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## REFUSE CHUTES / COMPACTOR STACKS

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This *Standard Notice* addresses the Procedure and Criteria to be considered regarding the rehabilitation the Refuse Chutes/Incinerator Stacks.

### INTRODUCTION

The following Code references apply to Refuse Chutes/Incinerator Stacks:

- 2014 NYC Building Code Chapters 14, 16, 17, and 21
- 2014 NYCBC RCNY §16-01 (Inspection of Existing Structures During Construction Operations)
- 2014 NYCBC RCNY §24-01 (Refuse Chutes & Refuse Rooms) Section (c), ... *'any existing refuse chute that is built of 8" minimum thick brick masonry and extends from the compactor room to at least 6'-0" above the roof may continue to be used as such...'*
- 2014 NYC Mechanical Code, Chapter 8 §801

In the early 1980s when New York City banned the use of incinerators for the burning of waste the New York City Housing Authority started converting all existing incinerator flues in its developments to refuse chutes (aka compactor stacks). These compactor stacks typically extend from the basement to approximately 10 feet or more above the main roof surface. The walls of the compactor stacks are typically made of 8 inch fire brick masonry. A spark arrestor is installed at the top of the stack on concrete coping stones. NYCHA has also abandoned the Ash Settling Chambers (aka Smoke Rooms) located on the roof of the buildings; the stacks are connected to these chambers via two openings. As the name suggests, the purpose of these chambers was to allow larger ash particles left over from the combustion process to settle before the gases were exhausted.

At the roof level, the compactor stacks are either freestanding, installed adjacent to bulkheads, inside of bulk heads and protruding through bulkhead roofs, or inside of water tank towers.

Historically, these brick compactor stacks have required frequent repairs due to leaks. Typical repairs consist of repointing, the replacement of the top 4 feet of brickwork, as well as the coping stones, and the spark arrestors.

Ongoing brick masonry maintenance on its buildings comes at a substantial cost to NYCHA. The elimination of brick masonry from the NYCHA portfolio will reduce future expenses associated with repointing and replacement. This Notice outlines the standard procedures for the repair of roof top structures such as compactor stacks and smoke rooms.

**DESIGN TO REPAIR APPROACH**

OoD has developed a standard approach for all compactor stacks in building envelope repair projects that include a roof replacement. Stacks are to be removed and capped, which will decrease the quantities of future brick repair. This will greatly reduce all LL11 issues as well as long-term water leaking associated with these stacks. Where feasible, all obsolete smoke rooms are to be removed in order to avoid future expenses associated with brick and roofing maintenance and repair. It is proposed to remove the reinforced concrete smoke shelf inside the stack where it is practical as well.

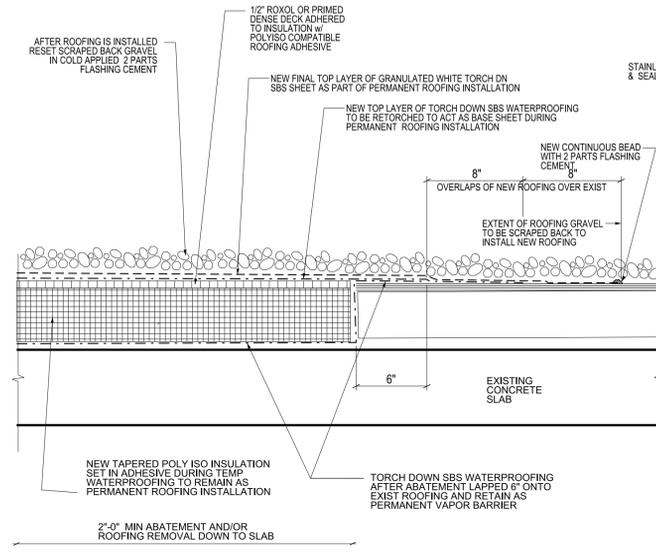
**Table 1 – NYC BC Requirements for Chimney Repairs & Alterations**

	<b>Abandoned Incinerator Stack / Chimney</b>	<b>Incinerator Stack converted to Refuse Chute</b>	<b>Chimney w/ Active Flue</b>
<b>Special Inspection Required</b>	<b>No</b>	<b>No</b>	<b>Yes</b>
<b>Height Above nearest Roof</b>	May be shortened to 0'-0" above highest roof and capped.	<b>6'-0"</b> per NYCBC RCNY §24-01	Dependent on exhaust temp.
<b>Spark Arrestor</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>
<b>Sprinkler</b>	<b>N/A</b>	<b>No</b> if brick thickness complies with minimum required.	<b>No</b>
<b>Cap</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b> , unless part of flue design

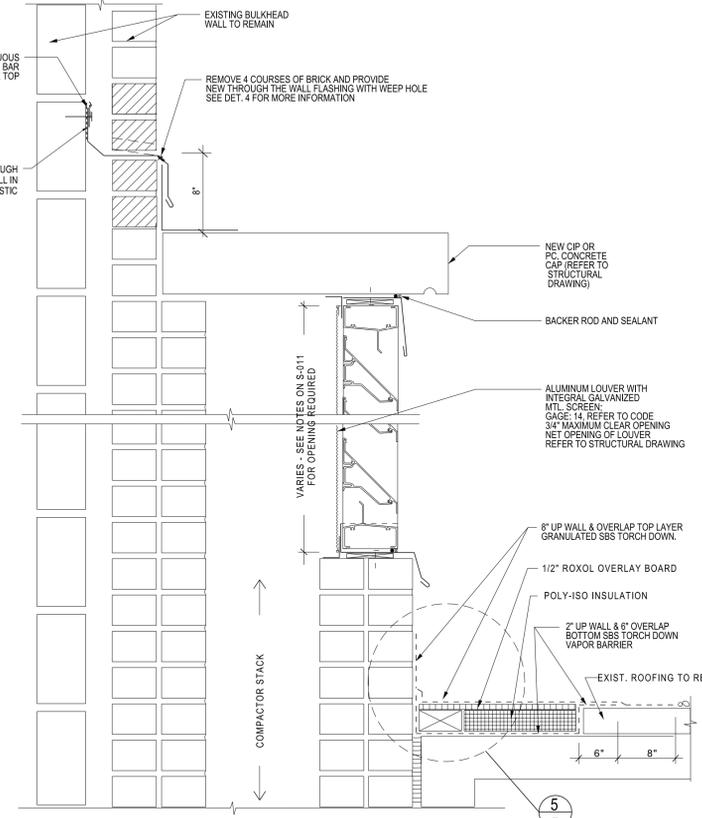
Attached are standard details addressing typical stack configurations throughout the NYCHA portfolio. In general, stacks should be cut above the roofs and capped off; stationary metal louvers backed with a wire mesh (acting as a spark arrestor) are to be provided on multiple sides (as required for ventilation, typically with the net area equal to the existing stack opening).

- Attachments: Drawing A.011 – Typical Refuse Chute Roofing / Flashing Details  
 Drawing S.011 – Typical Compactor Stack Modification Details - I  
 Drawing S.012 – Typical Compactor Stack Modification Details - II

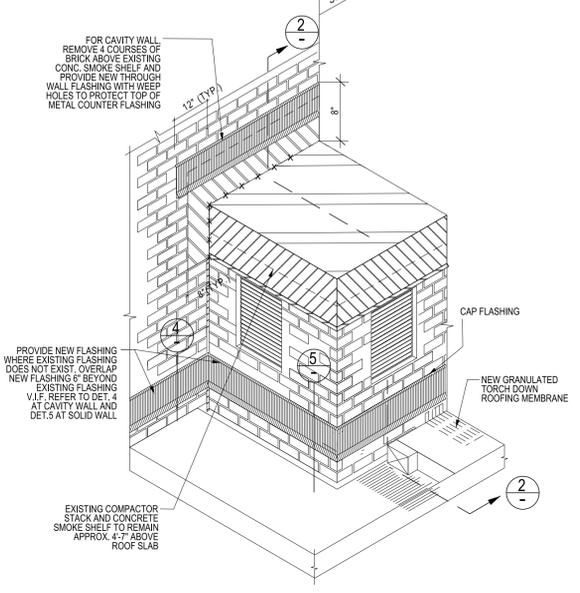
**\*\*\*End of Standard Notice CPDDESIGN2016002\*\*\***



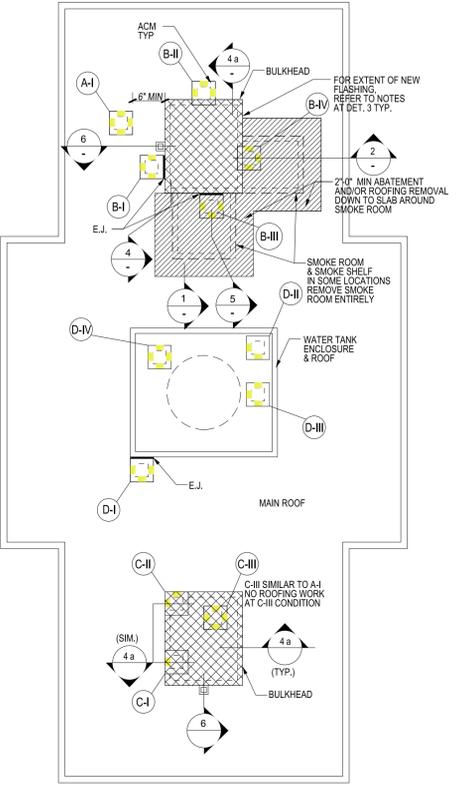
**1** POST REMOVAL / ABATEMENT ROOFING SPLICE DETAIL (CONCRETE DECK)  
 N.T.S.



**2** SECTION DETAIL @ COMPACTOR STACK, LOUVER & ROOFING MEMBRANE  
 N.T.S.



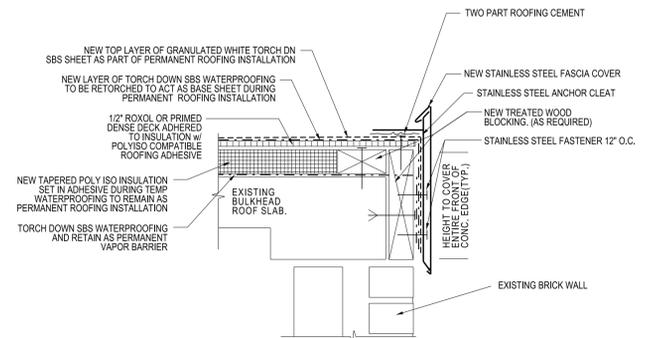
**3** ISOMETRIC VIEW OF STAIR BULKHEAD & COMPACTOR STACK  
 N.T.S.



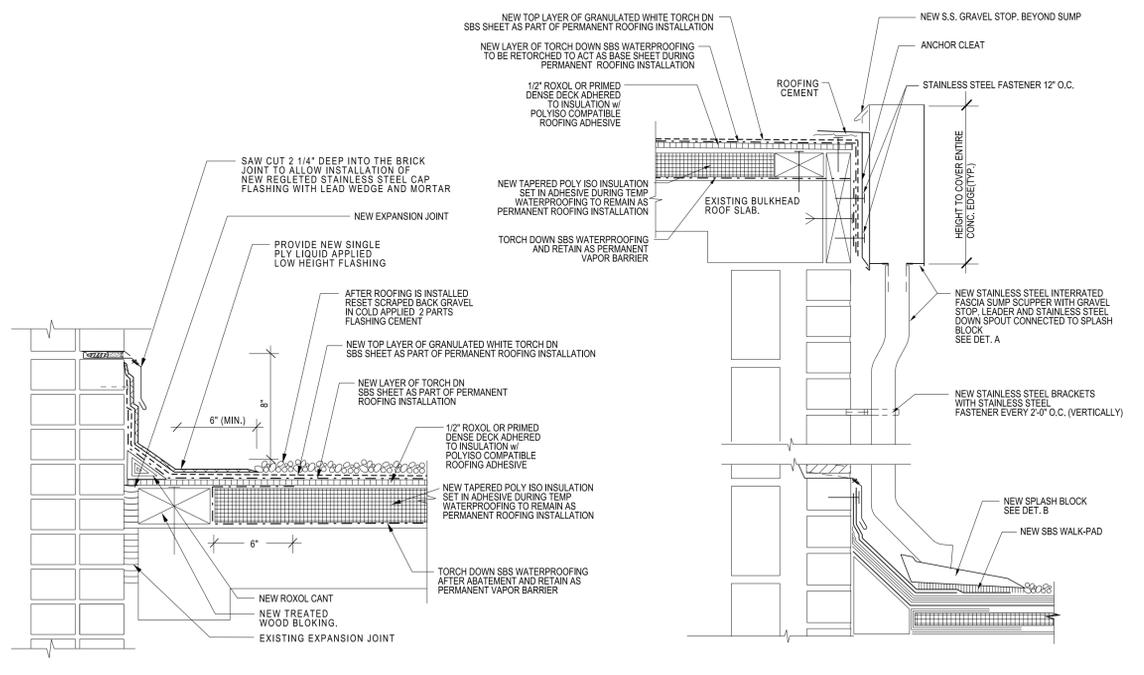
**4** SCHEMATIC ROOF PLAN WITH DIFFERENT COMPACTOR STACK LOCATIONS  
 N.T.S.

**LEGEND**  
 REMOVE AND REPLACE ROOFING & FASCIA  
 EXTENT OF NEW ROOFING

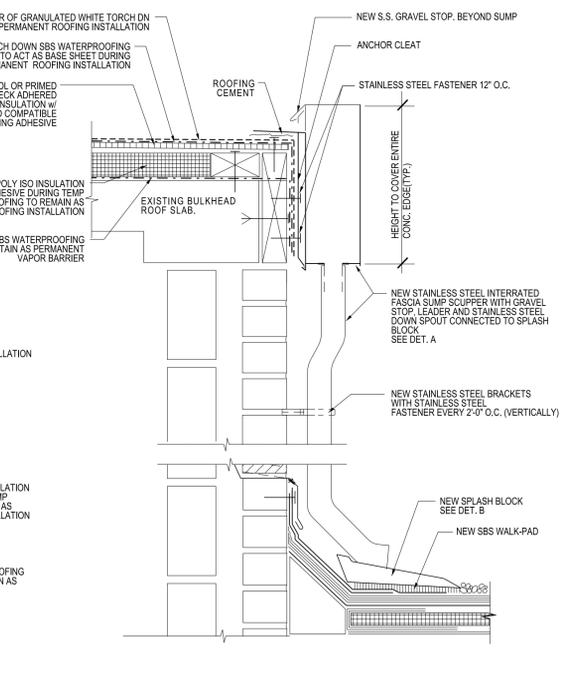
\*REFER TO DWG. S-011.00 FOR ABBREVIATIONS



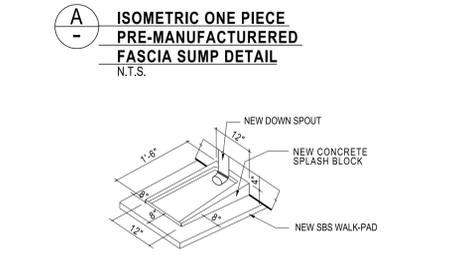
**4a** ROOF FASCIA DETAIL  
 N.T.S.



**5** FLASHING DETAIL @ COMPACTOR STACK WALL  
 N.T.S.

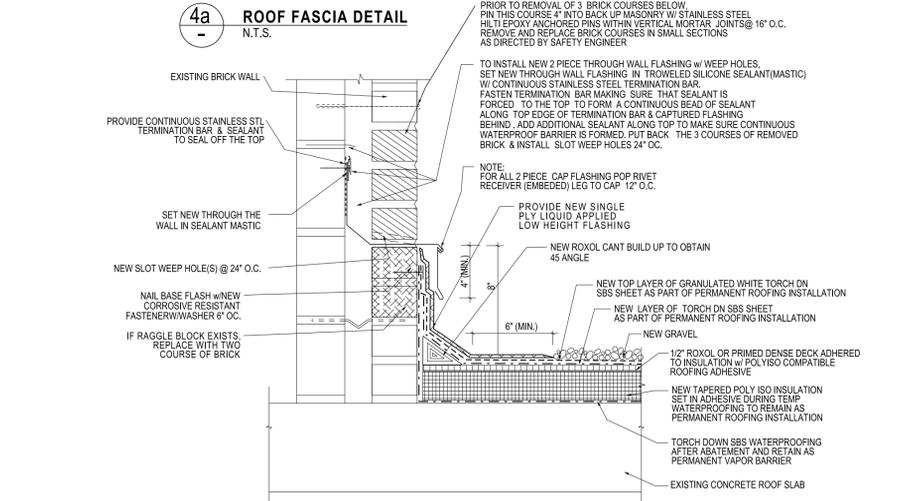


**6** DOWNSPOUT DETAIL @ BULKHEAD ROOF (TYP.)  
 N.T.S.



**A** ISOMETRIC ONE PIECE PRE-MANUFACTURED FASCIA SUMP DETAIL  
 N.T.S.

**B** ISOMETRIC CONC. SPLASH BLOCK DETAIL (TYP.)  
 N.T.S.



**4** FLASHING DETAIL @ BULKHEAD WALLS  
 N.T.S.

**ASBESTOS ABATEMENT NOTES:**  
 ASSUME THAT ALL EXIST THROUGHWALL FLASHING AND MASTIC IS ASBESTOS CONTAMINATED AND THEREFORE REMOVAL OF BRICK AND EXISTING FLASHING AND MASTIC PROCEDURES MUST BE PERFORMED AS PER ASBESTOS ABATEMENT.

**NOTES:**  
 REPLACEMENT SUMP WITH LEADER ASSEMBLY TO GO IN SAME LOCATION AS EXISTING. WHERE NO SUMP/LEADER EXISTS, LOCATE NEW ASSEMBLY TO DIRECT WATER TO NEAREST ROOF DRAIN, BUT NOT CLOSE TO EXISTING BULKHEAD DOORS.

Designated Space for DDB Employee Stamp & Signatures

Key/Location Plan

Zone No.:	VARIOUS	Zoning Map No.:	00x
Block No.:	VARIOUS	Lot No.:	VARIOUS
E.D.P. No.:	VARIOUS		
Development No.:	VARIOUS		
Contract Title:			

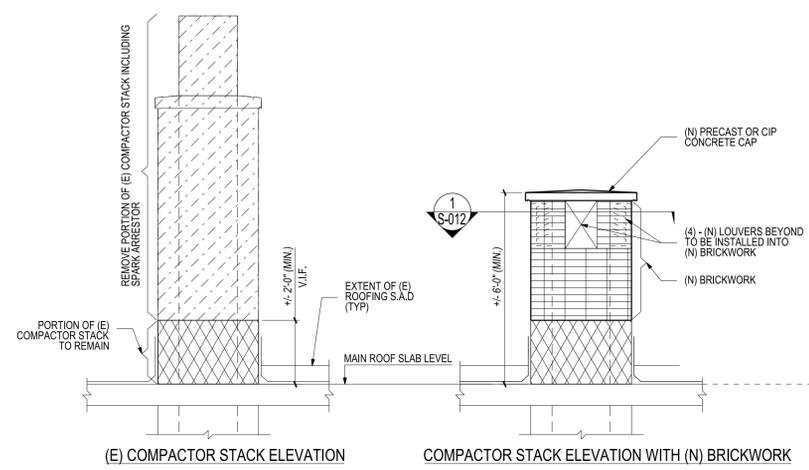
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 Drawing Title: **PROPOSED TYPICAL REFUSE CHUTE ROOFING/FLASHING DETAILS**  
 Seal & Signature:

Drawn By:	
Checked By:	O. OSTERWIND
Date:	JANUARY 15, 2015
Scale:	
Drawing No.:	<b>A-011.00</b>

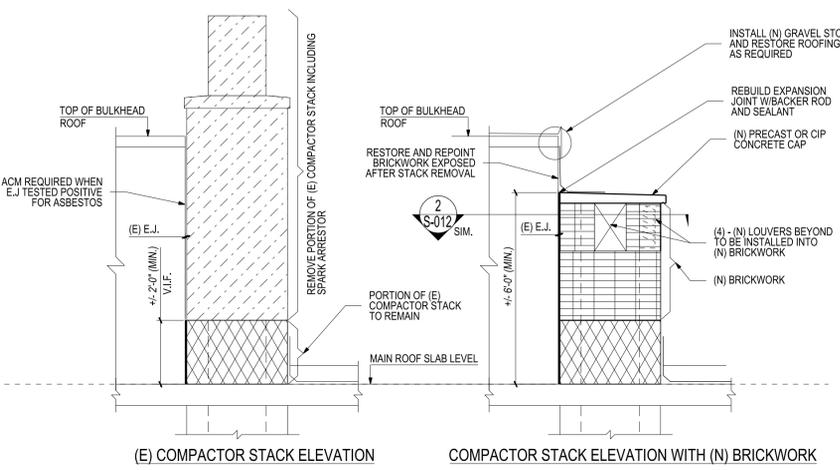
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**TABLE 1 - COMPACTOR STACK MODIFICATIONS BY CONDITION**

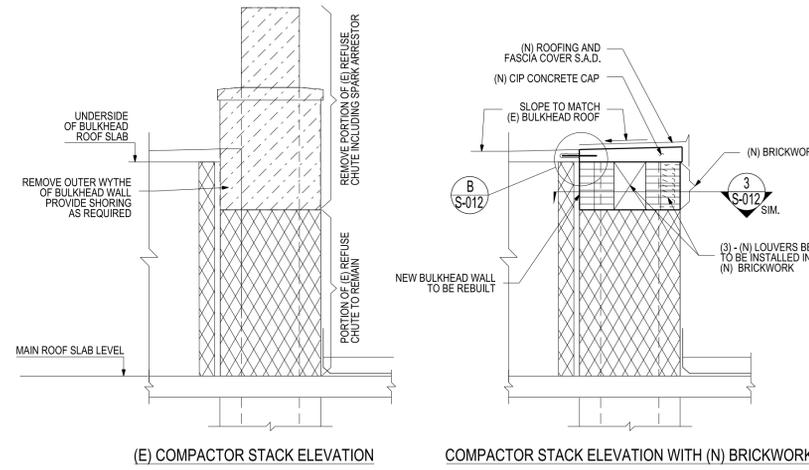
COMPACTOR STACK CONDITION	BRICK WORK	REF. DET. S-011	FLASHING/WATERPROOFING A-011
<b>A - PENETRATING MAIN ROOF</b>	NO ADJACENT ROOF STRUCTURES. - CUT TO 2'-0" ABOVE MAIN ROOF SLAB - REBUILD WALLS WITH LOUVERS - CAP WITH (N) PRECAST CAP SLOPED, OR CIP CONCRETE CAP USING FORM DECK - INSTALL LOUVERS ON 4 (FOUR) SIDES	①	
<b>B - OUTSIDE OF BULKHEAD</b>	FLUSH WITH OUTSIDE WALL WITH EXPANSION JOINT. - FOLLOW A4 BRICKWORK STEPS - CAP WITH (N) PRECAST CAP SLOPED, OR CIP CONCRETE CAP USING FORM DECK - INSTALL LOUVERS ON 3 (THREE) SIDES	②	SEE ARCHITECTURE DETAILS 2 AND 5 ON A-011 WITHOUT ROOFING
	INTEGRAL WITH OUTSIDE STACK WALL WITHOUT EXPANSION JOINT. - CUT 4'-1'-0" BELOW THE UNDERSIDE OF BULKHEAD ROOF SLAB ON 3 EXTERIOR SIDES OF COMPACTOR STACK. CUT BULKHEAD WALL 1'-6" TO UNDERSIDE OF BULKHEAD ROOF SLAB. - REBUILD WALLS WITH LOUVERS ON 3 (THREE) SIDES - CAP WITH (N) CIP CONCRETE CAP, USING FORM DECK, SLOPED TO MATCH (E) BULKHEAD ROOF	③	SEE ARCHITECTURE DETAILS 1 & 4a, AND 6 ON A-011
	FLUSH WITH OUTSIDE WALL WITH EXPANSION JOINT AND ENCLOSED INSIDE SMOKE ROOM. - REMOVE/ABATE (E) TOPPING SLAB AS REQUIRED AT SMOKE ROOM. - DEMOLISH SMOKE ROOM. - CUT STACK TO UNDERSIDE OF SMOKE SHELF AS NEEDED. - MAKE NEW OPENING W/ LOUVER IN EXISTING BRICKS AS REQUIRED. INSTALL LOUVERS ON 3 SIDES. - CAP WITH (N) PRECAST CAP SLOPED, OR CIP CONCRETE CAP USING FORM DECK	⑤	SEE ARCHITECTURAL DETAILS 2, AND 3, ON A-011
	INTEGRAL WITH OUTSIDE WALL WITHOUT EXPANSION JOINT AND ENCLOSED SMOKE ROOM. - REMOVE (ABATE) (E) TOPPING SLAB AS REQUIRED AT SMOKE ROOM - DEMOLISH SMOKE ROOM. - DEMOLISH STACK TO TOP SIDE OF (E) CONCRETE SHELF INCLUDING BULKHEAD EXTERIOR BRICK VENEER THAT IS INTEGRAL WITH STACK. - REBUILD BULKHEAD VENEER AND PORTION OF BULKHEAD ROOF SLAB. - INSTALL CAP AS INDICATED ABOVE.	⑥	SEE ARCHITECTURE DETAILS 2, 3, 4 AND 4a ON A-011 FOR THRU WALL FLASHING.
<b>C - INSIDE OF BULKHEAD</b>	INTEGRAL WITH ONE OUTSIDE WALL. - CUT TO UNDERSIDE OF BULKHEAD ROOF SLAB - CUT (E) BULKHEAD WALL AS REQUIRED - CAP WITH (N) CIP CONCRETE CAP, USING FORM DECK, SLOPED TO MATCH (E) BULKHEAD ROOF - EXTEND ROOFING OVER (N) CAP, SLOPE TO MATCH BULKHEAD ROOF - INSTALL 1 (ONE) LOUVER AT EXTERIOR WALL	④ SIM.	SEE ARCHITECTURE 1.4a, AND 6 ON A-011
	INTEGRAL WITH TWO OUTSIDE WALLS. - FOLLOW C4 BRICKWORK STEPS - INSTALL 2 (TWO) LOUVERS AT EXTERIOR WALLS - EXTEND ROOFING OVER (N) CAP, SLOPE TO MATCH BULKHEAD ROOF	④	SEE ARCHITECTURE 1.4a, AND 6 ON A-011
	DETACHED FROM OUTSIDE WALLS - FOLLOW A4 BRICKWORK STEPS	① SIM.	
<b>D - ADJACENT TO AND INSIDE WATER TOWER ENCLOSURE.</b>	FLUSH W/ ONE ENCLOSURE WALL, DETACHED, INSIDE OR OUTSIDE ENCLOSURE WITH EXPANSION JOINT. - FOLLOW B4 BRICKWORK STEPS	② SIM.	SEE ARCHITECTURE DETAILS 2 AND 3 ON A-011
	FLUSH W/ TWO ENCLOSURE WALLS, DETACHED, INSIDE WITH EXPANSION JOINT. - FOLLOW A4 BRICKWORK STEPS - PROVIDE LOUVERS ON 2 (TWO) SIDES	② SIM.	
	INSIDE ENCLOSURE, DETACHED WITH EXPANSION JOINT. - FOLLOW B4 BRICKWORK STEPS	② SIM.	
	INSIDE ENCLOSURE, PENETRATING ROOF. - FOLLOW A4 BRICKWORK STEPS	① SIM.	



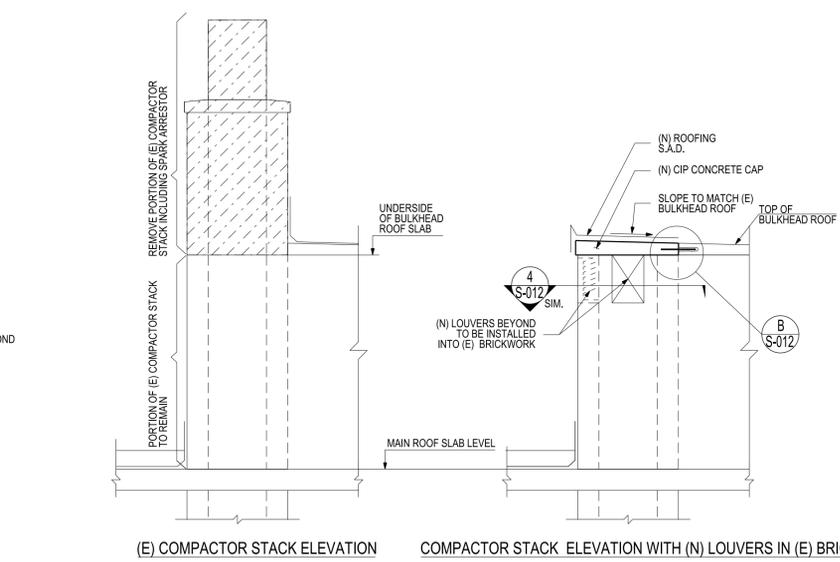
**1 COMPACTOR STACK STANDS ALONE ON MAIN ROOF**  
 SCALE: 3/4" = 1'-0"



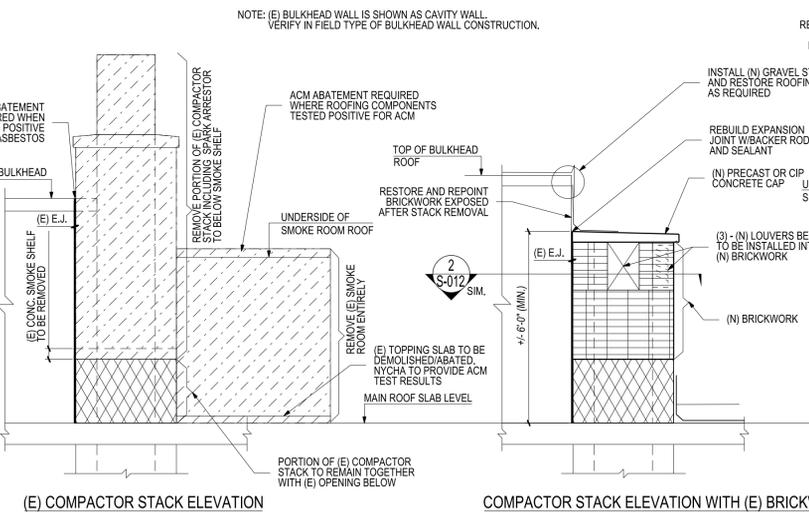
**2 COMPACTOR STACK ADJACENT TO BULKHEAD (DETACHED, WITH E.J.)**  
 SCALE: 3/4" = 1'-0"



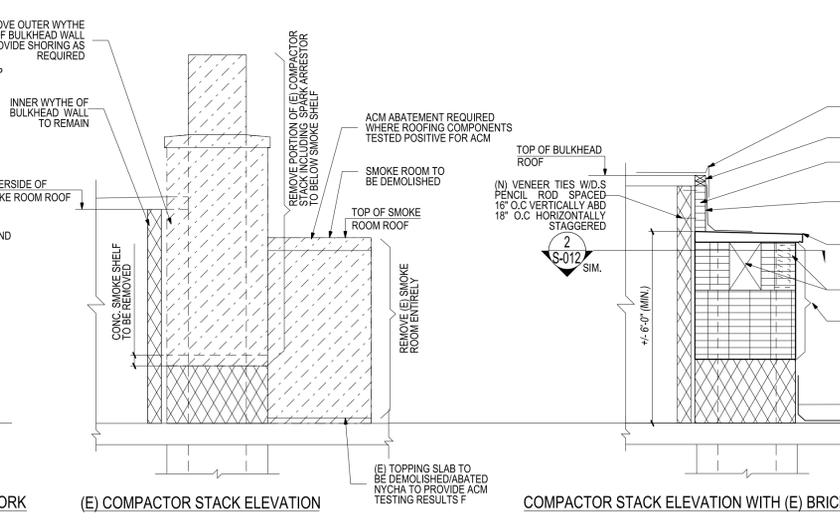
**3 COMPACTOR STACK ADJACENT TO BULKHEAD (ATTACHED)**  
 SCALE: 3/4" = 1'-0"



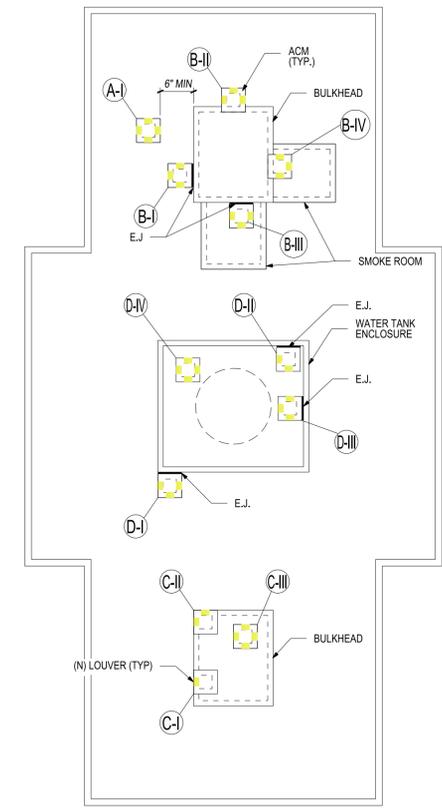
**4 COMPACTOR STACK INSIDE OF BULKHEAD**  
 SCALE: 3/4" = 1'-0"



**5 COMPACTOR STACK ADJACENT TO BULKHEAD (DETACHED, WITH E.J.) WITH SMOKE ROOM**  
 SCALE: 3/4" = 1'-0"



**6 COMPACTOR STACK ADJACENT TO BULKHEAD (ATTACHED) WITH SMOKE ROOM**  
 SCALE: 3/4" = 1'-0"



**LEGEND:**  
  
**ABBREVIATIONS:**  
 CIP - CAST IN PLACE  
 E.J. - EXPANSION JOINT  
 (E) - EXISTING  
 (N) - NEW  
 S.A.D. - SEE ARCHITECTURE DRAWINGS  
 S.S. - STAINLESS STEEL

Zone No.: VARIOUS Zoning Map No.: 00x  
 Block No.: VARIOUS Lot No.: VARIOUS  
 E.D.P. No.: VARIOUS  
 Development No.: VARIOUS  
 Contract Title:  
 Contract No.: BW1432622  
 Drawing Title:  
**PROPOSED TYPICAL COMPACTOR STACK MODIFICATION DETAILS-I**  
 Seal & Signature:  
 Drawn By: T.MELNIKOV / M.ELZOGHABY  
 Checked By: O. OSTERWIND  
 Date: JANUARY 15, 2015  
 Scale: 3/8" = 1'-0"  
 Drawing No.: **S-011.00**  
 Sheet of

Designated Space For (CMB) Employee Stamps & Signatures

