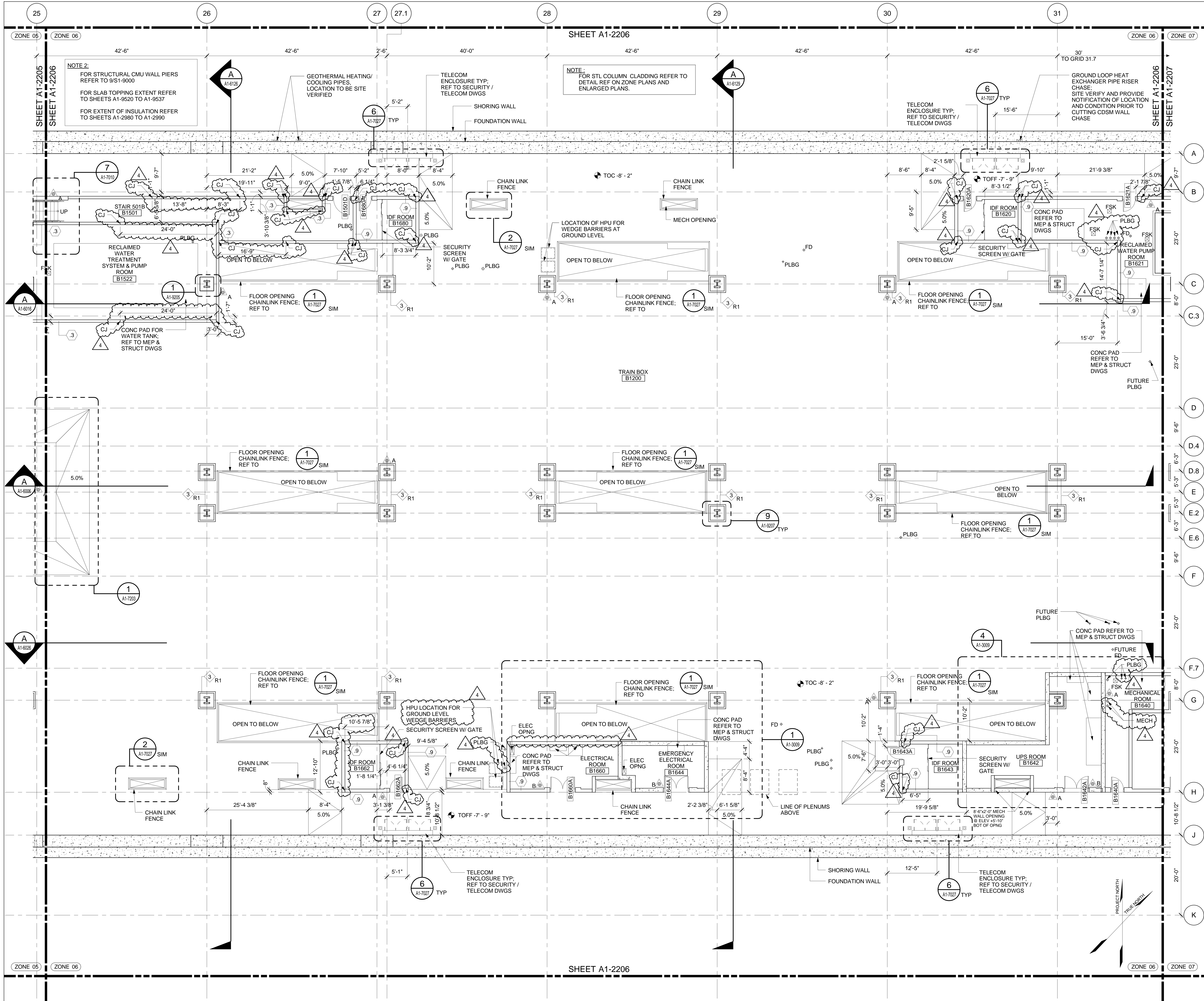
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of

BASED ON SHEET A1-2205

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Transbay Transit Center
TRANSBAY JOINT POWERS AUTHORITY
CONSULTANT:
Pelli Clarke Pelli Architects
adamson
ASSOCIATES, INC.

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Key Map

BY: GW
DATE: 03/31/14
NO.: 003114

DESCRIPTION: ISSUED FOR CONSTRUCTION

DATE: 04/23/14
NO.: 003114

DESCRIPTION: ISSUED FOR BID - ADDENDUM #3

DATE: 06/20/14
NO.: 003114

DESCRIPTION: ISSUED FOR BID - ADDENDUM #4

DATE: 12/16/14
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DESCRIPTION: PER ASB NO. 0728

DATE: 02/27/15
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DESCRIPTION: PER ASB NO. 0730

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5.13 Fire Safety Rules And Practices For Roofing Operations

Reference. The requirements of this bulletin are referenced from the San Francisco Fire Code and the National Fire Protection Association Standard for Liquefied Petroleum Gas Code including, but not limited to, SFFC Chapters 1, 3, 14, 26, 30, and 38, and NFPA 58. For all referenced documents in this bulletin, the most current edition shall be used unless an older edition is currently adopted by the State of California.

Purpose. The purpose of this bulletin is to describe fire code requirements and safe roofing practices that pertain to various operations typically utilized by roofers in their work.

Scope. The requirements in this bulletin pertain to all persons conducting roofing operations who utilize torches (open flames), tar kettles, or bituminous melters.

Operational Permit Required. Operational permits are required to conduct hot work operations as defined by the California Fire Code, and/or to use or store LP-Gas or other compressed gases.

Requirements for Permit. Annual operational permits for Hot Work – Roofing Operations and LP-Gas (use or storage) may be obtained by California licensed C-39 contractors with a current San Francisco Business License. Prior to issuance of a permit to conduct Hot Work Operations in roofing, the licensed contractor shall successfully convince the SFFD Permits Inspector that he or she is thoroughly familiar with the contents of this administrative bulletin and the provisions of the California Fire Code applicable to this activity by successfully answering a series of verbal questions. The applicant shall provide a copy of their pre-hot-work-checklist which must be approved by the Permits Inspector (See the Fire Code for recommended checklist items). In addition, the applicant shall sign the written statement contained in this bulletin certifying that they understand their responsibilities as the permit holder.

Safe Roofing Practices-General. Preventing a fire during roofing projects is often a simple matter of training, safe fire practices, and having the right equipment at the right place.

1. A pre-inspection of the site must be performed before any hot work is started. The inspection includes ensuring all equipment is safe and hazards are recognized and protected. A copy of the completed pre-hot-work-checklist must be kept on site and be available upon request.

2. A fire watch is required during all hot work activities and shall include the entire area where open flame is used or other hot work is conducted. At least one employee trained in the use of a portable fire extinguisher shall be dedicated to perform fire watch duties. If the work is not observable at all times by a single individual, additional personnel must be designated.

3. The trained fire watch person shall remain on site for a minimum of one (1) hour following completion of the torch work to monitor the site for conditions that could cause a fire such as smoldering embers or a flare-up. The designated fire watch person shall have the appropriate equipment (cell phone with a strong signal) and responsibility of communicating an alarm, as well as the responsibility of extinguishing spot fires.

4. Prior to the commencement of hot work operations at any work site located in the City of San Francisco, the contractor shall notify the San Francisco Fire Department no later than 8:30 am on the first day of work by calling (415) 558-3300. The caller shall provide their business name (DBA), a description of work, and the address of the work site.

5. All employees shall wear appropriate personal protective equipment and clothing in accordance with CAL OSHA guidelines.

6. All roofing operations shall conform to the safety regulations of the manufacturer of the roofing material for the roofing material's proper safe installation.

7. Check the roof surface for combustible materials. Remove what can be removed and encapsulate the rest with hot or cold applied membranes, sealing off all intakes and projections to prevent flame from spreading into combustible materials.

8. Open-flame shall be applied only to roofing materials; keep flame away from combustible surfaces, air in-take ducts or open roof penetrations.

9. Torches or open-flame devices for roofing applications shall not be used in an enclosed area.

10. All combustibles such as paper, weeds, or trash shall be kept a minimum of 10 ft. away from all LP-gas tanks or open flame devices.

11. All kettles, torches, and melters shall be attended at all times by a qualified, responsible, and experienced individual trained in the use of all equipment.

12. All open flames shall be extinguished and equipment shall be allowed to cool prior to re-fueling operations.

13. Smoking shall be prohibited at all times within ten (10) feet of equipment and LP-gas storage areas.

14. Fire extinguishers (current and fully operational) shall be minimum size 2A:20B:C located within thirty (30) feet of the work area, unobstructed and visible, serviced

annually, and possess current inspection tags. Individuals responsible for performing hot work and individuals responsible for fire watch duty shall be trained in the proper use of extinguishers.

15. Good housekeeping practices shall be maintained throughout the course of the day.

Fire Safety Practices in the Use of LP-Gases (Propane, Butane Gas):

1. All LP-gas connections shall be tested for leaks with a soapy solution prior to use.
2. LP-gas cylinders used for flame-producing devices in roofing operations shall be shielded from direct sunlight.
3. LP-gas cylinders shall be used only in well-ventilated areas and shall be removed from the roof or other areas being constructed or repaired at the end of each day's work. The storage of LP-gas on rooftops is prohibited.
4. All LP-gas cylinders shall be stored at ground level and stored at least ten (10) feet from any building, property line, sidewalk, busy thoroughfare, exit, or public gathering place when not in use and at the end of each day.
5. No other materials shall be stored on top of or around the cylinders.
6. No LP-gas shall be used in or transported through the building interior at any time. (EXCEPTION: Buildings under construction or major renovation where such buildings are not occupied by the public.)
7. All LP-gas cylinders used for roofing or similar operations shall be secured while being moved, stored, or in use, and such containers and their use must conform to the safety regulations prescribed in NFPA Standard 58.
8. Any hoisting of any LP-gas cylinder shall be done in an approved manner and in accordance with SFFC Chapter 30. Lifting by the valve assembly is strictly prohibited. When cylinders are hoisted more than 30 inches, they shall be securely fastened in an upright position in either a protective hoisting cage or properly balanced box of enclosing mesh in accordance with OSHA requirements. Bumping or dropping cylinders as they are raised or lowered should be avoided.
9. All LP-gas cylinders shall be positioned so that the pressure relief device is within the vapor space of the container at all times.
10. Single cylinders of LP-gas used for torches shall not exceed five (5) gallons in capacity and the maximum aggregate amount placed on the roof at any time shall not exceed (25) gallons.

11. The valves of empty, stored, or awaiting-use LP-gas cylinders shall be kept closed; if the cylinders have protective caps or guards, they shall be kept in place at all times.
12. A minimum of ten (10) feet shall be maintained between LP-gas cylinders and open-flame devices at all times.
13. LP-gas cylinders shall be inspected for damage regularly. Dented, rusted, or cylinders past their hydrostatic test date shall not be used.
14. Cylinders shall not be turned on their sides to increase fuel supply.
15. Open flame shall not be applied to defrost a cylinder.
16. Leaking propane equipment shall not be used. If a leak is discovered, all operations shall cease immediately, and all valves shall be closed. The tank shall not be used until the source of the leak is discovered and corrected.


Fire Safety Practices in the Use of a Torch (Open-Flame):

1. A site check shall be conducted to recognize and correct potential fire hazards prior to using open flame such as vent pipes, vents, drains, curbs, and exposed combustible construction.
2. A trained person shall be assigned the duties and responsibilities of fire watch as stated above.
3. Torches shall be inspected before use. Equipment must be in good working order, with fittings, hoses, and head secure and cylinder valves clean. Check for leaks with a soapy solution prior to use.
4. Locate at least one (1) 2A: 20B:C rated portable fire extinguisher (current and fully operational) in a readily accessible location on the job site.
5. Locate at least one (1) 2A:20B:C rated portable fire extinguishers (current and fully operational), or a charged water hose, within 10 ft. of any work involving a torch. The extinguishers or hose must be physically located on the roof when torch work of any kind is being performed on a roof.
6. All equipment such as hand-held torches and torch trolleys shall be properly listed and of an approved type. Torches shall be used in accordance with manufacturer's recommendations.
7. All hand-held torches shall be equipped with a pilot adjustment and flame height adjustment, pressure gauge, pressure regulator and a length of listed hose (25 feet minimum, 50 feet maximum).
8. LP-gas hose assembly shall be equipped with a pressure regulator and gauge. The vent hole in the pressure regulator shall be kept unobstructed at all times.

9. All torches and open-flame devices shall be equipped with an automatic or spring-loaded safety trigger that when released by the operator shall shut-off the flow of fuel to the torch head.
10. All hand held torches shall be equipped with properly installed torch stands or brackets. When not in use, set torch units in their support leg position with the torch head pointing at an upward angle. Torch units shall not be placed over a curb or roof edge.
11. All torches shall be ignited by a spark lighter or electronic ignition device only. The use of matches or lighters to light torches is prohibited.
12. No person shall use any ignited torch, open flame or other flame-producing device unless that person is trained in the use of such devices.
13. All persons (other than the torch operator) shall be kept at least six (6) feet away from the flame.
14. Torches shall never be kept ignited and unattended.
15. Torch operators shall never direct the flame at, near, or toward the LP-gas cylinder.
16. When shutting off the torch, the operator shall close the LP-gas cylinder valve first. The operators shall then let the remaining gas in the hose burn off, and then close the torch valve.
17. The torch operator shall disconnect the hose at the end of the day and store equipment in protective cases.
18. The torch operator shall not apply the direct flame to cant strips, insulation, wood, grease, lint exhaust, or any other combustible material. The operator shall never apply the direct flame to flashing, corners, voids in the roof and roof deck, or behind metal counter-flashings.
19. The torch operator shall take extra precaution when torching near pipes, fresh air vents, HVAC units, and gas and electrical lines.
20. The torch operator shall use the "torch-and-flop" method for areas he or she cannot clearly see (flashings, corners, curbs, voids, expansion joints, and small penetrations).

Fire Safety Practices in the Use of an Asphalt (Tar) Kettle:

1. Kettles may not be transported over any street, road, or highway when the heat source for the kettle is operating.
2. Locate the kettle a minimum of (20) feet from any combustible material, combustible building surface, and building opening.

- 
3. Never place a kettle inside a building or on the roof of any structure.
 4. Roofing kettles shall not block means of egress, gates, roadways, or entrances.
 5. LP-gas cylinders shall be located at least ten (10) feet from the burner (EXCEPTION: Containers properly insulated from heat or flame can be within two (2) feet of the burner)
 6. LP-gas cylinders installed on portable kettles shall be protected from radiant or convected heat by a heat shield or by the location of the cylinder.
 7. The LP-gas burner shall be secured to the kettle so that it cannot slip free from the channel due to vibration, pulling on the supply hose, or other means.
 8. All kettles shall be equipped with tight-fitting covers and temperature gauges that are in good operating condition.
 9. Hi-boys shall be constructed of noncombustible materials and shall be limited to a capacity of (55) gallons. Fuel sources or heating elements shall not be allowed as part of a hi-boy.
 10. An operating kettle shall be attended by at least one employee knowledgeable of the operations and hazards. The employee shall be within (100) feet of the kettle and have the kettle within sight. Access to the kettle by the employee shall not require the use of a ladder.
 11. Locate at least one (1) 40B:C rated portable fire extinguisher (current and fully operational) in a readily accessible location within (25) feet of the kettle.
 12. Locate at least one (1) 3A:40B:C rated portable fire extinguisher (current and fully operational) on the roof being covered.
 13. Never leave a kettle unattended unless kettle is cool.

Fire Safety Practices and the Use of a Bituminous Melter:

1. The use of a bituminous melter on the rooftop of a building is limited to buildings constructed with concrete roof decks.
2. Copies of MSDS and melter manufacturer manual shall be readily accessible on the job site.
3. Each melter shall be placed in an approved metal containment system capable of holding at least 125% of the rated contents of the melter.
4. The LP-gas burner shall be secured to the melter so that it cannot slip free from the channel due to vibration, pulling on the supply hose, or other by means.

5. The number of LP-gas cylinders shall be limited to two (2) - 20 pound (4.8 gallons each nominal) cylinders per melter. No more than two (2) melters and four (4) LP-gas cylinders are permitted on the roof at any time. No additional LP-gas cylinders shall be allowed on the roof including spares.
6. LP-gas cylinders awaiting use for the melter shall be stored at least (30) feet from the melter.
7. At least two (2) 4A:40B:C portable fire extinguishers (current and fully operational) for each melter shall be located within (25) feet and on opposite sides of the melter.
8. Two (2) additional 4A:40B:C dry chemical fire extinguishers (current and fully operational) for each melter shall be readily accessible on the roof deck.
9. The melter shall not be left unattended.
10. The melter lid shall be kept closed at all times, except to add rubberized asphalt membrane cakes to the melter.

Form: Required Statement of Understanding for Hot Work Permit Holders (PDF)

Text of "Required Statement of Understanding for Hot Work – Roofer Permit Holders":

San Francisco Fire Department
Division of Fire Prevention & Investigation

Required Statement of Understanding for Hot Work Permit Holders

- I certify that I have received, read, and understand SFFD Bureau of Fire Prevention "Fire Safety Rules and Practices For Roofing Operations" including Use of LP-Gases, Use of a Torch, Use of an Asphalt (Tar) Kettle, and Use of a Bituminous Melter.
- I agree to provide all persons under my employ that engage in hot work operations copies of SFFD Bureau of Fire Prevention "Fire Safety Rules and Practices For Roofing Operations" including Use of LP-Gases, Use of a Torch, Use of an Asphalt (tar) Kettle, and Use of a Bituminous Melter.
- I agree to confirm all persons under my employ that engage in hot work operations have read and understand the afore-mentioned Fire Safety

Rules and shall keep a written record stating such. The written record shall include the employee's name and date of review and shall be updated every three (3) months. The written record shall be available for inspection upon request by the fire official.

- I further agree that all persons under my employ that engage in hot work operations shall implement and follow the above-mentioned Fire Safety Rules at all times.
- I understand an approved SFFD "Hot Work Operations - Roofer" permit, a current SFFD Tax Collector "Tax License Certificate", a current California C-39 Contractor's license, and a building permit issued through the Department of Building Inspection is required to perform roofing operations which involve hot work within the City and County of San Francisco.
- Additionally, I agree to comply with all city and state laws and regulations relating to fire prevention including the above-mentioned Fire Safety Rules at all times.

Signature of Permit Holder

Date

Printed Name of Permit Holder

CA Contractor License Number

Expiration

License Class

698 Second Street, Room 109
San Francisco, CA 94107-2015|
Telephone: (415) 558-3300
Fax No.: (415) 558-3323

WALL TOP CONDITION VARIES
REFER TO REFERENCED DETAILS

6" MIN

MANUFACTURER'S STANDARD ANCHOR

BACKING AND SEALANT, TYP

10" MIN

MANUFACTURER'S STANDARD SS REGLET FLASHING

2" MIN

3"

SEE LANDSCAPE DRAWINGS
FOR SUBSURFACE
ASSEMBLIES OVER
WATERPROOFING - TYP

INTERIOR

EXTERIOR

STRUCTURAL WALL PARGE SURFACE AS REQUIRED - TYP

1st PLY PVC WATERPROOFING MEMBRANE (WPM)

PVC PROTECTION LAYER

DRAINAGE COMPOSITE

1" RIGID INSULATION (EPS)

1st LAYER PVC CORNER FLASHING (SHEET)

2nd LAYER PVC CORNER FLASHING (SHEET)

RIGID DRAINMAT REFER TO LANDSCAPE DRAWINGS

T/O SLAB / VARIES FIN ELEV.

4" MIN

10" MIN

8" MIN

4" MIN

4" MIN

1'-0"

TERMINATION BAR (T-BAR)

GRID STRIP

1st PLY PVC WP MEMBRANE

2nd PLY PVC WP MEMBRANE

TYPICAL WATERPROOFING ASSEMBLY AT PARK LEVEL SLAB - SEE TYP DETAIL

SEE LANDSCAPE DRAWINGS FOR SUBSURFACE ASSEMBLIES OVER WATERPROOFING - TYP

PVC PROTECTION LAYER -
WRAP CONTINUOUS OVER
ELEMENT

1st PLY PVC WP
MEMBRANE CAP, LAP
OVER SIDE MEMBRANE

DRAINAGE
COMPOSITE

FOR DIMENSION
REFER TO
STRUCTURAL
DRAWINGS

1" RIGID
INSULATION (EPS)

STRUCTURAL BEAM
PARGE SURFACE AS
REQUIRED - TYP

TYP CORNER
WP ASSEMBLY
RIGID DRAINMAT
REFER TO
LANDSCAPE DWGS

SEE LANDSCAPE DRAWINGS FOR SUBSURFACE
ASSEMBLIES OVER WATERPROOFING - TYP

TYPICAL WATERPROOFING ASSEMBLY AT
PARK LEVEL SLAB - SEE TYP. DETAIL

DELETED

Labels on the left side of the diagram:

- DRAINAGE COMPOSITE
- SEPARATION LAYER
- TROWEL FINISH
- COMPRESSIBLE FILLER
- REBAR/DOWEL
- PVC PROTECTION LAYER

Labels on the right side of the diagram:

- GRID STRIP SET IN ADHESIVE & ALUM TAPE DAM SET IN ADHESIVE - ALL MEMBRANE OPENINGS TO BE SMALLER DIAMETER THAN PENETRATING ROD/REBAR - REFER TO SPECS FOR WPM PENETRATIONS
- RIGID DRAINMAT - REFER TO LANDSCAPE DRAWINGS
- 4" NO FINE CONCRETE PROTECTION SLAB
- ALUMINUM SCREEN MESH
- 2 PLIES PVC MEMBRANE CONT UNDER CONC BASE
- LEVELING LAYER (FABRIC)

RIGID DRAINMAT
 REFER TO
 LANDSCAPE DRAWINGS
 4" CONCRETE PROTECTION SLAB
 DRAINAGE COMPOSITE
 PVC PROTECTION LAYER
 SEPARATION LAYER
 2nd PLY PVC WATERPROOFING MEMBRANE
 1st PLY PVC WATERPROOFING MEMBRANE
 LEVELING LAYER
 ALUMINUM SCREEN MESH
 T/O SLAB VARIES
 FIN ELEV
 STRUCTURAL SLAB SLOPE TO DRAIN
 STAINLESS STEEL PLATE
 MONITORING DRAIN AND COLLECTION JAR
 BY WATERPROOFING MANUFACTURER
 CEILING CAVITY
 12" WIDE GRIDSTRIP
 AREA DAM WHERE
 OCCURS

TECHNICAL DRAWING OF A PARAPET WALL CROSS-SECTION, SHOWING WATERPROOFING DETAILS.

Labels and Callouts:

- CONCRETE SEALER PER SPECIFICATION 03 33 00
- TYP GUARDRAIL REFER TO: 2 (A1-8685)
- CONT BACKING & SEALANT, TYP
- MANUFACTURER'S STANDARD ANCHOR WITH T-BAR, TYP
- WPM-3 MANUFACTURER'S STANDARD SS REGLET FLASHING
- FINISHED GRADE - SEE LANDSCAPE DWGS
- 1 PLY PVC WATERPROOFING MEMBRANE WPM-3
- PVC PROTECTION LAYER
- DRAINAGE COMPOSITE
- 1" RIGID INSULATION (EPS)
- PERIMETER STRUCTURAL WALL, PARGE SURFACE AS REQUIRED, TYP

Dimensions:

- 1 3/4"
- 8" MIN
- 3"
- 2" MIN

Other Annotations:

- SLOPE
- T/O PARAPET +88'-3"

SEE LANDSCAPE DRAWINGS FOR SUBSURFACE ASSEMBLIES OVER WATERPROOFING - TYP

STAINLESS STEEL SLEEVE
SIZED AS REQUIRED FOR
NUMBER OF CONDUIT

STAINLESS STEEL CLAMP RING

PVC PROTECTION LAYER

SHOP FABRICATED BOOT
FLASHING CUSTOM SIZED
TO FIT SLEEVES, HEAT
WELD TO TOP PVC PLY

SEALITE FLEXIBLE CONDUIT

WATERPROOF NIPPLE

T&B LIQUIDTIGHT COMPRESSION
FITTING

WPM FLASHING

8" (MIN)

TYPICAL WATERPROOFING
ASSEMBLY AT PARK LEVEL
SLAB - SEE TYP DETAIL

RIGID DRAINMAT
REFER TO LANDSCAPE
DRAWINGS

2hr PENETRATION FIRE
STOP ASSEMBLY - TYP

CEILING CAVITY

ELECTRICAL CONDUIT

This technical drawing illustrates a cross-section of a roof drain sump assembly. The central feature is a drain body cast into a concrete slab, with a drain pipe extending downwards. Above the drain body is a 30"x30" target sheet (WP membrane) supported by a roof drain sump footing. A stainless steel screen is positioned above the target sheet. The assembly is surrounded by a rigid drainmat and filter fabric. A note indicates that for drain sump information, one should refer to landscape drawings. The drawing also shows a grid slab and a typical WP assembly at a park level slab, with a ceiling cavity below.

Labels and dimensions include:

- 3'-0" NTS
- NOTE: FOR DRAIN SUMP INFORMATION, REFER TO LANDSCAPE DRAWINGS
- STAINLESS STEEL SCREEN
- ROOF DRAIN SUMP FOOTING BEYOND
- 30"x30" TARGET SHEET (WP MEMBRANE)
- RIGID DRAINMAT REFER TO LANDSCAPE DRAWINGS
- FILTER FABRIC
- DRAIN
- DRAIN BODY CAST INTO SLAB
- DRAIN PIPE
- GRID SLAB
- TYPICAL WP ASSEMBLY AT PARK LEVEL SLAB- SEE TYP DETAIL
- CEILING CAVITY



Transbay Transit Center

TRANSBAY JOINT POWERS AUTHORITY


CONSULTANT

Pelli Clarke Pelli Architects

 **adamson**
ASSOCIATES, INC.

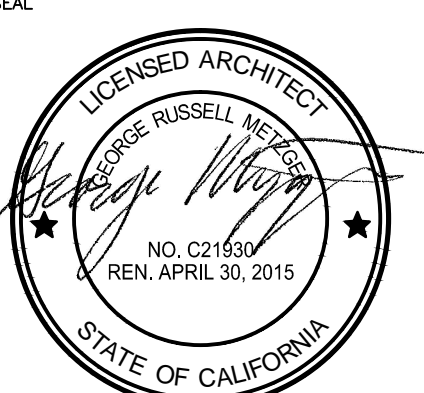
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|----|----|----|----|----|----|----|----|
| 01 | 02 | 15 | 04 | 09 | 06 | 07 | 08 |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Key Map

[illegible]

| | |
|--|--|
| 08-04-CMGC-000 | |
| BAY TRANSIT CENTER PROGRAM ANSBAY TRANSIT CENTER SAN FRANCISCO, CA | |
| ROOF PARK LEVEL WATERPROOFING DETAILS | |

| | | |
|--------------|---------------|-------------|
| CONTRACT NO. | PROJECT TITLE | SHEET TITLE |
| | TRANS TR | |



| | | | |
|---------------------|--|--------------|----------|
| APPROVED: | | G. METZGER | |
| PRINCIPAL ARCHITECT | | | |
| APPROVED: | | S. ROTT | |
| PROJECT MANAGER | | | |
| APPROVED: | | E. DEL ANGEL | |
| PROJECT MANAGER | | | |
| DESIGNED BY: | | W.R. BRADLEY | |
| E. DEL ANGEL | | | |
| DRAWN BY: | | DATE: | |
| C. KEIM | | 12/16/2014 | |
| SCALE: | | SIZE | REVISION |
| 3" = 1'-0" | | E | 1 |
| SHEET NUMBER | | SEQUENCE | NUMBER |
| | | | |

A1-8851 of

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|-------------|-------------------------------|---|--|
| TG13.2-022 | 2/19/2015 | | 09 67 25 (2.2) A.3 | Specification lists Dex O Tex M-E flooring system as alternate. Dex O Tex has advised that M-E is a waterproofing system, and thus not an appropriate equivalent to Sikaguard 62. Appropriate equivalent would be Dex O Tex Positred "O" epoxy coating. Please verify this is an acceptable equivalent? | Dex O Tex Positred "O" is not an acceptable equivalent. See TG13.2-028 for response to product substitution request. |
| TG13.2-028 | 2/19/2015 | | 09 67 25 | Please see attached for Substitution Request. | Dex-O-Tex Posi-Tred O is not an acceptable alternative, because it will not perform as required in the proposed application due to its low temperature limitation. Per Owner provided data; the average oil temperature of equipment will be 65 degrees C (149 Degree F); with an expected max temperature [given the winding temperature] no more than 80 degrees C (176 Degree F). |
| TG13.2-029 | 2/19/2015 | | 09 67 25 | Please see the attached substitution request. | Dex-O-Tex Positred "O" epoxy coating is not acceptable for this application, because of the temperature limitation. This product will not meet the requirements of this application. |
| TG13.2-030 | 2/20/2015 | | 07 19 23, 07 19 25 - (1.1) A. | The above spec sections call out water repellents to be applied to concrete paving and precast concrete both interior and exterior formed surfaces not scheduled to receive deferred finish. Section 07 19 23 does specifically call out water repellent for cobblestone stone paving at the main plaza and bus jet fountain and anti-graffiti coating at bolders, bollards and concrete walls. Other than those specific locations, concrete paving and walls are a very broad description for product installation descriptions. Can a more specific breakout for concrete paving and walls be applied to these spec sections or can a square foot quantity be supplied for bidding purposes? | Refer to Specification Section 07 19 23 paragraph 3.3.B for surfaces to receive Site Repellents for Site (external site/landscape) conditions. Refer to Landscape's Ground Level Material plans and Park Level Material plans for locations of landscape cast in place concrete paving, cobblestone paving, boulders, bollards and landscape cast in place walls. Please refer to Specification Section 07 19 25 paragraph 1.1.A for Architectural surfaces to receive WPM-9 Water-Repellent Coatings. Apply water-repellant coatings on ALL exposed exterior and interior surfaces unless otherwise scheduled to receive another finish, including all formed concrete, precast concrete, and concrete paving. Refer to Architectural plans for locations of concrete elements and to Architectural Finish |

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| | | | | | Schedules for areas to receive other finishes. |
| TG13.2-032 | 2/23/2015 | | 07 16 21 (1.1) A.2 | Per the Summary in spec section 07 16 21 Crystalline Waterproofing (Utility Vaults) (WPM-5), crystalline waterproofing is to be applied on the interior surfaces of transformer vaults. Per the Summary in spec section 09 67 25 Composition Resin Flooring (FC-4), coating systems (FC-4) is to be installed at floor and base in Transformer Vaults. Please verify if the (FC-4) flooring can be installed (will adhere) over a crystalline waterproofing at the floor and base? | <p>FC-4 resin floor coating (Sikatop/Sikagard or Dex-O-Tex) requires a properly prepared surface to guarantee the integrity and adhesion of the applied floor coating; they are compatible providing the contractor follows both WPM-5 and FC-4 manufacturer recommendations. The preparation procedure of one waterproofing product to receive FC-4 may vary from the preparation procedure of the other. There are two products specified for WPM-5:</p> <p>1.) FC-4 resin floor coating may be applied on WPM-5 Aquafin-1C as they are integral to crystalline waterproofed concrete.</p> <p>2.) FC-4 resin floor coating should not be applied directly on WPM-5 Xypex concentrate product, since it is a cementitious, slurry coating. FC-4 resin floor coating may be applied after WPM-5 Xypex product has cured for a period recommended by the Xypex manufacturer, at which point it must be shotblasted to properly prepare the surface per resin floor coating manufacturer instructions.</p> |
| TG13.2-035 | 3/4/2015 | | 3/A1-9317 | <p>Detail 3/A1-9317 shows steel plate to be installed at the column bases to support waterproofing.</p> <p>Can a more conventional waterproofing</p> | See attached SKA-4475 for revised details 1, 3 & 5 on A1-9317, showing aluminum flashing in lieu of miscellaneous steel plates. |

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|------------|-----------|----------------------------------|--------------------|---|--|
| | | | | support detail be provided? | |
| TG13.2-036 | 3/9/2015 | | 07 13 54 (1.9) E | <p>As discussed in the QBD meeting last Friday, attached is a letter from Sika indicating they will be providing the attached waterproofing warranty to the project. Per Warranty Terms, Conditions, Limitations 5:</p> <p>Should the waterproofing Membrane be concealed, the cost of exposure of the Waterproofing Membrane for purposes of Sika Corporation's investigation and/or repair, such as removal and replacement of any concrete, paving, backfill or overburden, shall be the Owner's responsibility.</p> <p>This conflicts with 07 13 54 1.9 E which states:</p> <p>Both warranties (manufacturer's and contractor's) shall include all costs in connection with investigating leaks including removal and replacement of overburden, pumping, applying crystalline waterproofing to the negative side and/or injecting urethane or acrylate resin grouts from above or below.</p> <p>Please confirm that the warranty as provided by Sika is acceptable or provide direction.</p> | <p>Specification section 07 13 54 paragraph 1.9 E will be modified to state the following:</p> <p>"Both warranties shall include all costs in connection with investigating leaks including pumping, applying crystalline waterproofing to the negative side and/or injecting urethane or acrylate resin grouts from above or below.</p> |
| TG13.2-037 | 3/10/2015 | | 07 19 25, 07 19 23 | The scope of these two specifications seem to overlap. Can you provide clarifications on which concrete paving areas are to receive which treatment? | <p>Specification section 07 19 23 pertains to exterior site/landscape elements identified in the landscape documents.</p> <p>Specification section 07 19 25 pertains to interior and exterior architectural elements identified in the architectural documents.</p> <p>Refer to the response to QBD TG13.2-030 for additional information about locations.</p> |
| TG13.2-038 | 3/11/2015 | A1-8648, B/A1-7111 and 3/A1-8650 | 07 13 54 | Per QBD Set #8 Question TG13.2-031 eliminates Sheet Detail 5/A1-8851. Detail 5 does not occur and has been deleted. Refer to detail 2 for typical buried structures. At sheet A1-8648 and B/A1-7111 stair 401 at the Roof Park Level shows a CIP concrete stair on top of the sloped structural deck at this location. WPM-3 waterproofing membrane is to be installed below the stairs at the sloping structural deck. Please clarify if vertical rebar | There are no vertical dowels in the CIPAC stair 401, but there are horizontal dowels as shown in detail 6/A1-8650. The dowel penetrations in the WPM-3 membrane are to be waterproofed per the WPM-3 manufacturer's standard written recommendations and details. |

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| | | | | or dowels will not be used to support the CIP stair installation and if they will used please provide a detail showing how the dowels are to be waterproofed. | |
| TG13.2-039 | 3/11/2015 | 1/L1-7660 | 07 13 00 Site Fluid-Applied Waterproofing (WPM-4) - 2.3.F Materials 07 13 00 | <p>1. Please clarify the type of waterproof membrane called out it detail 1/L1-7660 at the Bus Fountain.</p> <p>2. Paragraph 2.3.F. Materials in spec section 07 13 00 Site Fluid-Applied Waterproofing (WPM-4) calls out waterproofing at Linear Water Feature Deck: AVM System 700, Under tile waterproofing anti-fracture membrane with protective coating. Please clarify the location of the Linear Water Feature Deck?</p> | <p>1.) Please refer to Section 07 13 00 for waterproofing of linear water feature pool basins.</p> <p>2.) The linear water feature deck is the area of the water feature with thin set coble pavers.</p> |
| TG13.2-040 | 3/11/2015 | | 07 62 00, 1/A1-8171 | Please clarify scope of this specification, in relation to w-2 cladding systems | Sheet Metal Flashing and Trim installed directly behind the W-2 system is not included in the work of TG13.2 Roofing/Waterproofing. |
| TG13.2-041 | 3/11/2015 | | 07 13 04, 07 42 13 | Spec calls out for wpm 10, 10a in relation to spec 074213, which lists cladding systems w-16,w-17,w-19, &w-21. Please confirm that wpm 10, 10a underneath of cladding system w-2 is to be performed by others. | Confirmed. WPM-10 and WPM-10a installed directly behind the W-2, W-16, W-17, W-19, and W-21 systems are not included in the work of TG13.2 Roofing/Waterproofing. |
| TG13.2-042 | 3/11/2015 | | 07 13 04, 07 42 13 | Spec calls out for wpm 10, 10a in relation to spec 074213, which lists cladding systems w-16, w-17, w-19, & w-21. Please confirm that wpm 10, 10a for this scope is limited to those cladding systems. | Confirmed. WPM-10 and WPM-10a installed directly behind the W-16, W-17, W-19, and W-21 systems are not included in the work of TG13.2 Roofing/Waterproofing. |
| TG13.2-043 | 3/12/2015 | | 07 13 26 | <p>Per Grace Construction Products, the WPM-1A system called out in Specification Section 07 13 26 is not warrantable as specified (see attached e-mail).</p> <p>1. Specification Section 07 13 26 (1.8) A states, "Warranty shall include responsibility for removing and replacing non-structural overlying materials which prevent access to the membrane." This conflicts with the 10-year Bit & Hydroduct Material Warranty provided by Grace (see attached) which states, "...costs associated with 1) the removal, excavation or replacement of any material in connection with the testing, repair, removal or replacement of the Bituthene sheet or Hydroduct drainage composite" is not covered.</p> <p>2. Specification Section 07 13 26 (1.1) A calls for two plies of Bituthene and 10-year system</p> | <p>1.) From specification section 07 13 26 paragraph 1.8 A, remove the sentence stating: "Warranty shall include responsibility for removing and replacing non-structural overlying materials which prevent access to the membrane."</p> <p>2.) Provide Bituthene Deck Prep with W.R Grace Construction Products Deck System as recommended by the manufacturer for the Bituthene 3000 or 4000 specified in section 07 13 26 paragraph 2.1 A. As specified, two plies of Bituthene Membrane are required.</p> <p>Please remove product "Cetco: Envirosheet" from specification section 07 13 26 paragraph 2.1 A.</p> |

| | | | | | |
|------------|-----------|--|--|---|---|
| | | | | <p>warranty. Per Grace, the system as specified cannot be provided with a system warranty, but the Bituthene Deck System could be provided with the 10 year system warranty attached (see attached Bituthene Deck System Warranty Documents).</p> <p>Please provide direction on the desired WPM-1A waterproofing assembly and manufacturer's warranty to be furnished and installed as a part of the work.</p> | |
| TG13.2-044 | 3/13/2015 | | Detail 1/A1-9585, Specification Section 07 14 13 | <p>Per Detail 1/A1-9585, Hot Fluid-Applied Waterproofing (WPM-2) is to be installed over the structural slab within the Grand Gall.</p> <p>Per Specification Section 07 14 13 Hot Fluid-Applied Waterproofing (WPM-2) is to be installed with protection board and drain board.</p> <p>Detail 1/A1-9585 does not show protection board or drain board over the WPM-2.</p> <p>Please confirm protection board and drain board are required as part of the WPM-2 assembly slab within the Grand Hall.</p> | Please refer to attached RFI RESPONSE T-2217 RWP-WPM-2 Assembly Requirements at Grand Hall. |
| TG13.2-045 | 3/13/2015 | | Detail 1/P1-2305, Detail 1/A1-9585 | <p>Per Detail 1/P1-2305, no floor drains are present under the terrazzo at the Grand Hall.</p> <p>Per Detail 1/A1-9585, Hot Fluid-Applied Waterproofing (WPM-2) is to be installed over the T.O. structural slab within the Grand Hall.</p> <p>Per detail 1/A1-9585, Crack Suppression Membrane (WPM-13) is to be installed over the T.O. the topping slab.</p> <p>Should a water intrusion occur between the structural slab and topping slab, the water may float the topping slab.</p> <p>Please confirm waterproofing is to be installed at the top of structural slab and topping slab, and no floor drains are to be installed within the terrazzo at the Grand Hall.</p> | Please refer to attached RFI RESPONSE T-2218 RWP – Floor Drain Requirements at Grand Hall. |

| | | | | | |
|------------|-----------|--|----------|--|--|
| TG13.2-046 | 3/17/2015 | | 07 13 54 | Please confirm that waterproofing test coupons for WPM-3 will be required and provide the parameters for this requirement. | Confirmed. Membrane coupons shall be taken first thing in the morning and after lunch to confirm machine calibration; in addition, coupons will be taken throughout the day for each machine that is used. The number of total coupons per day is dependent on the number of machines that are in use. Should any coupon fail due to an incomplete weld, additional coupon samples will be taken to confirm the extent of the incomplete weld. The extraction and repair of coupon locations and additional testing and repair of the seam due to an incomplete weld (if required) is to be performed at no cost to the Owner. |
|------------|-----------|--|----------|--|--|

During the bidding period, a proposed change by a bidder of a product, equipment, or service required by the Contract Documents is considered a pre-bid request for substitution. A pre-bid request for substitution will be considered as part of the questions on bid documents (QBD) process. Refer to the CM/GC's Bid Manual for QBD instructions and forms.

Pre-bid requests for substitution requested during the bidding period and accepted by Addendum prior to opening of bids are included in the Contract Documents.

Differences between proposed substitution and specified product (attach required point-by-point comparative data):

Similar installation where proposed substitution has been used (Project/Address/Architect/Owner/Date Installed):

Changes or modifications needed to coordinate other parts of the Work that will be necessary to accommodate the proposed substitution:

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Supporting data attached: X Product Data _____ Drawings _____ Test Reports _____ Samples
_____ Manufacturer's Standard Form of Warranty or Guarantee
Other: _____

The Bidder certifies that

- The proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product.
- The proposed substitution conforms in all respects to the requirements of the Contract Documents and all applicable regulatory requirements and is appropriate for the application intended.
- The same warranty or guarantee for the specified product will be furnished for the proposed substitution.
- The proposed substitution does not affect dimensions or functional clearances.

Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Attachments Sikaguard 62 product data sheet, Dex O Tex positred O product data sheet

END OF SECTION 00 04 41

SPECIFICATION ISSUE LOG

| Revision | Date |
|----------|-----------------|
| 0 | August 11, 2014 |

System Description Sheet

Posi-Tred O Epoxy Coating

Skid Resistant Epoxy Coating System

1. PRODUCT DESCRIPTION

A. COMPOSITION

Posi-Tred O is a skid resistant epoxy coating for use over Dex-O-Tex Cheminert flooring systems and other Dex-O-Tex composite floors, as well as over concrete substrates, stairs, ramps, etc. Posi-Tred O is a three component material consisting of an epoxy resin, hardener and special pre-engineered aluminum oxide skid resistant aggregates. The three components are mixed together and troweled or squeegeed in place and back rolled.

Posi-Tred O is available in five different skid resistant profiles ranging from very coarse to very fine. Selection of best profile to be used depends upon the degree of skid resistance desired, cleaning characteristics desired and the finished appearance.

A special feature of Posi-Tred O is its extremely low odor level and freedom from toxic effect on applicators or personnel in the area during placement and cure.

Posi-Tred O can be used for interior service. For exterior service, consult with Crossfield prior to use. It is available in a range of standard colors and custom colors.

B. TYPICAL USES

Skid resistant surfaces are intended to provide a degree of skid resistance consistent with the intended end use, ranging from dry to wet environments for commercial, industrial and institutional use. It is used in manufacturing operations, stairs, ramps, and walkways-both exterior and interior. The material can be applied over new or existing concrete, ceramic tiles, metal surfaces or Dex-O-Tex composition floors.

C. ADVANTAGES AND LIMITATIONS

ADVANTAGES:

1. Can be applied over a wide range of surfaces.
2. No significant odor during installation.
3. Resists most common chemical spillage.
4. Wide range of color and profile selection.
5. Installed only by Professional Factory Trained Dex-O-Tex Contractors.

LIMITATIONS:

1. Discoloration may occur under UV exposure, use Dexotex Quik-Glaze where UV stability is required.
2. Temperature during application must be 60°F (18°C) or greater.
3. A waterproofing and crack isolation membrane can be installed prior to system application.
4. Polymer floor coatings, including those manufactured by Crossfield Products Corp., may show staining of tire marks from some brands and types of tires. Crossfield Products Corp. does not warrant its materials against tire staining.
5. Moisture vapor emission rates (MVER) in excess of 3.0 lbs./1000 sq/ft/per 24 hr. period per ASTM F1869, or an rh in excess of 78% per ASTM F2170 may result in delamination, discoloration or improper curing without proper treatment prior to installation of the flooring system. Consult with Crossfield Products Corp. for specific recommendations.

6. Vapor control primers, sloping, smoothing or leveling compounds, crack repair or isolation, waterproof membranes or other supplementary items may be required for proper installation at an additional cost. Consult with Crossfield Products Corp. for specific recommendations.

2. TYPICAL PHYSICAL PROPERTIES at 75°F (24°C)

- A. Tensile Strength** ASTM D638..... 1,200 psi
B. Adhesion ASTM D4541..... > 400 psi (100% failure in concrete)
C. Adhesion ASTM D3359 (cross hatch) No Loosening
D. Coefficient of Friction-Rubber Shoe Surface (MIL-D-3134 Test Procedure)

| Profiles | Static Friction Saltwater Solution on surface | Static Friction Oil on surface | Sliding Friction Saltwater Solution on surface | Slide Friction Oil on surface |
|-------------|---|--------------------------------|--|-------------------------------|
| Fine | 0.95 | 0.75 | 0.89 | 0.44 |
| Medium | 1.03 | 0.75 | 0.95 | 0.45 |
| Coarse | 1.09 | 0.85 | 1.00 | 0.56 |
| Very Coarse | 1.24 | 0.88 | 1.04 | 0.59 |

E. Overall Thickness (Dry Film) to Top of Skid Resistance Aggregates

| | |
|---------------------------|---------|
| Very Fine Profile | 6 mils |
| Fine Profile | 12 mils |
| Medium Profile | 23 mils |
| Coarse Profile | 50 mils |
| Very Coarse Profile | 65 mils |

F. Chemical Resistance ASTM D1308

(See Chemical Resistance Chart for Additional Data)

| | |
|--------------------------|---------------|
| Citric Acid (70%)..... | No effect |
| Hydrochloric (10%) | No effect |
| Sulfuric Acid (50%)..... | No effect |
| Lactic Acid..... | Discoloration |
| Beef and Bacon Fat..... | No effect |
| Hydraulic Fluid..... | No effect |
| Urine | No effect |

G. Resistance to Immersion MIL-PRF-23003A** Para. 4.5.11 SAE 10 Oil; Detergent Solution..... No softening, loss of Adhesion or other form of deterioration

H. Fire Resistance ASTM E162

| | |
|--------------------------|-----|
| Flame Spread Index | 0 |
| Smoke Deposited | 2mg |

I. Hardness ASTM D2240, Shore D..... 75-80

J. Microbial Resistance ASTM G21 Passes Rating 1

3. OVERVIEW OF INSTALLATION STEPS

- A.** If direct to concrete, prepare surfaces by shot blasting, power scarification, etc. to remove laitance, grease, curing agents, etc. and prime with approved Dex-O-Tex Primer.
- B.** Mix and trowel or squeegee or roller groutcoat, lockcoat or topcoat. Backroll to remove trowel or squeegee marks.
- C.** For additional aggressiveness introduce additional skid resistant aggregate by broadcasting.

System Description Sheet

Posi-Tred O Epoxy Coating

Skid Resistant Epoxy Coating System

- D. Back roller to smooth trowel or squeegee line and create a stipple with roller.
- E. Apply final coat incorporating skid resistant aggregate and create a stippled finish with roller.

4. PRODUCT AVAILABILITY

Crossfield Products Corp. maintains offices and/or factories at all addresses listed below. Factory Trained Contractors are established in all major trading areas in the United States, Canada and various European, Latin American and Far East nations.

5. SKID RESISTANCE and CLEANABILITY

In general the more aggressive the finished surface the greater the coefficient of friction and corresponding skid resistance, the more difficult to clean. The smoother the finished texture the easier the surface is to clean, but there is a loss of skid resistant properties.

6. CLEANING

Cleaning and disinfecting compounds and cleaning techniques can affect the color, gloss, texture and performance of the system. As a precautionary step, Crossfield recommends that the end-user test their cleaning and disinfecting compounds on a sample or on a small, out of the way finished area, utilizing the intended cleaning technique prior to cleaning the entire surface area. If no deleterious effects are observed, the procedure can be continued. If the cleaning and disinfecting compounds or cleaning techniques damage the system, modification of the cleaning material or techniques will be required. Contact your Representative for additional information.

7. SPECIFICATION ASSISTANCE

Consult Crossfield Products Corp. for specification assistance, detailing, etc. This consultation is highly recommended prior to specification.

8. CHEMICAL RESISTANCE

See Crossfield Products Corp's., Chemical Resistance Guidelines for chemical resistance of a product or system, as well as the types of test performed:

- ASTM C868 Standard Test Method for Chemical Resistance of Protective Lining.
- ASTM C267 Standard Test Method for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacing and Polymer Concretes.
- ASTM D1308 Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
- Crossfield Products Corp. Proprietary Testing

Note: Chemical resistance is a functional test, usually limited to changes in weight or thickness measured in loss or gain and does not evaluate subject aesthetic issues. To determine aesthetic issues, Crossfield recommends testing the products or system in accordance with intended end use.

9. TESTING

The technical data contained herein is the result of tests made in Crossfield's laboratories or in independent laboratories using small scale equipment, following generally accepted trade practices. Although this information is believed to be true and accurate, the use of different equipment for testing under

dissimilar conditions or the testing of samples produced under dissimilar conditions may develop substantially different results.

LIMITED WARRANTY

NO WARRANTY SHALL BE EFFECTIVE UNTIL THE TERMS AND CONDITIONS OF SALE SET FORTH IN CROSSFIELD PRODUCTS CORP. INVOICE ARE MET.

Crossfield Products Corp. warrants to the purchaser of its products that such products are free from manufacturing defect. Crossfield does not warrant or guarantee the workmanship performed by any person or firm installing its products. Crossfield's obligation under this warranty is limited solely to the original purchaser and solely to the remedy of replacement in kind of any product which Crossfield sold which may prove defective in manufacture within one year from date of installation, provided said product was stored correctly and installed within the product's shelf life, by the original purchaser and which Crossfield examination shall disclose to Crossfield's satisfaction to be thus defective.

IN NO EVENT SHALL CROSSFIELD PRODUCTS CORP. BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS WARRANTY IS EXPRESSLY GIVEN IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND ALL OTHER OBLIGATIONS OR LIABILITIES ON CROSSFIELD'S PART, AND WE NEITHER ASSUME NOR AUTHORIZE ANY PERSON OR PERSONS TO ASSUME FOR US ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF A CROSSFIELD PRODUCT. THIS WARRANTY SHALL NOT APPLY TO ANY OF CROSSFIELD'S PRODUCTS, WHICH HAVE BEEN SUBJECT TO ADULTERATION, ALTERATION, ABUSE OR MISUSE. CROSSFIELD PRODUCTS CORP. MAKES NO WARRANTY WHATSOEVER IN RESPECT TO ACCESSORIES, PARTS OR MATERIALS NOT SUPPLIED BY CROSSFIELD PRODUCTS CORP., WHICH ARE USED IN CONNECTION WITH ITS PRODUCTS. THE TERM "ORIGINAL PURCHASER" IN THIS WARRANTY MEANS THAT PERSON, CORPORATION OR ENTITY TO WHOM CROSSFIELD PRODUCTS CORP. SOLD ITS PRODUCT OR PRODUCTS. ANY ACTION TO ENFORCE ANY WARRANTY OR FOR BREACH OF CONTRACT OR ARISING OUT OF ANY CLAIM AGAINST CROSSFIELD PRODUCTS CORP. SHALL BE COMMENCED AND MAINTAINED ONLY IN A COURT OF COMPETENT JURISDICTION IN THE CONTINENTAL UNITED STATES OF AMERICA. THE PURCHASER ACCEPTS THESE TERMS AND CONDITIONS, AND HEREBY EXPRESSLY WAIVES ANY CLAIM TO ADDITIONAL DAMAGES.

CAUTION: ALWAYS KEEP OUT OF THE REACH OF CHILDREN.



DEX-O-TEX PRODUCT LINE Crossfield Products Corp.

West Coast Office
3000 E. Harcourt Street
Rancho Dominguez, CA
90221
310-886-9100
310-886-9119 fax

East Coast Office
140 Valley Road
Roselle Park, NJ
07204
908-245-2800
908-245-0659 fax

www.dexotex.com

Sikagard® 62

High-build, protective, solvent-free, colored epoxy coating

| | |
|---------------------|---|
| Description | High-build, protective, solvent-free, colored epoxy coating. |
| Where to Use | Use as a high build, corrosion-resistant, protective coating, as a protective lining for secondary containment structures or as a seamless flooring system. |
| Advantages | <ul style="list-style-type: none">■ Exceptional tensile strength.■ Good chemical resistance for long-term protection.■ Convenient A:B = 1:1 mixing ratio.■ Easy, paint-like viscosity.■ Available in 3 standard colors: gray, red, and tan.■ Excellent bonding to all common structural substrates.■ Super abrasion resistance for long-term wear.■ Sikagard® 62 gray, after cure, is approved for contact with potable water.■ Material is USDA certifiable. |
| Coverage | Approximately 150-250 ft. ² /gal. depending on condition of substrate. |
| Packaging | 4 gal. units; 1 qt. units, 12/case. |

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

| | |
|---|--|
| Shelf Life | 2 years in original, unopened containers. |
| Storage Conditions | Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using. |
| Color | Gray, red, tan. |
| Mixing Ratio | Component 'A' : Component 'B'=1:1 by volume. |
| Viscosity (Mixed) | Approximately 3,500 cps. |
| Pot Life | Approximately 35 to 40 minutes. (60 gram mass). |
| Tack-Free Time | Approximately 4 hours. |
| Open Time | Light foot traffic: 5-7 hours. Rubber-wheel traffic: 8-10 hours. |
| Immersion and Chemical Exposure | Minimum cure: 3 days |
| Tensile Properties (ASTM D-638) | |
| 14 day | Tensile Strength 5,400 psi (37.3 MPa) Elongation at Break 2.7 % |
| Abrasion (ASTM D-1044) (Taber Abrader) | |
| 7 day | Weight loss, 1,000 cycles (H-22 wheel, 1,000 gm weight) 0.61 gm |
| Abrasion Resistance (ASTM D-968) | |
| 14 day | Abrasion Coefficient 51 liters/mil. |
| Adhesion (ASTM D-3359) | |
| 1 day | Adhesion Classification 4A |
| Water Absorption (ASTM D-570) | |
| 7 day | (24 hour immersion) 0.1% |



PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

How to Use

| | |
|----------------------------|--|
| Surface Preparation | <p>Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.</p> <p>Preparation Work: Concrete - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by blastcleaning or equivalent mechanical means.</p> <p>Steel - Should be cleaned and prepared thoroughly by blastcleaning.</p> |
| Mixing | <p>Pre-mix each component. Proportion equal parts by volume of Components 'A' and 'B' into a clean mixing container. Mix with a low-speed (400-600 rpm) drill using a Sika paddle for 3 minutes, until uniform in color.</p> |
| Application | <p>Apply coating using high-quality roller, brush or spray. Two coats are recommended. Apply second coat as soon as the first coat is tack-free and the traffic of application will not damage the first coat. The second coat, however, must be applied within 48 hours since a longer delay will require additional surface preparation.</p> <p>Do not spray with slip resistant granules mixed into the coating. For use as a seamless flooring system, consult Technical Service.</p> |
| Limitations | <ul style="list-style-type: none"> ■ Minimum substrate and ambient temperature for application 50°F (10°C). ■ Do not apply over wet, glistening surface. ■ Material is a vapor barrier after cure. ■ Do not apply to porous surfaces exhibiting moisture-vapor transmission during the application. Consult Technical Service. ■ Minimum age of concrete prior to application is 21-28 days, depending on curing and drying conditions. ■ Do not apply to exterior, on-grade substrates. ■ Use oven-dried aggregate only. ■ Do not thin with solvents. ■ Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure. ■ On 'green or 'damp' concrete, EpoCem can be used as a pore filler to reduce vapor drive and potential osmotic blistering. |

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KEEP CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY. FOR PROFESSIONAL USE ONLY.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available online at <http://usa.sika.com/> or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. SALE OF SIKA PRODUCTS ARE SUBJECT SIKA'S TERMS AND CONDITIONS OF SALE AVAILABLE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING 201-933-8800.

Visit our website at usa.sika.com

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Differences between proposed substitution and specified product (attach required point-by-point comparative data):

Similar installation where proposed substitution has been used (Project/Address/Architect/Owner/Date Installed):

Changes or modifications needed to coordinate other parts of the Work that will be necessary to accommodate the proposed substitution:

00 04 41 - 1

Supporting data attached: X Product Data _____ Drawings _____ Test Reports _____ Samples
_____ Manufacturer's Standard Form of Warranty or Guarantee
Other: _____

The Bidder certifies that

- The proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product.
- The proposed substitution conforms in all respects to the requirements of the Contract Documents and all applicable regulatory requirements and is appropriate for the application intended.
- The same warranty or guarantee for the specified product will be furnished for the proposed substitution.
- The proposed substitution does not affect dimensions or functional clearances.

Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Attachments Sikatop 122 product data sheet, Dex O Tex A-81 underlayment product data sheet

END OF SECTION 00 04 41

SPECIFICATION ISSUE LOG

| Revision | Date |
|----------|-----------------|
| 0 | August 11, 2014 |

DEX-O-TEX®

Product Description Sheet

A-81 Underlayment

Smoothing and Resurfacing

Compound for Concrete and Lath-Reinforced Plywood

1. PRODUCT DESCRIPTION

A. COMPOSITION

A-81 Underlayment is a polymer modified pre-packaged cementitious patching and leveling compound for concrete or lath-reinforced plywood.

A-81 Underlayment can be applied to any thickness from near featheredge upwards. It can be used on interior or exterior surfaces, including those exposed to freeze thaw or constant water spillage.

Fast setting, A-81 Underlayment is pre-packaged for convenient unit mixing and is easy to apply. It dries to a charcoal gray color. Natural, cement-gray color is available on request. Typical set-up time at 75°F (24°C) is 6-8 hours for foot traffic and 18-24 hours for vehicular traffic.

B. TYPICAL USES

It is designed for use beneath Dex-O-Tex surfacing material or as a patching, smoothing and resurfacing material. A-81 can be used as a smoothing underlayment prior to placement of carpet, resilient or ceramic tiles, rubber, vinyl or wood flooring and resinous floors. It is totally VOC compliant and contains no organic solvents. It is non-toxic and has only a slight odor during placement and cure.

C. ADVANTAGES - LIMITATIONS

ADVANTAGES:

1. Superior adhesion.
2. Low permeability, yet breathable.
3. Use interior-exterior.
4. Recommended for use with Dex-O-Tex floors.
5. Fast setting.
6. Excellent freeze-thaw resistance.
7. Unaffected by de-icing salts.
8. Similar expansion-contraction as concrete.
9. Installed only by Professional Factory Trained Dex-O-Tex Contractors.

LIMITATIONS

1. Minimum ambient and surface temperatures should be 45°F (7°C) at time of placement and cure. Do not allow product to freeze prior to cure.
2. If applied in direct hot sun or high winds, cover with damp burlap to minimize or prevent surface checking.
3. A waterproofing and crack isolation membrane can be installed prior to system applications.
4. Moisture vapor emission rates (MVER) in excess of 6.0lbs/1000 sq/ft/per 24hr. period per ASTM F1869, or an rh in excess of 78% per ASTM F2170 may result in delamination, discoloration or improper curing without proper treatment prior to installation of the flooring system. Consult with Crossfield Products Corp. for specific recommendations.
5. Vapor control primers, sloping, smoothing or leveling compounds, crack repair or isolation, waterproof membranes or other supplementary items may be required for proper installation at an additional cost. Consult with Crossfield Products Corp. for specific recommendations.

2. TYPICAL PHYSICAL PROPERTIES at 75°F (24°C)

- A. Compressive Strength ASTM C1094,140 psi
- B. Tensile Strength ASTM C307 800 psi
- C. Flexural Strength ASTM C580..... 1,200 psi
- D. Hardness ASTM D2240, Shore D 70-75
- E. Adhesion ASTM D4541.....>400 psi
(100% failure in concrete)
- F. Indention MIL-D-3134, Para 4.7.4.2.1 2.26%
(Steadily Applied Load, 2,000 lbs. on 1" steel
ram. Imposed for 30 min.)
- G. Adhesion MIL-D-3134, Para. 4.7.1.4305 psi
(Shear from Steel Plate after 96 hours)
- H. Water Absorption MIL-D-3134..... 3.14%
- I. Impact Resistance (Gardner Impact Tester) No chipping,
cracking or delamination and not more than 0.014"

3. OVERVIEW OF INSTALLATION STEPS

- A. Concrete must be cleaned, sound and durable and free of all grease, paint or other foreign matter. Remove loose or spalled concrete. Vacuum surface or hose with high pressure water to remove excess dust.
- B. Prepare plywood surfaces by removal of laitance, grease and foreign matter. Apply expanded wire lath (1.75# per yd², galvanized steel-type) per ASTM C847. Mechanically fasten lath with staples (no. 16 gauge steel, 1" wide crown and ½" leg length) in compliance with ASTM F1667.
- C. For application up to 1/2" (12.7mm) in thickness, mix together one gallon of A-81 Paste with one 50 lb. (12 kg) bag of A-81 Powder. Mix with drill mixer, plaster mixer, or mortar box and hoe. For thicker applications, see Coverage Rate (below), item B.
- D. Prime concrete surfaces with a liberal brush coat of A-81 Paste as provided. A-81 Underlayment must be applied over wet primecoat. Reapply prime coat if the first coat absorbs into concrete rapidly.
- E. Finish immediately after placing. Do not re-trowel once material begins to set up.

Coverage Rate

- A. Two gallons of paste and three bags of powder mix will cover about 60 sq/ft (5.5m²) in a 1/4" (6.35mm) thickness. In "skim coating" thickness to smooth off slightly rough or rain-marked concrete, two-gallons of paste and three bags of powder mix will cover about 120 sq/ft (16.5m²). Two gallons of paste to three bags of powder mixed produces about 1.2 cu/ft (.036 cu. Meters).
- B. For application in excess of 1/2" (12.7mm) in thickness, mix together standard unit described above and then add up to 30 lbs. (13.5 kg) of washed, dried and bagged #30 silica sand or mixture of silica sand and pea gravel 3/8" pea gravel. Add a small amount additional A-81 Paste as necessary to permit trowelability. If desired, spray apply a small amount of A-81 Paste on surface to lubricate for easy trowel compaction.
- C. Two gallons of A-81 Paste and three bags of A-81 Powder, plus 30 lbs. aggregate mix will cover about 36 sq. ft. (3.6 m²) in a 1/2" (12.7mm) thickness. The above mix produces about 2.1 cu/ft (.057m³).

Product Description Sheet

A-81 Underlayment

Smoothing and Resurfacing Compound for Concrete

4. PRODUCT AVAILABILITY

Crossfield Products Corp. maintains offices and/or factories at all addresses listed below. Factory Trained Contractors are established in all major trading areas in the United States, Canada and various European, Latin American and Far East nations.

5. SKID RESISTANCE and CLEANABILITY

In general the more aggressive the finished surface the greater the coefficient of friction and corresponding skid resistance, the more difficult to clean. The smoother the finished texture the easier the surface is to clean, but there is a loss of skid resistant properties.

6. CLEANING

Cleaning and disinfecting compounds and cleaning techniques can affect the color, gloss, texture and performance of the system. As a precautionary step, Crossfield recommends that the end-user test their cleaning and disinfecting compounds on a sample or on a small, out of the way finished area, utilizing the intended cleaning technique prior to cleaning the entire surface area. If no deleterious effects are observed, the procedure can be continued. If the cleaning and disinfecting compounds or cleaning techniques damage the system, modification of the cleaning material or techniques will be required. Contact your Representative for additional information.

7. SPECIFICATION ASSISTANCE

Consult Crossfield Products Corp. for specification assistance, detailing, etc. This consultation is highly recommended prior to specification.

8. TESTING

The technical data contained herein is the result of tests made in Crossfield's laboratories or in independent laboratories using small scale equipment, following generally accepted trade practices. Although this information is believed to be true and accurate, the use of different equipment for testing under dissimilar conditions or the testing of samples produced under dissimilar conditions may develop substantially different results.

LIMITED WARRANTY

NO WARRANTY SHALL BE EFFECTIVE UNTIL THE TERMS AND CONDITIONS OF SALE SET FORTH IN CROSSFIELD PRODUCTS CORP. INVOICE ARE MET.

Crossfield Products Corp. warrants to the purchaser of its products that such products are free from manufacturing defect. Crossfield does not warrant or guarantee the workmanship performed by any person or firm installing its products. Crossfield's obligation under this warranty is limited solely to the original purchaser and solely to the remedy of replacement in kind of any product which Crossfield sold which may prove defective in manufacture within one year from date of installation, provided said product was stored correctly and installed within the product's shelf life, by the original purchaser and which Crossfield examination shall disclose to Crossfield's satisfaction to be thus defective.

IN NO EVENT SHALL CROSSFIELD PRODUCTS CORP. BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS WARRANTY IS EXPRESSLY GIVEN IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND ALL OTHER OBLIGATIONS OR LIABILITIES ON CROSSFIELD'S PART, AND WE NEITHER ASSUME NOR AUTHORIZE ANY PERSON OR PERSONS TO ASSUME FOR US ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF A CROSSFIELD PRODUCT. THIS WARRANTY SHALL NOT APPLY TO ANY OF CROSSFIELD'S PRODUCTS, WHICH HAVE BEEN SUBJECT TO ADULTERATION, ALTERATION, ABUSE OR MISUSE. CROSSFIELD PRODUCTS CORP. MAKES NO WARRANTY WHATSOEVER IN RESPECT TO ACCESSORIES, PARTS OR MATERIALS NOT SUPPLIED BY CROSSFIELD PRODUCTS CORP., WHICH ARE USED IN CONNECTION WITH ITS PRODUCTS. THE TERM "ORIGINAL PURCHASER" IN THIS WARRANTY MEANS THAT PERSON, CORPORATION OR ENTITY TO WHOM CROSSFIELD PRODUCTS CORP. SOLD ITS PRODUCT OR PRODUCTS. ANY ACTION TO ENFORCE ANY WARRANTY OR FOR BREACH OF CONTRACT OR ARISING OUT OF ANY CLAIM AGAINST CROSSFIELD PRODUCTS CORP. SHALL BE COMMENCED AND MAINTAINED ONLY IN A COURT OF COMPETENT JURISDICTION IN THE CONTINENTAL UNITED STATES OF AMERICA. THE PURCHASER ACCEPTS THESE TERMS AND CONDITIONS, AND HEREBY EXPRESSLY WAIVES ANY CLAIM TO ADDITIONAL DAMAGES.

CAUTION: ALWAYS KEEP OUT OF THE REACH OF CHILDREN.



DEX-O-TEX PRODUCT LINE Crossfield Products Corp.

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3000 E. Harcourt Street
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90221
310-886-9100
310-886-9119 fax

East Coast Office
140 Valley Road
Roselle Park, NJ
07204
908-245-2800
908-245-0659 fax

www.dexotex.com

Product Data Sheet

Edition 7.14.2014

SikaTop® 122 Plus

SikaTop® 122 PLUS

Two-component, polymer-modified, cementitious, trowel-grade mortar plus FerroGard 901 penetrating corrosion inhibitor

| | |
|---------------------|---|
| Description | SikaTop® 122 PLUS is a two-component, polymer-modified, portland-cement, fast-setting, trowel-grade mortar. It is a high performance repair mortar for horizontal and vertical surfaces and offers the additional benefit of FerroGard® 901, a penetrating corrosion inhibitor. |
| Where to Use | <ul style="list-style-type: none"> ■ On grade, above, and below grade on concrete and mortar. ■ On horizontal surfaces. ■ As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams, and ramps. ■ To level concrete surfaces. ■ As an overlay system for topping/resurfacing concrete. ■ Overlay in cathodic protection systems. |
| Advantages | <ul style="list-style-type: none"> ■ High compressive and flexural strengths. ■ High early strengths. Opens to traffic fast: foot in 4-6 hours, pneumatic tire in 8-12 hours. ■ High abrasion resistance. ■ Increased freeze/thaw durability and resistance to deicing salts. ■ Compatible with coefficient of thermal expansion of concrete - Passes ASTM C-884 (modified). ■ Increased density - improved carbon dioxide resistance (carbonation) without adversely affecting water vapor transmission (not a vapor barrier). ■ Enhanced with FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete. ■ Not flammable ■ Conforms to ECA/USPHS standards for surface contact with potable water. ■ USDA approved for food industry. ■ ANSI/NSF Standard 61 potable water approved. |
| Coverage | 0.51 cu. ft./ unit mortar; 0.75 cu. ft./unit concrete; (SikaTop 122 + 42 lbs. 3/8 pea gravel) |
| Packaging | Component 'A' - 1-gal. plastic jug; 4/carton. Component 'B' - 61.5-lb. multi-wall bag. |

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

| | |
|--|--|
| Shelf Life | One year in original, unopened packaging. |
| Storage Conditions | Store dry at 40°-95°F. Condition material to 65°-75°F before using. Protect Component 'A' from freezing. If frozen, discard. |
| Color | Concrete gray when mixed. |
| Mixing Ratio | Plant-proportioned kit, mix entire unit. |
| Application Time | Approximately 30 minutes. |
| Finishing Time | 50-120 minutes |
| Note: | All times start after adding Component 'B' to Component 'A' and are highly affected by temperature, relative humidity, substrate temperature, wind, sun and other job site conditions. |
| Density (wet mix) | 136 lbs./cu. ft. (2.18 kg./l) |
| Flexural Strength (ASTM C-293) 28 days | 2,000 psi (13.8 MPa) |
| Splitting Tensile Strength (ASTM C-496) 28 days | 750 psi (5.2 MPa) |
| Bond Strength* (ASTM C-882 modified) 28 days | 2,200 psi (15.2 MPa) |
| Compressive Strength (ASTM C-109) | |
| 1 day | >2,500 psi (17.2 MPa) |
| 7 days | 5,500 psi (37.9 MPa) |
| 28 days | 7,000 psi (48.3 MPa) |
| Permeability (AASHTO T-277) 28 days | Approx. 500 Coulombs. Electrical resistivity (ohm-cm) 28,000 |
| Freeze/Thaw Resistance (ASTM C-666) | 300 cycles 98% |
| Corrosion Testing for FerroGard 901 | |
| Cracked Beam Corrosion Tests: | |
| Reduced corrosion rates | 63% versus control specimens |
| ASTM G109 modified after 400 days | |
| Drying Shrinkage (ASTM C157M) | <0.05% |
| Cracking Shrinkage (ASTM C1851) | |
| Average Age of Cracking | >60 days |

* Mortar scrubbed into substrate.

PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://USA.SIKA.COM/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.



How to Use

| | | | | | | | | | | |
|-------------------------------|--|-------------------------------|-------------|-------------------------|------|-----------------|----------------|----------|----------------|-------------------|
| Substrate | Concrete, mortar, and masonry products. | | | | | | | | | |
| Surface Preparation | Remove all deteriorated concrete, dirt, oil, grease, and all bond inhibiting materials from surface. Be sure repair area is not less than 1/8 inch in depth. Preparation work should be done by high pressure water blast, scab- bler, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of ±1/16 inch (CSP-5). Saturate surface with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application. | | | | | | | | | |
| Reinforcing Steel | Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatex® 110 EpoCem (consult Technical Data Sheet). | | | | | | | | | |
| Priming | Concrete Substrate: Prime the prepared substrate with a brush or sprayed applied coat of Sika® Armatex® 110 EpoCem (consult Technical Data Sheet). Alternately, a scrub coat of SikaTop® 122 Plus can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries. | | | | | | | | | |
| Mixing | Pour approximately 7/8 of Component 'A' into the mixing container. Add Component 'B' (powder) while mixing continuously. Mix mechanically with a low-speed drill (400- 600 rpm) and mixing paddle or mortar mixer. Add remaining Component 'A' (liquid) to mix if a more loose consistency is desired. Mix to a uniform consistency, maximum 3 minutes. Thorough mixing and proper proportioning of the two components is necessary. For SikaTop® 122 PLUS concrete: Pour all of Component 'A' into mixing container. Add all of Component 'B' while mixing, then introduce 3/8 inch coarse aggregate at desired quantity. Mix to uniform consistency, maximum 3 minutes. Addition rate is 42 lbs. per bag (approx. 3.0 to 3.5 gal. by loose volume). The aggregate must be non-reactive (reference ASTM C1260, C227 and C289), clean, well-graded, saturated surface dry, have low absorption and high density, and comply with ASTM C 33 size number 8 per Table 2. Note: Variances in the quality of the aggregate will affect the physical properties of SikaTop® 122 PLUS. The yield is increased to 0.75 cu. ft./unit with the addition of the aggregate (42 lbs.). Do not use limestone aggregate. | | | | | | | | | |
| Application | SikaTop® 122 PLUS must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling repair, consolidate, then screed. Allow mortar or concrete to set to desired stiffness, then finish with wood or sponge float for a smooth surface, or broom or burlapdrag for a rough finish. | | | | | | | | | |
| Tooling & Finishing | As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based* compatible curing compound. Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost. *Pretesting of curing compound is recommended. | | | | | | | | | |
| Limitations | <table><tr><td>Application thickness:</td><td>Min.</td><td>Max. in one lift</td></tr><tr><td>Neat</td><td>1/8 inch (3 mm)</td><td>1 inch (25 mm)</td></tr><tr><td>Extended</td><td>1 inch (25 mm)</td><td>4 inches (100 mm)</td></tr></table> <ul style="list-style-type: none">■ Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application.■ Addition of coarse aggregates may result in variations of the physical properties of the mortar.■ Do not use solvent-based curing compound.■ Size, shape and depth of repair must be carefully considered and consistent with practices recommended by ACI. For additional information, contact Technical Service.■ For additional information on substrate preparation, refer to ICRI Guideline No.03732 Coatings, and Polymer Overlays.■ If aggressive means of substrate preparation is employed, substrate strength should be tested in accor- dance with ACI 503 Appendix A prior to the repair application.■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32. | Application thickness: | Min. | Max. in one lift | Neat | 1/8 inch (3 mm) | 1 inch (25 mm) | Extended | 1 inch (25 mm) | 4 inches (100 mm) |
| Application thickness: | Min. | Max. in one lift | | | | | | | | |
| Neat | 1/8 inch (3 mm) | 1 inch (25 mm) | | | | | | | | |
| Extended | 1 inch (25 mm) | 4 inches (100 mm) | | | | | | | | |

PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DE- PARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CUR- RENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

KEEP CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY. FOR PROFESSIONAL USE ONLY.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available online at <http://usa.sika.com/> or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. SALE OF SIKA PRODUCTS ARE SUBJECT SIKA'S TERMS AND CONDITIONS OF SALE AVAILABLE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING 201-933-8800.

Visit our website at usa.sika.com

1-800-933-SIKA NATIONWIDE

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

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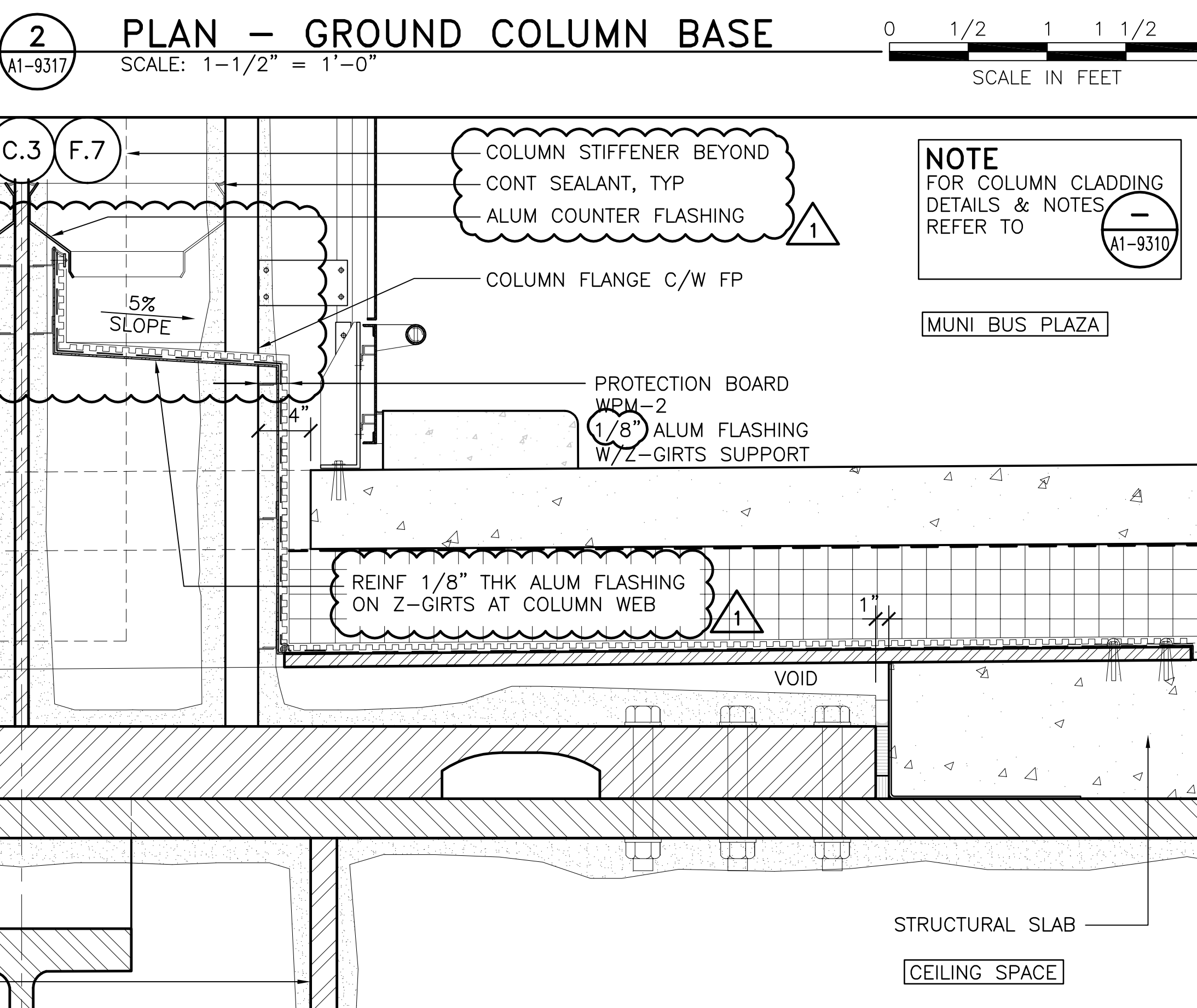
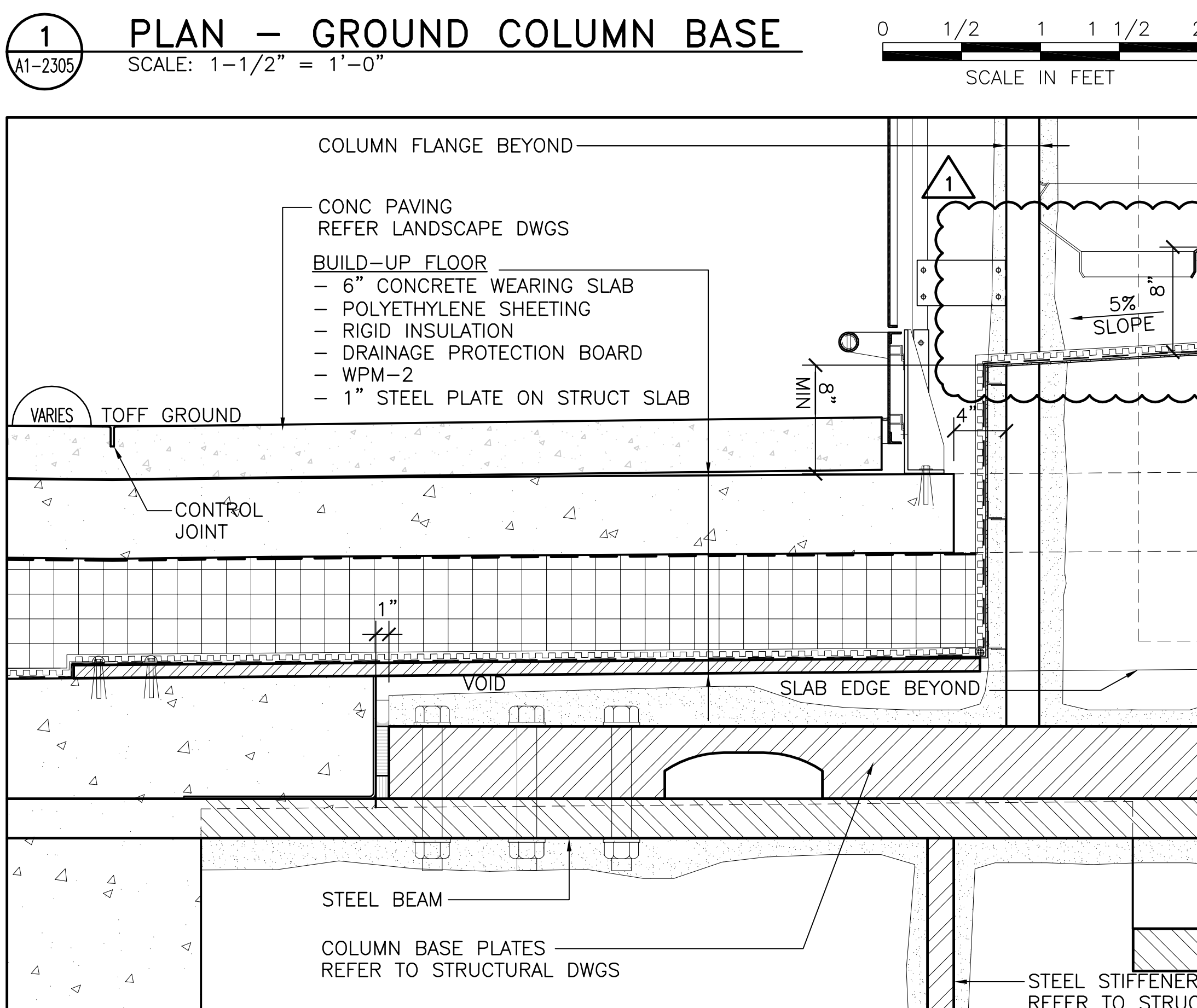
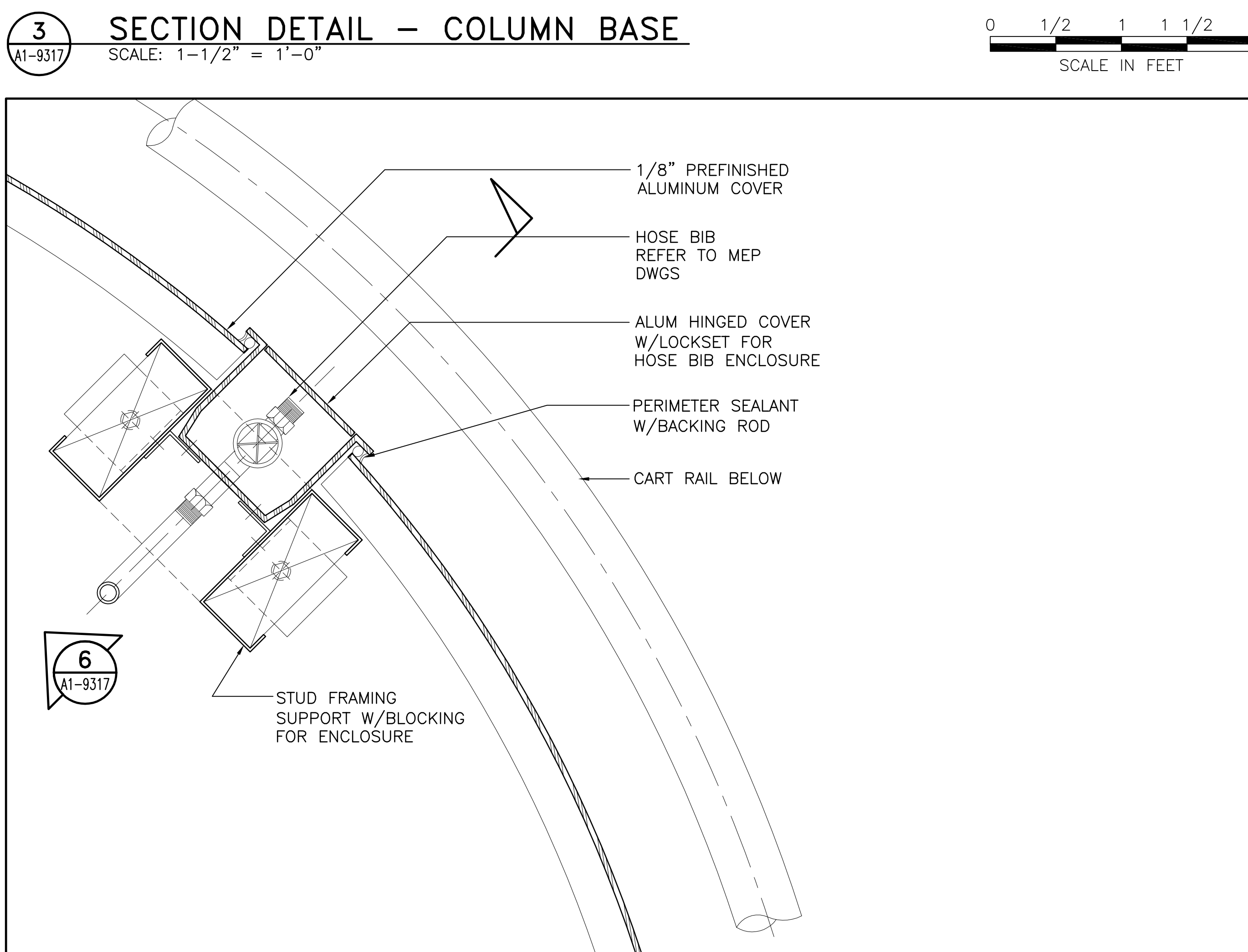
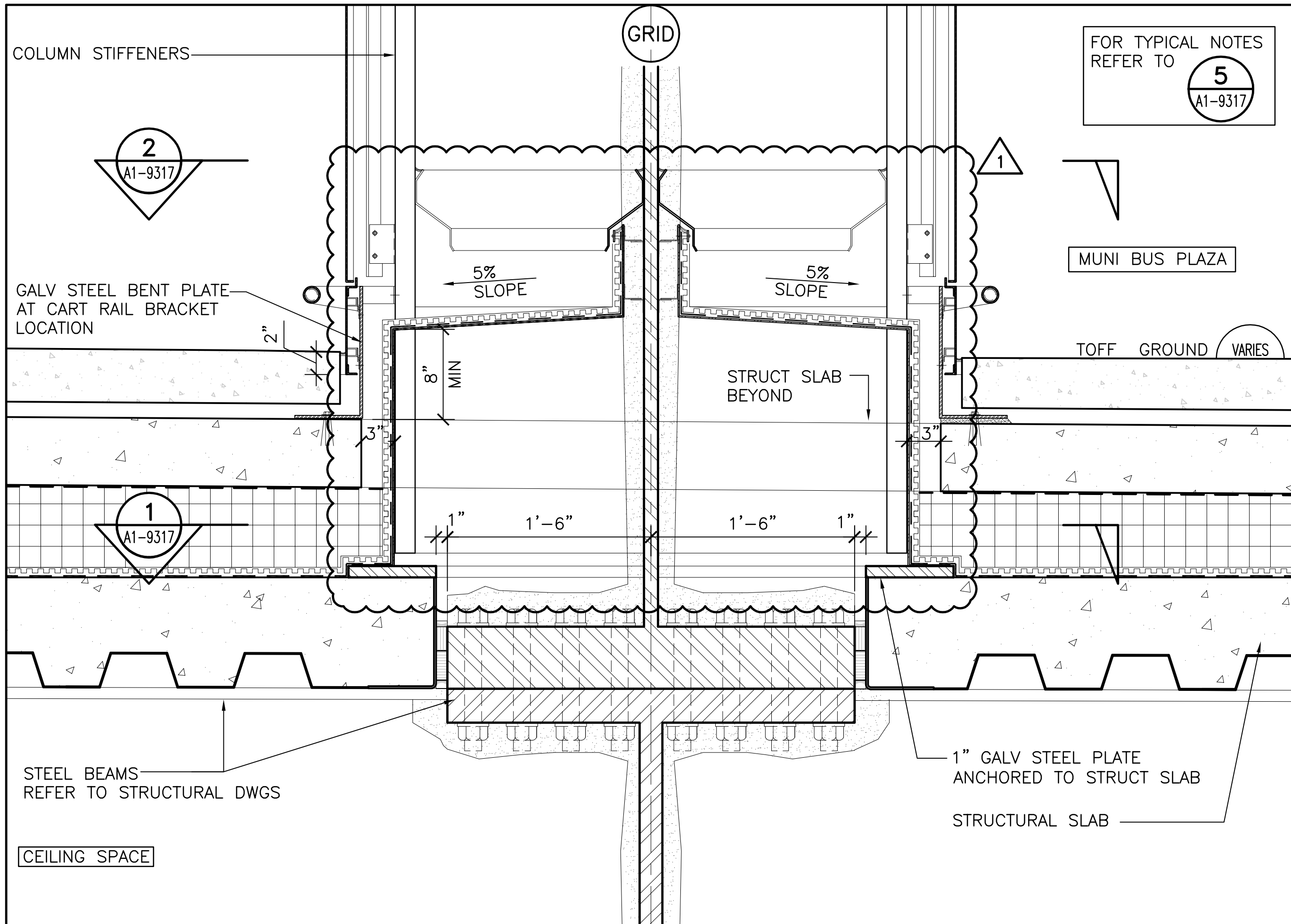
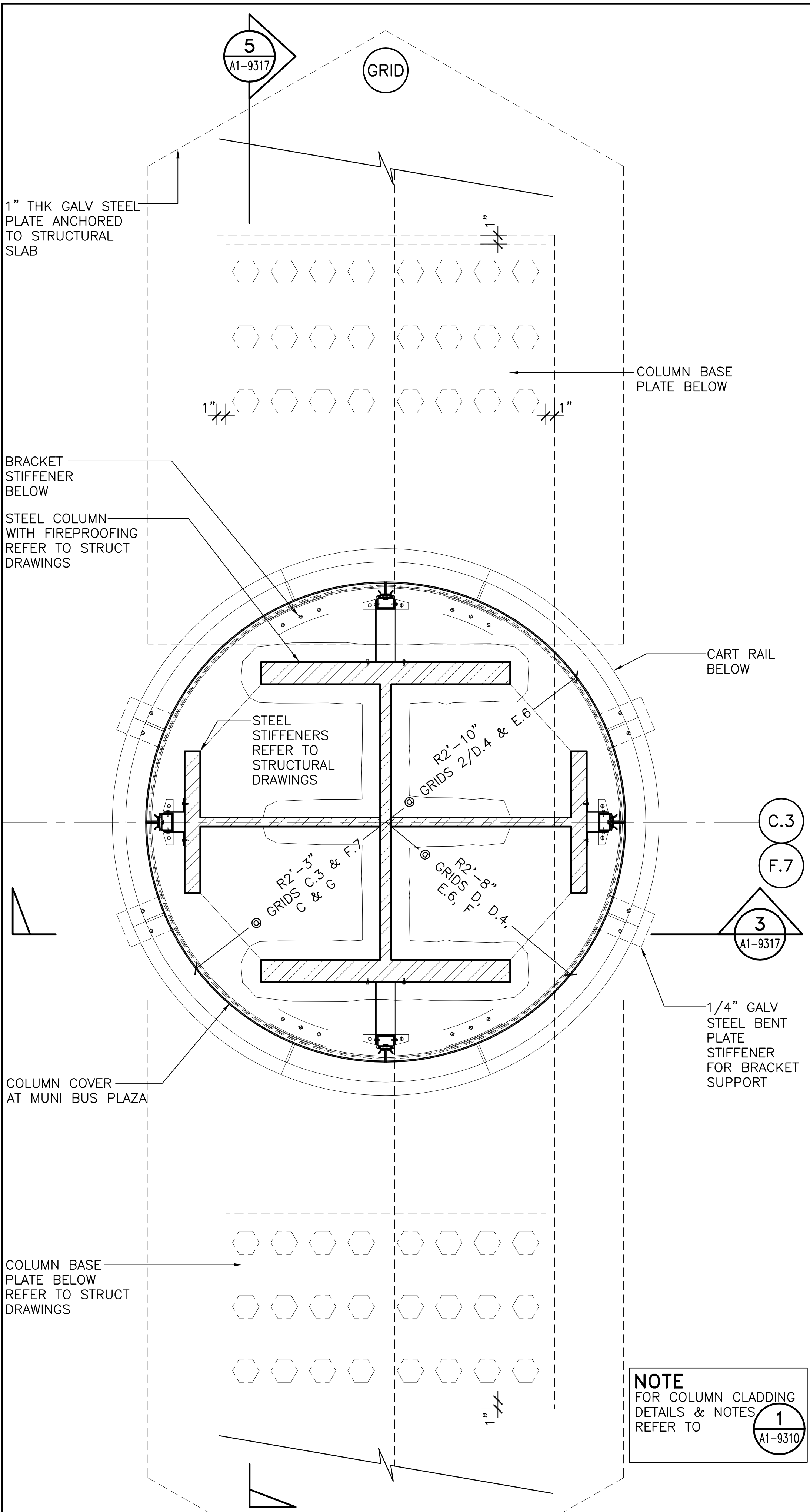
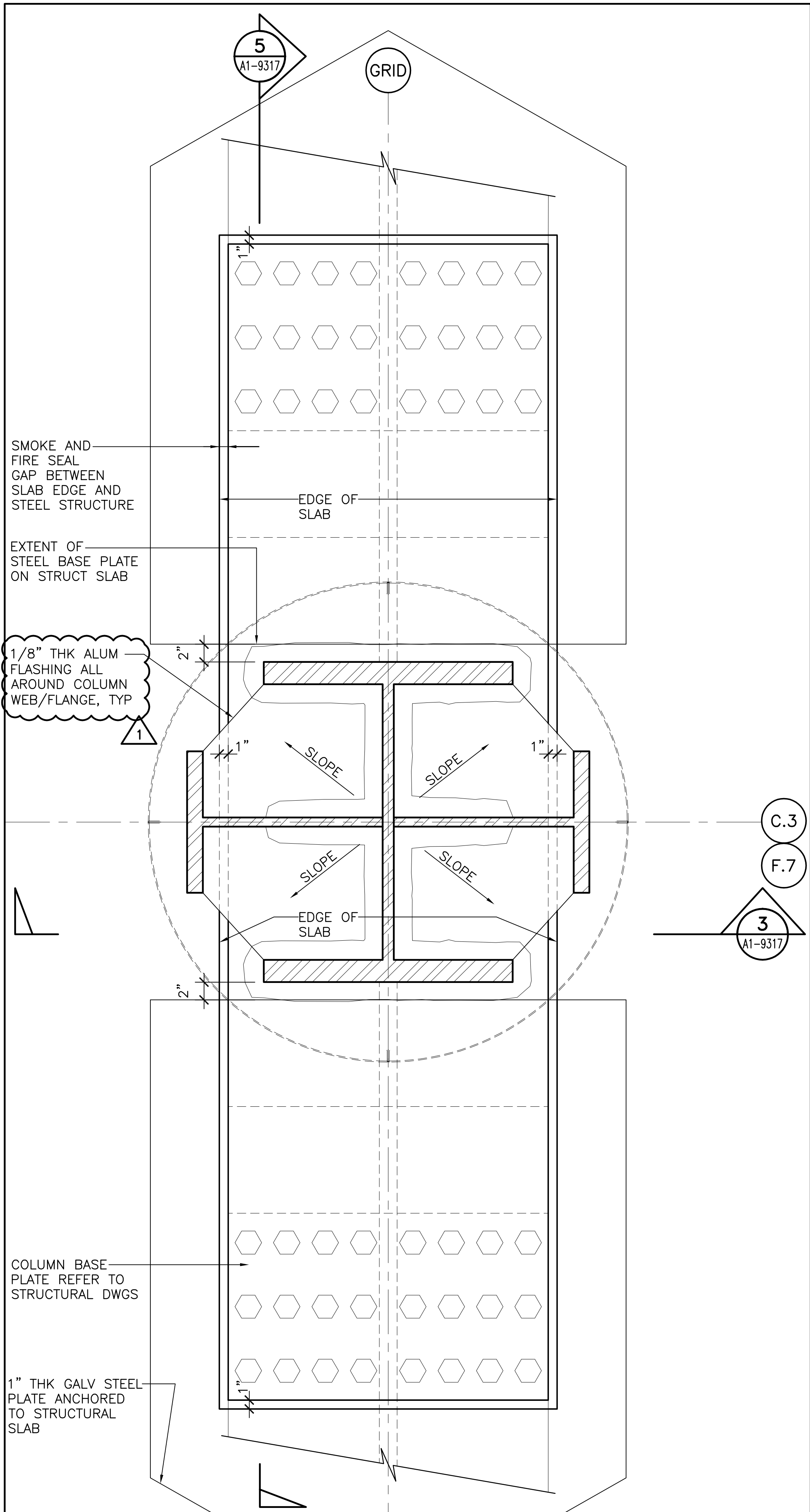
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Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537



Sika®

Notes: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.



| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Key Map

| NO. | DATE | ISSUED FOR CONSTRUCTION | DESCRIPTION |
|-----|----------|-------------------------|-------------|
| 1 | 03/31/14 | | |

08-04-CMGC-000
TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA
COLUMN BASE DETAILS
GROUND LEVEL

| | | | |
|----------------------|--|-----------------|--|
| NOT FOR CONSTRUCTION | | | |
| APPROVED: | | G. METZGER | |
| PRINCIPAL ARCHITECT | | S. ROTT | |
| PROJECT MANAGER | | E. DEL ANGEL | |
| DESIGNED BY: | | CHECKED BY: | |
| D. DRON | | W.R. BRADLEY | |
| DRAWN BY: | | DATE: | |
| E. ANTAO | | 03/31/2014 | |
| SCALE: | | SHEET NUMBER | |
| AS NOTED | | 140 | |
| SHEET NUMBER | | SEQUENCE NUMBER | |
| A1-9317 | | of | |

SarnafilBUILDING TRUST

20 Year System Warranty

Warranty Serial No.: SAMPLE

SIKA CORPORATION WATERPROOFING WARRANTY FOR COMMERCIAL BUILDING

Building Owner: SAMPLE

Building Name: SAMPLE

Building Address: SAMPLE

Applicator: SAMPLE

Date of Substantial Completion: SAMPLE

Building/Area Name: SAMPLE

Used As: SAMPLE

Date of Inspection: SAMPLE

Telephone: SAMPLE

By: SAMPLE

Area Warranted: SAMPLE sq. ft.

Sika Corporation ("Sika"), warrants to the owner of the building described above ("Owner"), that subject to the terms, conditions, and limitations, including the limitations set forth in section 11 below, stated herein, Sika Corporation will repair waterproofing leaks originating from the Sarnafil Waterproofing Membrane, Sarnatherm Insulation or Sika Corporation Waterproofing Accessories (other than pavers) installed according to Sika Corporation's Technical instructions by a Sika Corporation Authorized Waterproofing Applicator for a period of 20 (twenty) years commencing with the date of substantial completion of the installation of the Waterproofing with no monetary limit with respect to Waterproofing repair costs.

TERMS, CONDITIONS, LIMITATIONS

- Owner shall notify Sika Corporation on the first business day immediately following the discovery of each leak in the Waterproofing System and confirm in writing within one week.
- If on Sika Corporation's inspection, Sika Corporation determines that the leak is caused by a defect in Sarnafil Waterproofing Membrane, Sarnatherm Insulation or Accessory (other than pavers) provided by Sika Corporation to the Applicator for this building or from a defect in the Sika Corporation Authorized Applicator's workmanship applied to that Sarnafil Membrane, except as provided in paragraph three (3) below, Owner's remedies and Sika Corporation's liability shall be limited to Sika Corporation's repair of the Waterproofing Membrane, Sarnatherm Insulation or Accessory (other than pavers).
- This warranty does not apply and may be null and void if any of the following occur:
 - The Waterproofing Membrane, Sarnatherm Insulation or Accessory is damaged by a natural disaster including, but not limited to, earthquake, lightning, hail, peak wind gust, hurricane, tornado, or flood, as defined by The National Weather Service, or other acts of God, or:
 - The Waterproofing Membrane, Sarnatherm Insulation or Accessory is damaged by any act of negligence, accident, or misuse including, but not limited to, vandalism, falling objects, civil disobedience, or act of war, or:
 - A deficient pre-existing condition or equipment is causing water entry, or:
 - Metal work or other accessories or equipment is used in the Waterproofing and causes leaks, or:
 - There are any alterations or repairs made on or through the completed Waterproofing Membrane, or objects such as but not limited to fixtures, equipment, or structures are placed on or attached to the completed structure without first obtaining written authorization from Sika Corporation, or:
 - Failure by the Owner or his lessee to use reasonable care in maintaining the Waterproofing System as described in the Owner's Guide provided with this warranty, including that of sealants and caulking, or:
 - Loss of integrity of the building envelope and, or structure including, but not limited to partial or complete loss of decking, wall siding, windows, doors or other envelope components or from damage by wind blown objects, or:
 - Condensation accumulates in the waterproofing assembly due to incorrect design or due to a reduction in the vapor barrier effectiveness, or:
 - A significant change in the use of the building by the Owner or his lessee expected by Sika Corporation to affect the Waterproofing Membrane as originally installed, or:
 - The Waterproofing Membrane is damaged by contaminants and/or spills, or:
 - Deficient design applied to the Waterproofing Membrane such as membrane contact with incompatible materials and/or substrates, or:
 - The Owner fails to comply with every term and condition stated herein.
- During the period of this warranty, Sika Corporation, its agents and employees, shall have free access to the building during regular business hours.
- Should the Waterproofing Membrane be concealed, the cost of exposure of the Waterproofing Membrane for purposes of Sika Corporation's investigation and/or repair, such as removal and replacement of any concrete, paving, backfill or overburden, shall be the Owner's responsibility.
- To the extent pavers are used on the building, this warranty shall not apply to, and Sika Corporation shall have no obligation or liability relating to, resulting from, or arising out of, the pavers or any defect therein, or any leak that results from a defect in, or the use of, the pavers. Any pavers used on the building will be covered by, and subject to, the manufacturer's warranty for such pavers only, a copy of which is provided herewith.
- Sika Corporation shall have no obligation under this warranty until all invoices for materials, installation, and services provided by Sika Corporation and the Sika Corporation Authorized Applicator have been paid for in full.
- Sika Corporation's failure at any time to enforce any of the terms or conditions stated herein shall not be construed to be a waiver of such provision.
- This warranty may be transferred to a subsequent Owner of the Structure if approved in advance and in writing by Sika Corporation and the cost to process the transfer and to inspect and repair the Sika Corporation Waterproofing System, if necessary, shall be the Owner's responsibility.
- The Owner and Sika Corporation hereby agree that any and all claims (contractual, statutory, common law or otherwise), disputes, or suits that in any way, directly or indirectly, arise out of or relate to this Warranty, or the alleged breach thereof, or to any contracts between the owner and Sika Corporation, or the alleged breach thereof, or to the design, manufacture, sale, distribution, installation, and/or inspection of the Sika Corporation Waterproofing System, shall first be submitted to non-binding mediation before a neutral mediator jointly selected by the parties or, in the absence of agreement, as designated by the American Arbitration Association. In the absence of resolution by mediation, all such claims shall be settled by arbitration by the American Arbitration Association in accordance with the Construction Industry Arbitration Rules. Any such mediation and/or arbitration shall take place in Boston, Massachusetts. This Warranty, and any claims, disputes or suits between the parties hereto shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Massachusetts.
- THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. SIKA CORPORATION MAKES NO, AND EXPRESSLY DISCLAIMS ANY AND ALL, WARRANTIES, EXPRESS OR IMPLIED, REGARDING ANY PAVERS USED ON THE BUILDING. THE REMEDIES STATED HEREIN ARE EXCLUSIVE REMEDIES AND SIKA CORPORATION SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES INCLUDING THE PRESENCE OF MOLDS, FUNGI, BACTERIA, SPORES, MYCOTOXINS OR THE LIKE OR FURTHER LOSS OF ANY KIND WHATSOEVER, INCLUDING BUT NOT LIMITED TO, DAMAGE TO THE STRUCTURE ON WHICH THE COMPONENTS OF THE WATERPROOFING SYSTEM ARE SITUATED, DAMAGE TO THE CONTENTS THEREOF, LOSS OF USE OF THE STRUCTURE OR ANY COMPONENT PART THEREOF, OR DAMAGE TO ANY OTHER PROPERTY OR PERSONS.**

NO REPRESENTATIVE OF SIKA CORPORATION HAS AUTHORITY TO MAKE ANY REPRESENTATIONS OR PROMISES EXCEPT AS STATED HEREIN.

This Warranty Is Effective From: SAMPLE through: SAMPLE

SAMPLE

Authorized Signature(1):

SAMPLE

Date:

SAMPLE

Authorized Signature(2):

SAMPLE

Date:

SIKA CORPORATION • ROOFING

100 Dan Road • Canton, MA 02021

Tel: 781-828-5400 • Fax: 781-828-5365 • usa.sarnafil.sika.com

March 9, 2015

Mr. Chris Dillard
Project Manager
Webcor Builders
Transbay Project
175 Beale St.
San Francisco, CA 94105

Re: Transbay Transit Center – Roof Park Level Waterproofing Warranty

Dear Mr. Dillard,

This letter is to confirm that Sika Corp. – Roofing will only issue our standard 20-Year Waterproofing warranty for the above referenced project. A copy is attached.

Sincerely,



Jon M. Jensen
Technical Specialist

Cc: Stan Graveline
Joe Schwetz
Peter D'Antonio
Chris Ogg
Dana Cole
Chris Mullen
Darryl Terry
William Gillette

W A R R A N T Y

Bituthene[®] Waterproofing Membrane with Hydroduct[®] Drainage Composite

Ten Year System Material Warranty

WARRANTY NO. _____
NAME OF BUILDING _____
LOCATION OF BUILDING _____
NAME OF OWNER _____
CONTRACTOR _____
BITUTHENE MEMBRANE TYPE _____
HYDRODUCT DRAINAGE COMPOSITE TYPE _____
TOTAL AREA (SF) _____
DATE OF COMPLETED INSTALLATION _____

W.R. Grace & Co.-Conn. (GRACE) hereby warrants that for a period of ten (10) years from the date of completion of installation identified above:

1. Water will not leak directly through any individual Bituthene sheet as a result of deterioration of the sheet caused by ordinary wear and tear and the effects thereof.
2. The Bituthene sheet will bridge ruptures caused by cracking of the immediate substrate up to $\frac{1}{16}$ th of an inch wide.
3. The Hydroduct drainage composite core will maintain a compressive strength of 10,000 pounds per square foot.
4. The Hydroduct drainage composite will protect the Bituthene sheet from rupture from backfill containing no aggregate larger than $1\frac{1}{2}$ inches in diameter.

If at any time during such ten (10) year period the Bituthene sheet or Hydroduct drainage composite is found by GRACE not to comply with this warranty, then GRACE will supply to the owner replacement Bituthene sheet or Hydroduct drainage composite in a quantity equal to the material found to be nonconforming, with a value not to exceed the purchase price for the material paid to GRACE for the original installation.

This warranty does not apply to any failure caused by or due to workmanship or improper installation of the Bituthene sheet or Hydroduct drainage composite, abuse of the Bituthene sheet or Hydroduct drainage composite, or chemical incompatibility with other materials, acts of God, inadequate or faulty design of the subject structure or to repairs or installations made by other persons. In addition, this warranty does not cover any costs or expenses associated with 1) the removal, excavation or replacement of any material in connection with the testing, repair, removal or replacement of the Bituthene sheet or Hydroduct drainage composite and, 2) damages or repairs of any kind or nature to the subject building or its' contents from leaking water or otherwise.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY AND ALL OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES OF THE OWNER FOR ANY BREACH OF THIS WARRANTY SHALL BE LIMITED TO THOSE HEREIN PROVIDED TO THE EXCLUSION OF ANY AND ALL OTHER REMEDIES. GRACE SHALL NOT BE LIABLE IN ANY CASE FOR ANY DAMAGE TO THE BUILDING OR THE CONTENTS THEREOF, NOR WILL IT BE RESPONSIBLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PENAL DAMAGES. NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTY REMEDIES WILL BE BINDING UPON GRACE UNLESS IN WRITING, SIGNED BY A DULY AUTHORIZED OFFICER OF GRACE.

W.R. GRACE & CO.-Conn.
Grace Construction Product

By _____ Date _____
Title Warranty Administrator

W. R. Grace & Co.-Conn. 62 Whittemore Avenue Cambridge, MA 02140 www.graceconstruction.com

Bituthene and Hydroduct are registered trademarks of W.R. Grace & Co.-Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. Grace Construction Products, W. R. Grace & Co.-Conn, 62 Whittemore Ave., Cambridge, MA 02140. In Canada, W.R. Grace & Co. Canada, Ltd. 294 Clements Road West, Ajax, Ontario, L1S 3C6.

These products may be covered by patents or patents pending.

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GRACE
Construction Products

BITUTHENE® DECK SYSTEM

Cold-applied, waterproofing system for inverted roofs, green roofs and elevated decks

Warranty Documents

Grace Waterproofing System

BITUTHENE® DECK SYSTEM

Overview & System Summary

System Description

Bituthene® Deck System by Grace Construction Products is a warrantied membrane system designed for use in inverted roof and plaza deck applications. It can be used in both the new construction and roof replacement and plaza deck markets where the deck is structural concrete, precast concrete or light-weight structural concrete.

The Bituthene Deck System comprises of a layer(s) of Bituthene Membrane adhered to a layer of Bituthene Deck Prep®.

Limitations

Bituthene Deck System should not be installed over decks with insufficient load bearing capacity to accommodate required flood testing nor should they be installed over metal roof decks or gypsum board without the express written consent of W. R. Grace & Co.–Conn.

Bituthene Deck System are not intended for retrofit over existing roofing membranes. Removal of existing roofing membranes and confirmation of suitable decking are required prior to acceptance of the Bituthene Deck System installation.

Bituthene Deck System is not to be utilized as an expansion joint system.

Bituthene Deck System shall have clearly defined termination points such as expansion joints, parapet walls, walls or building edges. Bituthene Deck System should not be used in areas where it will be permanently exposed to sunlight, weather or traffic.

Finish System Build up and Overburden

There are many potential overburden and finish designs that can be used over the Bituthene Deck System waterproofing membrane depending on application and the designed use of the above and below deck areas. Key considerations to be taken into account in designing the system build-up are:

- A protection course should always be installed as soon as possible after completion of the waterproofing installation and floodtesting to protect the membrane from UV or mechanical damage.
- When using a drainage composite with the Bituthene Deck System, Grace Hydroduct® is required. For green roof assemblies, use Grace Hydroduct 500RS or 550RS. Extreme caution should be used during subsequent operations to prevent damage to the drainage and the membrane by site traffic. An additional slip-sheet may be specified to reduce the amount of load transmitted to the membrane.
- A geotextile filter fabric should always be placed above the insulation if soil, sand or concrete are to be placed above it.
- In selecting drainage composites and insulation materials full consideration should be given to the loadings created by the full overburden thickness.

Inspection & Repair

Misaligned or inadequately lapped seams shall be reinforced with an additional strip of Bituthene Membrane to ensure a minimum of 2 in. (50 mm) membrane to membrane overlap.

Punctures, areas of abrasion or abuse shall be repaired by means of an additional patch of Bituthene Membrane adequately sized so as to extend a minimum of 6 in. (150 mm) beyond the point of the damage. Seal all edges of membrane patches using Bituthene Mastic. If membrane repair is required on more than 10% of any area, an additional ply of membrane shall be installed throughout the roof area.

Inspection of completed areas shall be completed by a 3rd party inspection service pre-approved by Grace and at the discretion of Grace, particularly with regard to unique or challenging sections. It is incumbent upon the waterproofing contractor to self-inspect deck areas common to those areas previously inspected by the 3rd party inspection service.

A flood test shall be conducted on all completed deck areas after a 24 hour curing period, and shall be a minimum 24 hour duration. Flood test shall be witnessed by third-party inspection. Any observation of water entry shall require removal of the water, repair of the deficiencies and additional flood testing and inspection.

Warranty Application Procedures and Options

Material only and Watertightness Warranties are available on Bituthene Deck System projects. The options and costs are detailed in the table below. For further information on the Watertightness Warranties consult the Bituthene Deck System Warranty Program Overview Sheet.

Warranty Options:

| Option | Cost | Minimum Charge | Requirements |
|------------------------|------------------------|----------------|---|
| 5 Year Material | No charge | No charge | 1 Ply Bituthene Membrane and minimum 80 mil Deck Prep |
| 10 Year Material | No charge | No charge | 1or 2 Ply Bituthene Membrane and minimum 80 mil Deck Prep |
| 10 Year Watertightness | \$0.15/ft ² | \$1500 | 1 Ply Bituthene Membrane and minimum 80 mil Deck Prep |
| 15 Year Watertightness | \$0.25/ft ² | \$2500 | 2 Ply Bituthene Membrane and minimum 80 mil Deck Prep |

Watertightness Warranty Procedures:

- Bituthene opportunity identified.
- Before bidding the Waterproofing Contractor prepares Bituthene Deck System Pre-Bid Request form in discussion with the Grace Representative.
- Forward Pre-Bid request form to: Warranty Administrator, Grace Specialty Building Materials, 62 Whittemore Avenue, Cambridge, MA 02140, Fax 617-498-4419, E-Mail: sbmtechserv.waterproofing@grace.com and, if accepted, a job number is assigned.
- Copy of Pre-Bid and Warranty documents are forwarded to Owner (or Owner's Representative) for review.
- Owner reviews Pre-Bid and acknowledges/accepts warranty option.
- Completion of installation.
- Waterproofing Contractor notifies third-party inspection service and arranges date for flood test and final inspection.
- Flood test and inspection are conducted and when satisfactory performance is confirmed a project sign-off sheet is completed.
- Warranty request form is completed by Waterproofing Contractor and submitted to Grace Warranty Administrator with inspection report(s).
- Waterproofing Contractor is invoiced for Warranty.
- Warranty invoice is paid to Grace Construction Products.
- Warranty is prepared and released to Waterproofing Contractor.
- Warranty term shall begin as of the date of final inspection but shall not be considered effective until receipt by Grace of warranty invoice payment and payment of all monies payable to the installing contractor.

Safety

Make reference to Material Safety Data Sheets (MSDS) for proper storage, handling and protection information on all Bituthene Deck System products and other Grace Construction Products Materials.

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Bituthene, Bituthene Deck Prep and Hydroduct are registered trademarks of W. R. Grace & Co.—Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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GRACE

Grace Waterproofing System

BITUTHENE® DECK SYSTEM

Application Procedures

General

Bituthene® Deck System by Grace Construction Products is a warrantied membrane system designed for use in inverted roof and plaza deck applications. It can be used in both the new construction and roof replacement and plaza deck markets where the deck is structural concrete, precast concrete or lightweight structural concrete.

The Bituthene Deck System comprises of a layer(s) of Bituthene self-adhered waterproofing membrane applied to a layer of cold fluid-applied Bituthene Deck Prep®.

Decks

All decks shall be structurally sound and prepared to provide a clean, firm and smooth surface to accept application. Grace recommends the following:

- No excessive deflection or movement of the deck
- Deck shall provide for support of the maximum anticipated dead and live loads, and for the maximum expected expansion and contraction of the roof system structure
- All projections, penetrations and openings in the deck shall be completed before Bituthene application begins
- Joints in pre-cast/pre-stressed concrete decks are to be grouted before membrane application so the top surface is level and smooth

Slope for Drainage

A minimum slope to drain of 1/8 in./ft (11 mm/m) should be used on all concrete decks. Slope shall be achieved with a monolithic structural slab and not with a separate concrete fill layer. Technical recommendations contained in ASTM C898, *Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Separate Wearing Course*, shall be observed. Where a positive slope can not be achieved, contact your local Grace Representative.

Preparation

All surfaces to receive Bituthene Deck System shall be dry, smooth, clean, structurally sound and free of voids and contaminants. Surfaces with excessive laitance may require shot blasting or pressure washing to provide a dense smooth surface, free from contaminants.

Concrete must be properly cured and dried (minimum 7 days for normal weight structural concrete and 14 days for lightweight structural concrete) prior to installation of the Bituthene Deck System.

When applying Bituthene Deck System over precast concrete, all joints between precast concrete units shall be grouted smooth and grout feathered onto the adjacent deck area.

Surface Treatment

All surfaces to receive Bituthene Deck System must be prepared using Bituthene Deck Prep Surface Treatment. This will restore regularity to the roof deck, provide a temporary roof which can be put in place

quickly and, once in service, provide an additional layer of waterproofing protection.

Bituthene Deck Prep Surface Treatment is a self-priming material and eliminates the need to treat roof substrates with conventional priming. It is mandatory however that roof areas be cleaned of all excessive dust, dirt and debris prior to receiving Bituthene Deck Prep Surface Treatment.

As a self leveling material, Bituthene Deck Prep Surface Treatment will achieve a smooth and regular finish, ideal to receive the Bituthene Deck System.

Ensure that appropriate time is provided for the Bituthene Deck Prep Surface Treatment to cure adequately. A curing period of 24 hours is recommended prior to receiving foot traffic.

Details (General Guidelines)

- It is imperative that all Bituthene Deck System detailing be completed as outlined in the Bituthene Deck System details section of this program.
- “Picture-framing” refers to the detailing of the perimeter in a continuous manner to reduce the frequency of perimeter flashing end laps making the transition from horizontal to vertical. Perimeter detailing should be completed as a first step in completion of the deck area (once Bituthene Deck Prep Surface Treatment has been applied). Subsequently, the field area of the roof can be covered with all terminations on the horizontal, at the deck area’s perimeter.
- All Bituthene Deck System placement should be completed in a manner that ensures it is not forced into position. Bituthene Deck System has a “memory” and will return to the unstretched state after placement is completed. As a result, the membrane may de-bond, “bridge” across transition points and/or shrink back and away from terminations. Ensure that all membrane is placed, “unforced”, into position.
- Make reference to specific details as published by W. R. Grace.

Deck Prep Membrane Application

Bituthene Deck Prep may be applied at temperatures of 25°F (-4°C) or above. Below 40°F (5°C), store in a warm place before application.

Mixing

Add the entire contents of the Part B container to Part A and mix for 3 to 5 minutes until uniform using a low speed (150 rpm) mechanical mixer with flat paddle blade. Once mixed, Bituthene Deck Prep should be poured directly onto the deck and spread with a trowel or squeegee with a minimum thickness of 80 mil. over all areas that are to be waterproofed. The product will support light foot traffic after an overnight cure.

Membrane Application

Make reference to detailed Bituthene Deck System specification for guidelines on membrane placement. Apply Bituthene waterproofing membrane directly to cured Bituthene Deck Prep. No priming or conditioning is necessary.

Installation of 2 ply Bituthene Deck System configurations may be done by one of two methods; a half-lapped single pass or a one plus one double pass. Either approach is satisfactory. In a one plus one approach however, it is imperative that all “T” joints of the first pass be treated if any delay is expected prior to placement of the second pass.

Generally accepted waterproofing practice calls for the drainage of water either over or along membrane laps. Decks should always be laid out in a manner that will ensure the proper drainage configuration. This is typically achieved by beginning membrane placement at the low point of any deck area and working towards the high point.

All membrane shall be placed in a wrinkle-free manner and thoroughly rolled after installation.

Drainage

Effective drainage should be considered an integral component of buildings design.

Hydroduct 660 Drainage Composite may be considered as a means of providing multi-level drainage by way of creating a path for water movement beneath the roof insulation. The Hydroduct 500RS and 550RS Green Roof Composites provide an economical solution for root penetration protection, drainage, aeration, water storage and membrane protection.

Hydroduct Drainage Composites shall be installed in accordance with Grace Construction Products recommendations and published literature.

Finish System Build up and Overburden

There are many potential overburden and finish designs that can be used over the Bituthene Deck System waterproofing membrane depending on application and the designed use of the above and below deck areas. Key considerations to be taken into account in designing the system build-up are:

- A protection course should always be installed as soon as possible after completion of the waterproofing installation and floodtesting to protect the membrane from UV or mechanical damage.
- When using Hydroduct drainage composite directly above the membrane as combined protection and drainage, extreme caution should be used during subsequent operations to prevent damage to the drainage and the membrane by site traffic. An additional slip-sheet may be specified to reduce the amount of load transmitted to the membrane.
- Hydroduct Green Roof Composites can be placed over an approved insulation layer or other rigid protection sheet but DO NOT place directly on the waterproofing membrane.
- A geotextile filter fabric should always be placed above the insulation if soil, sand or concrete are to be placed above it.
- In selecting drainage composites and insulation materials full consideration should be given to the loadings created by the full overburden thickness.

Inspection & Repair

Misaligned or inadequately lapped seams shall be reinforced with an additional strip of Bituthene Membrane to ensure a minimum of 2 in. (50 mm) membrane to membrane overlap.

Punctures, areas of abrasion or abuse shall be repaired by means of an additional patch of Bituthene Membrane adequately sized so as to extend a minimum of 6 in. (150 mm) beyond the point of the damage. Seal all edges of membrane patches using Bituthene Mastic. If membrane repair is required on more than 10% of any area, an additional ply of membrane shall be installed throughout the roof area.

Inspection of completed areas shall be completed by a 3rd party inspection service pre-approved by Grace and at the discretion of Grace, particularly with regard to unique or challenging sections. It is incumbent upon the waterproofing contractor to self-inspect deck areas common to those areas previously inspected by the 3rd party inspection service.

A flood test shall be conducted on all completed deck areas with maximum 2 in. (50 mm) head of water and shall be of a minimum 24 hour duration. Refer to ASTM D5957, *Standard Guide for Flood Testing Horizontal Waterproofing Installations*. Allow the Bituthene Deck System to cure for minimum of 24 hours prior to flood test. Any observation of water entry shall require removal of water, repair of deficiencies and additional flood testing.

Safety, Storage and Handling Information

Bituthene waterproofing membranes, Bituthene Deck Prep, Bituthene Liquid Membrane and Bituthene Mastic should be stored under cover in original sealed containers above 40°F (4°C).

Refer to product labels and Material Safety Data Sheets before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and MSDS before use or contact Grace Construction Products, 62 Whittemore Ave., Cambridge, MA 02140, Telephone 866-333-3SBM (3726).

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Bituthene, Bituthene Deck Prep and Hydroduct are registered trademarks of W. R. Grace & Co.—Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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GRACE

BITUTHENE® DECK SYSTEM

Warranty Program Overview

The following is an overview of the W. R. Grace & Co.-Conn. ("Grace") Bituthene® Deck System Warranty Program ("Program").

In connection with the installation of a Grace Bituthene Deck System ("System") under the Bituthene Deck System Contractor Agreement, Grace may offer, or a Bituthene Deck System Contractor ("Contractor") may request Grace to issue a Warranty as described below or as Grace may from time to time put into effect, pursuant hereto. **NO OTHER WARRANTIES OR OBLIGATIONS ARE AUTHORIZED. ALTERING OR VARYING THE TERMS OF SUCH WARRANTIES IS PROHIBITED. NO WARRANTY SHALL BE EFFECTIVE UNTIL VALIDATED BY GRACE'S EXECUTION THEREOF.**

The conditions of the giving of any such Warranty by Grace are as follows:

1. Contractor must be approved by Grace to install the System and have signed a Bituthene Deck System Contractor Agreement.
2. Contractor shall notify Grace of the installation to be covered under a Warranty, receive preliminary approval prior to the Contractor entering a binding contract for the installation of the System and initiate a Pre-Bid Report to Grace prior to commencement of work.
3. Contractor is not in default of any condition of this Program.
4. Contractor has used only Grace approved materials in the System.
5. Contractor shall secure and grant the right for Grace or its representatives to inspect the job site during installation and at any reasonable time after the completion of installation and prior to final concealment of the System membrane.
6. Contractor shall request in writing within sixty (60) days of the date of completion and final inspection of the installation, that Grace issue the Warranty. Contractor's request shall be accompanied by the Warranty bearing the Contractor's and Owner's signatures certifying proper installation. After the sixty (60) day period, Grace is not obligated to issue a Warranty and Grace's obligations shall be assumed and borne solely by the Contractor.
7. Warranties may be transferable subject to satisfaction of the terms set forth in each Warranty prior to transfer.
8. Payment of the Warranty fee and for all materials must be made in full for all amounts due and owing by Contractor to Grace and its distributors.
9. Successful flood testing and inspection by a Grace approved third-party inspector is required on all projects.

Grace, upon thirty (30) days prior notice to the Contractor, may change the Warranty payment amounts set forth below or may discontinue or alter the Warranty program, but any such notice shall be ineffective as to any System installation where notice of a Warranty request has previously been given to Grace and preliminary approval has been granted to Contractor under Paragraph 1 above.

Watertightness Warranty

Subject to the foregoing provisions of the Warranty Program, and the payment to Grace of the sum of fifteen cents (\$0.15 U.S.) per square foot of a 1-Ply System installed by Contractor, Grace shall provide to the designated Owner a ten (10) year Watertightness Warranty. The minimum cost for this warranty is \$1,500.

Subject to the foregoing provisions of the Warranty Program, and the payment to Grace of the sum of twenty-five cents (\$0.25 U.S.) per square foot of a 2-Ply System installed by Contractor, Grace shall provide to the designated Owner a fifteen (15) year Watertightness Warranty. The minimum cost for this warranty is \$2,500.

Grace reserves the right to modify the Warranty Program and the Warranty offered thereafter at any time.

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Bituthene and Bituthene Deck Prep are U.S. registered trademarks of W. R. Grace & Co.—Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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BITUTHENE® DECK SYSTEM Watertightness Warranty

WARRANTY NO. _____
BUILDING _____
BUILDING ADDRESS _____
OWNER _____
OWNER'S ADDRESS _____
WATERPROOFING CONTRACTOR _____
DATE OF INSTALLATION COMPLETION _____
DATE(S) OF FINAL INSPECTION _____
AREA COVERED (SF) DECK _____ FLASHING _____

A. Obligations of Grace

Commencing on date of installation completion, for a period of and in consideration of a payment to Grace of (check one):

- ☐ 15 years, \$0.25 per square foot of area covered
☐ 10 years, \$0.15 per square foot of area covered

Grace agrees with Owner, subject to the Exclusions and Conditions set forth below, to make or cause to be made, at Grace's expense, all repairs necessary to correct leaks to the Grace Bituthene® Deck System (System) installed on the above referenced building resulting from the following causes:

- 1) System deterioration as a result of ordinary wear and tear and the effects thereof;
- 2) Improper workmanship by the contractor in the installation of the Bituthene Deck System;

Unless such causes are due to a condition set forth in section B below:

B. Exclusions

Grace and Owner acknowledge that Grace shall not be responsible for any repairs to the System, or for any leaks, arising out of any or a combination of the following causes:

- 1) Natural or man made disasters including but not limited to windstorms, hail, floods, hurricanes, lightening, tornadoes and earthquakes and vandalism and malicious mischief;
- 2) Structural failures including, but not limited to settling or shifting of the building, movement, cracking, or deflection of the roof deck or structure, and cracking or movement of girders beams or foundation;

- 3) Water emerging from adjacent structures;
- 4) Changes in usage of the structure, unless approved by Grace in writing in advance of any such change;
- 5) Placement, erection or construction of any new installation on or through the System after the date of completion and final Grace review;
- 6) Repairs or other applications to or on the System membrane after the date of completion, unless performed in a manner specifically authorized and approved by Grace in writing;
- 7) Abuse or abnormal use of the structure or System components;
- 8) Damage to the System due to improper concealment;
- 9) Failure of the metal cap flashings, sealants and gravel stops;
- 10) Deterioration of the System where water has been allowed to enter behind the System flashing from sources other than directly through the System; and
- 11) Chemical attacks on the System.

C. Conditions

Grace and the Owner agree that the obligations of Grace set forth above shall be subject to the following conditions:

- 1) Grace's written approval for the issuance of a warranty in connection with this structure and installation shall have been given prior to the date of bidding by the Contractor.
- 2) The System shall be installed by a Grace approved System Applicator.

- 3) An inspection by a representative of Grace of the area to be covered may, at Grace's option, be required prior to the bidding of the System.
- 4) Grace shall have the right to inspect the job site and System installation upon reasonable advance notice. Grace may, in its sole discretion, refuse issuance of this Agreement if improper installation techniques discovered by Grace from such inspection(s) are not corrected to Grace's satisfaction within thirty (30) days after date of installation completion.
- 5) Written notice must be given to Grace within thirty (30) days from the date of discovery of the need for any repair (or thirty (30) days from the date such need should have reasonably been discovered) which may be the responsibility of Grace under this Agreement.
- 6) The System shall be maintained by Owner in accordance with such instructions of Grace as may be in effect from time to time.
- 7) This Agreement only becomes effective when bills for installation, supplies, and services have been paid in full to the installing contractor, material supplier and Grace.
- 8) This Agreement may be assignable subject to the following conditions which must be satisfied prior to assignment:
 - a) Grace is given not less than thirty (30) days written notice prior to transfer and the intended building use is stated and approved by Grace;
 - b) An inspection of the structure is made by Grace;
 - c) All repairs deemed necessary by Grace are made at the Owner's expense and such repairs are inspected and approved by Grace;
 - d) Grace's then current inspection and processing fee is paid to Grace.
- 9) In no event shall any agreement varying or extending this Agreement be binding on either party unless it is in writing specifically referring to this document, signed by a duly authorized officer of both parties.
- 10) The cost for removal and subsequent replacement of any material(s) which covers or otherwise conceals the System, is excluded from this warranty and is the responsibility of the Owner. In no case will such cost be Grace's responsibility.
- 11) In the event of the failure of the System to perform as warranted, Grace will make or cause to be made all repairs necessary to correct leaks. Grace's liability for repair is

limited to the cost of materials required for repair of the System, as approved by Grace; plus labor costs for repair activities also approved by Grace. Grace's total liability under this warranty shall not exceed an amount equal to the original cost of the System. Grace and Owner understand that Grace shall not be responsible for incidental or consequential damages resulting from leaks arising out of any and all causes.

THE STATEMENTS, OBLIGATIONS AND REPRESENTATIONS HEREIN CONTAINED CONCERNING THE BITUTHENE DECK SYSTEM ARE MADE BY GRACE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES OF OWNER FOR ANY BREACH OF WARRANTY OR BREACH OF THIS AGREEMENT ARE LIMITED TO THOSE SPECIFICALLY PROVIDED HEREIN AND OWNER HEREBY WAIVES ANY AND ALL OTHER CLAIMS, ACTIONS, AND DEMANDS RELATING TO USE OF THE BITUTHENE DECK SYSTEM IN SAID BUILDING. GRACE SHALL NOT BE LIABLE IN ANY CASE FOR ANY DAMAGE TO SAID BUILDING OR THE CONTENTS THEREOF, NOR WILL IT BE RESPONSIBLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PENAL DAMAGES.

W. R. GRACE & CO.—Conn.
Grace Construction Products

By _____
Date _____
Title _____

CONTRACTOR certifies that the System on the above referenced building has been installed in strict accordance with Grace's standards, specifications, details and instructions in effect at the time the project was bid.

CONTRACTOR

By _____
Date _____
Title _____

OWNER

By _____
Date _____
Title _____

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

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GRACE

BITUTHENE® DECK SYSTEM Contractor Agreement

THIS AGREEMENT dated as of the _____ day of _____, _____ by and between W. R. GRACE & CO.-CONN., a Connecticut corporation, acting through Grace Construction Products, having a place of business at 62 Whittemore Avenue, Cambridge, Massachusetts 02140 ("Grace") and

_____, a _____ corporation
Name of Contractor

having a place of business at _____
Address

_____. ("Contractor").

I. Appointment

Contractor hereby represents to Grace that it is fully familiar with the Grace Bituthene® Deck System ("System"), and is capable and skilled in the application of the System in accordance with Grace's standards, specifications, details and instruction from time to time in effect. Relying upon such representation, Grace hereby appoints Contractor a non-exclusive Bituthene Deck System Contractor, and Contractor accepts such appointment upon the terms and conditions contained herein.

II. Conditions

Contractor agrees to:

- a) Promote the goodwill of Grace and promote the Bituthene Deck System Contractor Program and the sale of the System including, but not limited to, providing technical assistance and pre-bid budget price information to architects and others who may be in a position to specify the use of the System;
- b) Apply the System in strict accordance with Grace's standards, specifications, details and instructions in effect at the time the project was bid and comply with all requirements of laws, regulation, building codes and other performance requirements for roofing as they may apply to the application of the System;

- c) Use such Grace trademarks as it may be authorized to use by Grace from time to time in strict accordance with the conditions of use prescribed by Grace.

III. Quality Assurance

When applying each System, Contractor agrees to make those relevant observations, tests, and inspections necessary to assure that the System is applied in accordance with Grace's standards, specifications, details and instructions in effect at the time Contractor bid to install the System. Contractor shall immediately bring to Grace's attention any and all nonstandard conditions associated with the application or use of the System.

IV. Materials

All materials which may be ordered by Contractor during the term hereof and which Grace, or a Grace distributor, agrees to supply from time to time shall be paid for by the Contractor at the price thereof in effect at the time Contractor bids to install the System and, if purchased directly from Grace, are sold subject solely, in lieu of all others, to Grace's conditions of sale from time to time in effect INCLUDING THOSE LIMITING WARRANTIES AND REMEDIES. Contractor hereby acknowledges receipt of Grace's current conditions of sale.

V. System Warranties

In connection with the installation of a Grace Bituthene Deck System under the Bituthene Deck System Contractor Program, Grace may, from time to time, offer certain written Warranties subject to such conditions as Grace may put into effect. NO OTHER WARRANTIES OR OBLIGATIONS ARE AUTHORIZED. ALTERING OR VARYING THE TERMS OF SUCH WARRANTIES IS PROHIBITED AND ANY CHANGES MADE TO GRACE'S WARRANTIES SHALL RENDER THE WARRANTY NULL AND VOID. NO WARRANTY SHALL BE EFFECTIVE UNTIL VALIDATED BY GRACE'S EXECUTION THEREOF. The conditions of the giving of any such warranty by Grace are as follows:

- a) Contractor shall notify Grace of installation to be covered under a Warranty and receive preliminary approval prior to the bidding of the installation of the SYSTEM, AND SHALL INITIATE A PRE-BID REPORT TO GRACE PRIOR TO COMMENCEMENT OF WORK.
- b) Contractor is not in default of any condition of this agreement.
- c) Contractor has used only Grace approved materials in the SYSTEM.
- d) Contractor shall secure and grant the right for Grace to inspect the job site during installation and at any reasonable time after the completion of installation and prior to final concealment of the SYSTEM membrane.
- e) Contractor shall submit the warranty request in writing within sixty (60) days of the date of completion of the installation that Grace issue the Warranty. The warranty request should be accompanied by the Warranty bearing the Contractor's signature certifying proper installation.
- f) Warranties may be transferable according to the terms set forth in each Warranty prior to transfer.
- g) Payment must be made in full for all amounts due and owing by Contractor to Grace.
- h) Successful flood testing is required on all horizontal surfaces.

Grace upon thirty (30) days prior notice to the Contractor may change the Warranty payment amounts set forth in the Options below or may discontinue or alter the Warranty

program, but any such notice shall be ineffective as to any SYSTEM installation where notice of the selection of any Option has previously been given to Grace and preliminary approval has been granted to Contractor under Paragraph 1 above.

10 Year Watertightness Warranty

Subject to the foregoing provisions of Article V, and the payment to Grace the sum of fifteen cents (\$0.15 U.S.) per square foot of SYSTEM installed by Contractor, Grace shall provide to designated Owner a ten (10) year Material & Labor Warranty.

15 Year Watertightness Warranty

Subject to the foregoing provisions of Article V, and the payment to Grace the sum of twenty-five cents (\$0.25 U.S.) per square foot of SYSTEM installed by Contractor, Grace shall provide to designated Owner a fifteen (15) year Material & Labor Warranty.

In each case in which any such Warranty is issued by Grace, the provisions of Article IX hereto shall automatically apply to Contractor in respect to the System so warranted.

VI. Independent Parties

Notwithstanding anything to the contrary contained herein, it is understood that the relationship between Grace and Contractor is solely that of independent contracting parties and neither party shall in any manner represent that it or its employees or agents are employees or agents of the other party.

VII. Indemnity and Hold Harmless

Contractor agrees to secure, defend and protect itself, and shall secure and indemnify Grace from and against any and all liability, claim of liability, expenses (including attorney's fee) causes of action, loss or damages whatsoever including without limitation for any injury, including death, to any person or damages to property arising out of or due to the negligent acts or omissions by Contractor, its subcontractors, agents and employees in the application or repair of the System.

VIII. Term

- a) This Agreement shall commence on the date first appearing above and shall remain in effect unless and until terminated by either party at any time for any reason at its discretion upon sixty (60) days prior written notice given to the other party.
- b) Grace shall have the right to terminate this Agreement in the event the Contractor fails to observe any of the terms and conditions

of this Agreement after written notice thereof and if Contractor fails to cure an alleged breach within thirty (30) days from such notice, or Grace discovers that any representation or statement made by the Contractor herein is materially false or Contractor becomes insolvent or takes advantage of any law having to do with the relief of debtors.

- c) Contractor's obligations under any outstanding Warranty, and Contractor's obligations under Article VII shall survive any termination of this Agreement.

IX. Warranty Service

Grace is relying on the Contractor's skill and workmanship to install Systems, and Grace has no control over such skill and workmanship and has no responsibility therefore. Grace when issuing a Warranty, is relying on the covenants of Contractor in this Agreement and is also relying on the following covenants.

1. Contractor agrees to service calls from Owner regarding the System and to make repairs thereto in an effective and workmanlike manner so as to maintain the goodwill and confidence of the owner in the System. Contractor shall make emergency repairs to leaks in the System within forty-eight (48) hours from time of the call from Owner. Final repairs to leaks shall be made by Contractor within sixty (60) days of Owner's call pursuant to Sections 2 and 3 below. CONTRACTOR SHALL NOTIFY GRACE IN WRITING OF ANY AND ALL WARRANTY SERVICE CALLS FROM OWNER RELATED TO THE SYSTEM WITHIN FIVE BUSINESS DAYS OF RECEIVING SAID CALL. ANY REPAIRS, MODIFICATION, ETC. TO THE SYSTEM WITHOUT THE WRITTEN CONSENT OF GRACE WILL BE EXCLUDED FROM WARRANTY COVERAGE, PROVIDED THAT GRACE'S CONSENT IS NOT UNREASONABLY WITHHELD AND THAT GRACE RESPONDS TO CONTRACTOR'S NOTIFICATION WITHIN THIRTY (30) DAYS.
2. All services and repairs under Warranties shall be made by the Contractor. Only if Contractor is unable or unwilling to make such modification and repairs, shall Grace retain the right to secure an alternative contractor, and to seek reimbursement for the costs of such alternative contractor from the Contractor.

A. Contractor's cost of repairing leaks which are within the scope of the Warranty and which are the direct result of non-conforming System material sold to the Contractor by Grace or which directly result from Contractor's following applicable written Grace specifications for the System which are shown to be faulty, shall be borne by Grace, and Grace shall reimburse Contractor for labor costs incurred by Contractor in repairing such leaks. All applicable materials for such repairs will be provided by Grace or its designate.

B. For two (2) years from the signing of the Warranty by the Owner and the Contractor all costs, expenses and charges, including labor and materials, for repairing leaks attributable to workmanship or improper surface preparation shall be borne solely by the Contractor, and Contractor shall inform Grace in writing of all repairs or modifications. At the end of this two (2) year period, if leaks attributable to workmanship or improper surface preparation remain, Contractor shall provide all necessary labor and material to perform all needed repairs to bring the warranted SYSTEM to Grace's standards, and subject to inspection and acceptance by Grace. Upon Grace's acceptance of such repairs, Grace shall assume responsibility under the applicable Warranty for the balance of the warranty period. For situations other than as specified above, Grace and Contractor shall bear equally the expense of repairs to leaks covered by the Warranties.

3. If the Contractor intends to claim reimbursement from Grace for contractor's costs as provided in paragraph 2, Contractor shall first notify Grace in writing, specifying the repairs necessary and the alleged deficiency in Grace's material or written specifications and shall not proceed with the repairs unless and until specifically authorized by Grace in writing to do so, provided such authorization is not unreasonably withheld and written justification for withholding said authorization is provided to Contractor within thirty (30) days after Contractor notifies Grace. However, Contractor shall make immediate, temporary emergency repairs so as to maintain the goodwill of the Owner. For purposes hereof "Contractor's costs" shall

mean only Contractor's direct labor costs, actual out of pocket cost of operation of equipment, and actual out of pocket material costs required for repair of the System.

4. If the parties cannot agree as to whether costs of repairs to the System are to be borne pursuant to paragraph 2A or 2B, Contractor shall nevertheless proceed to make repairs, the costs (material costs plus "Contractor's direct labor costs") thereof to be shared equally by the parties without prejudice to the right of either party to seek reimbursement from the other pursuant to such legal action as such party may choose to take.

X. Notices

Notices, demands and communications hereunder, to Grace or to Contractor, must be given or sent and shall be deemed to have been given or sent

- a) if intended for Grace, by mailing by registered mail with postage prepaid, addressed to Grace at 62 Whittemore Avenue, Cambridge, MA 02140, attention of Vice President and General Manager for Specialty Building Materials, or
- b) if intended for Contractor, by mailing by registered mail, postage prepaid, addressed to Contractor at

Attention of _____

Either party may designate, by notice in writing, a new address to which any notice, demand or communication may hereafter be so given or sent.

XI. General

Neither party shall be liable for its failure to perform hereunder, except for payment of monies when due, caused by circumstance beyond its reasonable control including, but not limited to, force majeure, shortage of materials, labor problems, fire, governmental regulations or court order, or any other similar occurrence. This Agreement and the Exhibits attached hereto contains the entire agreement of the parties in respect of the subject matter hereof and supersedes any previous agreement, written or oral. No changes or modification to this Agreement shall be binding or effective unless made in writing specifically referencing this Agreement and signed on behalf of both Contractor and Grace. This Agreement is not assignable by Contractor without Grace's prior written consent.

IN WITNESS THEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

W.R. GRACE & CO.-Conn.
Grace Construction Products

By _____

Title _____

CONTRACTOR

By _____

Title _____

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Bituthene is a U.S. registered trademark of W. R. Grace & Co.-Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.-Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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GRACE

BITUTHENE® DECK SYSTEM Warranty Request Form

WARRANTY DESIRED: ☐ 5 Year Material Only ☐ 10 Year Watertightness
☐ 10 Year Material Only ☐ 15 Year Watertightness

SUBMITTED BY: _____

BUILDING NAME & LOCATION: _____

OWNER'S NAME: _____

WP CONTRACTOR'S NAME, ADDRESS & CONTACT: _____

ARCHITECT OR ENGINEER: _____

PRODUCT(S) USED: _____

SIZE (SQUARE FEET): _____

DATE OF SYSTEM INSTALLATION COMPLETION: _____

DATE OF FINAL SYSTEM INSPECTION: _____

SEND WARRANTY TO: _____

GRACE SALES REPRESENTATIVE: _____

NEED WARRANTY FAXED: IF YES, FAX #: _____

We acknowledge that we have read the provisions of the Bituthene Deck System ("System") Warranty to be issued on this job and further certify that we have installed the "System" in strict conformance to Grace's written installation instructions.

Waterproofing Contractor (Signature/Date) _____

Please forward completed request form to:

GRACE CONSTRUCTION PRODUCTS

Attn: WARRANTY ADMINISTRATOR, WATERPROOFING

Fax: 617-498-4419

Tel: 617-876-1400

E-Mail: sbmtchserv.waterproofing@grace.com

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

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BITUTHENE® DECK SYSTEM

Pre-Bid Request Form – Watertightness Warranty

Please forward completed form to GRACE
Warranty Administrator – (Fax) 617-498-4419
(E-mail) sbmtechserv.waterproofing@grace.com

To be completed by Waterproofing Contractor:

JOB INFORMATION

Job Name _____

Job Location _____ (Street) _____ (City) _____ (State) _____ (Zip)

Owner _____ Contact _____ Phone # _____

Owner Address _____ (Street) _____ (City) _____ (State) _____ (Zip)

Estimated Start Date _____ Grace Sales Rep _____

Architectural Firm _____ Phone # _____

Waterproofing Inspector _____ Phone # _____

General Contractor _____ Phone # _____

WATERPROOFING CONTRACTOR INFORMATION

Company _____ Phone # _____

Address _____ (Street) _____ (City) _____ (State) _____ (Zip)

Project Contact _____ E-mail _____

PROJECT INFORMATION

Type of Construction (check one) ☐ New ☐ Reroof Deck Slope (in/ft) _____

Deck Type (Describe) _____

Deck Area (sq. ft.) _____ Substrate Preparation (Describe) _____

Flashing Type (Describe) _____ Flashing (lin. ft.) _____

Drainage Type _____ Protection Course Type _____

Insulation Type _____ Separation Sheet (Check One) ☐ Yes ☐ No

Overburden/Wearing Course Type (Describe) _____

Non-Standard Details/Considerations (Describe) _____

Include drawings, photos, etc. _____

WARRANTY DESIRED

☐ 10 Year Watertightness (\$0.15/sf)
1 Ply Bituthene with Bituthene Deck Prep

☐ 15 Year Watertightness (\$0.25/sf)
2 Ply Bituthene with Bituthene Deck Prep

I have read, and accepted, a copy of the above referenced warranty which will be available for this job once all applicable requirements of that warranty are met.

Contractor _____ (Signature) Owner _____ (Signature)

To be completed by Grace:

Job # _____ Approval (Signature/date) _____

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Visit our website at: www.graceconstruction.com

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BITUTHENE® DECK SYSTEM

Applicator Project Checklist

The following steps should be completed during the identification, bidding, installation and inspection process for a Bituthene® Deck System project requiring a watertightness warranty:

- ☐ Complete Bituthene Deck System Pre-Bid Request Form with Waterproofing Contractor and Owner's signatures.
- ☐ Forward Pre-Bid Request Form to Warranty Administrator
Grace Specialty Building Materials,
62 Whittemore Ave., Cambridge, MA 02140. (Fax) 617-498-4419 or (E-mail) sbmtchserv.waterproofing@grace.com.
- ☐ Receive Grace approval and Warranty Job number.
- ☐ Project is bid and awarded.
- ☐ Identify number of inspections needed and contact Grace approved third-party inspection service to inform of location and likely timings for inspections.
- ☐ Carry out installation.
- ☐ Notify third-party inspection service and arrange date for flood test and inspection.
Note: Flood test should not be started for at least 48 hours after completion of installation. The water should be on the deck for a minimum of 24 hours before the inspection.

- ☐ Once inspection is successfully completed an Inspection Report will be issued by inspector.
- ☐ Complete Warranty Request Form and submit to Grace Specialty Building Materials Warranty Administrator with all inspection reports.
- ☐ Receive warranty invoice and submit payment to Grace.
- ☐ Receive signed warranty and submit copy to Owner.

Contacts:

Warranty Administrator
Grace Specialty Building Materials
62 Whittemore Ave.
Cambridge, MA 02140
Tel: 617-876-1400
Fax: 617-498-4419
E-mail:
sbmtchserv.waterproofing@grace.com

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

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BITUTHENE® DECK SYSTEM Maintenance List

| | |
|--------------------------|--|
| Grace Warranty # | |
| Building Name | |
| Building Address | |
| Owner | |
| Waterproofing Contractor | |

Your project is now protected by Grace Bituthene® Deck System. The following is a maintenance list which you should follow to ensure long term, trouble free maximum service:

1. Keep drains clean and free from debris and ice.
2. Keep area clean and free from accumulated debris such as leaves, sticks, bottles, cans, dirt, grease, etc.
3. Inspect and service flashing on a routine basis.
4. Keep all routine maintenance items such as counter-flashings, parapet walls, through projections, etc., in a watertight condition.
5. If building additions are to be added, notify Grace in writing for an approval and have your Bituthene Deck System Waterproofing Contractor perform any additional required work on or to the Bituthene Deck System.
6. Notify your Bituthene Deck System Waterproofing Contractor immediately, and Grace within 30 days, of any leaks.

To accomplish these required maintenance items a routine roof inspection schedule should be followed. Grace recommends a minimum of two inspections a year. In addition, Grace suggests that you have your Bituthene Deck System Waterproofing Contractor perform annual inspections.

You will maximize the life of your project with a proper, pre-planned maintenance program.

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)
Visit our website at: www.graceconstruction.com

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BITUTHENE® DECK SYSTEM Contractor Acceptance Criteria

In order to ensure that the warranted Bituthene® Deck System is installed in accordance with application instructions and with the utmost quality, Grace will only work with experienced waterproofing applicators who have been certified by Grace. In addition each contractor that is accepted into the Bituthene Deck System material and labor warranty program will be required to sign a contractors agreement and to meet the following criteria which will demonstrate that they have the industry experience and financial stability to successfully complete and support the Bituthene Deck System warranty program.

1. Industry Experience and Reputation

Contractors must have a minimum of 5 years successful track record in the waterproofing, roofing or another closely related industry or must employ qualified personnel with a minimum of 5 years experience in these industries. They must have a sound and solid reputation for quality workmanship and reliability.

2. Product Experience

Contractors must be fully familiar with the Bituthene application instructions and detailing techniques and have previously completed a minimum of five (5) projects greater than 5000 square feet.

3. Financial Stability

Contractors must be able to demonstrate financial stability and meet other reasonable financial requirements that Grace deems appropriate.

4. Insurance Backing

Contractors must carry a minimum of \$1 million liability insurance.

5. Product Promotion

Contractors must be willing to participate in Grace promotional activities for the Bituthene system and promote the goodwill of Grace and the Bituthene product line and the Bituthene Deck System warranty program.

6. Contractor Agreement

Contractors must have read and fully agreed to the contractor requirements as laid out in the Bituthene Deck System Contractor Agreement.

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

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Tram Nguyen

From: Chris Dillard
Sent: Thursday, March 12, 2015 10:34 AM
To: Tram Nguyen
Cc: Jobsite Archive Transbay
Subject: FW: Grace Warranty

Chris Dillard AIA, LEED BD+C, DBIA, AC
Project Manager
Webcor Builders
Transbay Project
175 Beale St.
San Francisco, CA 94105

P: 415-978-5745
C: 510-459-5470

From: Miller, Paul [mailto:Paul.Miller@grace.com]
Sent: Thursday, March 12, 2015 9:21 AM
To: Chris Dillard
Cc: Jobsite Archive Transbay
Subject: Re: Grace Warranty

Chris,

You are correct. It is a separate item and used in lieu of primer.

Paul

Sent from my iPhone

On Mar 12, 2015, at 8:02 AM, Chris Dillard <cdillard@webcor.com> wrote:

Paul,

Sorry to be a little dense, but could you please confirm that the deck prep is a separate product from the primer, and as such is not currently included in the system described in the specification for self-adhering sheet waterproofing?

Chris Dillard AIA, LEED BD+C, DBIA, AC
Project Manager
Webcor Builders
Transbay Project
175 Beale St.
San Francisco, CA 94105

P: 415-978-5745

C: 510-459-5470

From: Miller, Paul [<mailto:Paul.Miller@grace.com>]

Sent: Thursday, March 12, 2015 7:49 AM

To: Chris Dillard

Subject: Re: Grace Warranty

Chris,

As per our conversation today on the phone, deck prep is a two-part polyurethane and is required to receive the better warranty.

Please feel free calling if there any further questions.

Thank you,

Paul

Sent from my iPhone

On Mar 12, 2015, at 7:25 AM, Chris Dillard <cdillard@webcor.com> wrote:

Paul,

The specifications require the deck be primed as specified by the membrane manufacturer. Is there a difference between the primer called out in the specification and the Bituthene Deck Prep you mention below.

Chris Dillard AIA, LEED BD+C, DBIA, AC

Project Manager

Webcor Builders

Transbay Project

175 Beale St.

San Francisco, CA 94105

P: 415-978-5745

C: 510-459-5470

From: Miller, Paul [<mailto:Paul.Miller@grace.com>]

Sent: Wednesday, March 11, 2015 3:53 PM

To: Chris Dillard

Cc: Jobsite Archive Transbay

Subject: RE: Grace Warranty

Hello Chris,

With the current specification of only two layers of Bituthene we can only offer a 10 year material warranty. Note the attached sample.

However, if you upgrade to a layer of Bituthene Deck Prep and a single layer of Bituthene then I can offer a more complete warranty for ten years. This will not include over burden removal but it will cover the cost of labor and material provided it is inspected by a qualified third party. I have attached a sample warranty for you.

We also have a 15 year warranty, similar to the one described above but it goes for 15 years. This one requires the Deck Prep and two layers of Bituthene. Again, note the attached sample warranty for reference.

Paul Miller,
CSI CCPR LEED AP
Structural Waterproofing & Air Barriers
Grace Construction Products
(510) 220-7745
paul.miller@grace.com
graceconstruction.com

From: Chris Dillard [<mailto:cdillard@webcor.com>]
Sent: Wednesday, March 11, 2015 3:45 PM
To: Miller, Paul
Cc: Jobsite Archive Transbay
Subject: Grace Warranty

Paul,

Below is the current guarantee/warranty language for the Self-Adhering Sheet Waterproofing (WPM-1A). Please let me know what issues Grace has with supplying the warranty as requested:

<image001.png>

Thanks

Chris Dillard AIA, LEED BD+C, DBIA, AC
Project Manager
Webcor Builders
Transbay Project
175 Beale St.
San Francisco, CA 94105

P: 415-978-5745
C: 510-459-5470



REQUEST FOR INFORMATION # T-2217

SUBJECT: RWP - WPM-2 Assembly Requirements at Grand Hall

30100 - Transbay Transit Center Project

175 Beale St
San Francisco CA, 94105

Date Required: 20-Feb-2015

Date Created: 10-Feb-2015

Cost Impact: P

Schedule Impact: P

PCI #:

Sent By: Tram Nguyen
Webcor Construction LP
1751 Harbor Bay Parkway Suite 200
Alameda, CA 94502
Ph: 510 748-1900

Answered By: Phil Militello
Turner Construction Company
Transbay Transit Center Project 201
Mission St., Ste. 560
San Francisco, CA 94105
Ph: (415) 442-5100

Co Author:

Level:

Co Author RFI #:

Room:

Question

Contract Doc Ref: (ASI 128 dated 12/16/14)
Detail 1/A1-9585
Specification Section 07 14 13

Location: Grand Hall

Closest Column Line Intersection: N/A

Add'l Doc Ref's: N/A

Per Detail 1/A1-9585, Hot Fluid-Applied Waterproofing (WPM-2) is to be installed over the structural slab within the Grand Hall.

Per Specification Section 07 14 13 Hot Fluid-Applied Waterproofing (WPM-2) is to be installed with protection board and drain board.

Detail 1/A1-9585 does not show protection board or drain board over the WPM-2.

Please confirm protection board and drain board are required as part of the WPM-2 assembly slab within the Grand Hall.

Suggestion:

Accept Suggestion:

Answer:

***Attention Subcontractors, a Reminder from Webcor/Obayashi
JV***

This is intended to be a clarification only. This is not intended to be a direction
to increase the scope of the work.

For the Grand Hall, Room No. 01520 delete the WPM-2 waterproofing, protection board, and drain board.

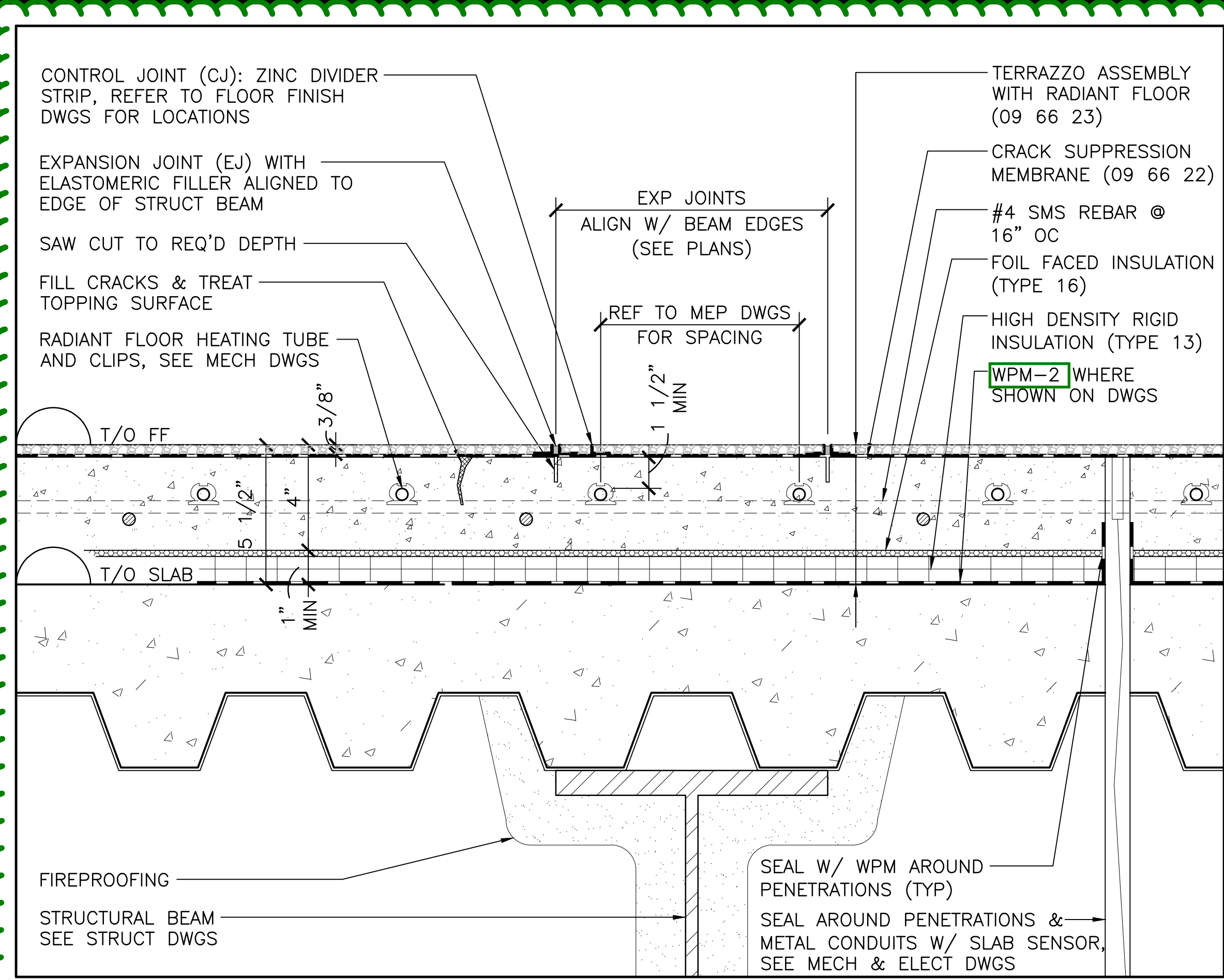
Answered By: George Metzger

Answered On: 13-Mar-2015

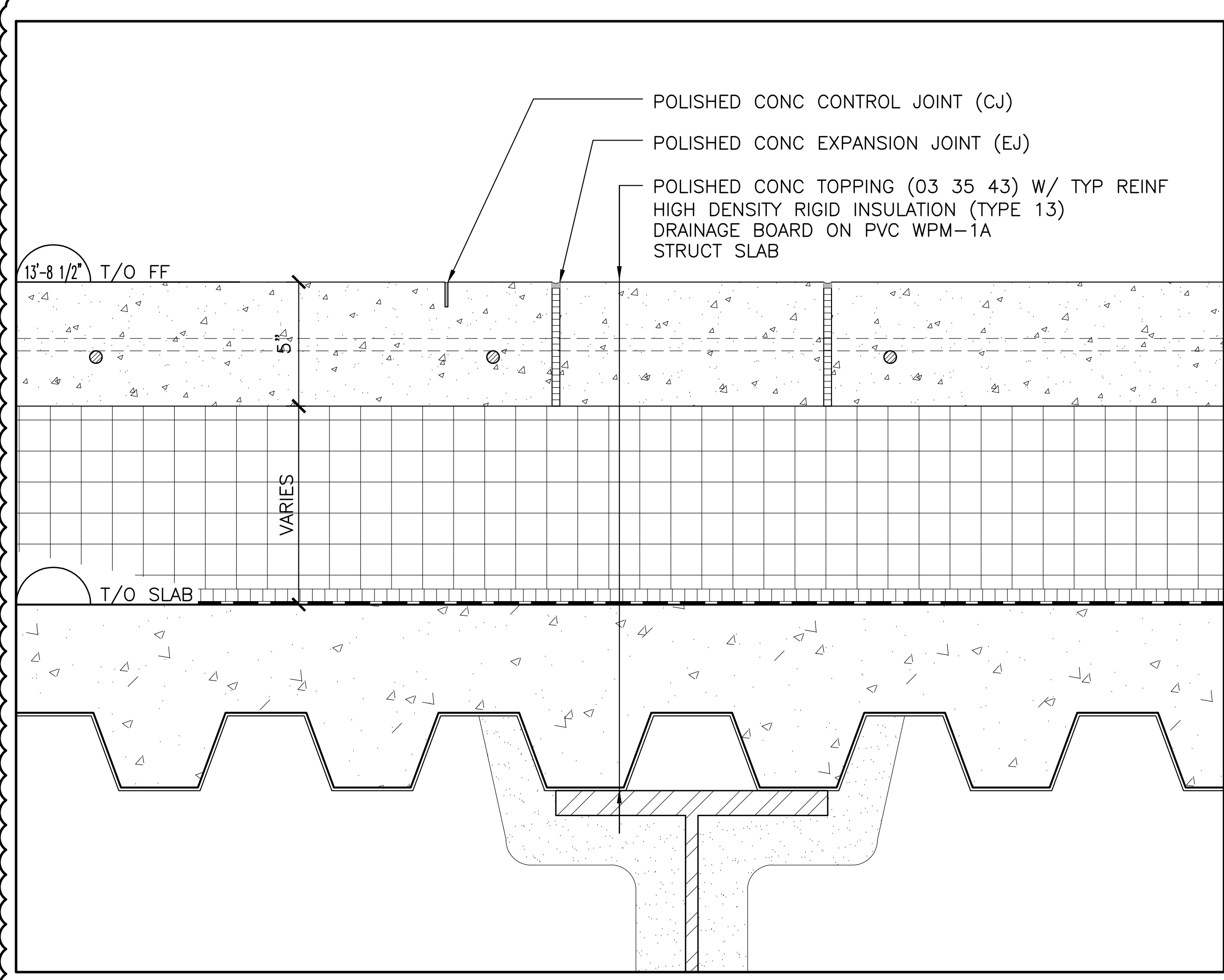
***Attention Subcontractors, a Reminder from Webcor/Obayashi
JV***

This is intended to be a clarification only. This is not intended to be a direction
to increase the scope of the work.

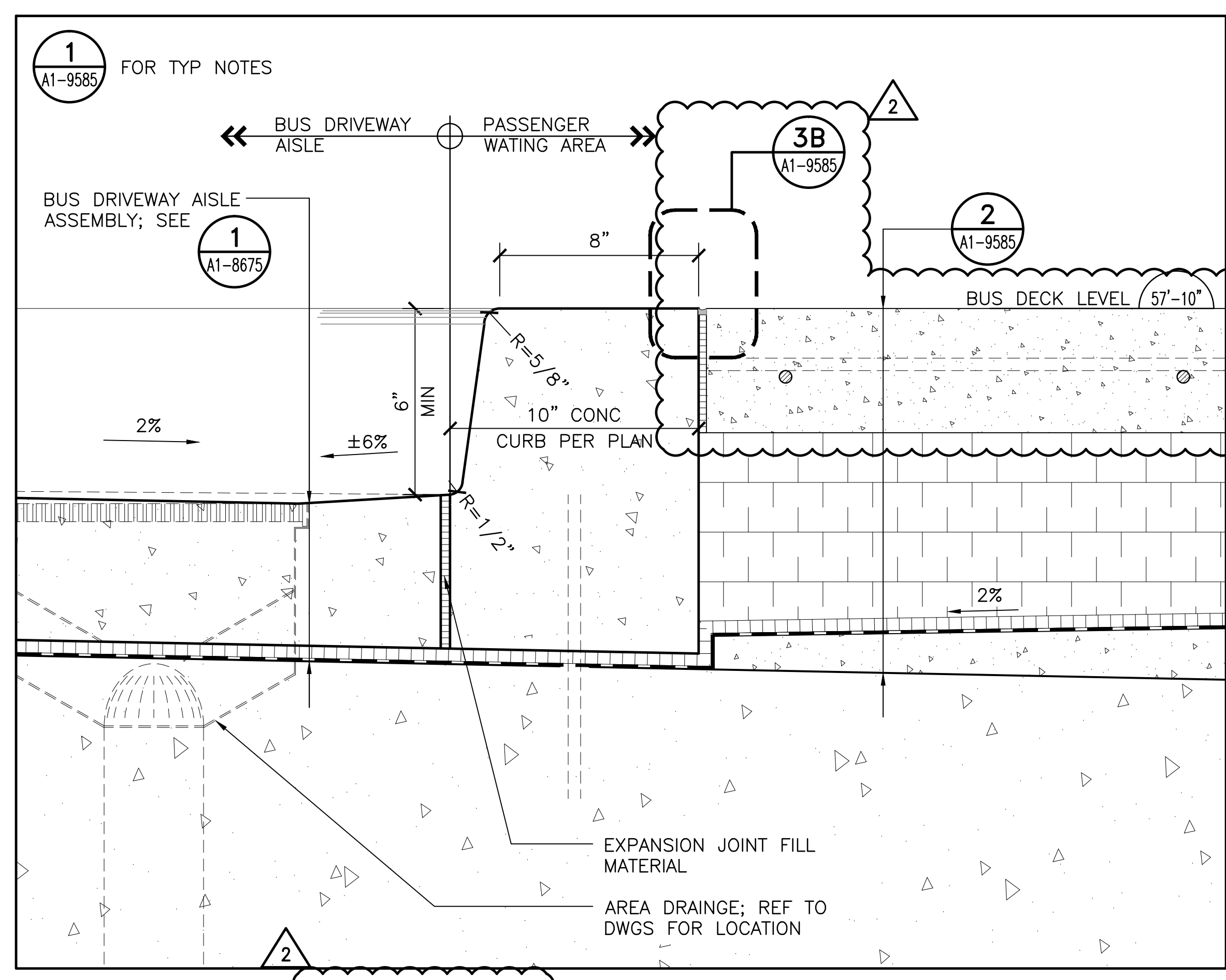
Notes: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.



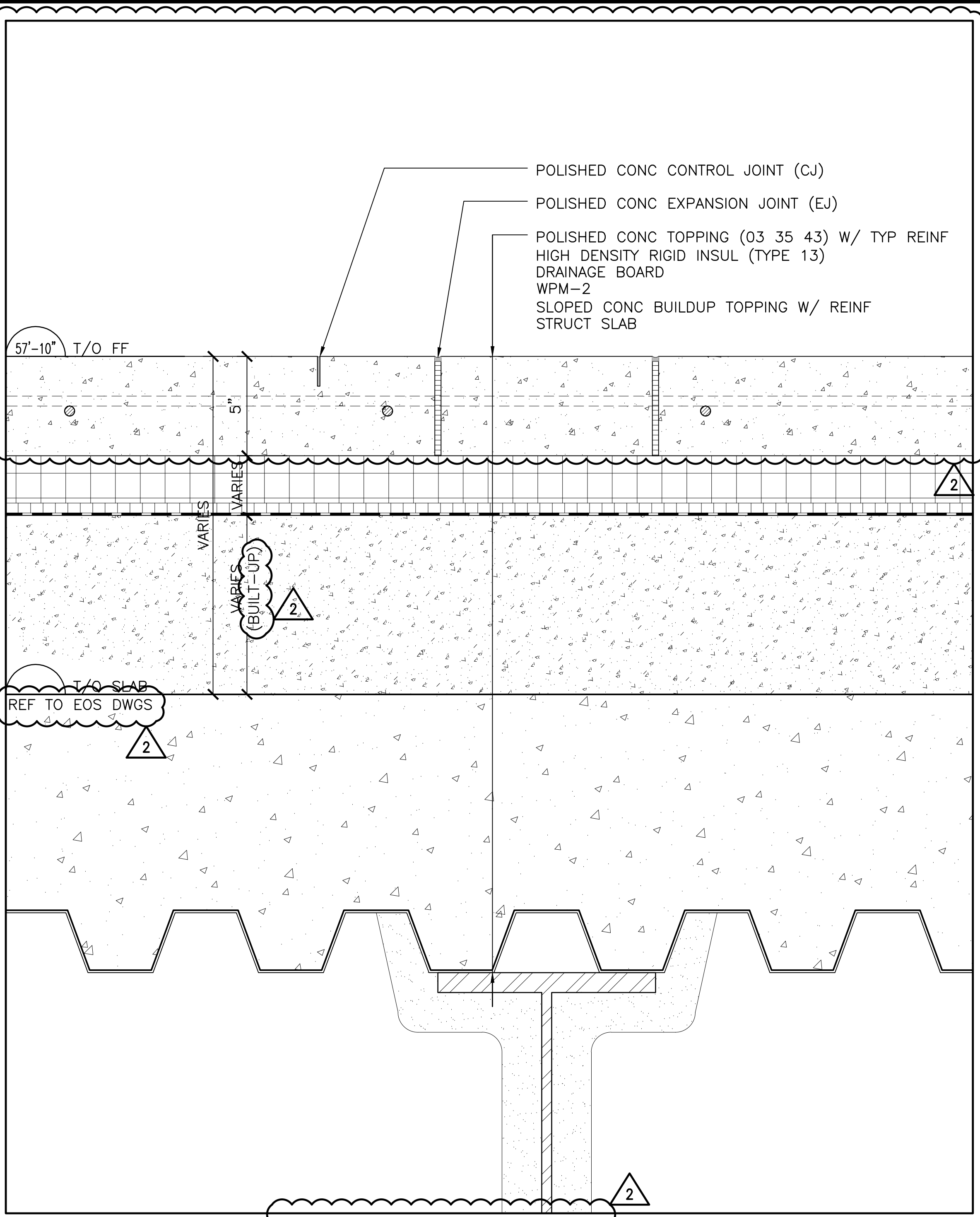
1 SECT @ TERR FL W/ RADIANT HEATING (GRAND HALL)
A1-9585 SCALE: 3" = 1'-0"



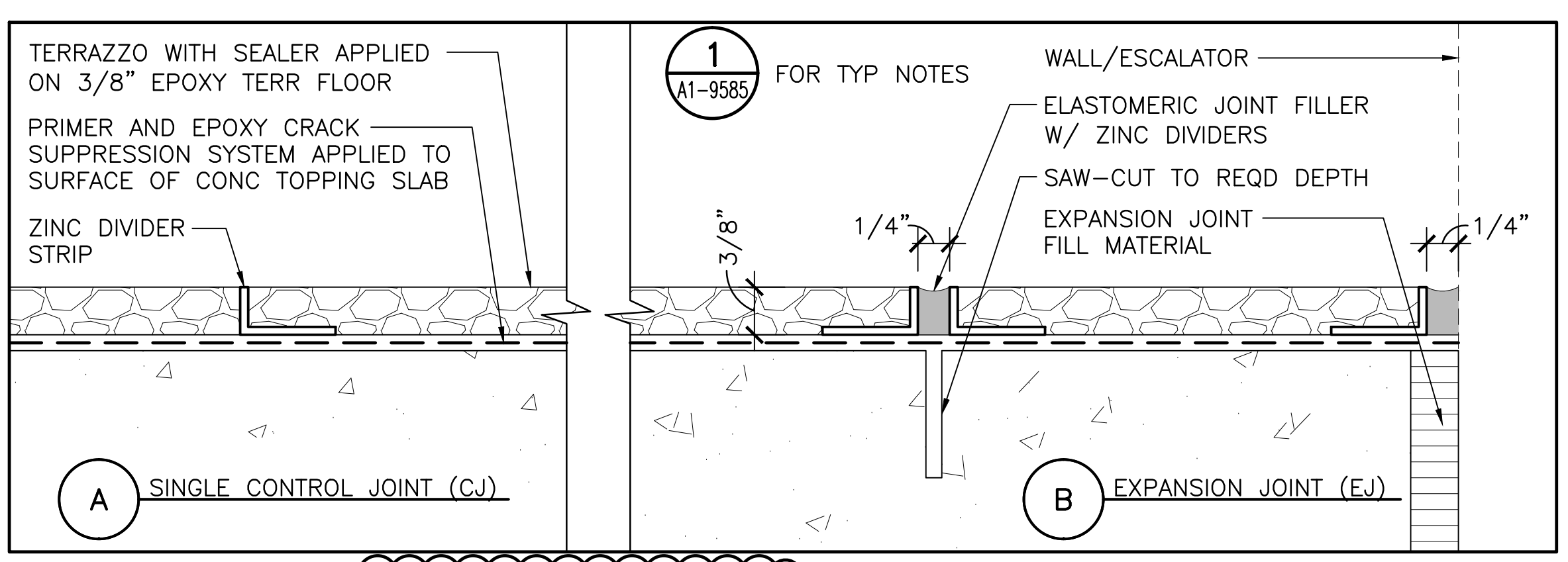
4 SECTION - POLISHED CONC FL (BEALE STREET LOBBY)
A1-9585 SCALE: 3" = 1'-0"



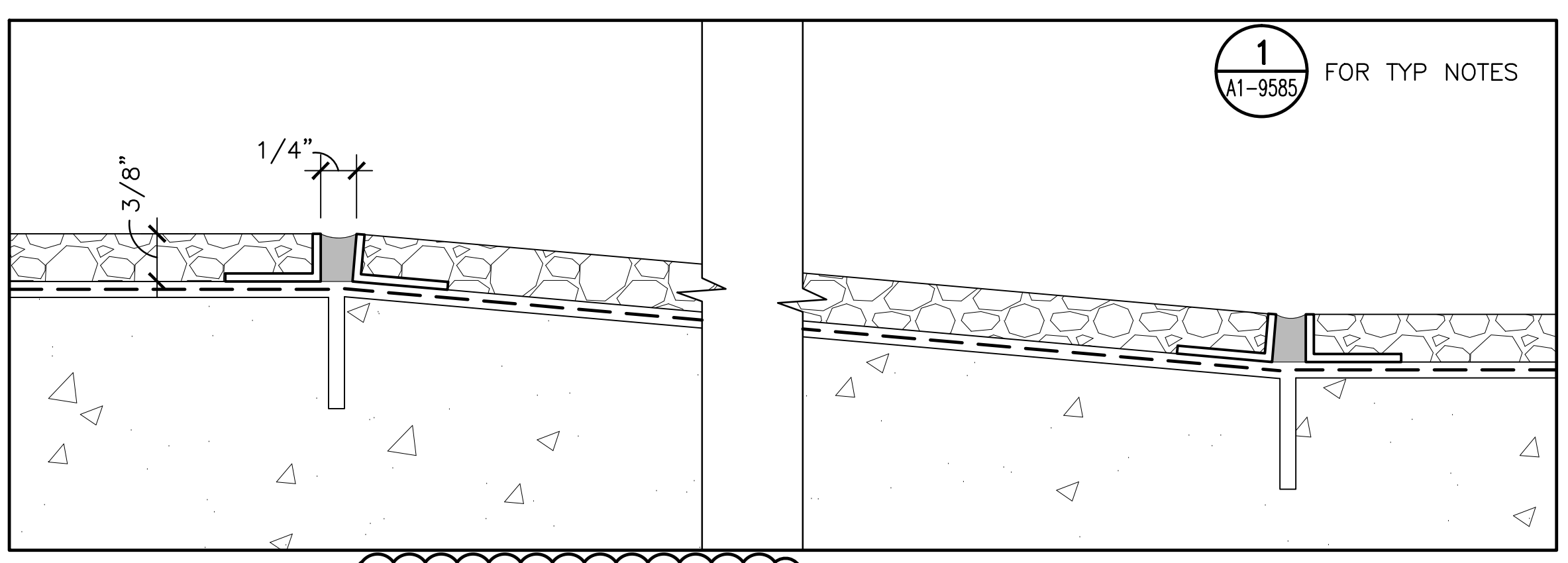
8 SECTION @ CONC FL TRANSITION AT BUS DECK CURB
A1-9585 SCALE: 3" = 1'-0"



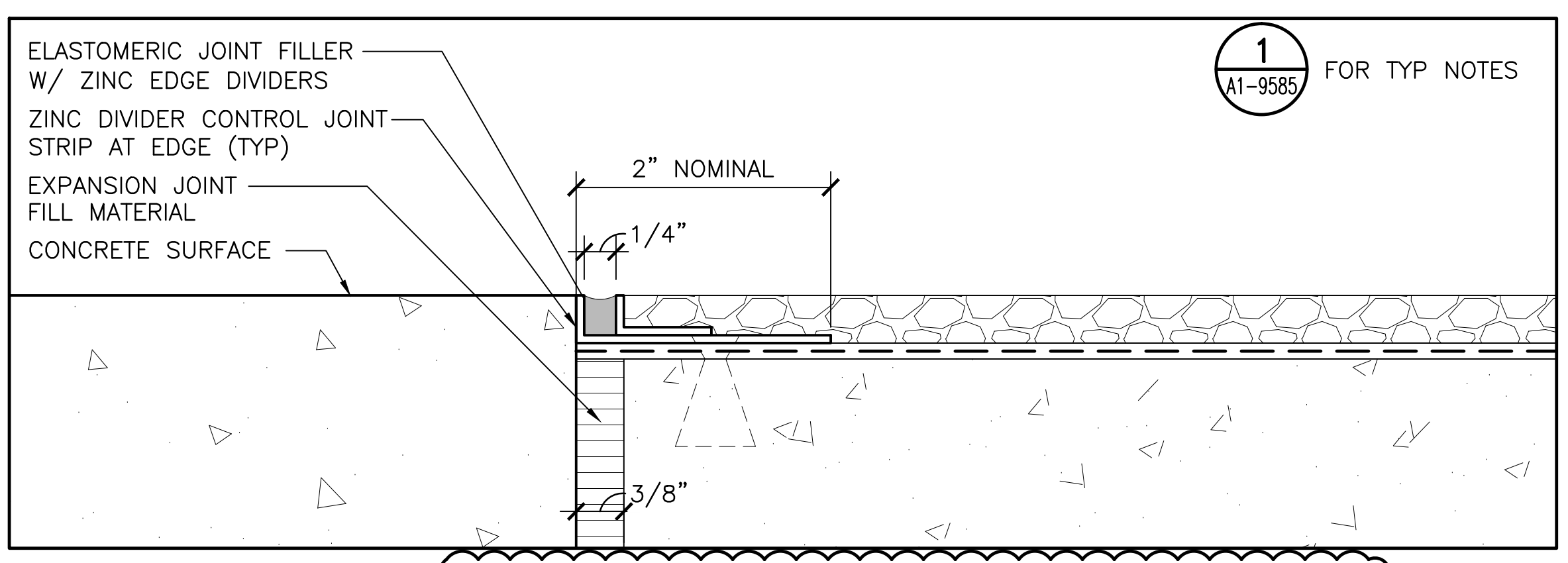
2 SECTION @ POLISHED CONCRETE FLOOR (BUS DECK)
A1-9585 SCALE: 3" = 1'-0"



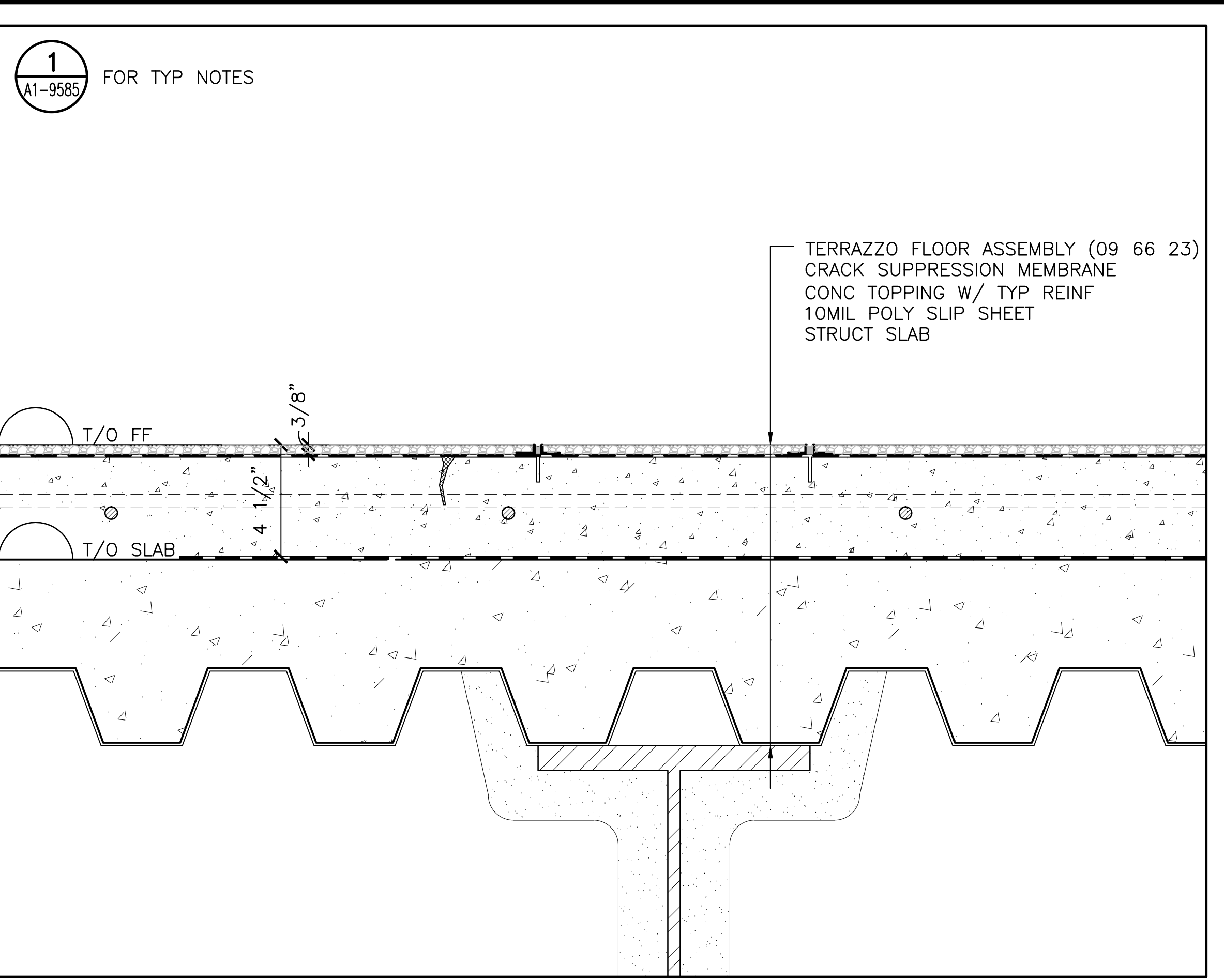
5 TYPICAL TERRAZZO FL AT CONTROL/EXPANSION JOINTS
A1-9585 SCALE: FULL



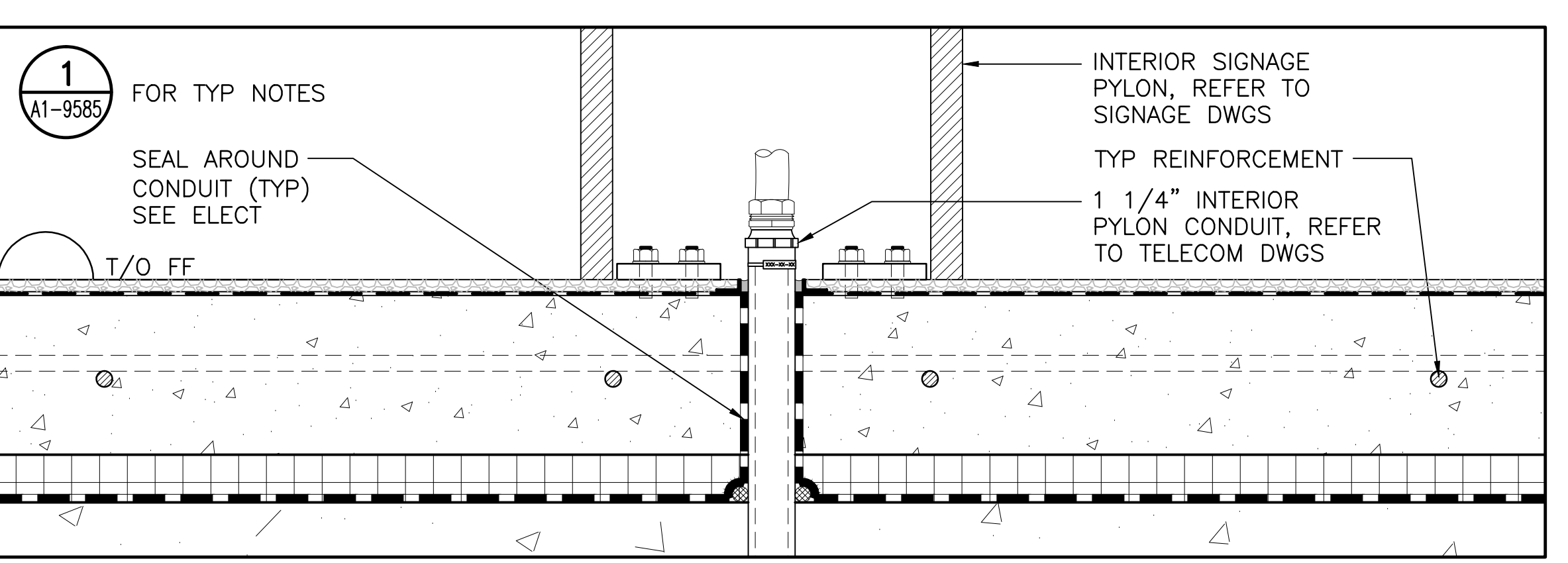
9 TYPICAL TERRAZZO AT FL EXPANSION JOINTS @ RAMPS
A1-9585 SCALE: FULL



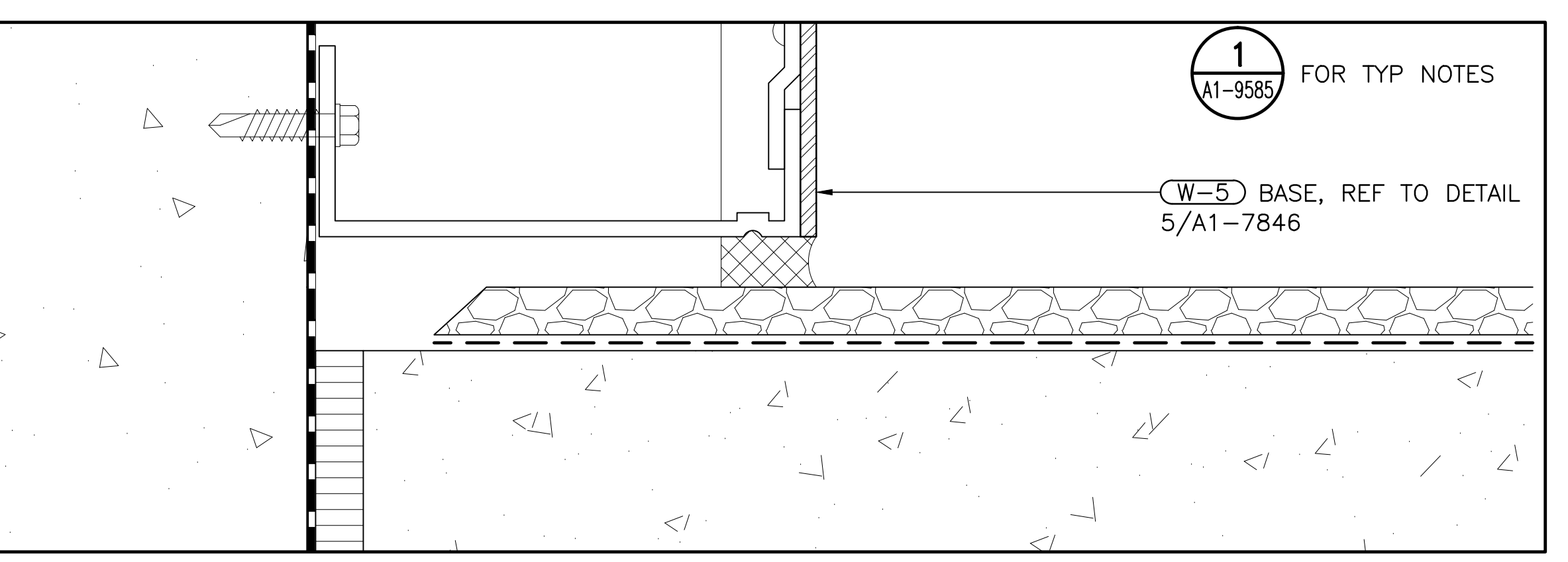
10 SECTION @ CONCRETE TO TERRAZZO TRANSITION
A1-9585 SCALE: FULL



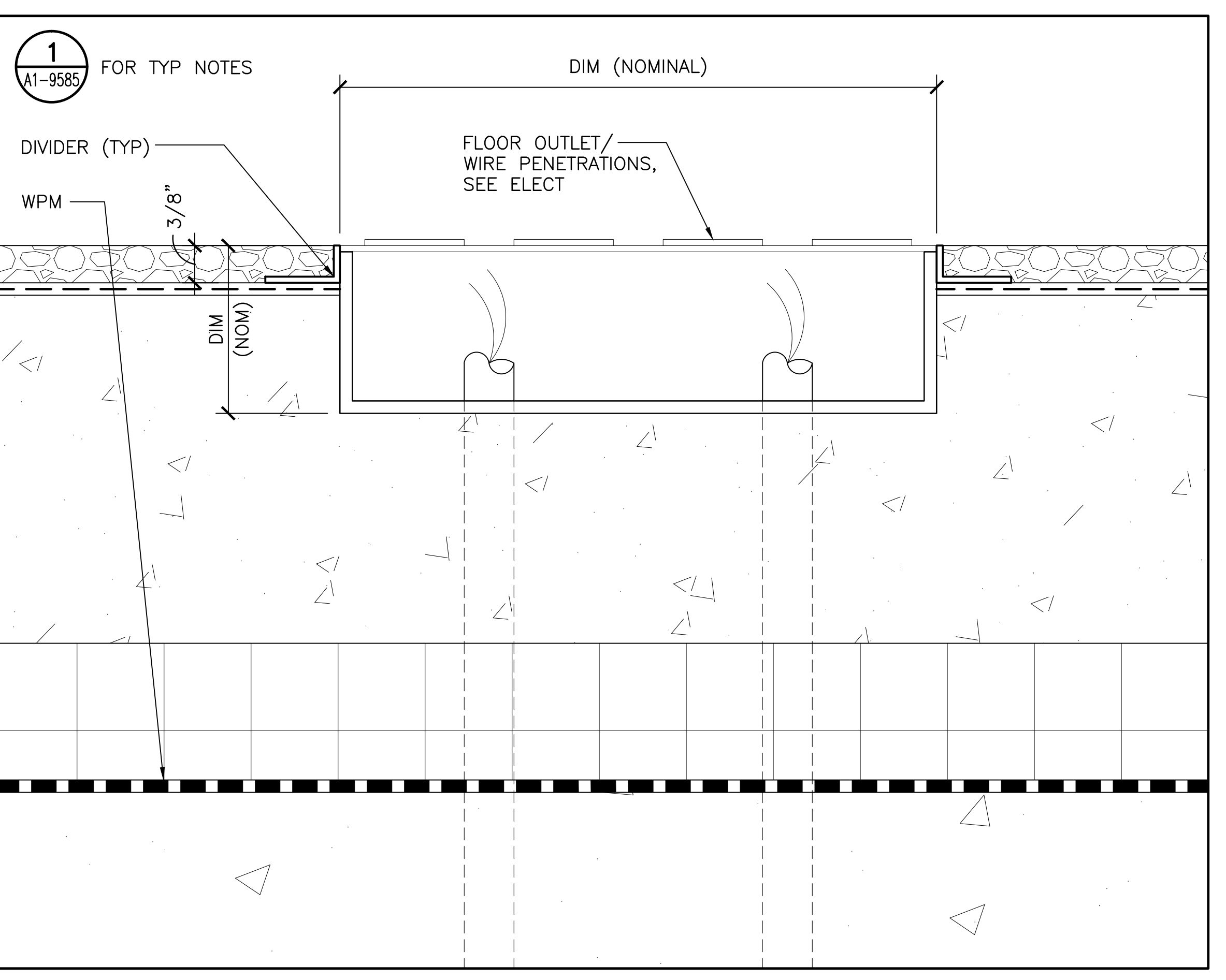
3 SECTION @ TERRAZZO FLOOR
A1-9585 SCALE: 3" = 1'-0"



6 TERRAZZO FLOOR AT INTERIOR PYLONS
A1-9585 SCALE: 3" = 1'-0"



7 TYPICAL TERRAZZO FLOOR @ W-5 BASE
A1-9585 SCALE: FULL



11 TYP TERRAZZO FLOOR AT FLOOR ELECT OUTLET OPNGS
A1-9585 SCALE: FULL

Transbay Transit Center
TRANSBAY JOINT POWERS AUTHORITY
CONSULTANT:
Pelli Clarke Pelli Architects
adamson
ASSOCIATES, INC.

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |



| NO. | DATE | DESCRIPTION |
|-----|----------|-------------------------|
| 1 | 03/31/14 | ISSUED FOR CONSTRUCTION |
| 2 | 09/12/14 | PER A2 NO. 0127 |
| 3 | 12/16/14 | PER A2 NO. 0128 |

08-04-CMGC-000
TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA
TYPICAL TERRAZZO & CONCRETE FLOOR DETAILS

APPROVED: G. METZGER
PRINCIPAL ARCHITECT
APPROVED: S. ROTT
PROJECT MANAGER
APPROVED: E. DEL ANGEL
PROJECT MANAGER
DESIGNED BY: D. DRON
CHECKED BY: W.R. BRADLEY
DRAWN BY: M. CONCALVES
DATE: 12/16/2014
SCALE: AS NOTED
SHEET NUMBER: 140
REVISION: 2
SEQUENCE NUMBER: 2

A1-9585 of

ISSUED FOR CONSTRUCTION

SECTION 07 14 13 – HOT FLUID-APPLIED WATERPROOFING (WPM-2)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Provide materials, labor, equipment, and services necessary to furnish, deliver and install all work of this section as indicated on the drawings, as specified herein, and/or as required by job conditions.
1. Waterproofing the Bus Deck Level with a reinforced hot-applied rubberized asphalt waterproofing membrane over the concrete deck.
 2. Protection course.
 3. Drainage composite.
 4. Quality Control Testing.
- B. Related Sections: Following description of work is included for reference only and shall not be presumed complete:
1. Submittal forms required to be submitted by this Section: Section 00 62 00, Certificates and Other Forms.
 2. Provision of general LEED™ requirements: Section 01 33 29, General LEED™ Requirements.
 3. Provision of general LEED™ product requirements: Section 01 62 13, LEED™ Product Requirements.
 4. Waste management and disposal requirements: Section 01 74 19, Waste Management and Disposal.
 5. Floor drains: Division 22, Plumbing.

1.2 REFERENCES

- A. Abbreviations and Acronyms:
1. LEED: Leadership in Energy and Environmental Design; www.usgbc.org.
 2. MSDS: Material Safety Data Sheets.
 3. SCAQMD: South Coast Air Quality Management District; www.aqmd.gov.
 4. VOC: Volatile Organic Compound.
 5. CAN/CGSB-37.50, "Hot Applied, Rubberized Asphalt for Roofing and Waterproofing."

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings: Comply with Section 01 12 00 and Section 01 14 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply.
- B. Preinstallation Meetings:
1. Prior to but not less than 30 days before beginning work, and not less than 5 days following approval of all shop drawings, representatives of the TJPA will meet with the Contractor, the Waterproofing Subcontractor, his Superintendent or Foreman who will be engaged full time on the Project, the manufacturer's technical representative and the Leak Detection Firm to review the earlier submitted and acceptable materials and submittals and procedures to be followed in performing the work. At this time, submit samples and progress schedule. The Contractor shall keep the minutes of the meeting and distribute same as noted.
 2. The minutes of the conference shall be submitted by the Contractor to all attendees and interested parties no less than 3 days after the conference.

3. Prior to, but not more than seven days before beginning work, a second meeting of the TJPA Representative will meet with the Contractor, the Waterproofing Subcontractor, his Superintendent or Foreman who will be engaged full time on the Project, the Leak Detection Firm and the manufacturer's technical representative will be held at the job site to review storage locations, operating procedures and inspect the concrete deck. At this time, the Waterproofing Contractor shall note, in writing, all items and conditions that are unacceptable and which would preclude proper application of his materials. Failure to do so will be construed as acceptance of the deck as suitable for waterproofing installation.

C. Sequencing:

1. Work shall be in accordance with the TJPA's schedule and sequences.
2. Sequence work to avoid traffic by equipment or personnel over completed waterproofing. Where such access is absolutely required, provide necessary protection and/or barriers to segregate the work area and to prevent damage to adjacent areas.
3. Do not store materials on completed membrane surfaces. Where storage or traffic is unavoidable provide plywood, additional protection boards or similar protection to prevent damage to the membrane. Notify the membrane manufacturer that traffic or storage is anticipated.
4. All conduit, utilities boxes, inserts, penetrations and drains shall be in place, grouted where required and permanently fixed to the substrate before the insulation and membrane are installed.
5. If reinforcing for the topping slab is not installed immediately following testing, ballast the drainage composite to prevent displacement from the wind.

1.4 SUBMITTALS

- A. Comply the General Conditions and Section 01 13 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply. Do not submit items not requested.

B. Submittals General:

1. Submit in triplicate the Shop Drawings, Product Data, Samples, and Quality Control Submittals specified below at the same time as a package. All submittal packages must be submitted prior to the Pre-Installation conference.

C. Product Data:

1. Prior to purchasing materials or beginning work, submit for approval in triplicate:
 - a. Membrane manufacturer's literature including complete description of materials, installation methods and equipment.
 - b. Product Data

D. Shop Drawings:

1. In addition to the shop drawing requirements in General Requirements, project specific shop drawings for all membrane types shall be prepared by the waterproofing contractor on sheets containing his name and job number. Details of terminations, penetrations, etc. shall be specifically prepared for this Project. Submission of cuts of manufacturer's standard details will not be acceptable substitutes for shop drawings. The Contract drawing details may not be reproduced as shop drawings on the Architect's drawings.
2. Shop drawings shall bear the manufacturer's review stamp.
3. Submit shop drawings of methods for flashing internal and external corners , penetrations, terminations construction joints and related conditions. Shop drawings shall be at least 1/4 full size.

4. Samples: Submit in triplicate: 12 in. square pieces of membrane and protection sheet.
5. Certificates:
 - a. Prior to starting work, furnish certificates from the manufacturer stating that materials to be furnished will comply with the standards specified and that all materials in the system are physically and chemically compatible.
 - b. If the Contractor intends to deviate in any way from the Contract drawings, or the manufacturer takes exception to them, submit a separate letter stating the proposed deviation.
6. Manufacturers' Instructions:
 - a. Printed specifications and installation instructions prepared by the waterproofing membrane manufacturer. Deviations from the Contract specifications shall be specifically noted in a separate letter if the manufacturer takes exception to them.
7. Source Quality Control Submittals:
 - a. Site Quality Control Submittals: Following completion submit in triplicate:
8. Record drawings marked to indicate deviations between the work indicated and installed.
9. Dates each area was begun and completed.
10. Qualification Statements:
 - a. Letter from the manufacturer verifying its acceptance of the applicator and acceptance of substrates as satisfactory to receive this work
 - b. Letter with the bid that the manufacturer has licensed or approved the applicator for the specified membrane.
 - c. Name, address and telephone number of two buildings where the applicator has installed the specified membrane and system on which the manufacturer's warranty was issued.
 - d. Letter certifying that the foremen or crew chief and at least one other member of the waterproofing crew have installed one or more similar membranes and are familiar with the system.

1.5 LEED SUBMITTALS

- A. Within 30 days of Contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheets" and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.
- B. Credit IEQ 4.2: If field applied, provide manufacturer's MSDS or technical data sheet showing a printed statement of VOC content for all paints and coatings used on the project and demonstrating compliance with Green Seal standard GS-11, Paints, May 20, 1993; with Green Seal GC-03, Anti-Corrosive Paints, January 7, 1997; with SCAQMD Rule #1113, effective January 1, 2004.

1.6 QUALITY ASSURANCE

- A. The manufacturer shall provide a field advisor for a minimum of 40 working hours per phase who is certified in writing to be technically qualified in design, installation, and servicing of the required products. Personnel involved solely in sales do not qualify. The field advisor shall be present at the beginning of the actual membrane installation to render technical assistance to the Contractor regarding installation procedures of the system and answer questions that may arise.

- B. Immediately following the second pre-waterproofing conference, the manufacturer's field representative shall conduct a one day, minimum 6 hour on-site seminar to instruct the Contractor's superintendent, foreman and waterproofing crew as to the proper installation of the system. The seminar shall conclude with the construction of a minimum 8' x 8' on-site mock up of the full waterproofing assembly.
- C. Unsatisfactory conditions disclosed by the manufacturer's visits to the site shall be promptly and satisfactorily repaired and the areas re-inspected by him before work starts or resumes in affected areas.
- D. Installers: All work under this Section shall be performed by a single firm with a minimum of five years experience in the installation of the specified type of waterproofing and shall have been approved by the manufacturer for 5 years prior to the date of his bid.
- E. Leak Detection Quality Assurance Scans
 - 1. Perform quality assurance electronic conductance scanning following each completed membrane area.
- F. Regulatory Requirements: In addition to LEED requirements, comply with BAAQMD requirements referenced in Section 01 14 10.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Deliver materials in sufficient quantity to permit work to continue without interruption.
- B. Storage and Handling Requirements:
 - 1. Store materials in dry areas protected from the sun and Weather. Store in trailers or on raised platforms covered with weatherproof tarpaulins. Plastic sheeting is not permitted.
 - 2. Store materials containing solvents in dry, well ventilated spaces. Keep lids on tight.
- C. Provide proper fire protection for flammable materials.
- D. Use materials before expiration of their shelf life.
- E. Avoid damage or embedment of foreign materials.
- F. All materials shall be in manufacturer's unopened packages, wrappings or containers, clearly labeled with all pertinent information. Labels on uncured materials shall include date of manufacturer, shelf life and open time.
- G. Materials improperly stored or which become wet, warped or damaged shall be identified, conspicuously marked as rejected and removed from the job site.
- H. Do not unnecessarily encumber the premises with apparatus, storage of materials and operations of workmen. Confine work within the limits designated by the TJPA Representative.

1.8 SITE CONDITIONS

- A. Ambient Conditions:
 - 1. Check daily and long-range weather forecasts before planning each day's work.

2. Be prepared to cover unfinished work with temporary covers in the event of an unexpected rainfall.

B. 1 DELETED 1

C. Existing Conditions:

1. Do not close or obstruct passageways, drives, streets or entrances without permission from the TJPA's Representative. Erect barriers, lights required for safety and as required by local laws and regulations.
2. Leave access to hydrants, standpipes and entrances.

D. Prevent damage to membrane from hard soled shoes, sharp edged equipment, tools and fasteners. Take precautions to prevent debris from lodging under membrane or being tracked on surfaces.

1.9 WARRANTY

A. The warranty is governed by the requirements herein, those of Section 01 74 40, and the General Conditions of the Contract.

B. Warranty specified in this Article shall not deprive the TJPA of other rights the TJPA may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

C. Manufacturer Warranty:

1. Furnish to the TJPA Representative, executed copies of the membrane manufacture's 20 year Warranty signed by the applicator and manufacturer and notarized providing to replace or repair defective materials and workmanship resulting in significant leakage within the warranty period.

D. Waterproofing Contractor's Warranty:

1. Furnish to the TJPA Representative, executed copies of the Warranty from Section 01 74 00 signed by the applicator providing to remediate leaking in the Bus Level.

E. Both warranties shall include all costs in connection with investigating leaks including removal and replacement of overburden, pumping, applying crystalline waterproofing to the negative side and/or injecting urethane or acrylate resin grouts from above or below.

1.10 RECORD DOCUMENTS (AS-BUILT)

A. General: The provisions of Article 3.09 of the General Conditions and Sections 01 17 20 apply to this Section.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. 1 This Specification is based on products produced by American Hydrotech, Henry Co. and by the Barrett Co. Millington, NJ. Other manufacturers meeting their published physical and chemical properties and has been marketed in the United States for not less than 5 years will be considered. 1

2.2 LEED REQUIREMENTS

- A. Credit IEQ 4.2: All VOC containing materials applied on site inside of the waterproofing barrier shall comply with LEED credits IEQ 4. Provide paints and coatings that comply with the limits defined by Green Seal Standard GS-11, effective May 20, 1993, GC-03, January 7, 1997, and SCAQMD Rule #1113, effective January 1, 2004, as applicable.

2.3 MATERIALS

- A. A complete system of compatible materials from a single producer designed for hot fluid-application consisting of single component; 100 percent solids hot fluid-applied, rubberized asphalt reinforced with polyester to provide a minimum 215 mil membrane as manufactured by one of the following:
 - 1. American Hydrotech, Inc.; Monolithic Membrane 6125.
 - 2. Henry Co. 790-11.
 - 1
 - 3. Ram-Tough 250 as manufactured by the Barrett Co. Millington, NJ 1

2.4 AUXILIARY MATERIALS

- A. Primer: ASTM D 41, asphaltic primer.
- B. Elastomeric Flashing Sheet: 50-mil minimum, non-staining, uncured sheet neoprene with manufacturer's recommended contact adhesives and predrilled metal termination bars and anchors.
- C. 3 . . . Sealants and Accessories: Waterproofing manufacturer's recommended sealants and accessories. **For exposed sealant (rainscreen sealant) Dow 756. For low dirt pick-up per Section 07 92 00 Joint Sealants. . . . 3**
- D. Reinforcing Fabric: Manufacturer's recommended spun-bonded polyester fabric.
- E. Protection Course: Semi-rigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners 1/4" thick.

2.5 DRAINAGE COMPOSITE PANELS

- A. Dimpled polymeric heavy duty sheet with filter fabric on one side, 0.25" thick min: min. 30,000 psf compressive strength as approved by the membrane manufacturer.

2.6 3 . . . TERMINATION BARS AND FLASHING

- A. Stainless steel, **termination bar 304 series**, 1/8" thick 1" wide or angles of sizes indicated. Punch **8" 16"** o.c. **maximum** for fasteners.
- B. **Stainless steel 1/8" thick flashing 304 series with 16 ga closures at joints, attached with 304 series stainless steel fasteners at 16" o.c. maximum. . . . 3**

2.7 1 DELETED

2.8 DELETED 1

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
 - 1. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by Tramex Concrete RH Moisture Content and Relative Humidity Meter, Wagner Proline Concrete C575 or Elcometer 742 Digital Moisture meter. Maximum moisture content: 6%.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and prepare substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Close off deck drains and other deck penetrations to prevent spillage and migration of waterproofing fluids.
- D. Remove grease, oil, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete as follows:
 - 1. Abrasive blast clean concrete surfaces uniformly to expose top surface of fine aggregate according to ASTM D 4259 with a self-contained, re-circulating, blast-cleaning apparatus. Remove material to provide a sound surface free of laitance, glaze, efflorescence, curing compounds, concrete hardeners, or form-release agents. Remove remaining loose material and clean surfaces according to ASTM D 4258.
 - 2. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, and other voids.
- E. Substrate dryness shall be tested with instruments specified above or as required by the membrane manufacturer.
- F. Apply the surface conditioner to the concrete using a hand held sprayer evenly at a rate of 300 to 600 sq. ft./gallon depending on surface texture. Surface conditioner should "tan" the surface, not blacken it. Allow sufficient time for the surface conditioner to thoroughly dry prior to the membrane application.

3.3 JOINTS, CRACKS, AND TERMINATIONS

- A. Prepare and treat substrates to receive waterproofing membrane, including joints and cracks, deck drains, corners, and penetrations according to CAN/CGSB-37.51, "Application of Rubberized Asphalt, Hot-Applied, for Roofing and Waterproofing," and waterproofing system manufacturer's written instructions.
- B. Rout and fill joints and cracks in substrate. Before filling, remove dust and dirt according to ASTM D 4258.

- C. Adhere elastomeric flashing sheet to substrate in a layer of hot, rubberized asphalt. Extend elastomeric flashing sheet a minimum of 6" on each side of joints and cracks and beyond deck drains, corners, and penetrations.
- D. Embed reinforcing fabric into a layer of hot, rubberized asphalt. Extend reinforcing fabric a minimum of 6" on each side of joints and cracks and beyond deck drains, corners, and penetrations.

3.4 FLASHING INSTALLATION

- A. Install flashing sheets at terminations of waterproofing membrane according to CAN/CGSB-37.51, "Application of Rubberized Asphalt, Hot-Applied, for Roofing and Waterproofing," and waterproofing system manufacturer's written instructions.
- B. Prime substrate with asphalt primer.
- C. Install elastomeric flashing sheet and adhere to deck and wall substrates in a layer of hot, rubberized asphalt.
- D. Extend flashing sheet up walls or parapets as indicated.
- E. Install termination bars and mechanically fasten to top of flashing sheet at terminations and perimeter of membrane.

3.5 MEMBRANE APPLICATION

- A. Apply rubberized asphalt according to ASTM D 6622, "Application of Fully Adhered Hot-Applied Reinforced Waterproofing Systems," and manufacturer's written instructions.
- B. Heat rubberized asphalt in an oil- or air-jacketed melter with mechanical agitator specifically designed for heating rubberized-asphalt waterproofing.
- C. Start application with manufacturer's technical representative present.
- D. Apply primer, at manufacturer's recommended rate, over prepared substrate and allow to dry.
- E. Apply waterproofing to substrates and adjoining surfaces indicated. Spread hot fluid-applied, rubberized asphalt to a thickness of 90 mils; embed reinforcing fabric, overlapping sheets 2"; and spread another 125 mil thick layer to provide a uniform, reinforced, seamless membrane 215 mils thick.
- F. Apply waterproofing over prepared joints and up wall terminations and vertical surfaces to heights indicated or required by manufacturer.

3.6 PROTECTION LAYER INSTALLATION

- A. Embed the protection sheet into the membrane while it is still hot to insure a good bond.
- B. Overlap adjoining sheet edges (dry) a minimum of 2" to 3" to insure complete coverage.
- C. Cover with drainage composite as soon as possible, within 30 days of membrane installation.

3.7 DRAINAGE COMPOSITE PANEL INSTALLATION

- A. Install drainage composite panels on protection sheet dry with tight joints. Lap edges and ends of geotextile to maintain continuity.
- B. Temporarily weight the boards until the topping slab is cast.

3.8 SITE QUALITY CONTROL TESTS

- A. Membrane Integrity Verification Testing: Electronic Testing shall be performed by an independent firm who has performed the selected test method on at least three comparable projects. Acceptable firms: International Leak Detection or Progeo Monitoring of North America.
- B. After each section of the membrane is completed test the membrane for watertightness by low voltage testing.
- C. Perform the tests using an independent testing firm with demonstrated experience in this type of testing. Testing personnel shall be trained in the equipment and procedures required for the test.
- D. Perform quality assurance electronic conductance scanning following each area of the membrane layer is completed. Share the results of the scan with the roofing contractor promptly, any identified breaches repaired and retested by the Leak Detection representative prior to installation of overburden. The Leak Detection technician shall perform a comprehensive scan of the horizontal and vertical areas of each section made available for testing, electronically test the seal on penetration boots, provide the roofing contractor with a daily field report and provide a scan map that clearly indicates the area scanned and certifies that the indicated areas are ready for subsequent cover. Do not cover any area of the membrane without written approval provided in the report from the testing firm.
- E. Mark all defects in the membrane with a water-resistant paint.
- F. Repair defects in accordance with the membrane manufacturer's instructions and retest.
- G. Record the test results, including location, date, time and, location of any leaks and repairs.

3.9 **3... 1 BUS DECK LEVEL FLASHING AT CONCRETE GUARDRAIL 1**

- A. **At concrete guardrail, provide WPM flashing into reglets and continuous stainless steel flashing complete with stainless steel joint closures, stainless steel fasteners, and backing and sealant at horizontal joints and at vertical joints at columns; expansion joints and bridge (Bus Ramp) locations.**
- B. **Provide stainless steel termination bars at top in reglet.**
- C. **Coordinate location of reglets.**
- D. **Allow for thermal expansion. ... 3**

3.10 WATERPROOFING INSTALLER'S WARRANTY

- A. The undersigned Waterproofing Contractor hereby agrees for a period of 2 years after the executed date hereof, to make immediate repairs required to stop leaks or correct other defects in the membrane and associated work of the project named herein, within 24 hours of notice received from the TJPA by telephone, telegram or letter.
- B. Repair work shall include the application of capillary cementitious waterproofing and/or the injection of urethane or acrylate resins to stop leaks.

- C. Repair work required because of failure of materials or workmanship within the guarantee period will be completed by the Waterproofing Contractor without cost to the TJPA. Repair work required because of acts of God, abuse of the work, alterations, or failure of the supporting structure of substrate (other than that resulting from defects in the waterproofing and associated work) and all repair work required for defects occurring beyond the expiration of the warranty period, will be paid for by the TJPA promptly after completion of the required work in each instance.

Date: _____

Project Name: Transbay Transit Center

For: _____ as its _____
(Waterproofing Contractor)

Signed by: _____ Date: _____

For: _____ as its _____
(TJPA)

Approximate area of waterproofing _____ sq. -foot

END OF SECTION 07 14 13

SPECIFICATION ISSUE LOG

| Revision | Date |
|----------|----------|
| 0 | 03/31/14 |
| 1 | 08/06/14 |
| 2 | 09/12/14 |
| 3 | 12/16/14 |



Request For Information

Project [140] - Transit Center Building Date 2/11/2015

Webcor/Obayashi
175 Beale Street
San Francisco, CA 94105
Phone: 650-349-2727
Fax: 650-524-7399

RFI No. T-2217

| | | | |
|-------------------|---|----------------------|--------------------|
| Primary Responder | George Metzger Adamson Associates, Inc. (AAI) 17383 W. Sunset Boulevard, B-200 Pacific Palisades, CA 90272 Phone: 310-230-0088 ext. 3101 Fax: 3102300066 | Date | 2/11/2015 |
| CC | | Status | Closed |
| From | Jamie Nelson Webcor/Obayashi | Resolved Date | |
| | | Reason for Request | |
| | | Action Requested | |
| | | Probable Cost Effect | |
| | | Probable Time Effect | |
| | | Priority | Due within 10 days |
| | | Response Due | 2/21/2015 |

Subject RWP-WPM-2 Assembly Requirements at Grand Hall
Drawing No. (ASI 128 dated 12/16/14) Other Reference
Detail 1/A1-9585
Specification Section 07 14
13

CSI Code Answer Set No.

Information Requested

Contract Doc Ref: (ASI 128 dated 12/16/14) Detail 1/A1-9585 Specification Section 07 14 13
Location: Grand Hall
Closest Column Line Intersection: N/A
Add'l Doc Ref's: N/A

Per Detail 1/A1-9585, Hot Fluid-Applied Waterproofing (WPM-2) is to be installed over the structural slab within the Grand Gall.

Per Specification Section 07 14 13 Hot Fluid-Applied Waterproofing (WPM-2) is to be installed with protection board and drain board.

Detail 1/A1-9585 does not show protection board or drain board over the WPM-2.

Please confirm protection board and drain board are required as part of the WPM-2 assembly slab within the Grand Hall.

Recommendation

Response Information


| Responder | Date | Response |
|----------------|----------|---|
| George Metzger | 3/4/2015 | For the Grand Hall, Room No. 01520 delete the WPM-2 waterproofing, protection board, and drain board. |

Originator

Notes

Supporting documents and attached files

This RFI has the following supporting documents and attached files:

| Description | Date | Open as |
|--|-----------|---------|
|  Document: 140-33681RFI T-2217 RWP-WPM-2 Assembly Requirements at G... 643KB | 2/11/2015 | |

 Attached file  Supporting document

Distribution

| Recipient | Company | Method | Date |
|----------------------|--|---|-----------|
| Albert Chen | Thornton Tomasetti | Email: achen@thorntontomasetti.com | 2/11/2015 |
| Andrew Lusardi | Turner Construction Company | Email: alusardi@tcco.com | 3/12/2015 |
| Andrew Lusardi | Turner Construction Company | Message | 3/11/2015 |
| Andrew Rybicki | Adamson Associates, Inc. (AAI) | Message | 3/11/2015 |
| Andrew Rybicki | Adamson Associates, Inc. (AAI) | Email: ARybicki@adamson-associates.com | 2/11/2015 |
| Anthony Bell | Turner Construction Company | Email: abell@tcco.com | 3/12/2015 |
| Ashley Wewiora | Adamson Associates, Inc. (AAI) | Message | 3/11/2015 |
| Ashley Wewiora | Adamson Associates, Inc. (AAI) | Email: AWewiora@adamson-associates.com | 2/11/2015 |
| C. Kerem Gulec | Thornton Tomasetti | Message | 3/11/2015 |
| C. Kerem Gulec | Thornton Tomasetti | Email: cgulec@thorntontomasetti.com | 2/11/2015 |
| Carl Keim | Adamson Associates, Inc. (AAI) | Message | 3/11/2015 |
| Carl Keim | Adamson Associates, Inc. (AAI) | Email: ckeim@adamson-associates.com | 2/11/2015 |
| Darin Cook | Pelli Clarke Pelli Architects, Inc. (PCPA) | Message | 3/11/2015 |
| Darin Cook | Pelli Clarke Pelli Architects, Inc. (PCPA) | Email: dcook@pcparch.com | 2/11/2015 |
| Elaina Chan | Turner Construction Company | Email: echan@tcco.com | 3/12/2015 |
| Elaina Chan | Turner Construction Company | Message | 3/11/2015 |
| Erick del Angel | Adamson Associates, Inc. (AAI) | Message | 3/11/2015 |
| Erick del Angel | Adamson Associates, Inc. (AAI) | Email: edelangel@adamson-associates.com | 2/11/2015 |
| Ethan Heinrich | Turner Construction Company | Email: eheinrich@tcco.com | 3/12/2015 |
| Ethan Heinrich | Turner Construction Company | Message | 3/11/2015 |
| George Metzger | Adamson Associates, Inc. (AAI) | Message | 3/11/2015 |
| George Metzger | Adamson Associates, Inc. (AAI) | Email: gmetzger@adamson-associates.com | 2/11/2015 |
| Heather Kim | Pelli Clarke Pelli Architects, Inc. (PCPA) | Message | 3/11/2015 |
| Heather Kim | Pelli Clarke Pelli Architects, Inc. (PCPA) | Email: hkim@pcparch.com | 2/11/2015 |
| ISI Inspectors | Turner Construction Company | Email: isitjpa@gmail.com | 3/12/2015 |
| Jack Adams | Turner Construction Company | Email: jadams@tcco.com | 3/12/2015 |
| Jack Adams | Turner Construction Company | Message | 3/11/2015 |
| Judy Long | Turner Construction Company | Email: jklong@tcco.com | 3/12/2015 |
| Judy Long | Turner Construction Company | Message | 3/11/2015 |
| Marcus Pippin | Turner Construction Company | Email: mpippin@tcco.com | 3/12/2015 |
| Marcus Pippin | Turner Construction Company | Message | 3/11/2015 |
| Mark Shepherd | Turner Construction Company | Email: MShepherd@tcco.com | 3/12/2015 |
| Melissa Christiansen | Turner Construction Company | Email: christiansen@tcco.com | 3/12/2015 |
| Monique Hawn | Turner Construction Company | Email: mhawn@tcco.com | 3/12/2015 |
| Phil Militello | Turner Construction Company | Email: pmilitello@tcco.com | 3/12/2015 |
| Phil Militello | Turner Construction Company | Message | 3/11/2015 |
| Randy Volenec | Pelli Clarke Pelli Architects, Inc. (PCPA) | Email: rvolenec@pcparch.com | 2/11/2015 |
| Raymond Quesada | PMPC | Email: rquesada@transbaycenter.org | 3/12/2015 |
| Raymond Quesada | PMPC | Message | 3/11/2015 |
| Richard Hodgkins | Inspection Services, Inc. (ISI) | Email: docrick6@gmail.com | 3/12/2015 |
| Rick DeMars | Turner Construction Company | Email: rdemars@tcco.com | 3/12/2015 |
| Sean McNeill | Thornton Tomasetti | Message | 3/11/2015 |
| Sean McNeill | Thornton Tomasetti | Email: smcneill@thorntontomasetti.com | 2/11/2015 |
| Starla Dunn | Turner Construction Company | Email: sdunn@tcco.com | 3/12/2015 |

| | | | |
|-------------------|-----------------------------|--|-----------|
| Steve Cunningham | Turner Construction Company | Email: scunningham@tcco.com | 3/12/2015 |
| Turner DocControl | Turner Construction Company | Email: turner.transbay@tcco.com | 3/12/2015 |
| Victor Green | Turner Construction Company | Email: vgreen@tcco.com | 3/12/2015 |
| WO DocControl | Webcor/Obayashi | Email: transbaydocctrl@webcor-obayashi.com | 3/12/2015 |



REQUEST FOR INFORMATION

T-2218

SUBJECT: RWP - Floor Drain Requirements at Grand Hall

30100 - Transbay Transit Center Project
175 Beale St
San Francisco CA, 94105

Date Required: 20-Feb-2015

Date Created: 10-Feb-2015

Cost Impact: P

Schedule Impact: P

PCI #:

Sent By: Tram Nguyen
Webcor Construction LP
1751 Harbor Bay Parkway Suite 200
Alameda, CA 94502
Ph: 510 748-1900

Answered By: Phil Militello
Turner Construction Company
Transbay Transit Center Project 201
Mission St., Ste. 560
San Francisco, CA 94105
Ph: (415) 442-5100

Co Author:

Co Author RFI #:

Level:

Room:

Question

Contract Doc Ref: (ASI 128 dated 12/16/14)
Detail 1/P1-2305
Detail 1/A1-9585

Location: Grand Hall

Closest Column Line Intersection: N/A

Add'l Doc Ref's: N/A

Per Detail 1/P1-2305, no floor drains are present under the terrazzo at the Grand Hall.

Per Detail 1/A1-9585, Hot Fluid-Applied Waterproofing (WPM-2) is to be installed over the T.O. structural slab within the Grand Hall.

Per detail 1/A1-9585, Crack Suppression Membrane (WPM-13) is to be installed over the T.O. the topping slab.

Should a water intrusion occur between the structural slab and topping slab, the water may float the topping slab.

Please confirm waterproofing is to be installed at the top of structural slab and topping slab, and no floor drains are to be installed within the terrazzo at the Grand Hall.

Suggestion:

Accept Suggestion:

Answer:

***Attention Subcontractors, a Reminder from Webcor/Obayashi
JV***

This is intended to be a clarification only. This is not intended to be a direction
to increase the scope of the work.

Confirmed.

Answered By: George Metzger

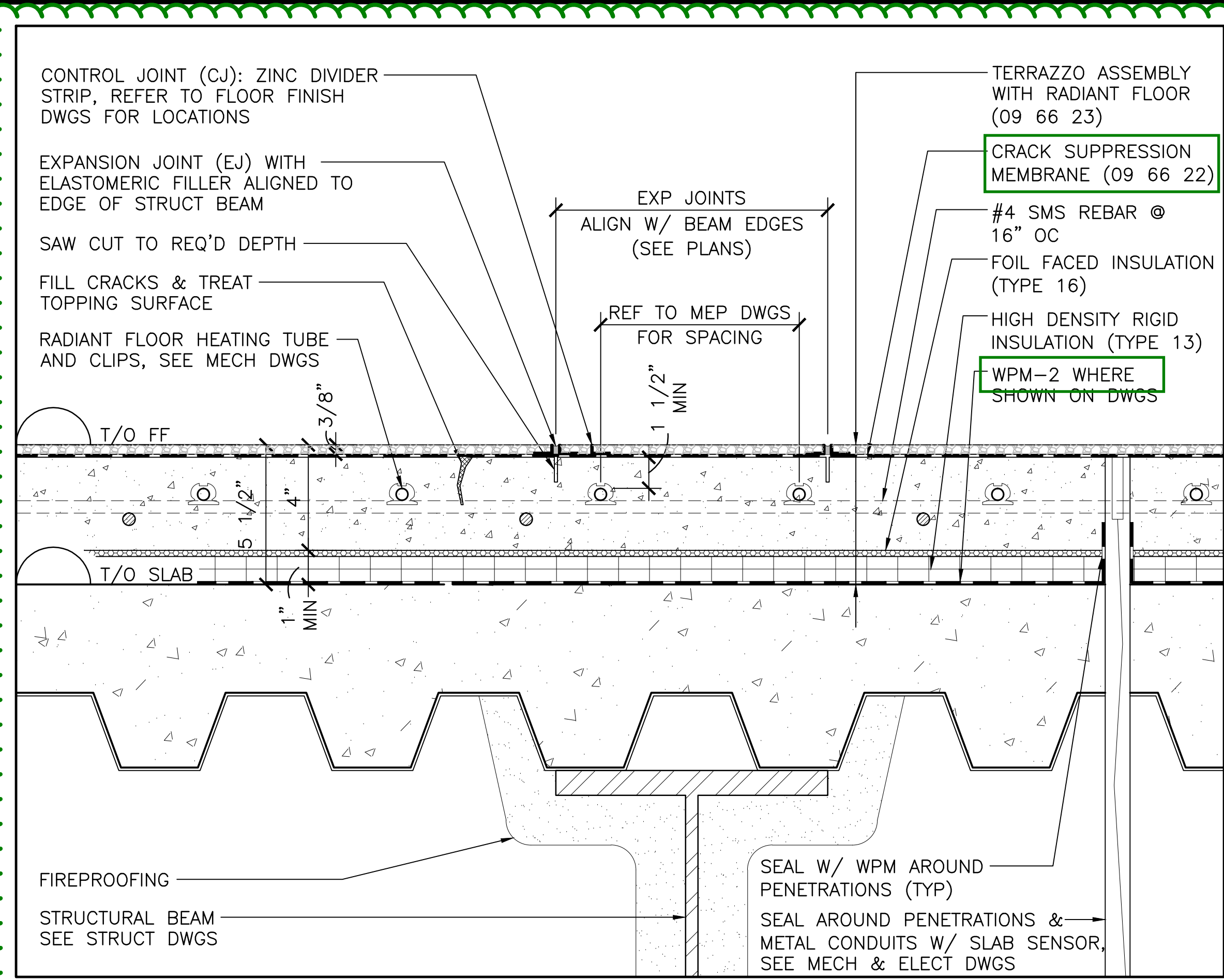
Answered On: 04-Mar-2015

***Attention Subcontractors, a Reminder from Webcor/Obayashi
JV***

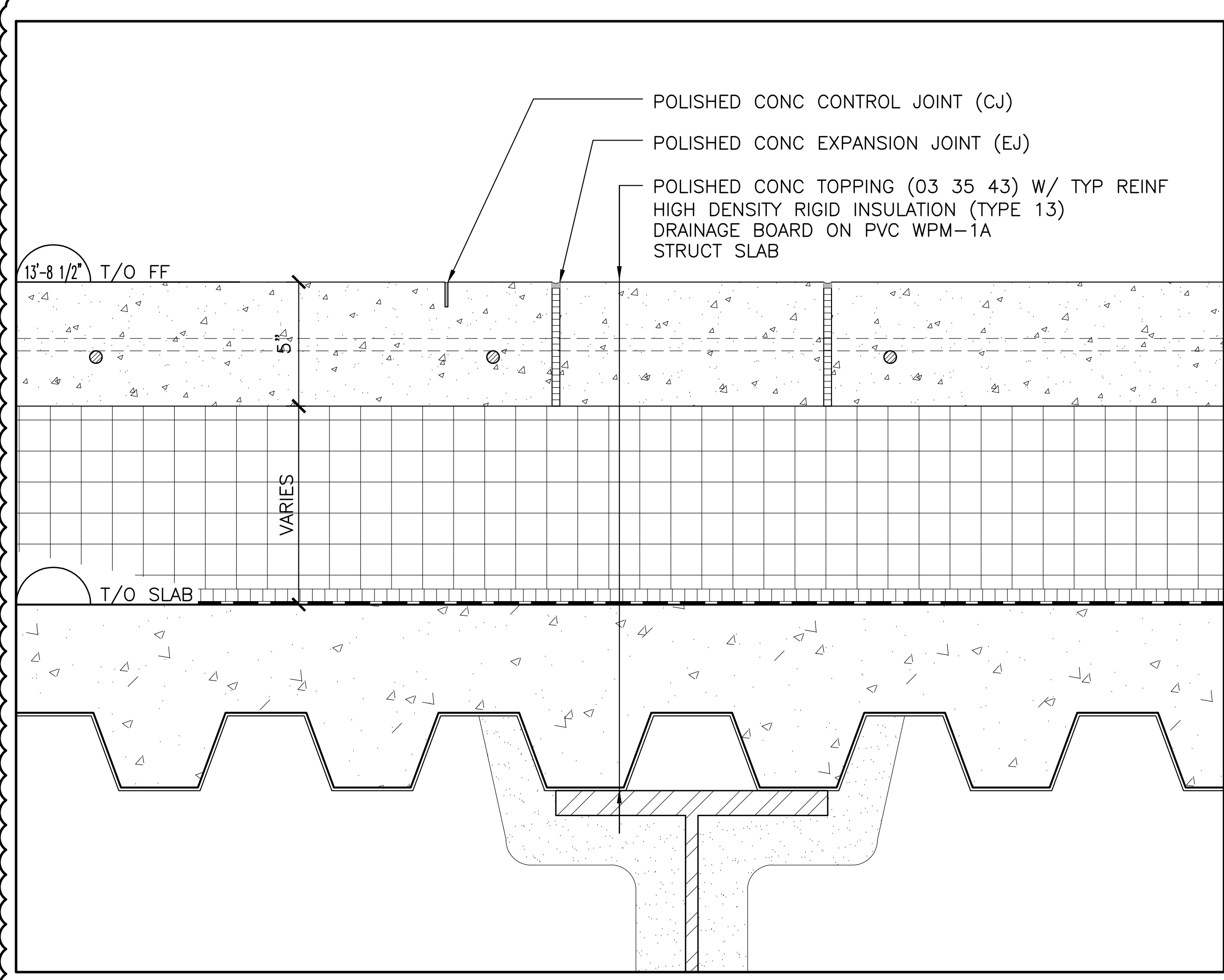
This is intended to be a clarification only. This is not intended to be a direction
to increase the scope of the work.

[illegible]

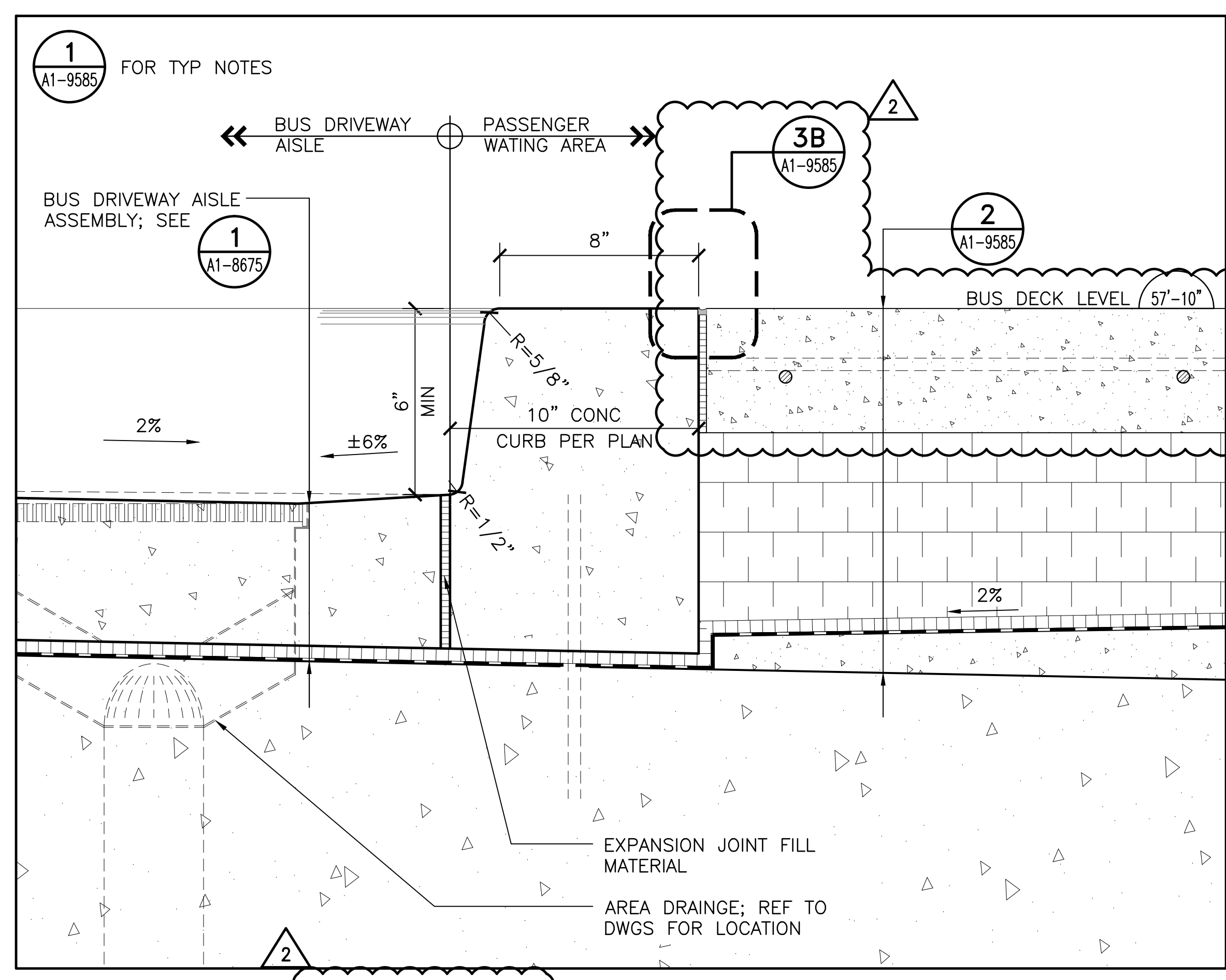
Notes: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.



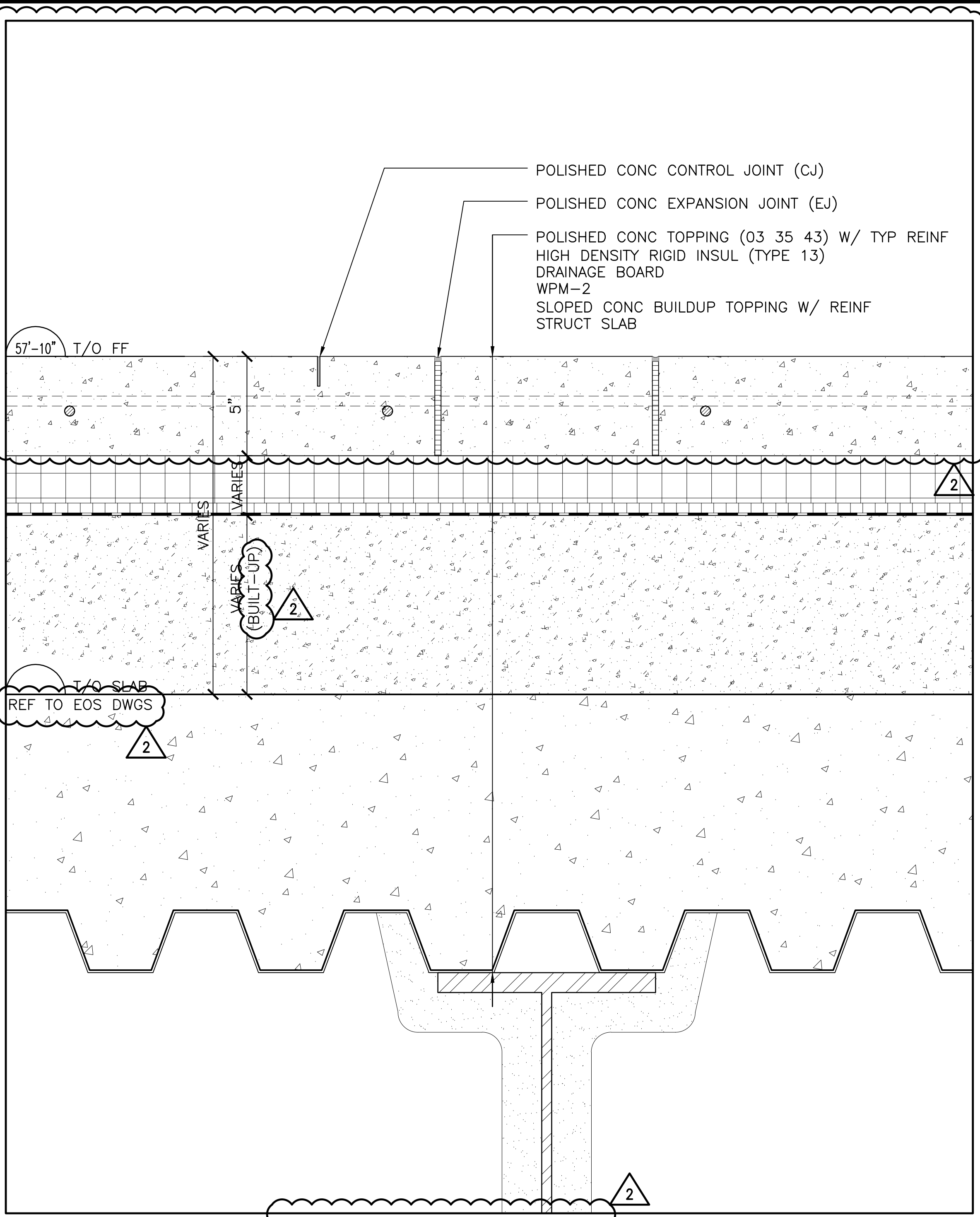
1 SECT @ TERR FL W/ RADIANT HEATING (GRAND HALL)
SCALE: 3" = 1'-0"



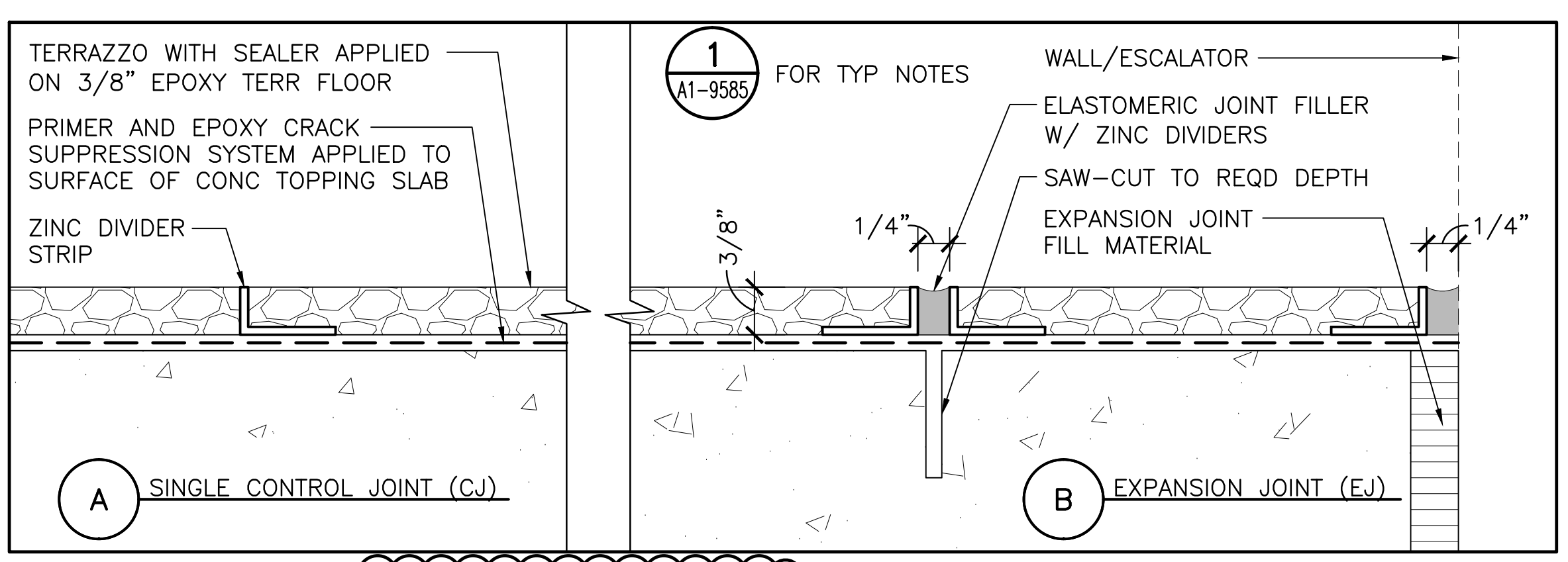
4 SECTION - POLISHED CONC FL (BEALE STREET LOBBY)
SCALE: 3" = 1'-0"



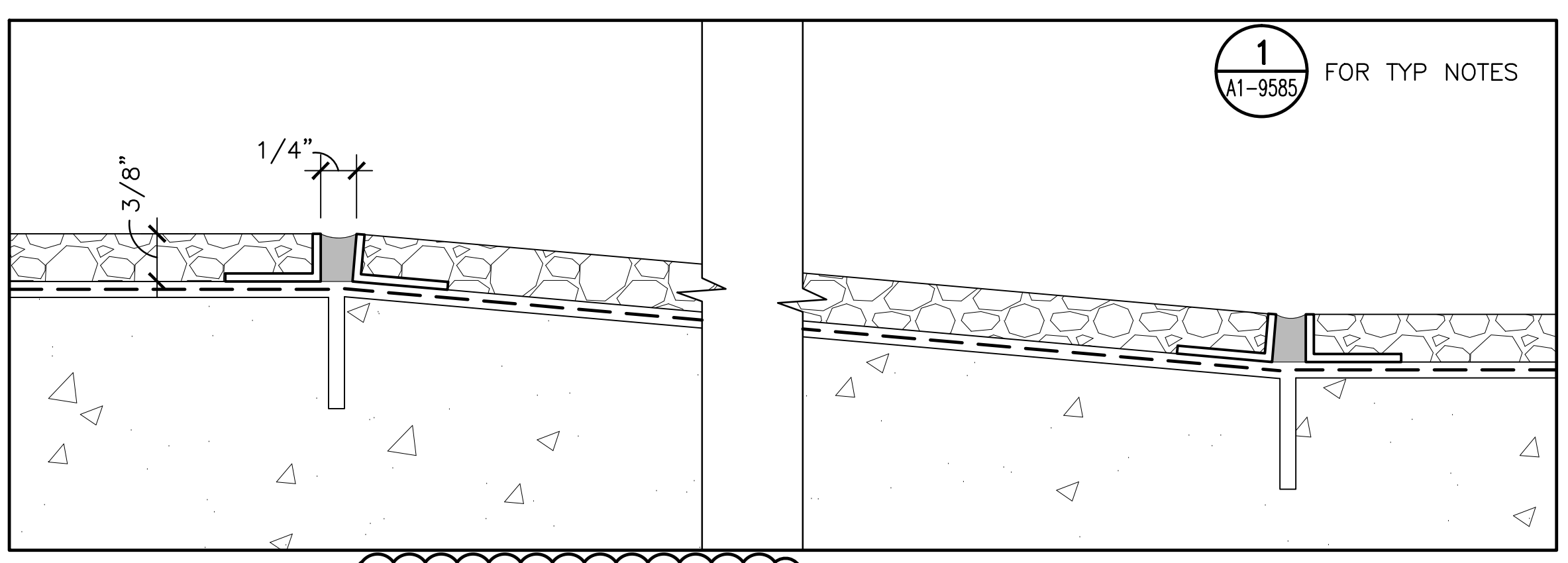
8 SECTION @ CONC FL TRANSITION AT BUS DECK CURB
SCALE: 3" = 1'-0"



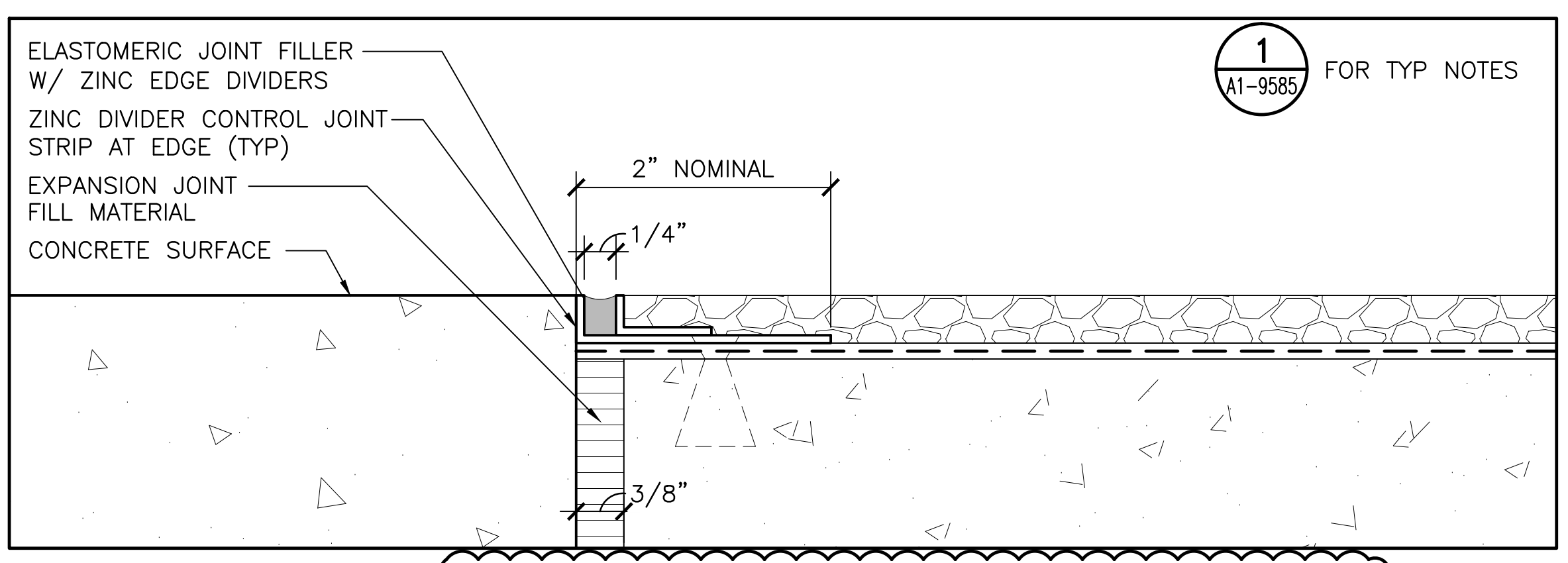
2 SECTION @ POLISHED CONCRETE FLOOR (BUS DECK)
SCALE: 3" = 1'-0"



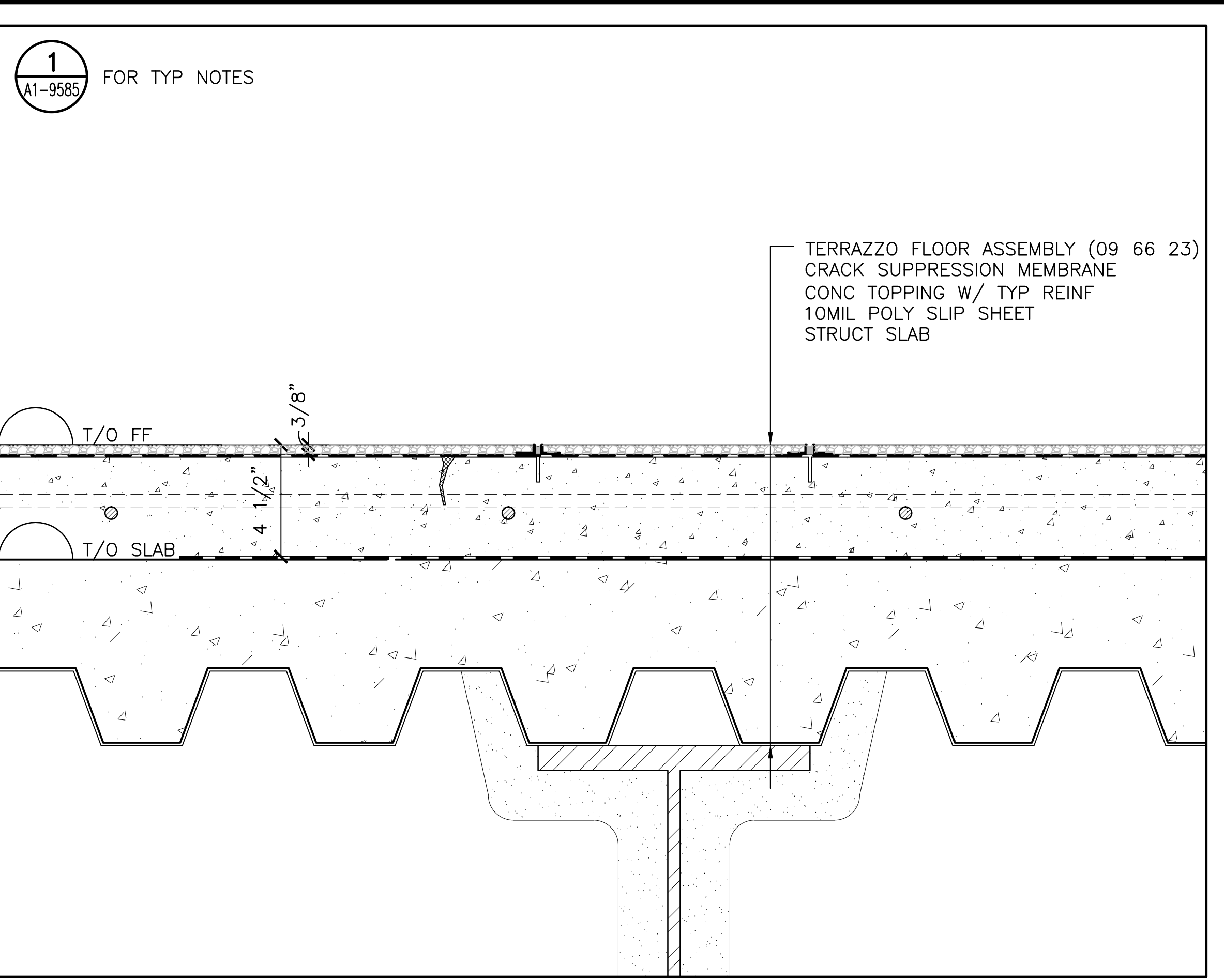
5 TYPICAL TERRAZZO FL AT CONTROL/EXPANSION JOINTS
SCALE: FULL



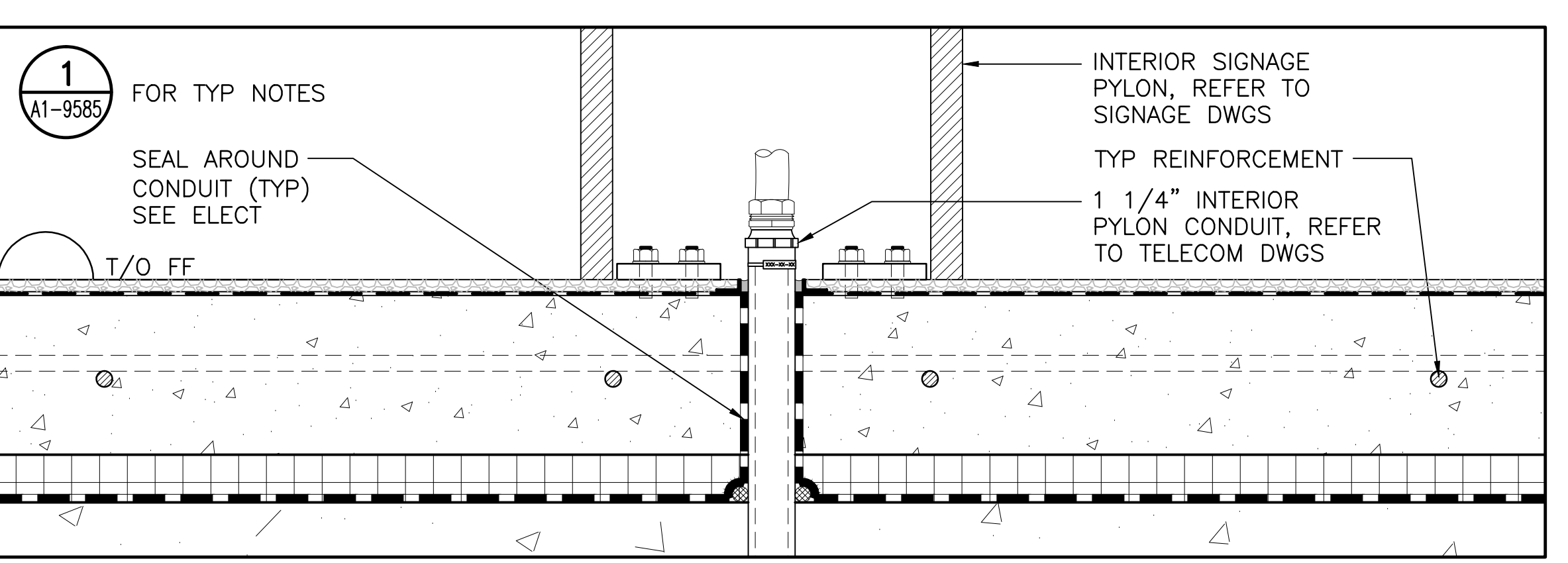
9 TYPICAL TERRAZZO AT FL EXPANSION JOINTS @ RAMPS
SCALE: FULL



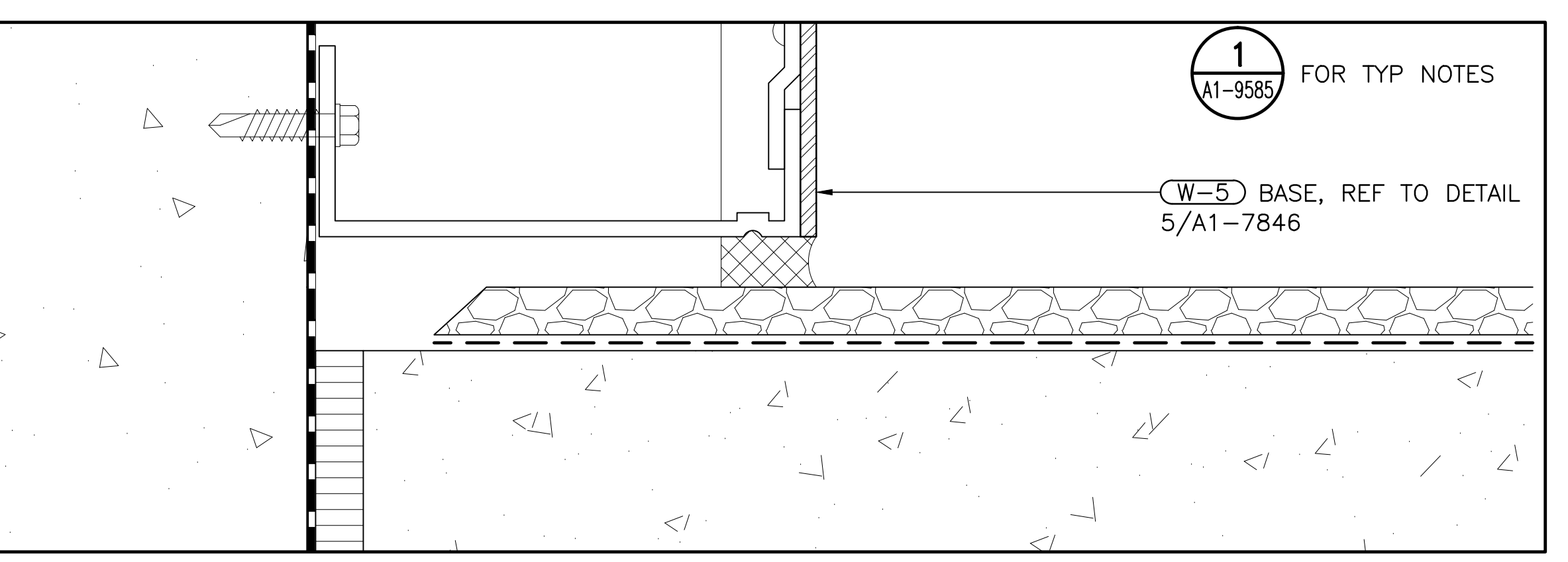
10 SECTION @ CONCRETE TO TERRAZZO TRANSITION
SCALE: FULL



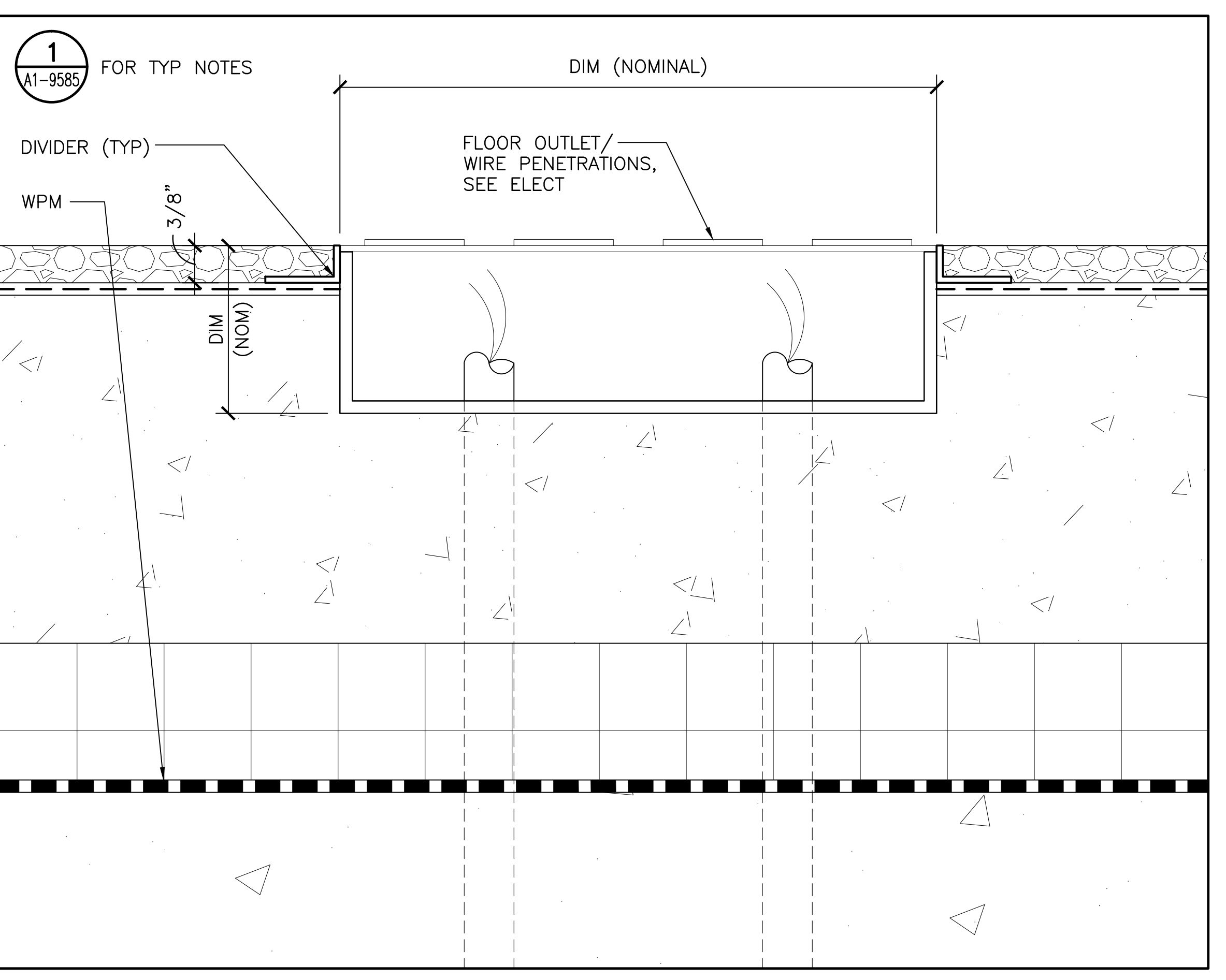
3 SECTION @ TERRAZZO FLOOR
SCALE: 3" = 1'-0"



6 TERRAZZO FLOOR AT INTERIOR PYLONS
SCALE: 3" = 1'-0"



7 TYPICAL TERRAZZO FLOOR @ W-5 BASE
SCALE: FULL



11 TYP TERRAZZO FLOOR AT FLOOR ELECT OUTLET OPNGS
SCALE: FULL

Transbay Transit Center
TRANSBAY JOINT POWERS AUTHORITY
CONSULTANT:
Pelli Clarke Pelli Architects
adamson
ASSOCIATES, INC.

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |



| NO. | DATE | DESCRIPTION |
|-----|----------|-------------------------|
| 1 | 03/31/14 | ISSUED FOR CONSTRUCTION |
| 2 | 09/12/14 | PER A2 No. 0127 |
| 3 | 12/16/14 | PER A2 No. 0128 |

08-04-CMGC-000
TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA
TYPICAL TERRAZZO & CONCRETE FLOOR DETAILS

APPROVED: G. METZGER
PRINCIPAL ARCHITECT
APPROVED: S. ROTT
PROJECT MANAGER
APPROVED: E. DEL ANGEL
PROJECT MANAGER
DESIGNED BY: D. DRON
CHECKED BY: W.R. BRADLEY
DRAWN BY: M. CONCALVES
DATE: 12/16/2014
SCALE: AS NOTED
SHEET NUMBER: 140
REVISION: 2
SEQUENCE NUMBER: 2
A1-9585 of



Request For Information

Project [140] - Transit Center Building Date 2/12/2015

Webcor/Obayashi
175 Beale Street
San Francisco, CA 94105
Phone: 650-349-2727
Fax: 650-524-7399

RFI No. T-2218

| | | | |
|-------------------|---|----------------------|--------------------|
| Primary Responder | George Metzger Adamson Associates, Inc. (AAI) 17383 W. Sunset Boulevard, B-200 Pacific Palisades, CA 90272 Phone: 310-230-0088 ext. 3101 Fax: 3102300066 | Date | 2/12/2015 |
| CC | | Status | Closed |
| From | Jamie Nelson Webcor/Obayashi | Resolved Date | |
| | | Reason for Request | |
| | | Action Requested | |
| | | Probable Cost Effect | |
| | | Probable Time Effect | |
| | | Priority | Due within 10 days |
| | | Response Due | 2/22/2015 |

Subject RWP - Floor Drain Requirements at Grand Hall
Drawing No. (ASI 128 dated 12/16/14) Other Reference
Detail 1/P1-2305 Detail 1/A1-9585

CSI Code Answer Set No.

Information Requested

Contract Doc Ref: (ASI 128 dated 12/16/14) Detail 1/P1-2305 Detail 1/A1-9585
Location: Grand Hall
Closest Column Line Intersection: N/A
Add'l Doc Ref's: N/A

Per Detail 1/P1-2305, no floor drains are present under the terrazzo at the Grand Hall.

Per Detail 1/A1-9585, Hot Fluid-Applied Waterproofing (WPM-2) is to be installed over the T.O. structural slab within the Grand Hall.

Per detail 1/A1-9585, Crack Suppression Membrane (WPM-13) is to be installed over the T.O. the topping slab.

Should a water intrusion occur between the structural slab and topping slab, the water may float the topping slab.

Please confirm waterproofing is to be installed at the top of structural slab and topping slab, and no floor drains are to be installed within the terrazzo at the Grand Hall.

Recommendation

Response Information




| Responder | Date | Response |
|----------------|----------|------------|
| George Metzger | 3/4/2015 | Confirmed. |

Originator

Notes

Supporting documents and attached files

This RFI has the following supporting documents and attached files:

| Description | Date | Open as |
|--|-----------|---------|
|  Document: 140-33694RFI T-2218 RWP - Floor Drain Requirements at Gr... 1018KB | 2/12/2015 | |
|  Attached file  Supporting document | | |

Distribution

| Recipient | Company | Method | Date |
|----------------------|--|---|-----------|
| Albert Chen | Thornton Tomasetti | Email: achen@thorntontomasetti.com | 2/12/2015 |
| Andrew Lusardi | Turner Construction Company | Email: alusardi@tcco.com | 3/4/2015 |
| Andrew Lusardi | Turner Construction Company | Message | 3/4/2015 |
| Andrew Rybicki | Adamson Associates, Inc. (AAI) | Message | 3/4/2015 |
| Andrew Rybicki | Adamson Associates, Inc. (AAI) | Email: ARybicki@adamson-associates.com | 2/12/2015 |
| Anthony Bell | Turner Construction Company | Email: abell@tcco.com | 3/4/2015 |
| Ashley Wewiora | Adamson Associates, Inc. (AAI) | Message | 3/4/2015 |
| Ashley Wewiora | Adamson Associates, Inc. (AAI) | Email: AWewiora@adamson-associates.com | 2/12/2015 |
| C. Kerem Gulec | Thornton Tomasetti | Message | 3/4/2015 |
| C. Kerem Gulec | Thornton Tomasetti | Email: cgulec@thorntontomasetti.com | 2/12/2015 |
| Carl Keim | Adamson Associates, Inc. (AAI) | Message | 3/4/2015 |
| Carl Keim | Adamson Associates, Inc. (AAI) | Email: ckeim@adamson-associates.com | 2/12/2015 |
| Darin Cook | Pelli Clarke Pelli Architects, Inc. (PCPA) | Message | 3/4/2015 |
| Darin Cook | Pelli Clarke Pelli Architects, Inc. (PCPA) | Email: dcook@pcparch.com | 2/12/2015 |
| Elaina Chan | Turner Construction Company | Email: echan@tcco.com | 3/4/2015 |
| Elaina Chan | Turner Construction Company | Message | 3/4/2015 |
| Erick del Angel | Adamson Associates, Inc. (AAI) | Message | 3/4/2015 |
| Erick del Angel | Adamson Associates, Inc. (AAI) | Email: edelangel@adamson-associates.com | 2/12/2015 |
| Ethan Heinrich | Turner Construction Company | Email: eheinrich@tcco.com | 3/4/2015 |
| Ethan Heinrich | Turner Construction Company | Message | 3/4/2015 |
| George Metzger | Adamson Associates, Inc. (AAI) | Message | 3/4/2015 |
| George Metzger | Adamson Associates, Inc. (AAI) | Email: gmetzger@adamson-associates.com | 2/12/2015 |
| Heather Kim | Pelli Clarke Pelli Architects, Inc. (PCPA) | Message | 3/4/2015 |
| Heather Kim | Pelli Clarke Pelli Architects, Inc. (PCPA) | Email: hkim@pcparch.com | 2/12/2015 |
| ISI Inspectors | Turner Construction Company | Email: isitjpa@gmail.com | 3/4/2015 |
| Jack Adams | Turner Construction Company | Email: jadams@tcco.com | 3/4/2015 |
| Jack Adams | Turner Construction Company | Message | 3/4/2015 |
| Judy Long | Turner Construction Company | Email: jklong@tcco.com | 3/4/2015 |
| Judy Long | Turner Construction Company | Message | 3/4/2015 |
| Marcus Pippin | Turner Construction Company | Email: mpippin@tcco.com | 3/4/2015 |
| Marcus Pippin | Turner Construction Company | Message | 3/4/2015 |
| Mark Shepherd | Turner Construction Company | Email: MShepherd@tcco.com | 3/4/2015 |
| Melissa Christiansen | Turner Construction Company | Email: christiansen@tcco.com | 3/4/2015 |
| Monique Hawn | Turner Construction Company | Email: mhawn@tcco.com | 3/4/2015 |
| Phil Militello | Turner Construction Company | Email: pmilitello@tcco.com | 3/4/2015 |
| Phil Militello | Turner Construction Company | Message | 3/4/2015 |
| Randy Volenec | Pelli Clarke Pelli Architects, Inc. (PCPA) | Email: rvolenec@pcparch.com | 2/12/2015 |
| Raymond Quesada | PMPC | Email: rquesada@transbaycenter.org | 3/4/2015 |
| Raymond Quesada | PMPC | Message | 3/4/2015 |
| Richard Hodgkins | Inspection Services, Inc. (ISI) | Email: docrick6@gmail.com | 3/4/2015 |
| Rick DeMars | Turner Construction Company | Email: rdemars@tcco.com | 3/4/2015 |
| Sean McNeill | Thornton Tomasetti | Message | 3/4/2015 |
| Sean McNeill | Thornton Tomasetti | Email: smcneill@thorntontomasetti.com | 2/12/2015 |
| Starla Dunn | Turner Construction Company | Email: sdunn@tcco.com | 3/4/2015 |
| Steve Cunningham | Turner Construction Company | Email: scunningham@tcco.com | 3/4/2015 |
| Turner DocControl | Turner Construction Company | Email: turner.transbay@tcco.com | 3/4/2015 |
| Victor Green | Turner Construction Company | Email: vgreen@tcco.com | 3/4/2015 |
| | | | |

| | | | |
|---------------|-----------------|--|----------|
| WO DocControl | Webcor/Obayashi | Email: transbaydocctrl@webcor-obayashi.com | 3/4/2015 |
|---------------|-----------------|--|----------|

TG13.2 – Roofing/Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

| Question No. | Submission Date | Drawing No. | Document/ Spec. No. | Question | Response |
|--------------|-----------------|----------------------------|-------------------------------|--|--|
| TG13.2-049 | 3/23/2015 | A1-2304, A1-3105, A1-3106, | 1/A1-8172, 2/A1-8153 07 13 26 | Details A1-8172 and 2/A1-8153 don't show (WPM-1A) Waterproofing below the topping slab at loading dock 01461. (WPM-1A) Waterproofing is shown under lower loading dock 01222 per sheet A1-3100 and detail 3/A1-3191. Please confirm if (WPM-1A) waterproofing is to be installed at loading dock 01461 similar to loading dock 01222. | Confirmed. Provide WPM-1A at both loading docks 01222 and 01461. |
| TG13.2-051 | 3/25/2015 | | 2, 3, 5, 6-9/L1-7620 | 2, 3, 5, 6 – 9/L1-7620 call out for waterproofing at the concrete basins. Per QBD Response No. TG13.2-030, "Architectural surfaces to receive WPM-9 Water-Repellent Coatings. Apply water-repellant coatings on ALL exposed exterior and interior surfaces unless otherwise scheduled..." Please confirm WPM-9 is to be applied at the concrete basins. | The waterproofing called out in the referenced details is WPM-4, specified in Specification Section 07 13 00 Site Fluid-Applied Waterproofing. |