ADDENDUM No. 3

Date: 10/26/2026
Requisition No. 16434

Due Date: 10/29/2026
Time: 2:00pm

TO: Bidders for: Cuyahoga County Justice Center Roof Improvement Project

FROM: Cuyahoga County
Department of Purchasing

The following are changes/corrections to the above referenced specification package:

- Question Log -answers to all RFIs
- some drawings with minor revisions or clarifications
- 2019 WJE Atrium Skylight Report
- K2M Atrium Water Intrusions SD Recommendations
- Garland Atrium Roof Photos
- Garland Galleria Levels 3 and 4 Roof Photos
- 2000 DLZ Jail 2 Asbestos Survey

This DOES NOT change the due date of 10/29/2026

All remaining terms and conditions of the specification package remain in effect and this addendum therefore becomes part of the specification.

Respectfully submitted,
CUYAHOGA COUNTY

Paul Porter
Director, Department of Purchasing

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CUYAHOGA COUNTY JUSTICE CENTER COMPLEX
ROOF AND WATER INTRUSION IMPROVEMENTS
RESPONSES TO RFI'S

ADDENDUM NO. 3

1. We request consideration of Elevate as an additional roofing manufacturer under Section 07 52 00 for the Cuyahoga County Justice Center Complex Roof and Water Intrusion Improvements project. Our proposed alternative is an Elevate torch-applied, two-ply SBS roofing system. We understand that the specified basis of design is Garland HPR Torch Base with StressPly IV Plus Mineral. The proposed Elevate membranes will require review of differences in reinforcement, thickness, tensile strength, tear strength, and low-temperature flexibility. Please advise whether an Elevate alternative may be considered, subject to submitting a detailed product comparison and manufacturer confirmation addressing the required 30-year edge-to-edge NDL warranty, wind and fire performance, and daily and annual inspection requirements.

   RESPONSE: After review by the County's roofing consultant, the proposed product, Elevate SBS Modified Bitumen Roofing Systems, is NOT ACCEPTABLE as an alternate to the specified roofing membrane system.

   I am confused by your answer back from my RFI. Siplast is not an alternative as we are listed as an approved membrane system in the spec. I don't know where Elevate was picked up from. I was writing my RFT email to make sure the 2 data sheets attached are the correct Siplast products for contractors to bid and use since Siplast is approved (see below):

   RESPONSE: The letters from the County's roofing consultant addressing the request for both Siplast® and Elevate SBS Modified Bitumen Roofing Systems (PDF and Word) are attached at the end of this document. Neither of these products meet the requirements of the specifications.

2. The Base Bid on G0.0.3 lists the Galleria roofs at Levels 3 and 4 and the Penthouse roof, while Sheets A2.3A–A2.3F identify the Atrium patio, skylight, and gutter work as "Base Bid." Please confirm all Atrium water intrusion work is included in the Base Bid.
   RESPONSE: Work on Base Bid will include roof work as noted. Alternate 3 includes only skylight backer rod and sealant work.

3. G0.0.4 identifies the Public Patio on the Galleria Roof – Jail I Level 2 as Base Bid, while A2.3.3 and A2.3.4 identify the Level 2 Galleria Roof as N.I.C. Please confirm whether the Level 2 Galleria Roof is included in the contract.
   RESPONSE: See revised sheets G0.0.4, A2.3.3 and A2.3.4 for clarifications on Base Bid requirements.

4. The Jail II roof plans show pit roofs of approximately 110 SF, 133 SF, and 167 SF adjacent to the main roof. Alternate A-2 references "Jail I Pit Roofs." Please confirm whether the Jail II pit roofs are included in Alternate A-1, Alternate A-2, or the Base Bid.
   RESPONSE: Include as part of Alternate 1 costing.

5. Four approximately 755 SF pit roofs at Levels 3 and 4 appear on both A2.3.3 and A2.3.4. Please confirm which bid item carries these roofs. A2.3.3 is also titled "Jail I Main Roof Plan – Alternate 2," while the main roof is labeled N.I.C. Please confirm the correct scope.
   RESPONSE: Reference revised Sheet A2.3.3 for the scope of Alternate 2.

6. Please confirm whether the Base Bid and accepted alternates share one contract duration or have separate completion periods.

   RESPONSE: Any and all Alternates, if accepted, will be incorporated into the time of contract execution and Contractor shall incorporate the work of such into the work and project schedule.

7. Please confirm that bidders are to carry Allowance A-1 of $88,217 and Allowance A-2 of $10,000 as separate amounts on the bid form in addition to the priced Base Bid work.

   RESPONSE: Section 00 42 00 – Form of Proposal, included in the bid documents, identifies the way in which the Bidder shall tabulate the Total Bid of Contractor (Basis of Design).

8. The roofing specification requires a 30-year manufacturer material and labor, edge-to-edge NDL warranty, while G0.0.3 calls for a three-year leak-free warranty. Please confirm the required manufacturer warranty and contractor workmanship warranty for each roof area.
   RESPONSE: See revised sheet G0.0.3 for correction of the warranty information.

9. Please confirm the complete insulation assembly required at each roof area, including flat insulation thickness, tapered insulation starting thickness and slope, cover board, and minimum required R-value. For the Galleria roofs, please confirm whether the noted 4.17-inch insulation is a flat base layer in addition to saddles and crickets.

   RESPONSE: The flat insulation thickness is dependent upon the R-value of the insulation selected. The continuous insulation R-value is 25 (see Sheet G0.0.2.). If using the minimum of 5.7 per inch noted in the specifications (reference Section 07 22 00 – Roof Deck and Insulation, Paragraph 2.2 Insulation Materials), then the flat insulation thickness = 4.39″. This is the flat base layer. All saddles and crickets are on top of this base layer. See the details on Sheets A8.2.1 through A8.2.4 for the roof composition and slope information.

10. Will approved tapered insulation plans and drain sump layouts be issued for bidding, or is each bidder responsible for designing and pricing these layouts?

    RESPONSE: Each bidder is responsible for designing and pricing the tapered insulation plans and drain sump layouts in accordance with the Contract Documents, in accordance with Section 07 22 00 – Roof Deck and Insulation, Part 1 – General, Paragraph 1.4, Item D. Submittals.

11. Please identify which roof drains require full replacement and which are to receive retrofit inserts or be reused at the Jail II Penthouse, Jail I Galleria roofs, Jail II main roof under Alternate A-1, and Jail I pit roofs under Alternate A-2. Please provide drain sizes, drain counts by roof, and clarify the extent of associated piping replacement or modification.

    RESPONSE: Assume full replacement for all locations. Product confirmation to be discussed during Construction Administration.

12. The 4-inch overflow scupper note on A2.3.1 references Detail 4/A8.2.3, which appears to be a box-structure detail. Please provide the correct scupper detail and confirm the required liquid flashing system.
    RESPONSE: Reference revised detail 3/A8.2.1 for overflow scupper detail. The required flashing system is Tuff-Flash™ Plus Lo Flashing System by The Garland Company.

13. Please confirm the locations and linear footage of expansion joints at the Jail II and Penthouse roofs. Please also confirm the required expansion joint type and whether the Galleria joints are 1-inch or 2-inch.

    RESPONSE: Locate the new 1″ wide expansion joints in the same locations as the existing expansions joints and match the length of the existing joints.

14. Penthouse wind zones shown on the drawings differ from those listed in Section 07 22 00. Please confirm the required dimensions for Zones 2 and 3.

    RESPONSE: Provide sizes listed on DRAWING. Zone 2 approximate area: 584 square feet; Zone 3 approximate area: 960 square feet.

15. Design pressures are provided on G0.0.3. Please confirm whether the Contractor is required to provide sealed ASCE 7 calculations and attachment analysis, and provide separate design pressures for Zones 1, 2, and 3.

    RESPONSE: Reference Sheet G0.0.3, ASCE 1-16 shall be the governing design criteria. Provide signed and sealed calculations and attachment analysis by a registered professional engineer in the State of Ohio for the separate design pressures in Zones 1, 2 and 3.

16. The Galleria roofs at Levels 3 and 4 use a 140-foot design roof height and "tall building h > 60" criteria. Please confirm that this mean roof height is correct for the lower Galleria roofs.

    RESPONSE: Cuyahoga County records indicate that the Atrium is 5 stories high, with an overall building height of 76.5′.

17. Section 07 60 00 references ASCE 7-05 and FM 1-100, while the drawings reference ASCE 7-16 and other specifications require FM 1-90. Please confirm the governing design criteria for edge metal and ANSI/SPRI ES-1 compliance.

    RESPONSE: The governing design criteria for edge metal and ANSI / SPRI-ES-1 compliance are ASCE 7-16 and FM 1-100.

18. The drawings and Section 01 10 00 call for a 22-gauge flashless metal edge, while Section 07 60 00 specifies R-Mer Force snap-on fascia in 0.050-inch aluminum. Please confirm the required material, gauge, color, and finish.

RESPONSE: Sheet A8.2.1 indicates an R-Mer® Force Flashless Snap-On Fascia. Material shall be 0.050" aluminum and color will be determined from manufacturer's standard colors.

19. Please confirm whether the torched vapor barrier/temporary roof is a separate ply of HPR Torch Base beneath the insulation in addition to the roofing base ply. Please also identify the required "approved peel-and-stick base sheet" and "SA high-temp underlayment."

    RESPONSE: No reference to "SA-high temp underlayment" was noted in the Contract Documents. The torched vapor barrier is a separate ply of HPR® Torch Base sheet (SBS membrane) beneath the insulation.

20. The drawings require fire-retardant-treated wood, with pressure-treated blocking against concrete, while Section 06 10 00 requires preservative-treated lumber with FRT only where required by code. Please confirm whether FRT, PT, or exterior-grade FRT/PT blocking is required and whether Pro-Stop FR primer is required over FRT wood.

    RESPONSE: All blocking shall be Fire-Retardant Treated Wood.

21. Detail 12/A8.2.2 shows soft-metal roll-down flashing at plumbing stacks, while Section 07 60 00 requires stainless steel or copper pitch pockets with grout and pourable sealer. Please confirm the required detail.

    RESPONSE: Plumbing stacks require stainless steel or copper pitch pockets with grout and pourable sealer per Detail 7/A8.2.2.

22. Equipment support details show membrane-flashed wood blocking with counterflashing, while Section 07 60 00 requires 30-inch-square lead flashing set in mastic. Please confirm which requirement governs.

    RESPONSE: The support details shown on the drawings, indicating the counter-flashing, are correct.

23. At the Atrium patio, A2.3A identifies approximately 8,124 SF but describes targeted paver and waterproofing repairs. Please provide the limits or quantities of paver removal/reinstallation, membrane replacement, insulation replacement, and wall flashing repairs to be included in the Base Bid.

    RESPONSE: Include pricing to remove all pavers to determine membrane and insulation replacement and wall flashing repairs within the dashed area. The square footage noted as 8,124 SF is the total amount of patio area. Work area for the project is noted within the dashed area of approximately 3,300 SF.

24. Please confirm the existing Atrium waterproofing system and the required compatible repair system. The drawings reference a Sika Sarnafil/Sikalastic-type overburden system, while Section 07 56 00 references Sikalastic RoofPro 15 with Reemat. Please confirm the required product/system.

    RESPONSE: Based on current information, the Sika Sarnafil® / Sikalastic® system is the most compatible with the existing system. Contractor shall field verify existing system after the removal of the pavers.

25. The Atrium core cut shows an inverted assembly with 2-inch extruded polystyrene above the membrane. Please confirm replacement insulation is XPS to match the existing assembly rather than polyisocyanurate.

    RESPONSE: Contractor to match existing roof assembly with XPS (extruded polystyrene) board insulation.

26. Existing pavers appear to be installed over drainage pads. Please confirm whether salvaged pavers are to be reset on drainage pads or installed on a new pedestal system. Please also confirm whether the new-paver, mockup, sealer, and delegated-design requirements of Section 07 76 16 apply to the salvage-and-reset scope.

    RESPONSE: Salvaged pavers shall be installed on existing drainage pads. New pavers supplied to replace damaged pavers shall meet the new paver, mockup, sealer and delegated design requirements of Section 07 76 16 – Roof Decking Pavers.

27. Paver removal is noted as limited to two full pavers from vertical surfaces, but additional removal may be required following testing. Please confirm whether unit prices will be added for paver removal/reinstallation per SF and wet insulation replacement per SF. Please also confirm whether the $125 per replacement paver is the Consultant's estimated unit price or a fixed amount to be carried by bidders.

    RESPONSE: Contractor shall assume $125.00 each for Unit Price per paver, make general assumption of 20 units for bidding purposes.

28. Please clarify the extent of Atrium gutter work, including which locations require complete relining versus localized repairs. Please provide the required linear footage and limits of substrate or insulation replacement. Please also confirm the required gutter lining system and existing gutter material.

    RESPONSE: Reference documents of existing conditions reports for additional information.

29. Section 07 56 00 specifies a 72-hour, 1-inch flood test over the occupied Atrium. Please confirm the required test areas and damming method and whether flood testing may be limited to repaired areas.

    RESPONSE: Perform a 72-hour, 1 inch per hour flood test over the entirety of the occupied Atrium.

30. The drawings state that the Owner's testing firm will validate completed Atrium/skylight repairs. Please define the Contractor's responsibility for additional repairs identified during post-repair testing and establish a limit for repairs to conditions outside the documented scope.

    RESPONSE: The Owner retains a certified testing agency. Results of testing will be shared with the Contractor, who shall make any repairs, adjustments, augmentations, etc. as required to achieve compliance with construction documents and warranty requirements.

31. A2.3C states that existing skylight glazing is to remain, while Sections 01 10 00 and 08 01 00 include glazing replacement. Please confirm whether any insulating glass units or glazing panels are to be

replaced. If so, please provide locations, quantities, sizes, and glazing specifications or establish a unit price.

RESPONSE: Existing glazing in skylights shall remain, unless damaged or otherwise compromised.

32. The skylight joint waterproofing documents reference Tremco Simple Seal, Tremco Proglaze ETA, and the Kemperol system. Please confirm the required skylight joint waterproofing product/system.

    RESPONSE: The skylight joints to be repaired or replaced shall utilize Tremco® Simple Seal. The skylight base joints required to be repaired or replaced shall utilize the Kemperol® system.

33. Please identify the locations and quantities of obsolete rooftop equipment to be removed and equipment that must be raised or temporarily lifted. Please confirm whether electrical disconnect/reconnect, controls, curb modifications, piping modifications, and mechanical startup are included in the Contractor's scope.

    RESPONSE: As part of the scope for Alternative 1, the only obsolete rooftop equipment to be removed is the existing, abandoned cooling tower. As also part of the scope for Alternative 1, all other rooftop equipment is to remain, and no modification is expected. Existing to remain rooftop equipment includes: six (6) bathroom exhaust fans, 5 (five) stairwell pressurization fans, and three (3) air relief/smoke dampers. Contractor shall be responsible for electrical disconnect/reconnect, controls, curb modifications, piping modifications, and mechanical startup of any existing equipment that must be raised or temporarily lifted.

34. Regarding cooling tower demolition, please confirm the unit will be drained and free of refrigerant and hazardous materials before demolition and identify who is responsible for electrical and piping disconnects. Please provide the size and quantity of deck openings and a structural detail for concrete deck infill, as structural drawings were not issued.

    RESPONSE: The cooling tower has been abandoned and is dry, never having been charged with refrigerant, only chiller condenser water. Contractor is responsible for the piping and electrical disconnects, as per General Roofing Note 1 on Sheet A2.3.1.

35. Are mechanical drawings available for the Justice Center Roof and Water Intrusion Improvements? If so, please issue them for bidding.

    RESPONSE: Should the corresponding Alternate be accepted, the existing cooling tower shall be removed as a part of the work.

36. Please confirm whether the existing lightning protection system is to be temporarily removed and reinstalled, modified, or replaced. Please also confirm whether testing and UL recertification are required and identify any required certifying installer.

    RESPONSE: Existing lightning protection system to be temporarily removed and reinstalled in accordance with the following note:

    EXISTING LIGHTNING PROTECTION SYSTEM – REMOVE, PROTECT, AND REINSTALL
    The Contractor shall coordinate with all affected trades and the existing lightning protection system installer to identify components requiring removal to accommodate the Work. The Contractor shall carefully remove, label, document, and protect all components designated

for reuse and store them in a secure location until reinstallation. Coordinate the timing of removal and reinstallation with the project schedule and related construction activities to minimize disruption and prevent damage to the existing system.

Upon completion of the affected Work, the Contractor shall coordinate reinstallation of the existing lightning protection system to restore the system to its original configuration, to the extent practicable, and maintain compliance with applicable codes and standards. The Contractor shall coordinate all required connections, grounding, bonding, and interfaces with new and existing construction and other building systems. Verify the completed system's continuity and performance through the qualified lightning protection system installer. Replace damaged or unsuitable components with compatible new components as required to provide a complete and operational system.

The Contractor shall be responsible for coordination, protection, temporary disconnection, and restoration of the existing system as required to complete the Work. Do not leave the building without lightning protection during construction without prior coordination and approval by the Owner. Include all labor, materials, equipment, testing, and incidentals required to complete the Work.

37. The roof hatch detail shows an extendable safety post. Please confirm whether a new safety post is required at each roof hatch and provide the quantity.

    RESPONSE: New safety posts are required for all existing roof hatches. For pricing purposes, assume three (3) roof hatches.

38. G0.0.3 references charcoal filters. Please provide the number of affected air intakes, identify who supplies and replaces the filters, and confirm whether Owner HVAC personnel will shut down affected units during torch work.

    RESPONSE: For pricing purposes, assume 12 air intakes in close proximity to the work area. Coordinate with Owner in advance, as specified in the Project Manual, prior to scheduling any torch work so that Owner's personnel can make necessary preparations.

39. Please identify hazardous materials within the work limits by material and roof area. Please confirm which abatement, air monitoring, clearance testing, and disposal services are the Contractor's responsibility.

    RESPONSE: No Asbestos Containing Materials have been identified on the roof.

40. Please issue the referenced documents not included in the bid documents, including the WJE report dated January 8, 2019; WJE "Atrium – Water Intrusion Project" dated January 19, 2024; core cut photographs; and Garland Atrium roof photo report. Please also confirm whether the 2001 DLZ asbestos survey covers the Jail I, Jail II, and Galleria roofs and provide roof ACM test results and quantities where applicable.

    RESPONSE: Supplemental documents have been provided.

41. Please confirm whether deteriorated concrete deck or other concealed substrate repairs are included in the Base Bid or paid from Allowance A-1. If included in the Base Bid, please provide quantities to carry.

RESPONSE: Should any deteriorated concrete deck and other concealed substrate repairs shall be covered by Allowance A-1.

42. Please confirm whether the Owner will designate crane setup, material staging, dumpster, and debris-removal locations. Please also confirm whether street occupancy/closure permits and traffic control are the Contractor's responsibility.

    RESPONSE: Owner will coordinate access in and around the site at the Pre-Construction Meeting. Any and all permits, including street occupancy, street closure, sidewalk closure, etc. shall be the responsibility of the Contractor.

43. Please confirm whether crane operators, delivery drivers, short-duration specialty subcontractors, and waste-hauling personnel are required to complete the BCI background check and obtain County badges before entering their assigned work areas.

    RESPONSE: Any entry into the facility requires compliance with the Cuyahoga County Sheriff's Office. Contractors that will be regularly on site shall be required to complete the necessary documents to secure County badge access, as the building is a sensitive, secured facility. Individuals associated with the work of this project not requiring access into the building may be exempt, as determined by the County Sheriff. Contractor shall coordinate these requirements prior to engaging their participation.

44. Please confirm the permitted workdays and hours for demolition, torch work, crane operations, and other noisy activities, including any restrictions associated with the occupied Justice Center.

    RESPONSE: Section 01 10 00 – Summary of Work, Part 1 – General, Paragraph 1.7, Item E. addresses special work requirements addresses the limitations and necessary protocols which must be adhered to with work in and around the Justice Center Complex.

45. NTP is anticipated around December 2, 2026, with field work beginning around December 21, 2026. Because torch-applied, fluid-applied, and sealant work have minimum temperature requirements, please confirm whether the Owner will allow a winter shutdown or sequencing by roof area. Please also clarify the referenced "required sequencing" requirements.

    RESPONSE: The anticipated dates and schedules are published as a guide to assist the Bidder in establishing a project schedule and determining construction duration. The actual dates will be contingent upon the contract execution process and may differ from what is anticipated. While the Notice to Proceed may be issued during the time of year that is not necessarily conducive to construction activities requiring minimum temperature limitations, the Owner shall give consideration to weather conditions, especially as it affects warranted work. Contractor shall communicate any and all deviations to the schedule and provide documented cause for any proposed time extensions for Owner's review and consideration.

46. Please reconcile the contract duration shown as 456 days in Section 00 20 00 versus 457 days in Section 01 10 00 and confirm the governing contract duration.

    RESPONSE: The governing contract duration shall be 457 calendar days.

47. For the 30% SBE participation goal, please confirm whether participation by a County-certified SBE supplier or equipment provider is eligible for credit and, if so, what percentage of the contract value may be credited.

    RESPONSE: Section 00 43 39 – Bidder's Manual – Small Business Enterprise (SBE), Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) Program requirements are defined in Item III. SBE/MBE/WBE Participation Goal and Item IV. Mandatory Bidding Requirements for Prime Contractors.

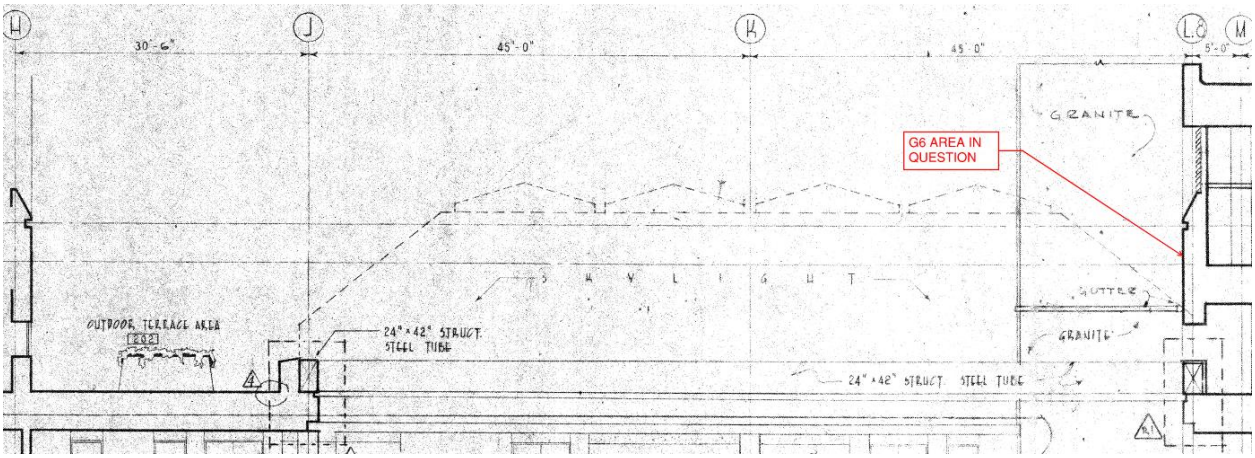
48. Can we get drawings with details indicated on the roof plans?

    RESPONSE: Details and their corresponding detail tags are provided throughout the construction drawing set.

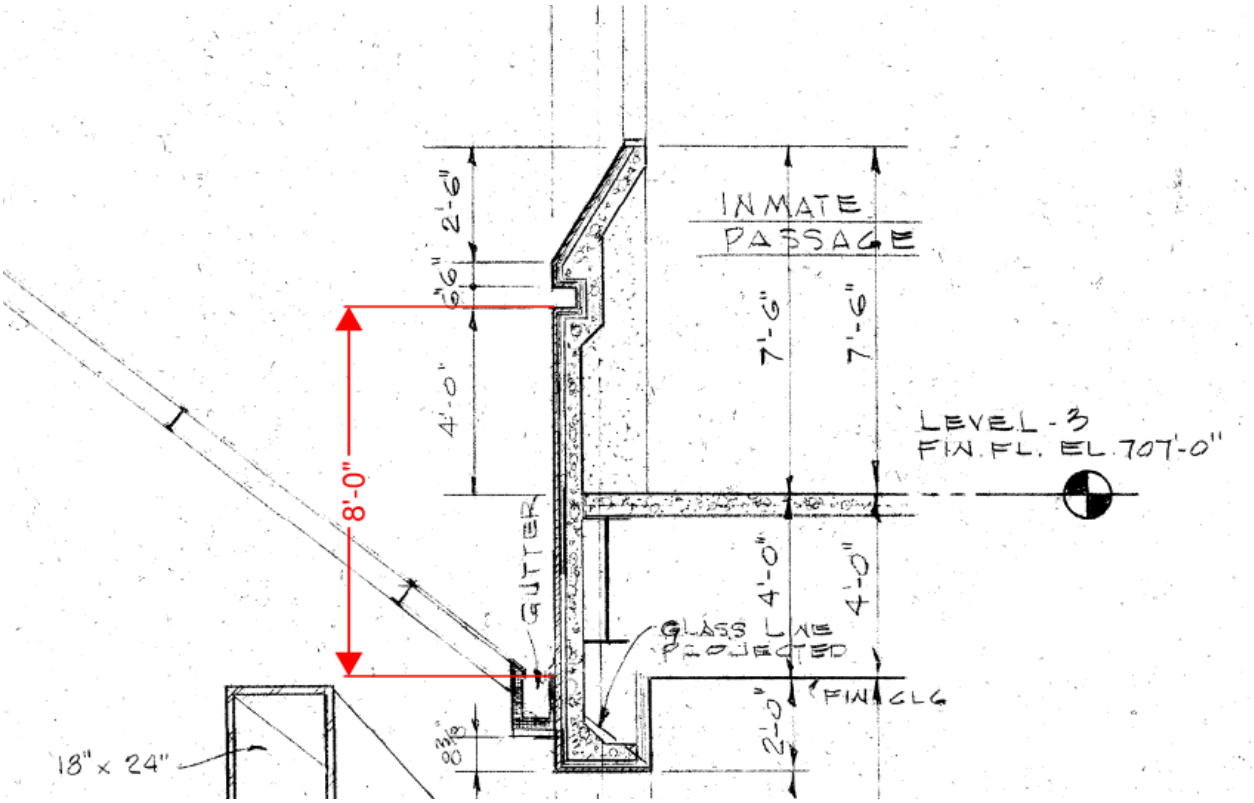
49. Alternate A-4 describes replacement of backer rod and sealant at granite panel joints from the terrace level to the next floor above, identified as G6. Please identify the applicable drawing sheet, detail, and exact limits of this work, as we have been unable to locate the referenced areas.

    RESPONSE: G6 mentioned work is provided on Sheet A2.3E. Approximate length of the work is 160′ ± and will be for an approximate height of 8′±.

    Associated existing drawing building sections are indicated as follows:



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50. Please provide the total linear footage of joint sealant replacement to include in Alternate A-4, identifying horizontal and vertical joint quantities separately.

    RESPONSE: Reference Question Number 49 of this document.

51. Please provide any updated information regarding approved roof access routes, available access equipment, and restrictions for performing the terrace and façade sealant work.

    RESPONSE: Owner will coordinate access with Contractor in and around the site at the Pre-Construction Meeting.

52. Please confirm whether the sealant subcontractor, Kapton, may install sealant at the flashing details for the new roofs, or whether this work must be performed by the roofing manufacturer's authorized installer to maintain the required roof warranty. Please clarify the division of responsibility between roofing flashing sealants and architectural joint sealants.

    RESPONSE: Contractor shall verify the requirements of the full warranty of the roof. For bidding purposes, assume the sealant installer responsible for the sealant at flashings will be authorized by the roofing manufacturer.

53. Please identify the asbestos abatement scope and quantities by material and roof area, separated by Base Bid and applicable alternates. The specifications reference roofing felt; is this material confirmed or presumed to contain asbestos, and must it be included in the abatement scope?

    RESPONSE: No Asbestos Containing Materials have been revealed on site.

54. Please confirm permitted abatement work hours, material load-out hours, and elevator availability and restrictions. Is after-hours or weekend abatement and load-out permitted?

    RESPONSE: Section 01 10 00 – Summary of Work, Part 1 – General, Paragraph 1.7, Item E. describes special work requirements and addresses the limitations and necessary protocols which must be adhered to with work in and around the Justice Center Complex.

55. Will the Owner provide a third-party environmental consultant for oversight and air monitoring? Please confirm whether clearance air testing is required, the applicable criteria, and whether these services are provided by the Owner or Contractor.

    RESPONSE: The Owner retains a certified testing agency. Should the need for environmental oversight and air monitoring be required, the Owner shall engage the testing agency and bear the cost of such services.

56. May secured containers for asbestos waste remain onsite between pickups, or must all abatement waste be removed from the site daily? Please identify approved container locations and any loading or pickup restrictions.

    RESPONSE: Section 01 52 00 – Construction Facilities and Temporary Controls, Part 1 – General, Paragraph 1.14, Items A. through C. as well as Part 3 – Execution, Paragraph 3.3, Item D. address special work requirements for waste removal for work in and around the Justice Center Complex.

57. Is a stair tower able to be used anywhere on the site access the roof?

    RESPONSE: Owner will coordinate access with Contractor in and around the site at the Pre-Construction Meeting.

58. Are there any security requirements for a trash chute? I.E., does it need to be sealed off at the end of every day?

    RESPONSE: Section 01 10 00 – Summary of Work, Part 1 – General, Paragraph 1.7, Item J. describes special work requirements and addresses the need for securing all tool, material and equipment that must be adhered to with work in and around the Justice Center Complex.

59. Can you please clarify whether the Contractor is responsible for the removal and disposal of all asbestos-containing materials identified throughout the entire Justice Center building, or only asbestos-containing materials within the designated roofing and water intrusion improvement areas that will be disturbed during construction?

    RESPONSE: Should asbestos containing material be encountered, the Contractor shall be responsible for only the removal and disposal of any and all asbestos-containing materials within the designated roofing and water intrusion improvement areas that are anticipated to be disturbed during construction.

60. Additionally, if asbestos is present within the designated roofing areas, please identify which roof sections contain asbestos and confirm whether the Contractor is required to include all associated testing, abatement, containment, transportation, and disposal costs in the bid.

    RESPONSE: No Asbestos Containing Materials have been revealed on the roof.

61. I noticed (2) roof hatches on the Galleria Roofs, are these accessible for roof access throughout the project.
    RESPONSE: The Level 4 roof hatch is accessible via the City of Cleveland Jury Room. The Level 3 hatch is accessible via crawlspace. Owner will coordinate access with Contractor in and around the site at the Pre-Construction Meeting.

62. Can scaffolding be setup at the front entrance for access to the Galleria Roofs?
    RESPONSE: Owner will coordinate access with Contractor in and around the site at the Pre-Construction Meeting.

63. Is the back parking garage near the atrium roof area able to have a dumpster placed along with staging material?
    RESPONSE: If question is referring to the courtyard area adjacent to W. St. Clair Avenue, then Contractor to assume that this is not an acceptable area to place a dumpster. Staging is possible but is dependent on quantity and weight of materials/equipment. Owner will coordinate with Contractor at the Pre-Construction Meeting.

64. Can Soprema be used for torch membranes and adhesives?
    RESPONSE: Yes, Soprema can be used provided the products meet all aspects of the specifications and daily job site inspections are provided by an employee of the manufacturer. All inferior products will be rejected.

65. Can scaffolding/stair towers/elevators be attached to the buildings for stabilization?
    RESPONSE: Owner will coordinate access with Contractor in and around the site at the Pre-Construction Meeting.

66. Are the pit roofs on jail 2 part of alternate 1?
    RESPONSE: Yes.

67. Can the parking garage be blocked off on West 3rd Street for any length of time?
    RESPONSE: No.

68. The specifications for the Galleria roof at jail 1 and levels 3 & 4 state two layers of 1.5" insulation. G0.0.3 mentions 4.17" insulation.
    RESPONSE: Reference Question Number 9 of this document.

69. Atrium roof R-5 states we are to ensure positive drainage and correct if needed. The existing roof is inverted so the slope is only whatever the concrete deck is. The only way to ensure positive drainage is to replace the entire roof and that is not included. Please advise.
    RESPONSE: Area of work is noted within the dashed area of approximately 3,300 SF. Provide testing, and within area of work, provide the mentioned positive drainage and membrane as detailed on sheet A2.3B.

70. Does the crew have to be escorted to and from the roof daily?
    RESPONSE: If accessing the roof via interior elevators or stairs, an escort would be required for access to and from the Jail 2 roof.

71. What is the process using the freight elevators?
    RESPONSE: Freight elevators are only available for the Jail 2 portion of this project. Access would require escort through Jail 2.

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BUILDING INFORMATION

THE JUSTICE CENTER COMPLEX
1200 Ontario St,
Cleveland, OH 44113

CODE INFORMATION
CODE ANALYSIS INCLUDED HEREWITHIN IS APPLICABLE TO PROJECT SCOPE AS DEPICTED IN THE KEY PLAN ONLY

OCCUPANCY: EXISTING TO REMAIN.
-ASSEMBLY (A-2)
-STORAGE (S-1)
-BUSINESS (B):

USE GROUP: MIXED USE

CONSTRUCTION TYPE: NON COMBUSTIBLE (TYPE IIB ASSUMED)

FIRE RESISTANCE RATINGS FOR BUILDING ELEMENTS: EXISTING TO REMAIN
-PRIMARY STRUCTURAL FRAME: EXISTING TO REMAIN
-ROOF CONSTRUCTION: EXISTING TO REMAIN

BUILDING FULLY SPRINKLERED: EXISTING TO REMAIN

BUILDING ALTERATION LEVEL: LEVEL 2

CONTRACTOR GENERAL NOTES:
- ALL WORK TO BE IN ACCORDANCE WITH APPLICABLE CODES.
- WORKMANSHIP TO MEET OR EXCEED ACCEPTED STANDARDS OF RESPECTIVE TRADES.
- VERIFY ALL DIMENSIONS, ELEVATIONS, AND FIELD CONDITIONS BEFORE START OF CONSTRUCTION. NOTIFY ARCHITECT IF ANY CONFLICTS EXIST PRIOR TO COMMENCEMENT OF WORK.
- FIRE RETARDANT TREATED WOOD MUST BE USED.

FIRE EXTINGUISHERS WILL BE PROVIDED DURING DEMOLITION AND CONSTRUCTION AS REQUIRED BY AUTHORITY HAVING JURISDICTION OR AS DIRECTED BY THE LOCAL FIRE DEPARTMENT.

SUMMARY OF BID PACKAGES & ALTERNATES

BASE BID:
CUYAHOGA COUNTY GALLERIA ROOFS AT JAIL 1 (LEVELS 3 & 4) AND THE PENTHOUSE ROOF. Provide a complete Base Bid inclusive of all labor, materials, equipment, supervision, demolition, temporary protection, coordination, permitting, disposal, and incidental work necessary to provide a complete and fully functional roofing system installation as indicated within the Contract Documents. Contractor shall field verify existing conditions prior to bidding and include all work required for a complete installation, whether specifically identified in all locations within the drawings and specifications or not.

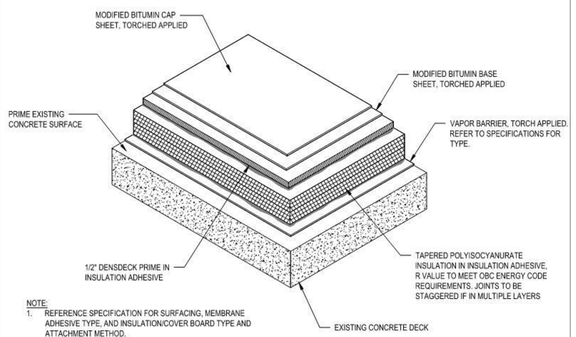
ALTERNATE 1: JAIL 2 MAIN ROOF
Provide an Add Alternate price for all labor, materials, equipment, demolition, temporary protection, coordination, and incidental work required for the complete scope of work associated with the Jail 2 Main Roof as identified within the Contract Documents.

ALTERNATE 2: JAIL 1 PIT ROOFS
Provide an Add Alternate price for all labor, materials, equipment, demolition, temporary protection, coordination, and incidental work required for the complete scope of work associated with the Jail 1 Pit Roofs as identified within the Contract Documents.

ALTERNATE 3: SKYLIGHT BACKER ROD & SEALANT
Provide an Add Alternate price to remove and replace all existing backer rod and sealant within the granite base, horizontal joints, and vertical joints associated with the skylight assemblies. Contractor shall remove all existing sealant materials, clean and prepare all joint surfaces, confirm joints are free and clear of debris and contaminants, and install new backer rod and sealant system in accordance with manufacturer recommendations and project specifications.
Locations are identified within the drawings as “S2” and “R7.”

ALTERNATE 4: TERRACE BACKER ROD & SEALANT
Provide an Add Alternate price to remove and replace all existing backer rod and sealant at granite panel joints extending from the terrace level to the height of the next floor level above the terrace. Contractor shall remove existing materials, clean and prepare all joint surfaces, and provide a complete new sealant system in accordance with manufacturer recommendations and project specifications.
Locations are identified within the drawings as “G6.”

TYPICAL FIELD DETAIL



NOTE:
1. REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.
2. ASSURE ROOF AIR BARRIER PROPERLY TIES INTO WALL SYSTEM AIR BARRIER IF PRESENT.

WIND UPLIFT DESIGN CRITERIA

PRESSURE CALCULATIONS -
APPLY TO JAIL II MAIN ROOF, JAIL I PIT ROOFS, AND GALERIA ROOFS AT LEVEL 3 AND LEVEL 4

DESIGN CODE: ASCE 7-16 ASD

1. EXPOSURE CATEGORY:	D
2. IMPORTANCE FACTOR:	IV, 1
3. WIND SPEED:	121 MPH
4. DESIGN ROOF HEIGHT:	140'
5. MINIMUM BUILDING WIDTH:	145'
5. ROOF SLOPE:	1/4 UNITS PER 12
6. ROOF ANGLE:	1.19 DEG.
7. PARAPET > 36" ENTIRE ROOF	YES
8. DECK TYPE:	CONCRETE
9. BASE VELOCITY PRESSURE:	29.0 PSF
10. ROOF TYPE:	TALL BUILDING h > 60

EDGE ZONES:

ZONE 2 WIDTH:	14'-6"
ZONE 3 WIDTH:	14'-6"
ZONE 3 LENGTH:	29'-0"

PRESSURE CALCULATIONS -
APPLY TO JAIL II PENTHOUSE ROOF

DESIGN CODE: ASCE 7-16 ASD

1. EXPOSURE CATEGORY:	D
2. IMPORTANCE FACTOR:	IV, 1
3. WIND SPEED:	121 MPH
4. DESIGN ROOF HEIGHT:	155'
5. MINIMUM BUILDING WIDTH:	60'
5. ROOF SLOPE:	1/4 UNITS PER 12
6. ROOF ANGLE:	1.19 DEG.
7. PARAPET > 36" ENTIRE ROOF	YES
8. DECK TYPE:	CONCRETE
9. BASE VELOCITY PRESSURE:	29.6 PSF
10. ROOF TYPE:	TALL BUILDING h > 60

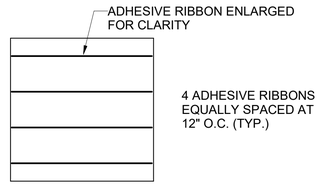
EDGE ZONES:

ZONE 2 WIDTH:	6'-0"
ZONE 3 WIDTH:	6'-0"
ZONE 3 LENGTH:	12'-0"

INSULATION BOARD ADHESIVE PATTERN

4' x 4' BOARD PATTERN

TYPICAL ZONE 1, 2, AND 3 INSULATION BOARD ADHESIVE PATTERN: 12" O.C. BEADS PER BOARD



BUILDING INFORMATION

CUYAHOGA COUNTY CORRECTIONS CENTER - JAIL I AND JAIL II
1215 WEST 3RD STREET
CLEVELAND, OH 44113

USE GROUP: I-3 INSTITUTIONAL
CONSTRUCTION TYPE: NON COMBUSTIBLE (PROTECTED)
BUILDING IS FULLY SPRINKLED
NO MODIFICATIONS TO EXITING
NO MODIFICATIONS TO BUILDING OCCUPANCY (EXISTING TO REMAIN)
FIRE RESISTANCE RATINGS - UNCHANGED

BUILDINGS ARE NOT HISTORICAL

FIRE EXTINGUISHERS WILL BE PROVIDED AS REQUIRED BY AUTHORITY HAVING JURISDICTION OR AS DIRECTED BY THE LOCAL FIRE DEPARTMENT.

ROOF R-VALUE = 25 ci

SCOPE OF WORK

CUYAHOGA COUNTY JAIL I PIT ROOFS (ALTERNATE 2), JAIL II MAIN ROOF (ALTERNATE 1) & PENTHOUSE ROOF (BASE BID)

1. SET UP THE PROJECT PER OSHA & CUYAHOGA COUNTY APPROVED GUIDELINES.
2. REMOVE EXISTING ROOF DOWN TO THE CONCRETE DECK. REFERENCE THE PROVIDED CORE CUT PHOTOS.
3. REMOVE ALL OBSOLETE EQUIPMENT. RAISE THE OTHER ITEMS AS NEEDED.
4. ENSURE ALL SURROUNDING INTAKES ARE COVERED WITH CHARCOAL FILTERS.
5. PRIME THE CONCRETE ROOF DECK AND TORCH A TEMPORARY ROOF.
6. INSTALL 1/4" PER FT. TAPERED INSULATION WITH A STARTING POINT OF 1/2". ENSURE ALL DRAINS ARE PROPERLY SUMPED.
7. ADHERE 1/2" PRIMED COVER BOARD.
8. PRIME ALL WOOD SURFACES WITH THE SPECIFIED FLAME-RETARDANT PRIMER.
9. COVER ALL FLASHING TRANSITIONS AND COMBUSTIBLE MATERIALS WITH AN APPROVED PEEL AND STICK BASE SHEET.
10. TORCH APPLY THE SPECIFIED BASE SHEET AND CAP SHEET.
11. INSTALL A 2-PLY FLASHING SYSTEM THROUGHOUT. MATCHING EXISTING FLASHING HEIGHTS
12. SECURE THE FLASHINGS WITH TERMINATION BAR AND COUNTER FLASHINGS. MATCHING EXISTING FLASHING HEIGHTS.
13. INSTALL REGLET COUNTER FLASHINGS AT THE MASONRY WALLS.
14. INSTALL A 22-GAUGE FLASHLESS METAL EDGE PER THE SPECIFICATIONS ALONG THE PENTHOUSE.
15. INSTALL NEW EXPANSION JOINTS WHERE PRESENT.
16. INSTALL THE SPECIFIED WALK PATHS..
17. INSTALL ALL NEW METAL DRAIN BASKETS OR CLEAN, PRIME, AND PAINT ALL DRAIN BASKETS SAFETY RED.

***THE CONTRACTOR SHALL PROVIDE A 30-YEAR LEAK FREE WARRANTY, REFER TO THE SPECIFICITION IN THE PROJECT MANUAL ***

CUYAHOGA COUNTY GALLERIA ROOFS AT JAIL I - LEVEL 3 AND LEVEL 4 (BASE BID)

1. SET UP THE PROJECT PER OSHA & CUYAHOGA COUNTY APPROVED GUIDELINES.
2. REMOVE EXISTING ROOF DOWN TO THE CONCRETE DECK. REFERENCE THE PROVIDED CORE CUT PHOTOS.
3. REMOVE ALL OBSOLETE EQUIPMENT. RAISE THE OTHER ITEMS AS NEEDED.
4. ENSURE ALL SURROUNDING INTAKES ARE COVERED WITH CHARCOAL FILTERS.
5. PRIME THE CONCRETE ROOF DECK AND TORCH A TEMPORARY ROOF.
6. INSTALL 4.17" ISO INSULATION + SADDLES/CRICKETS BETWEEN ALL DRAINS. ENSURE ALL DRAINS ARE PROPERLY SUMPED. ENSURE POSITIVE DRAINAGE EXISTS THROUGHOUT.
7. ADHERE 1/2" PRIMED COVER BOARD.
8. PRIME ALL WOOD SURFACES WITH THE SPECIFIED FLAME-RETARDANT PRIMER.
9. COVER ALL FLASHING TRANSITIONS AND COMBUSTIBLE MATERIALS WITH AN APPROVED PEEL AND STICK BASE SHEET.
10. TORCH APPLY THE SPECIFIED BASE SHEET AND CAP SHEET.
11. INSTALL A 2-PLY FLASHING SYSTEM THROUGHOUT. MATCHING EXISTING FLASHING HEIGHTS
12. SECURE THE FLASHINGS WITH TERMINATION BAR AND COUNTER FLASHINGS. MATCHING EXISTING FLASHING HEIGHTS.
13. INSTALL REGLET COUNTER FLASHINGS AT THE MASONRY WALLS.
14. INSTALL NEW EXPANSION JOINTS WHERE PRESENT.
15. INSTALL ALL NEW METAL DRAIN BASKETS OR CLEAN, PRIME, AND PAINT ALL DRAIN BASKETS SAFETY RED.
16. RAKES OUT THE SKYWARD FACING COPING JOINTS AND THE INSIDE PARAPET WALLS VERTICAL COPING JOINTS. INSTALL NEW CLOSED CELL BACKER ROD AS NEEDED. APPLY NEW CAULKING.

***THE CONTRACTOR SHALL PROVIDE A 30-YEAR LEAK FREE WARRANTY, REFER TO THE SPECIFICITION BOOK ***

DEPARTMENT OF PUBLIC WORKS
DESIGN AND CONSTRUCTION
2079 EAST NINTH STREET
CLEVELAND OHIO 44115

This item has been digitally signed and sealed by ***Scott C. Maloney, RA****. Digital signatures must be verified on electronic files. Reproduced copies of digitally signed, dated, and sealed documents are not considered signed and sealed.*

Scott C. Maloney
Reg. #: 513774
Reg. Exp. Date: 12/31/2027
COA: 144109
COA Exp. Date: 06/30/2026

CLIENT APPROVAL

AUTHORIZED REPRESENTATIVE SIGNATURE:

PRINTED NAME:

DATE SIGNED:

CUYAHOGA COUNTY JUSTICE CENTER COMPLEX
ROOF AND WATER INTRUSION IMPROVEMENTS
1200 ONTARIO STREET, CLEVELAND, OHIO 44113
RQ # 16308
JAIL I, JAIL II & GALLERIA ROOF REPLACEMENT
PROJECT INFORMATION

REV NO.	DESCRIPTION
1	ADDENDUM 1

DRAWN: MAK	DATE: 05.29.2026
CHECKED: MC / SM	PROJECT NO.: 23028.02
	SHEET NO.: G0.0.3

LOCATION OF WORK
CUYAHOGA COUNTY JAIL II
1265 WEST 3RD STREET
CLEVELAND, OH 44113

LOCATION OF WORK
CUYAHOGA COUNTY ATRIUM ROOF PATIO
1200 ONTARIO STREET
CLEVELAND, OH 44113

LOCATION OF WORK
CUYAHOGA COUNTY JAIL I
1215 WEST 3RD STREET
CLEVELAND, OH 44113

LOCATION OF WORK
GALLERIA
1200 ONTARIO STREET
CLEVELAND, OH 44113

WEST THIRD STREET

WEST ST. CLAIR AVENUE

WEST LAKESIDE AVENUE

ONTARIO STREET

SIDEWALK

CUYAHOGA COUNTY JAIL II PIT ROOFS

CUYAHOGA COUNTY JAIL II ROOF (ALTERNATE 1)

CUYAHOGA COUNTY JAIL II PENTHOUSE ROOF (BASE BID)

RAMP DOWN

RAMP UP

ELEVATED WALKWAY

CUYAHOGA COUNTY JAIL I PIT ROOFS (ALTERNATE 2)

CUYAHOGA COUNTY JAIL I

GRASSY AREA

LOWER ROOF

PUBLIC PATIO ON GALLERIA ROOF JAIL I LEVEL 2

ATRIUM

GALLERIA ROOF JAIL I LEVEL 4 (BASE BID)

GALLERIA ROOF JAIL I LEVEL 3 (BASE BID)

STAIRS UP

HIGH ROOF

PUBLIC GARAGE

CUYAHOGA COUNTY COURTS TOWER

PARKING ENTRANCE

PARKING EXIT

PUBLIC COURTYARD

1 SITE PLAN

DEPARTMENT OF PUBLIC WORKS
DESIGN AND CONSTRUCTION
2079 EAST NINTH STREET
CLEVELAND OHIO 44115

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COA: 144109
COA Exp. Date: 06/30/2026

CLIENT APPROVAL

AUTHORIZED REPRESENTATIVE SIGNATURE:

PRINTED NAME:

DATE SIGNED:

CUYAHOGA COUNTY JUSTICE CENTER COMPLEX
ROOF AND WATER INTRUSION IMPROVEMENTS
1200 ONTARIO STREET, CLEVELAND, OHIO 44113
RQ # 16308
ARCHITECTURAL SITE PLAN

REV NO.	DESCRIPTION
1	ADDENDUM 1

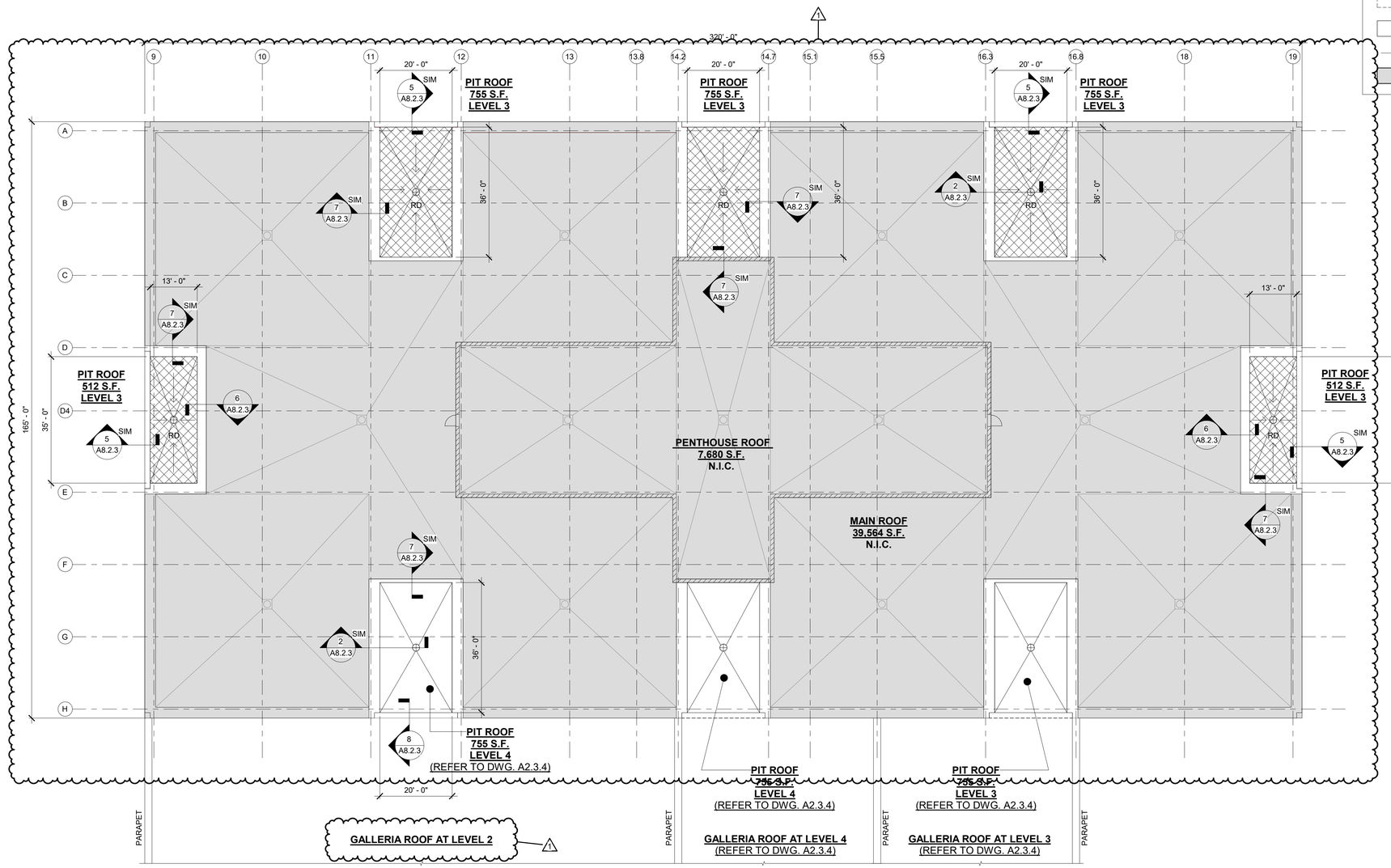
DRAWN	DATE
MAK	05.29.2026
CHECKED	PROJECT NO.
MC / SM	23028.02
	SHEET NO.
	G0.0.4

WIND PRESSURE ZONE DESIGNATION	ZONE TYPE
	ZONE 1
	ZONE 2
	ZONE 3

NOTE;
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, CONDITIONS AND QUANTITIES.

SYMBOL LEGEND

- RD ⊕ ⊗ RD — ROOF DRAIN
- ◎ — HEAT STACK
- ○ — ROOF PENETRATION / PLUMBING STACK - (VTR)
- RTU — ROOFTOP EQUIPMENT / CURB
- ⊗ — ROOF EXHAUST
- ROOF CURB
- ROOF HATCH
- EQUIPMENT DEMOLITION
- ADDITIONAL MEMBRANE FULLY ADHERED WALKWAY
- ROOF SLOPE
- ROOF AREAS NOT IN CONTRACT (N.I.C.)



N 1 JAIL I PIT ROOFS (ALTERNATE 2)

COUNTY OF CUYAHOGA OHIO

DEPARTMENT OF PUBLIC WORKS
DESIGN AND CONSTRUCTION
2079 EAST NINTH STREET
CLEVELAND OHIO 44115

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Reg. Exp. Date: 12/31/2027
COA: 144109
COA Exp. Date: 06/30/2026

CLIENT APPROVAL

AUTHORIZED REPRESENTATIVE SIGNATURE:

PRINTED NAME:

DATE SIGNED:

CUYAHOGA COUNTY JUSTICE CENTER COMPLEX
ROOF AND WATER INTRUSION IMPROVEMENTS
1200 ONTARIO STREET, CLEVELAND, OHIO 44113
RQ # 16308

JAIL I PIT ROOF PLANS

REV NO.	DESCRIPTION
1	ADDENDUM 1

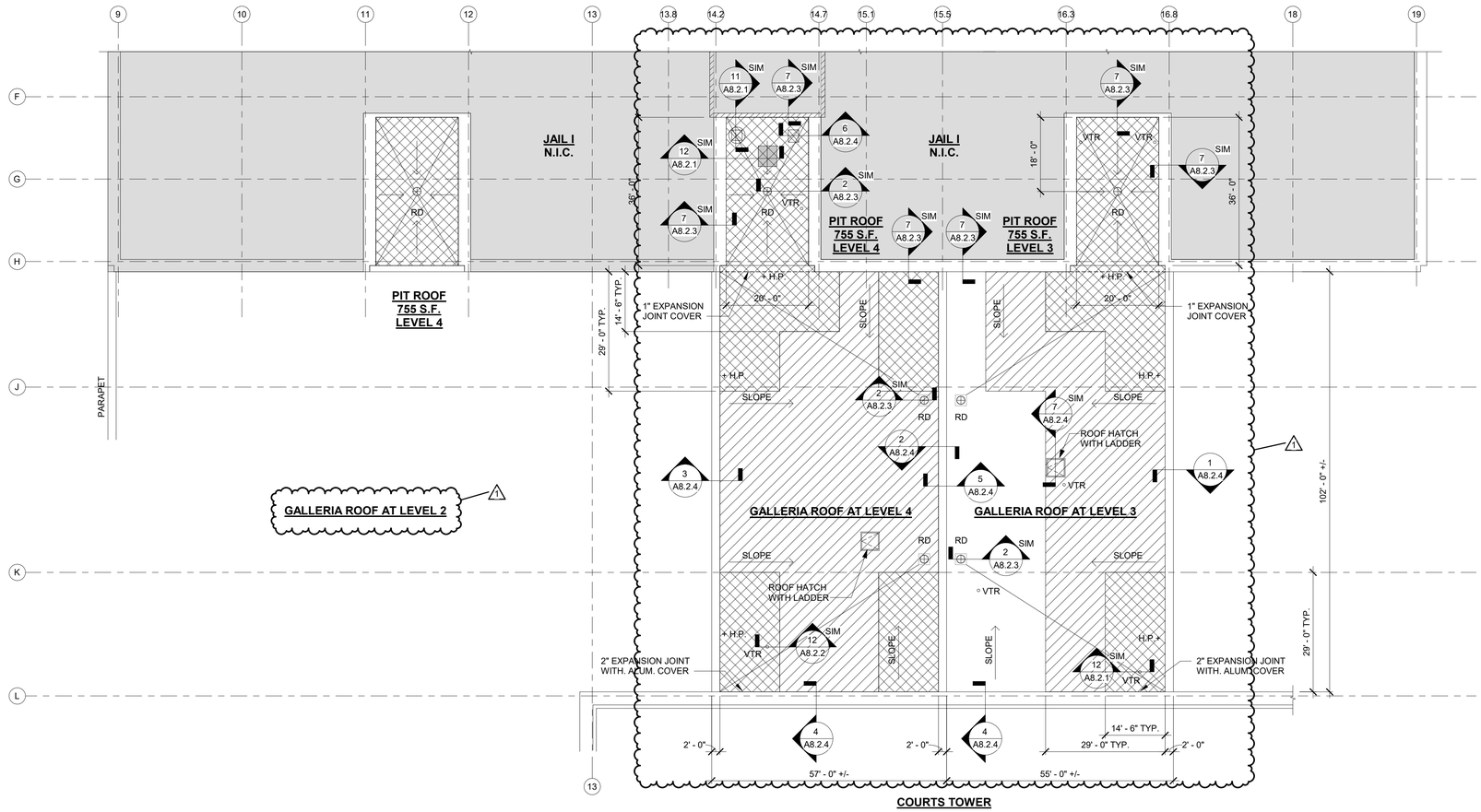
DRAWN	DATE
MAK	05.29.2026
CHECKED	PROJECT NO.
MC / SM	23028.02
	SHEET NO.
	A2.3.3

WIND PRESSURE ZONE DESIGNATION	ZONE TYPE
	ZONE 1
	ZONE 2
	ZONE 3

NOTE;
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, CONDITIONS AND QUANTITIES.

SYMBOL LEGEND

- RD ⊕ ⊗ RD — ROOF DRAIN
- ◎ — HEAT STACK
- ○ — ROOF PENETRATION / PLUMBING STACK - (VTR)
- RTU — ROOFTOP EQUIPMENT / CURB
- ROOF EXHAUST
- ROOF CURB
- ROOF HATCH
- EQUIPMENT DEMOLITION
- ADDITIONAL MEMBRANE FULLY ADHERED WALKWAY
- ROOF SLOPE
- ROOF AREAS NOT IN CONTRACT (N.I.C.)



GALLERIA ROOFS AT JAIL I LEVEL 3 AND LEVEL 4 (BASE BID)

N 1

COUNTY OF CUYAHOGA OHIO

DEPARTMENT OF PUBLIC WORKS
DESIGN AND CONSTRUCTION
2079 EAST NINTH STREET
CLEVELAND OHIO 44115

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CLIENT APPROVAL

AUTHORIZED REPRESENTATIVE SIGNATURE:

PRINTED NAME:

DATE SIGNED:

CUYAHOGA COUNTY JUSTICE CENTER COMPLEX
ROOF AND WATER INTRUSION IMPROVEMENTS
1200 ONTARIO STREET, CLEVELAND, OHIO 44113
RQ # 16308
GALLERIA ROOF PLANS

REV NO.	DESCRIPTION
1	ADDENDUM 1

DRAWN	DATE
MAK	05.29.2026
CHECKED	PROJECT NO.
MC / SM	23028.02
	SHEET NO.
	A2.3.4

JUSTICE CENTER ATRIUM SKYLIGHT
Water Infiltration Investigation

Cleveland, Ohio



Final Report
January 8, 2019
WJE No. 2017.4024.C

Prepared for:
Ms. Lori Birschbach-Tober
Senior Project Manager
County of Cuyahoga Department of Public Works
2079 East Ninth Street, Fifth Floor
Cleveland, OH 44115

Prepared by:
Wiss, Janney, Elstner Associates, Inc.
9655 Sweet Valley Drive, Suite 3
Cleveland, OH 44125
216.642.2300 tel

JUSTICE CENTER ATRIUM SKYLIGHT
Water Infiltration Investigation

Cleveland, Ohio

Jonathan D. Kovach, PE
Senior Associate & Project Manager

Final Report
January 8, 2019
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WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS

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Appendix A - Observed Water Infiltration Locations
Appendix B - Water Infiltration Test Locations

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS

JUSTICE CENTER ATRIUM SKYLIGHT
Water Infiltration Investigation

Cleveland, Ohio

INTRODUCTION

At the request of the County of Cuyahoga Department of Public Works (County), Wiss, Janney, Elstner Associates, Inc. (WJE) performed a water infiltration investigation of the Atrium skylight at the Justice Center Complex located at 1200 Ontario Street in downtown Cleveland, Ohio. This investigation represents Task 4 of our General Architectural-Engineering Services Agreement with Cuyahoga County, Contract No. 1700275. Our investigation included a review of available documents, interviews with building maintenance personnel, an on-site visual condition assessment, and water infiltration testing of selected locations of the skylight and its surrounding construction. This report summarizes the findings of our investigation and provides conceptual recommendations to improve the water management capabilities and overall durability of the Atrium skylight.

DESCRIPTION OF STRUCTURE

The Justice Center Complex consists of multiple interconnected buildings that were completed circa 1976. The building facades are primarily clad with granite panels and aluminum-framed window systems. The granite faced precast concrete wall systems are intended to behave as a drainage system and includes a drainable air space and insulation between the granite panels and the precast concrete. A five-story Atrium consisting of structural steel and concrete framing is located at the center of the multi-building complex (Figure 1). An aluminum-framed skylight system covers the top of the atrium space and is surrounded by a terrace on three sides (Figure 2 and Figure 3). The skylight is rectangular in plan measuring approximately 83 feet on the east and west sides and 90 feet on the north and south sides, and is approximately 18 feet tall. A granite panel-clad knee wall is present beneath the sill of the skylight on the portions of the system that face the terrace. The profile of the skylight is generally pyramidal in shape and includes a small vertical band of glazing along the base of the skylight which transitions to sloped glazing. A grid of sixteen individual sloped glazing “pyramids” are present at the top of the skylight. Copper gutters, located between the top of skylight pyramids, channel water into separate gutters that continue down the sloped sides of the skylight system (Figure 4). An additional copper gutter is present at the base of the sloped glazing on the east and partial north sides of the skylight where the skylight system intersects with the adjacent granite panel-clad facades of the Courts Tower and the upper wall of the Atrium (Figure 5). The skylight gutter system ultimately directs water onto the surface of the surrounding terrace. Copper flashings are present at the skylight interface with the surrounding granite panel cladding, including below the sill of the skylight at the knee wall (Figure 6) and along the base of the skylight system that terminates against the vertical facades of the Courts Tower and the upper wall of the Atrium (Figure 7). The glazing for the skylight consists of single panes of glass restrained by extruded aluminum caps mechanically fastened to the skylight frame (Figure 8). The glazing is supported on aluminum rafters, purlins, and beams that are supported by a framework of structural tube sections formed from steel plates (Figure 9).

PROJECT BACKGROUND

At the County’s request, WJE recently completed a facade assessment of the Courts Tower, Jail I, and the Atrium, inclusive of a Facade Ordinance Inspection, to satisfy the City of Cleveland’s facade inspection requirements. WJE performed a limited review of the Atrium skylight as part of this assessment. The results

of the assessment are presented in WJE's report dated July 26, 2018. The County reported that chronic water infiltration typically occurs at the Atrium skylight during rain events, and WJE observed evidence of water infiltration on the interior of the Atrium skylight during our previous facade assessment. The County has requested that WJE investigate the source(s) of the water infiltration at the skylight.

DOCUMENT REVIEW

WJE was provided with electronic copies of the original architectural drawings including drawings for the Atrium skylight. The drawings for the skylight were prepared by Prindle, Patrick and Partners, and dated March 4, 1974. Based on our review of the drawings, the following pertinent details were noted:

1. The granite faced precast concrete wall systems include a drainable air space and insulation between the granite panels and the precast concrete.
2. The glazing for the skylight at the terrace of the Atrium is shown to be supported by extruded aluminum frame members, which are supported on a framework of structural tube sections formed from steel plates. The glazing is to be restrained by extruded aluminum caps (Figure 10). Moisture and/or condensation gutters are illustrated at the base of the rafter profile.
3. The extruded aluminum sill of the skylight and the flashing below are to be set in sealant (Figure 11). The extruded aluminum sill contains an upturned back leg; however, weep holes are not graphically illustrated nor annotated. The flashing extends over top of a raised section of the granite panel below the sill.
4. There are a series of gutters shown between the individual sloped glazing top of skylight pyramids and the adjacent sloped glazing sections of the skylight. A gutter liner is called out along the perimeter of the gutter. The extruded aluminum rafter terminates against an extruded aluminum curb, which contains weep holes to allow drainage of water into the gutter (Figure 12). A separate flashing is shown directly below the aluminum extrusion and above the gutter.
5. There is a gutter shown at the perimeter of the base of the skylight system where it intersects with the facade of the Courts Tower (Figure 13 and Figure 14) and one of the upper walls of the Atrium (Figure 15). The extruded aluminum rafter terminates against an extruded aluminum curb, which contains weep holes to allow drainage of water into the gutter. A gutter liner is called out along the perimeter of the gutter. The gutter is shown to terminate against the granite panel cladding of the Courts Tower and the upper wall of the Atrium, and the granite panels are continuous past and below the gutter. The flashing at the top of the gutter is shown to be terminated into a reglet cut into a granite panel.

INTERVIEWS

WJE discussed the nature and extent of the Atrium skylight water infiltration issues with the Facilities Maintenance Administrator (Mr. T. Morales) and other building maintenance personnel for the Justice Center. The following was reported by The County:

1. Water infiltration typically occurs at the Atrium skylight during rain events. Water infiltration occurs at some locations of the skylight system during most rain events (see Locations A and B in Appendix A). Other locations of the skylight system only exhibit water infiltration during heavy, wind-drive rain events or for long periods of sustained rain (see Locations C and D in Appendix A). Specific locations of water infiltration were pointed out to WJE.
2. There have not been any reported issues with condensation or frost developing on the glazing or frame of the skylight during colder winter months.

ON-SITE ASSESSMENT

Visual Condition Assessment

On September 10 and November 2, 2018, Mr. Jonathan Kovach of WJE visually observed the skylight system immediately after rain events to document specific locations of water infiltration. During these visits to the project site, WJE reviewed the typical water infiltration locations with the County's maintenance personnel. On October 25, 2018, Mr. Kovach and Mr. Nikolai Winnyk of WJE performed a visual condition survey of the interior and exterior of the skylight system. Due to access limitations imposed by load restrictions on the elevated atrium floor, as well as the height of the skylight above the floor, a standard aerial lift was not permitted to be used to observe portions of the underside of the skylight at close-range. In addition, due to safety requirements, WJE was not able to access the top of the skylight from the exterior to permit close-range review. As a result of these access limitations, WJE used a small Unmanned Aerial System (sUAS/drone) (Figure 16) to permit review of the difficult-access areas of the skylight system. The drone was piloted by Mr. Winnyk, who is a Federal Aviation Administration (FAA) certified Remote Pilot. The following is a summary of pertinent observations made during our visual condition assessment:

Exterior Observations

1. The sealant between the skylight frame and the glazing is generally visually intact (Figure 17), with isolated locations of adhesively failed sealant (Figure 18).
2. The frame joints of the Atrium skylight are typically sealed with sealant and are generally visually intact (Figure 19). However, some frame joints are not sealed (Figure 20), or exhibit cohesive failure of the sealant (Figure 21 and Figure 22).
3. Water was observed emanating from a portion of an unsealed joint in the metal frame of the skylight adjacent to the copper gutter (Figure 23). It had not rained for two days prior to the observation.
4. In some locations, the sealant is adhesively failed between the sill frame of the skylight and the copper flashing below (Figure 24). At one location on the south side of the skylight, the sealant exhibits weathering and was typically adhesively failed (Figure 25).
5. The sealant is adhesively failed between the bottom of the sloped glazing systems for the top of skylight pyramids and the sheet metal below (Figure 26). The sealant applied at the laps of the sheet metal below the base of the top of skylight pyramids is adhesively failed in some locations (Figure 27).
6. The fasteners at the extruded metal glazing caps and copper flashings typically include a gasket washer (Figure 28). In some locations, sealant has previously been installed over top of the fasteners (Figure 29). In one location, a fastener was observed to be overtightened, resulting in damage to the copper flashing (Figure 30).
7. The copper flashing at the base of the skylight is cracked in one location on the south side of the skylight (Figure 31) and is bent upward at one location on the north side of the skylight (Figure 32). There is evidence of sealant between the underside of the copper flashing and the granite panel below.
8. The sealant between granite panels on the Courts Tower, the upper wall of the Atrium adjacent to the skylight, and the knee wall below the skylight, is typically adhesively or cohesively failed (Figure 33).
9. There is a copper gutter at the east and partial north sides of the skylight where it intersects with the Courts Tower and one of the upper walls of the Atrium. At the south facade of the Courts Tower (Figure 34) and the upper wall of the Atrium (Figure 35 and Figure 36), the granite panels terminate just above the metal counterflashing that integrates with the skylight gutter. Counterflashing is installed below and extends up and behind the granite panels (Figure 37) such that it could collect moisture that is present on the inboard face of the granite panels. The counterflashing does not terminate into a reglet cut into the granite as indicated in the original architectural drawings. However, where the gutter interfaces with the west facade of the Courts Tower, the counterflashing is installed against, and the top

of the gutter counterflashing is sealed to, the outboard face of the granite panels (Figure 38 and Figure 39). The granite panels continue past the counterflashing at this location, and as a result, there is a change in the horizontal plane of the counterflashing line relative to the location of the granite panels (Figure 40). At the south end of the gutter along the upper wall of the Atrium, the counterflashing transitions from below the granite panels to the outboard face of the granite panels (Figure 41); the sealant between the metal counterflashing and the granite panels is adhesively failed (Figure 42).

10. Flexible membrane flashing and sealant has been installed at splices in the copper gutter along the east and partial north sides of the skylight perimeter (Figure 36 and Figure 38). There are several layers of sealant over the edge of the membrane flashing. In some locations, the sealant is adhesively or cohesively failed (Figure 43 and Figure 44) and/or the membrane has lost its adhesion (Figure 45).
11. In one location near the south end of the gutter on the east perimeter of the skylight, there is a crack in the copper gutter (Figure 46 and Figure 47).
12. Solder has been installed between sections of the copper gutter (Figure 46). In some locations, the solder was observed to be cracked (Figure 48).
13. Sealant has previously been installed over some of the splices of the copper gutter along the sloped glazing on the sides of the skylight (Figure 49). In some locations, the splices are not sealed (Figure 50) or the sealant has failed.
14. Sealant has been installed over the 4-way interfaces of the copper gutters between the top of the skylight pyramids and the sloped glazing on the side of the skylight (Figure 51). In some locations, multiple layers of sealant have been installed. The sealant in the copper gutters exhibit localized failures (Figure 52 through Figure 54).
15. There is debris (Figure 55 and Figure 56) and areas of standing water (Figure 57 and Figure 58) in the gutters. The debris typically accumulates at intersecting areas of the gutter and at water diverters built into the gutters.
16. There are drains below the terrace pavers on the north and south sides of the skylight (Figure 59).

Interior Observations

1. Water staining is present on the structural steel framework of the Atrium skylight (Figure 60).
2. Water staining was observed on the aluminum rafters that support the glazing (Figure 61).
3. On the fourth floor of the Atrium below the gutter along the east perimeter of the skylight, water staining is present on the sheet metal ceiling panels and adjacent finishes (Figure 62). Water staining is also present on the upward facing granite panels and adjacent structural steel framing below the ceiling panels (Figure 63).
4. Water staining, efflorescence, and corrosion on the structural steel section below the perimeter gutter of the skylight and interior granite panels is present at one location on the north side of the skylight where it abuts the Courts Tower (Figure 64 and Figure 65). Below this area, there is water staining and corrosion on the sheet metal ceiling panels (Figure 66).

Interior Observations Subsequent to a Rain Event

Subsequent to rain events which consisted of a significant rainfall, water was observed at several locations below the skylight (see Appendix A for the observed water infiltration locations), but generally occurred at the following typical locations:

1. Location A: Water was typically observed emanating from the underside of the skylight frame members and gutters, and running down and dripping from the structural steel framework below the skylight (Figure 67). These locations typically align with the 4-way interfaces of the copper gutters between the top of the skylight pyramids and the sloped glazing on the side of the skylight.

2. Location B: Moisture was observed at the structural steel section below granite panels at the north side of the skylight where it abuts the Courts Tower (Figure 68). Water was also observed dripping from the sheet metal ceiling panels directly below this location (Figure 69).
3. Location C: On the fourth floor of the Atrium below the gutter along the east perimeter of the skylight, water was observed dripping from the sheet metal ceiling panels (Figure 70). The water was dripping and pooling on the upward facing granite panels and adjacent structural steel framing below the ceiling panels (Figure 71). One of the sheet metal ceiling panels from which water was dripping was removed, revealing the following conditions:
    a. Above the ceiling panel, the lower portion of the gutter assembly is exposed (Figure 72).
    b. Water staining was observed on the steel framing below the gutter assembly (Figure 73). In addition, the topside of the sheet metal ceiling panel was wet and is corroded (Figure 74).
    c. Water was observed below the gutter assembly (Figure 75). In addition, the water was dripping into a sloped sheet metal framing member that directed the water onto the ceiling panel where water was initially observed at this location (Figure 76).
4. Location D: On the third floor of the Atrium on the eastern end of the south side of the skylight, water was observed dripping from a sheet metal ceiling panel (Figure 77 and Figure 78).

Water Infiltration Testing

In an effort to reproduce and diagnose water infiltration as reported by the County and documented during our visual assessment, as well as to further evaluate the nature of water infiltration to the interior of the building, several water infiltration tests were conducted at selected locations of the skylight and its surrounding construction. Diagnostic water infiltration testing was performed on September 29, 2018, by Mr. Kovach and Mr. Alan Hipps of WJE. WJE evaluated selected cladding components and system interfaces using a hand-held water nozzle at various water test pressures based on test method AAMA 501.2[1]. The AAMA test procedure is a useful diagnostic tool for assessing water infiltration through sloped glazing systems and the associated interface conditions with surrounding construction. This test method involves applying a spray of water to the cladding element of interest from a given distance and a given pressure for a given period of time. Modification of test parameters can be made to accommodate unique existing conditions, such as adjusting the water pressure to better isolate water infiltration sources. WJE systematically tested the skylight and surrounding building facade and flashing elements starting with systems lower on the skylight assembly and moving upward to determine locations of the potential water infiltration source(s). Masking of cladding elements was performed when needed to isolate specific elements and locate specific sources of water infiltration. Reference Appendix B for specific water test locations. All locations tested generally represent areas of the skylight where water infiltration occurs.

Test areas were monitored by WJE from the interior to document the locations and nature of water infiltration during testing. WJE utilized water indicating test paper to aid in observations of potential water infiltration during the testing. Due to access limitations imposed by load restrictions on the elevated atrium floor, as well as the height of the skylight above the floor, a standard aerial lift was not permitted to be used to observe portions of the underside of the skylight at close-range during the testing. As a result of access limitations, an infrared thermography (IRT) camera was utilized to aid in evaluating the wetting of interior materials and tracking water infiltration during the testing.

The following summarizes pertinent observations documented during WJE's water infiltration testing. The bullet points under each test location are generally in order of test sequence.

[1] American Architectural Manufacturers Association, AAMA 501.2 *Field Check of Metal Storefronts, Curtain Walls and Sloped Glazing Systems for Water Leakage*

Test Location 1

Northeast Corner, Interface of Skylight and Perimeter Gutter with West Facade of Courts Tower

- Using a hand-held spray nozzle at an approximate test pressure of 10 pounds per square inch (psi), WJE systematically tested the copper gutter (Figure 79) and associated metal and membrane flashings (Figure 80) at the northeast corner of the skylight for approximately a total of 60 minutes. Joints in the adjacent granite panels were masked off to keep water out of the failed sealant joints between panels during the tests. Testing started at the bottom of the gutter, and was followed by the sides of the gutter, the gutter to counterflashing interface, the counterflashing itself, and finally the membrane flashing and sealant at the top of the counterflashing where the flashing is installed against the outboard side of the granite panels. No water infiltration to the interior was observed during these tests.
- Using a hand-held spray nozzle at an approximate test pressure of 30 psi, water was applied to the granite panel cladding above the level of the metal counterflashing for the gutter (Figure 81). The masking of the granite joints from the previous tests was removed prior to testing. Within 5 minutes, a significant amount of water was observed dripping from the sheet metal ceiling panel and running down the granite panel wall on the interior directly below the test location (Figure 82 and Figure 83). Water testing was stopped once water was observed on the interior. In addition, within 1/2 hour of termination of the test, moisture was observed at the structural steel section below the granite panels directly adjacent to the test location (Figure 84 and Figure 85). Water continued to emanate from this location for approximately 1-1/2 hours after the water was first detected. The location of water infiltration was similar to that observed at Location B subsequent to a rain event (see "Interior Observations Subsequent to a Rain Event" section of the report above).

Test Location 2

Northeast Corner, Interface of Skylight and Perimeter Gutter with South Facade of Courts Tower

- Using a hand-held spray nozzle at an approximate test pressure of 10 psi, the bottom of the copper gutter along the south facade of Courts Tower was covered with water for approximately 15 minutes (Figure 86). No water infiltration to the interior was observed during the test.
- Using a hand-held spray nozzle at an approximate test pressure of 30 psi, water was applied to the granite panel cladding above the level of the metal counterflashing for the gutter for approximately 10 minutes (Figure 87). No water infiltration to the interior was observed during the test.

Test Location 3

Gutters along East Perimeter of the Skylight and Atrium Facade above Gutters

- On the fourth floor of the Atrium below the gutter along the east perimeter of the skylight, sheet metal ceiling panels were removed at four locations to observe the lower portion of the gutter during the tests (Figure 88).
- Using a hand-held spray nozzle at an approximate test pressure of 10 psi, the bottom of the copper gutter along the east perimeter of the skylight was covered with water for approximately 35 minutes (Figure 89 and Figure 90). No water infiltration was observed during the test. In addition, water runoff from subsequent tests adjacent to this location was able to flow into and through the gutter (see additional tests described below).

- The metal counterflashing and granite panels above the east perimeter gutter, and adjacent to the northernmost gutter set within the sloped glazing assembly of the skylight, were tested using a hand-held spray nozzle at an approximate test pressure of 30 psi for approximately 20 minutes (Figure 91). Within 15 minutes of testing, water infiltration was noted between the bottom of the east perimeter gutter assembly and the top of the steel framing below the gutter near the test location (Figure 92). The location of water infiltration was similar to that observed at Location C subsequent to a rain event (see "Interior Observations Subsequent to a Rain Event" section of the report above). Additionally, water was also noted between the bottom of the east perimeter gutter assembly and the top of the steel framing near the southernmost gutter set within the sloped glazing of the skylight, approximately 25 feet south of the test location. It should be noted that water had not been applied to any of the adjacent construction at the southernmost gutter set within the sloped glazing; however, water from the test location was able to flow through the east perimeter gutter of the skylight. Water continued to be applied to the flashing and granite panels for a total of 30 minutes. No increase in water was observed below the east perimeter gutter assembly. In addition, no water was observed at the inboard side of the upper portion of the metal counterflashing directly below the granite panels.
- Using a hand-held spray nozzle at an approximate test pressure of 30 psi, water was applied to the lower half of the northernmost gutter set within the sloped glazing assembly of the skylight, as well as the adjacent sloped glazing assembly for approximately 15 minutes. No additional water infiltration nor increase in water below the east perimeter gutter assembly was observed.
- The metal counterflashing and granite panel cladding above the east perimeter gutter and adjacent to the southernmost gutter set within the sloped glazing of the skylight was tested using a hand-held spray nozzle for approximately 20 minutes at an approximate test pressure of 30 psi. No additional water infiltration nor increase in water below the east perimeter gutter assembly was observed.
- Using a hand-held spray nozzle at an approximate test pressure of 30 psi, water was applied to the lower half of the southernmost gutter set within the sloped glazing assembly of the skylight, as well as the adjacent sloped glazing assembly (Figure 93) for approximately 15 minutes. No additional water infiltration nor increase in water below the east perimeter gutter assembly was observed.

Test Location 4

4-Way Gutter Interface between the Top of Skylight Pyramids and Sloped Glazing near the Northeast Corner of the Skylight

- A hand-held spray nozzle was placed in the gutter near the 4-way interface between the top of skylight pyramids and the sloped glazing (Figure 94). A constant, low-flow (less than 10 psi), stream of water was applied to cover the bottom of the gutter with water at the 4-way interface. Within 3 minutes of testing, water was observed infiltrating below the gutter and onto the structural steel framing member below the 4-way interface (Figure 95). Water testing was stopped once water was observed on the interior. The location of water infiltration was similar to that observed at Location A subsequent to a rain event (see "Interior Observations Subsequent to a Rain Event" section of the report above).

Test Location 5

4-Way Gutter Interface between the Top of Skylight Pyramids and Sloped Glazing near the Southeast Corner of the Skylight

- A hand-held spray nozzle was placed in the gutter near the 4-way interface between the top of skylight pyramids and the sloped glazing. A constant, low-flow (less than 10 psi), stream of water was applied to cover the bottom of the gutter with water at the 4-way interface. Within 1 minute of testing, water was observed infiltrating below the gutter and onto the structural steel framing member below the 4-

way interface. Water testing was stopped once water was observed on the interior. In addition, water was observed infiltrating below the gutter at an adjacent 4-way interface to the southwest of the area tested (Figure 96) where water applied to Test Location 5 was able to flow (see Appendix B for location). The locations of water infiltration were similar to those observed at Location A subsequent to a rain event (see "Interior Observations Subsequent to a Rain Event" section of the report above).

Test Location 6

Frame and Glazing of Top of Skylight Pyramid and Sloped Glazing near the Northeast Corner of the Skylight

- Using a hand-held spray nozzle at an approximate test pressure of 30 psi, water was applied to the frame and glazing of the northeast top of skylight pyramid, the sloped glazing below the pyramid, and the gutter between the top of skylight pyramid and sloped glazing. Within 5 minutes of testing, water infiltration was observed below the gutter at the 4-way interface at Test Location 4. The water infiltration patterns were similar to that observed for Test Location 4. In addition, water was observed infiltrating below the gutter in the area where water was being applied, just north of the 4-way interface (Figure 97). Water testing was stopped once water was observed on the interior.

During the tests outlined above, WJE monitored the third floor of the Atrium on the eastern end of the south side of the skylight where water was observed dripping from a sheet metal ceiling panel subsequent to a rain event (see Location D in "Interior Observations Subsequent to a Rain Event" section of the report above and Appendix A). By the time all water testing activities had been finalized, a small quantity of water was observed at the edge of the ceiling panel support grid adjacent to a column (Figure 98 and Figure 99). The location of water infiltration is approximately below the location of a terrace drain on the south side of the skylight (Figure 59).

DISCUSSION

Skylight Framing and Glazing

In general, there are two types of fenestration assemblies: barrier systems and drained systems. In a barrier system, the design intent of the fenestration assembly is to prevent water entry into the assembly and shed all water at the face of the glazing and frame members through a fully sealed watertight exterior. In a drained system, water is permitted to enter the fenestration assembly, where it is collected and subsequently directed and drained to the exterior through weep holes by a fully integrated system of watertight seals and dams. Skylight systems also typically incorporate an interior gutter system to collect and control condensation and incidental water infiltration. Detailing within the original architectural drawings illustrate that the Atrium skylight incorporates characteristics of both drainage and barrier systems. The architectural details show the framing system contains gutters to collect and control condensation and water infiltration, and weeps are indicated at the base of the extruded aluminum curbs at all of the skylight-to-gutter interfaces to direct any incidental moisture that enters the system to the exterior. However, the original architectural drawings do not illustrate weeps within the base of the sill extrusion at the level of the granite panel-clad knee wall. Based on the presence of the upturned back leg of the extruded aluminum sill at this location, moisture that is ultimately channeled to the sill should be contained within the sill extrusion even though it may not have had a direct path to drain to the exterior.

The water management capabilities of a drained fenestration system may not always be effective or may have limited durability if the systems are not installed in the proper manner or internal components begin to fail over time. This can be exemplified by the fact that weep holes were not readily observed at the base

of the extruded aluminum curbs at the skylight-to-gutter interface, nor at the sill extrusion at the level of the granite panel-clad knee wall, and water infiltration testing identified leakage at skylight gutter transitions. The current as-built construction of the skylight assembly has been detailed as a barrier system and includes exterior seals between the window frame and glass units, as well as seals at metal-to-metal frame joints.

The sealant was generally visually intact and appeared to have been replaced at some point since the original construction. However, isolated locations of failed and missing sealant were observed, which can result in voids in the barrier assembly that can allow a direct avenue for rainwater and potentially air penetration. In addition, water was observed emanating from a failed sealant joint in the metal frame of the skylight adjacent to a gutter, indicating that water is bypassing the sealant and frame of the skylight in some locations. Water infiltration testing did not reveal any apparent water infiltration at frame joints or between the skylight frame and the glazing. However, some of these tests were terminated prematurely due to water leakage at adjacent construction. Some water staining was observed on the interior structural steel framework for the skylight and the aluminum rafters indicating that sometime in the past water infiltration (potentially prior to previous sealant repairs) and/or condensation events likely occurred.

Because the as-built construction of the skylight is representative of a barrier system, routine maintenance of the exterior sealant is necessary to provide a long-term watertight and airtight assembly. The performance of the joint sealant is a critical component of the barrier assembly. As the joint sealant begins to deteriorate and failures develop, the barrier can be breached and the risk of water infiltration increases. Therefore, the skylight should be surveyed on a routine basis, and failed or distressed sealant should be replaced to maintain the performance of the skylight. The sealant installation should be designed and detailed to include proper substrate preparation, including use of primers, joint sealant profiles, and bridge-seals at all external frame joinery as required by the sealant manufacturer to promote long-term adhesion, durability, and performance of the sealant.

Exterior Copper Gutters

A system of exterior copper gutters are present between the individual sloped glazing top of skylight pyramids, the adjacent sloped glazing sections of the skylight, and along the east and partial north sides of the skylight where it intersects with the Courts Tower and the upper wall of the Atrium. The intent of the gutters within and at the perimeter of the skylight is to collect water from the adjacent slopped glazing surfaces and direct the water beyond the perimeter of the skylight to drains on the terrace adjacent to and below the skylight. The gutters are typically intact except for isolated locations where there are cracks in the copper sheet of the gutter. However, discontinuities are present at the splices between sections of the gutters including failed solder, failed sealant, and unadhered flexible membrane flashing. These conditions likely contribute to the water infiltration along the gutter at the east perimeter of the skylight and at the 4-way interfaces.

During our testing, water infiltration was delayed in manifesting to the interior below the gutter assembly along the east perimeter of the skylight where it intersects with the Courts Tower and one of the upper walls of the Atrium. This corresponds to the reports by the building maintenance personnel who indicated that a significant rain event has to take place for water infiltration to occur below the east perimeter of the skylight. This may be due to smaller or less frequent deficiencies in the sealant, solder, or flexible membrane flashing before it infiltrates to the interior. Water was applied directly to the bottom of the gutter for approximately 35 minutes before testing was moved to the adjacent metal counterflashing and granite panels of the upper wall of the Atrium, which is when the water infiltration was observed on the interior below the gutter

assembly. The condition of the metal counterflashings and granite panel joint seals may be a contributor to the water infiltration, but it is likely that the gutters themselves are one of the primary contributors to the water infiltration. The metal counterflashing below the granite panels should direct any water behind the panels into the gutter if they are properly detailed. No water infiltration was observed at the interior of the upper portion of the metal counterflashing directly below the granite panels when they were tested. In addition, water was observed below the gutter assembly approximately 25 feet away from the test location. Water had not been applied to any of the adjacent construction at this location of the gutter, but water was flowing in the gutter when the water infiltration was observed. No increase in water infiltration below the gutter was observed when the flashing and granite panels were further tested.

Water infiltration testing of the bottom of the 4-way gutter interfaces between the top of skylight pyramids and the sloped glazing resulted in interior water infiltration within a short period of time. The 4-way gutter interface likely includes multiple splices, and several layers of sealant were installed over these interface locations in an attempt to seal any splices in the gutter. In some locations, the sealant was observed to be failed, which can allow water to bypass the sealant and reach the splice locations. Multiple 4-way gutter interfaces were observed to result in water infiltration during rain events (see Appendix A), while other interfaces did not exhibit signs of water infiltration. It is reasonable to deduce that failed sealant or other deficiencies are likely present at the 4-way gutter interfaces where water infiltration is occurring while at the other locations, the sealant is still intact, or a significant amount of water is not accessing the 4-way gutter interface. As the sealant at the splices begins to deteriorate and sealant failures develop, the risk of water infiltration at other 4-way gutter interfaces increases. Therefore, the 4-way gutter interfaces and the gutters in general should be reviewed at close range and properly repaired to restore and maintain the performance of the gutters.

Granite Panels

The copper gutter system along the east and partial north sides of the skylight intersects with the granite panels of the Courts Tower and one of the upper walls of the Atrium. At the south facade of the Courts Tower and the upper wall of the Atrium, the granite panels terminate just above the metal counterflashing which extends up and behind the granite panels and integrates with the skylight gutter. The upturned back leg of the metal counterflashings can allow the flashing to collect water that may be present on the inboard face of the granite panels and direct the water back to the exterior if the flashing is properly detailed. However, where the gutter intersects with the west facade of the Courts Tower, the counterflashing is installed against, and the top of the flashing is sealed to, the outboard face of the granite panels. The granite panels continue past the counterflashing at this location, which changes the horizontal plane of the counterflashing line relative to the location of the granite panels (see Figure 40). Based on the original architectural drawings and the observations made during our site visit, it is likely that the air space behind the granite panels continues past the counterflashing for the gutter at the perimeter of the skylight on the west facade of the Courts Tower. Therefore, any moisture present inboard of the granite panels is likely able to bypass the skylight system and enter the interior space below. To exacerbate the current condition, most of the sealant between granite panels on the Courts Tower is failed, which will permit water to more readily infiltrate behind the granite panels into the air space.

When water was applied to the granite panels above sections of the adjacent facades with metal counterflashing present below the granite panels, no water infiltration was observed on the interior. However, when water was applied to the section of the west facade of the Courts Tower where the flashing terminates against the outboard face of the granite panel, a significant amount of water was observed on the interior directly below the test area shortly after the water was applied to the granite. Water that penetrated

behind the granite at failed sealant joints bypassed the flashing line and propagated at a sheet metal ceiling panel directly below the test location and on top of the structural steel section below the test area, which exhibited water staining, efflorescence, and corrosion, indicating long-term exposure to moisture. In order to address this condition, new metal counterflashing with an upturned back leg that is terminated behind the granite panels and detailed to act as a through-wall flashing would have to be installed below the granite panels on the west facade of the Courts Tower, or water would have to be kept out of the air space behind the granite panels.

Terrace Drain

The water infiltration observed at the sheet metal ceiling panels on the third floor of the Atrium on the eastern end of the south side of the skylight (Location D in the "Interior Observations Subsequent to a Rain Event" section of the report) may be attributable to the drain below the terrace pavers on the south side of the skylight. This drain is located approximately above the location of the water infiltration and water was continuously flowing into the drain as a result of the water infiltration testing that was performed at the skylight. It took most of the day for water to propagate, which corresponds to the reports by the building maintenance personnel who indicated that a significant rain event has to take place for water infiltration to occur at this location. Because the terrace drain is beyond the scope of work for investigation of the Atrium skylight, WJE did not create openings or further investigate the terrace drain at this time. Further investigation including creating inspections openings and isolated water testing at and around the drain would be necessary to determine the potential source(s) of water infiltration at this location.

CONCLUSIONS

Based on the findings of our document review, interviews, and on-site assessment, WJE offers the following conclusions regarding the water infiltration at the Atrium skylight:

1. The skylight assembly is constructed as a barrier system. The exterior skylight assembly sealant that is critical to the performance of the barrier assembly are generally visually intact with isolated areas of failed or missing sealant. Due to the limited quantity and location of the failed or missing sealant, the sealant currently is not a major contributor to water infiltration through the skylight system. However, as the sealant begins to deteriorate and further failures develop, the risk of water infiltration will increase. Therefore, failed or distressed sealant should be replaced to restore and maintain the performance of the skylight.
2. The exterior copper gutters present between sections of and along the perimeter of the skylight are a primary contributor to the water infiltration. Conditions that contribute to water infiltration likely include failed solder, failed sealant, and unadhered flexible membrane flashing at splices between sections of the gutter.
3. The as-built construction of the granite panel cladding and metal counterflashing at the west facade of the Courts Tower is a primary contributor to the water infiltration at the northeast corner of the skylight. There is a change in the horizontal plane of the flashing line relative to the location of the granite panels at this location. The counterflashing is terminated against the outboard face of the granite panels as compared to the adjacent metal counterflashings that are installed below and behind the granite panels. Therefore, water that is present inboard of the granite panel cladding can bypass the counterflashing and result in water infiltration into the interior of the building.
4. The water infiltration observed at the sheet metal ceiling panels on the third floor of the Atrium on the eastern end of the south side of the skylight may be attributable to the drain below the terrace pavers on the south side of the skylight. However, further investigation including creating inspections openings

and water testing at and around the drain would be necessary to determine the potential source(s) of water infiltration at this location.

RECOMMENDATIONS

Based on the findings of our document review, interviews, and on-site assessment, WJE recommends that the following conceptual repairs are evaluated and considered to address the on-going water infiltration through the skylight and adjacent construction. The repairs are prioritized based on when each item is recommended to be performed. Short-term repairs are those that should be addressed within the next year to reduce bulk water infiltration. Long-term repairs should be anticipated within the next five years; however, WJE strongly recommends that consideration should be made to include long-terms repairs during the short-term repair program.

Additionally, due to the anticipated complexity and sensitivity of the repairs for the occupied building, WJE recommends that contract documents including repair drawings and technical specifications are developed prior to implementation of remedial repairs. WJE also recommends that mock-up repairs are installed and tested to evaluate the performance before more extensive repairs are installed.

Short-Term Repair Recommendations

1. Repair the metal counterflashing at the granite panels on the west facade of the Courts Tower. This will require removal and replacement of the granite panels adjacent to the skylight to install a metal counterflashing with an upturned back leg behind and below the panels, which should be detailed to act as a through-wall flashing and tie in with the adjacent metal counterflashings and the skylight gutter.
    a. Alternately, removing and replacing all of the sealant joints between granite panels and adjacent exterior envelope components in the vicinity of and above the skylight will reduce the risk of water entering behind the granite panels and reaching the interior of the building. However, continued maintenance of the joint seals will be required, since failure of the sealant can allow water behind the granite panel cladding, which can again exploit the discontinuity.
2. Review at close range and repair deficiencies with the copper gutters including properly re-soldering cracked solder joints in the gutter and replacing the flexible flashing membrane that is failed or where there are sealant breaches. At cracks in the copper gutter, a copper patch can be soldered over the crack to restore the functionality of the gutter; alternately, a preformed silicone seal could be installed over the crack.
3. Review all skylight assembly sealant joints at close range. Remove and replace failed sealant joints on the skylight. Install preformed silicone seals at all skylight frame and copper gutter metal-to-metal joints. Install sealant at any fastener heads that do not have a gasket washer. The sealant installation should be designed and detailed to include proper substrate preparation including removing all existing sealant, use of primers, joint sealant profiles, and bridge-seals at all external frame joinery as required by the sealant manufacturer to promote long-term adhesion, durability, and performance of the sealant.
4. Clean all debris from the gutters to promote proper drainage of water from the skylight.
5. Perform an investigation of the terrace drain on the south side of the skylight, including creating inspection openings and performing water infiltration testing, to determine the potential source(s) of water infiltration at the third floor of the Atrium on the eastern end of the south side of the skylight.

Long-Term Repair Recommendations

1. Survey the joint sealant for the skylight every one to two years to verify the condition of the sealant. Remove and replace any deteriorated sealant to restore and maintain the performance of the skylight.

2. Repair or replace the damaged and displaced copper flashing at the sill on the north and south sides of the skylight. The cracks in the flashing could be repaired with a preformed silicone seal.
3. Clean and coat the corroded steel section on the interior north side of the skylight where it abuts the Courts Tower.
4. If desired for aesthetics, replace the corroded and water stained interior sheet metal ceiling panels.

CLOSING

Thank you for the opportunity to assist you with this project. If you have any questions or comments, or if you require any additional information, please contact us at your convenience.

FIGURES

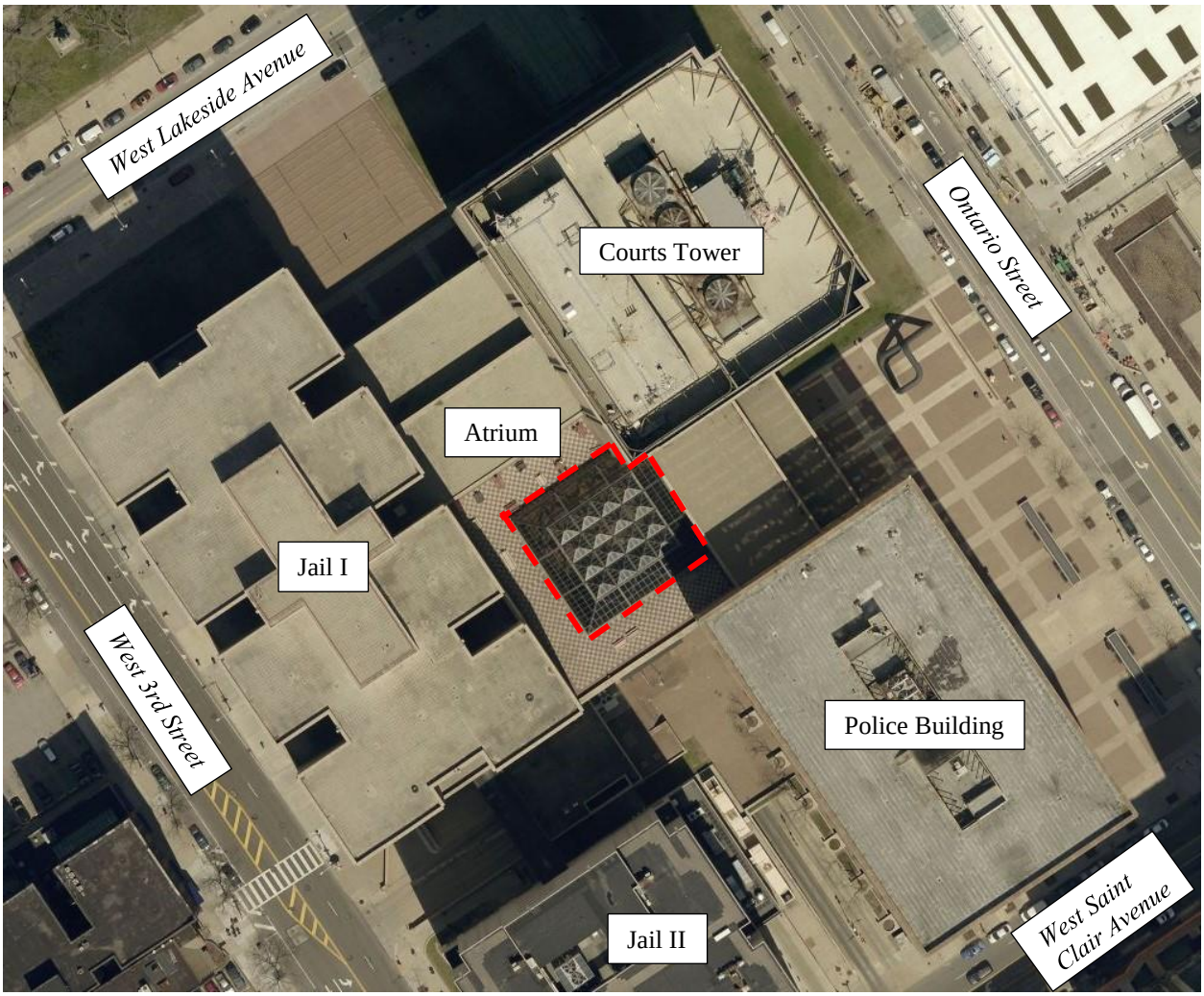


Figure 1. Aerial image of the multi-building Justice Center Complex. North is to the top of the image. The image is reproduced herein by license with Pictometry (©2016 Pictometry). Annotations by WJE. The Atrium skylight is outlined in red.



Figure 2. Aerial view of the Atrium skylight, surrounded by a terrace on three sides. North is approximately to the left side of the photograph.



Figure 3. View of the terrace and south and west sides of the Atrium skylight.

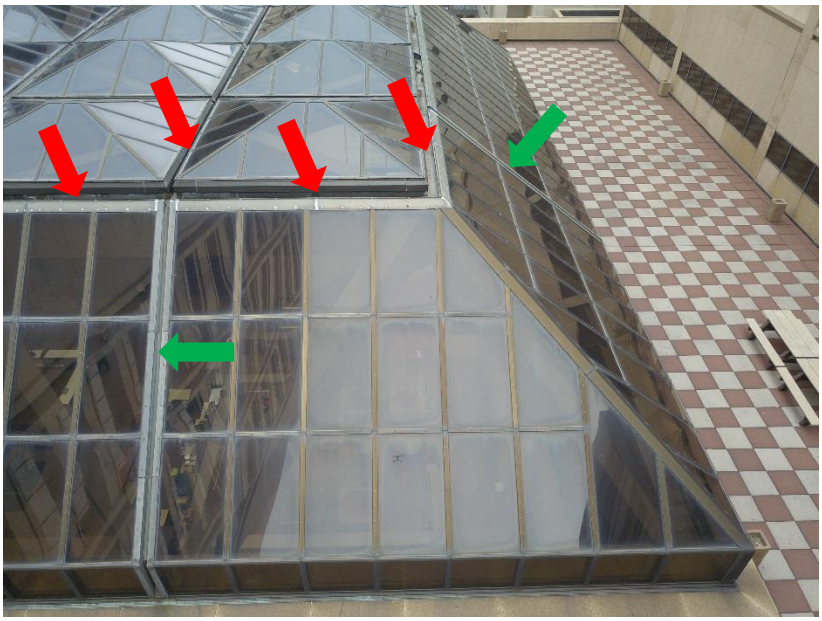


Figure 4. Copper gutters, located between the top of skylight pyramids (red arrows), channel water into gutters that continue down the sloped sides of the skylight (green arrows).

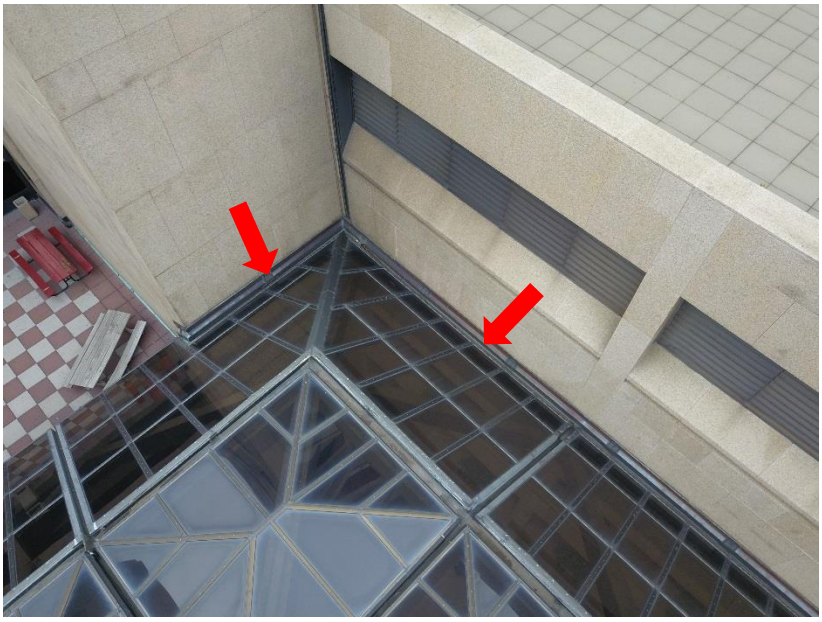


Figure 5. A copper gutter is present on the east and partial north sides of the skylight where the base of the skylight intersects with the adjacent facades of the Courts Tower and the upper wall of the Atrium.



Figure 6. Copper flashing below the sill of the skylight at the granite panel-clad knee wall.



Figure 7. Copper flashing above the copper gutter where the skylight system intersects with the granite-clad facade of the upper wall of the Atrium.

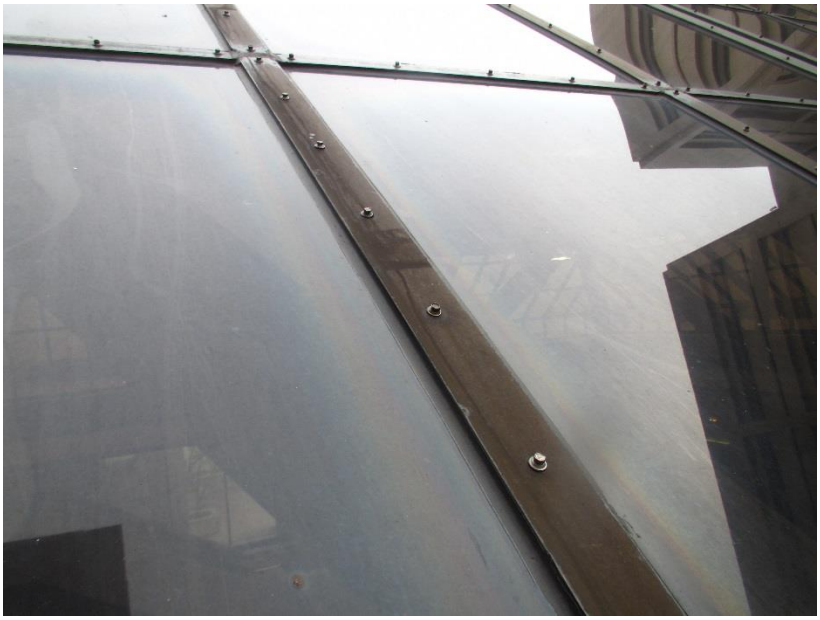


Figure 8. The glazing for the skylight is restrained by extruded aluminum caps that are mechanically fastened to the skylight frame.



Figure 9. The glazing is supported on aluminum rafters, purlins, and beams that are supported by on a framework of structural tube sections formed from steel plates.

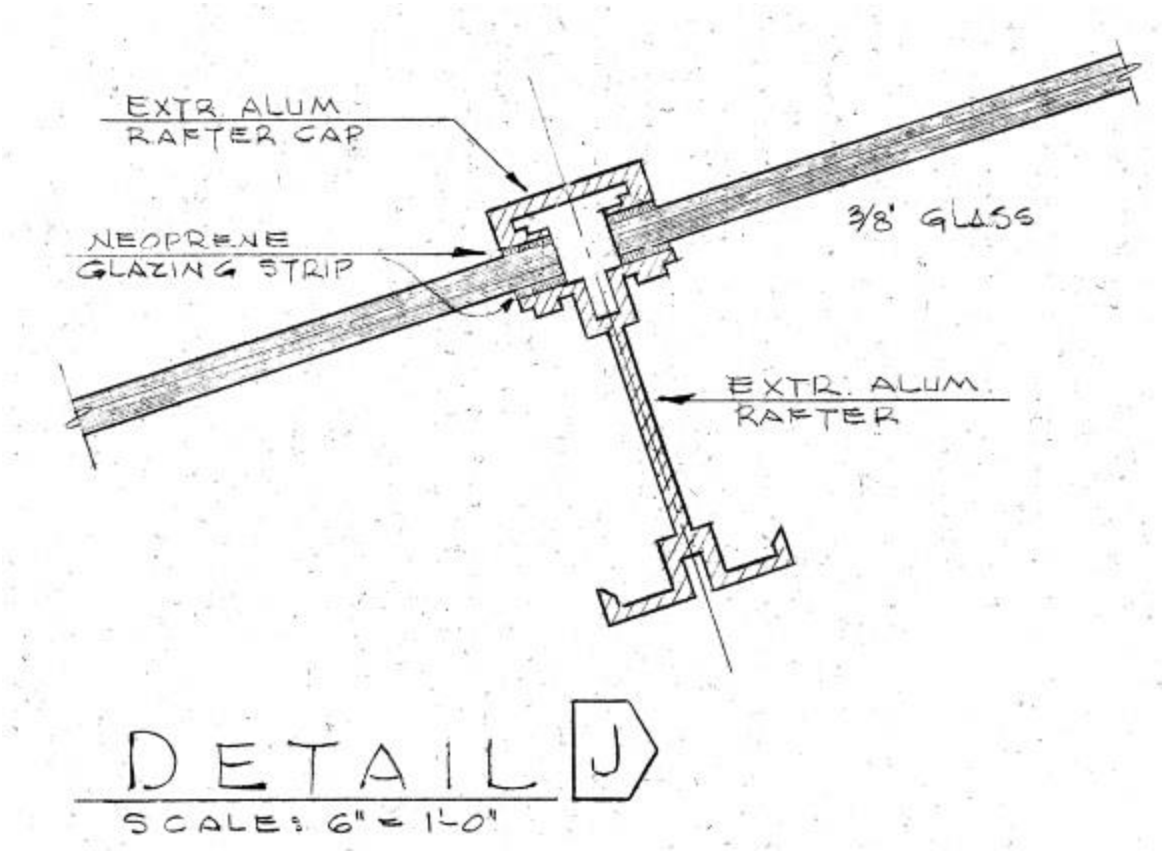


Figure 10. Excerpt of Detail J from Sheet AG8-4 of the original architectural drawings. The glazing for the skylight is to be restrained by an extruded aluminum cap. Moisture and/or condensation gutters are illustrated at the base of the rafter profile.

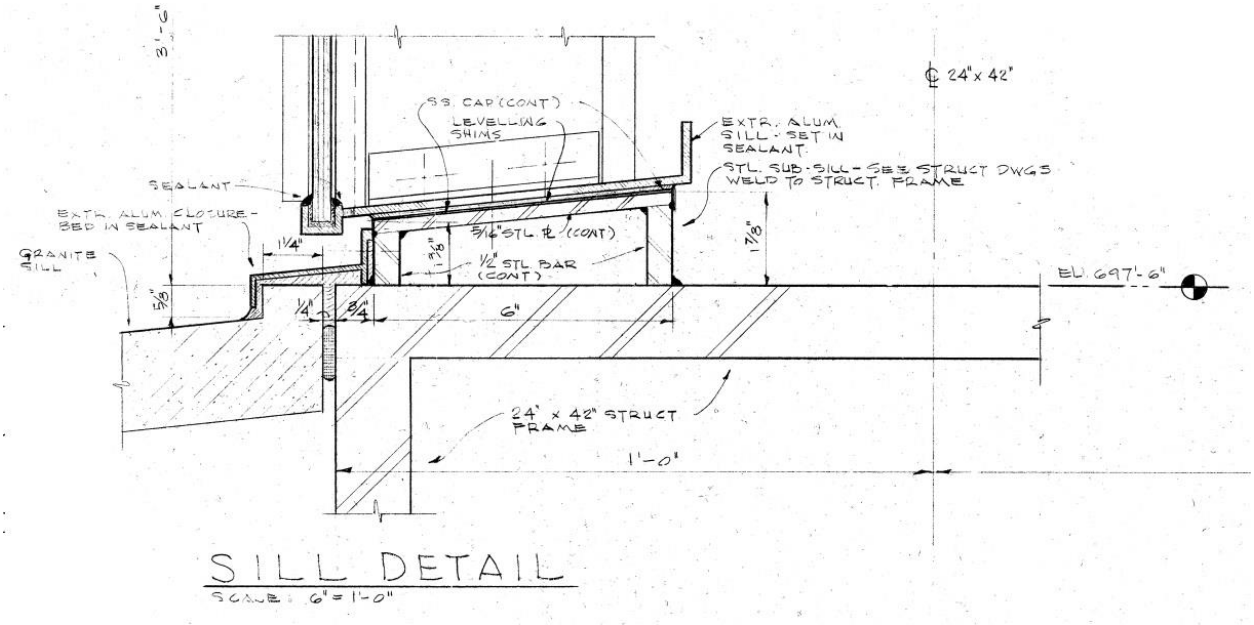


Figure 11. Excerpt of a detail from Sheet AG8-3 of the original architectural drawings. The sill of the skylight and the flashing below are to be set in sealant. The sill flashing extends over top of a raised section of the granite below the sill. The extruded aluminum sill contains an upturned back leg; however, weep holes are not graphically illustrated nor annotated.

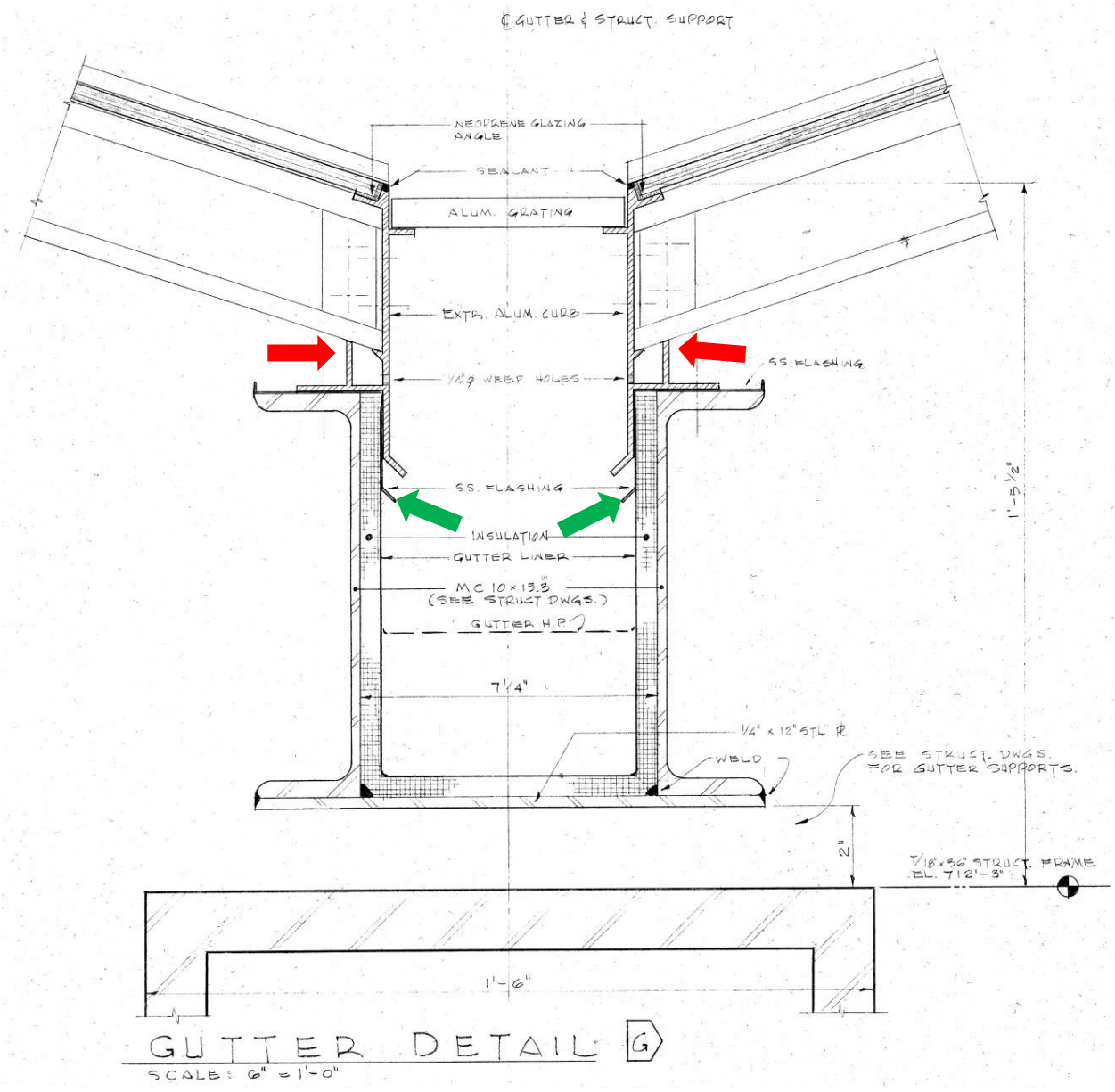


Figure 12. Excerpt of Detail G from Sheet AG8-4 of the original architectural drawings. A gutter liner is called out along the perimeter of the gutter. The extruded aluminum rafter terminates against an extruded aluminum curb, which contains weep holes to allow drainage of water into the gutter (red arrows). A separate flashing is shown directly below the aluminum extrusion and above the gutter (green arrows).

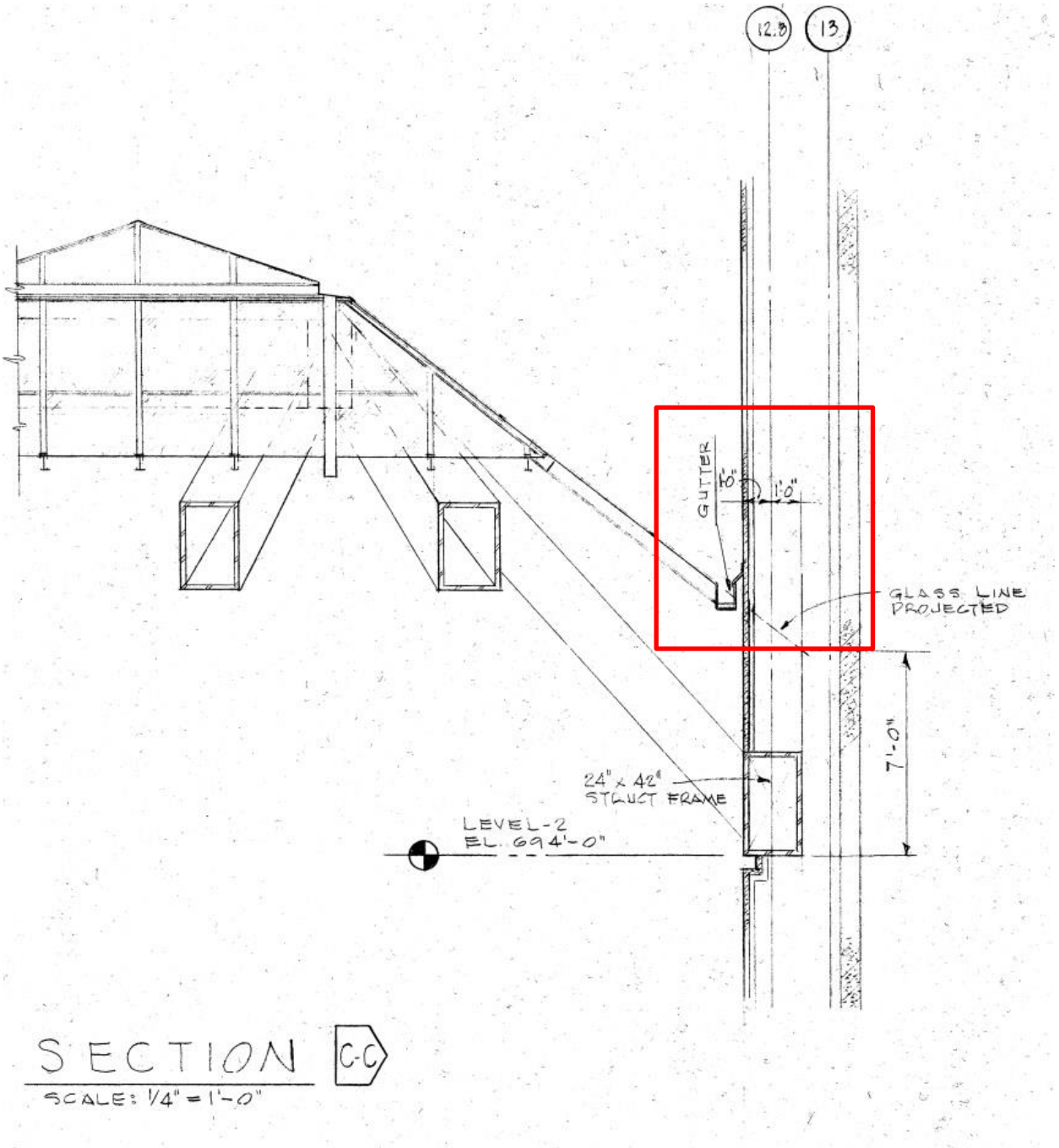


Figure 13. Excerpt of Detail C-C from Sheet AG8-2 of the original architectural drawings. There is a gutter at the perimeter of the base of the skylight system where it intersects with the facade of the Courts Tower (red box).

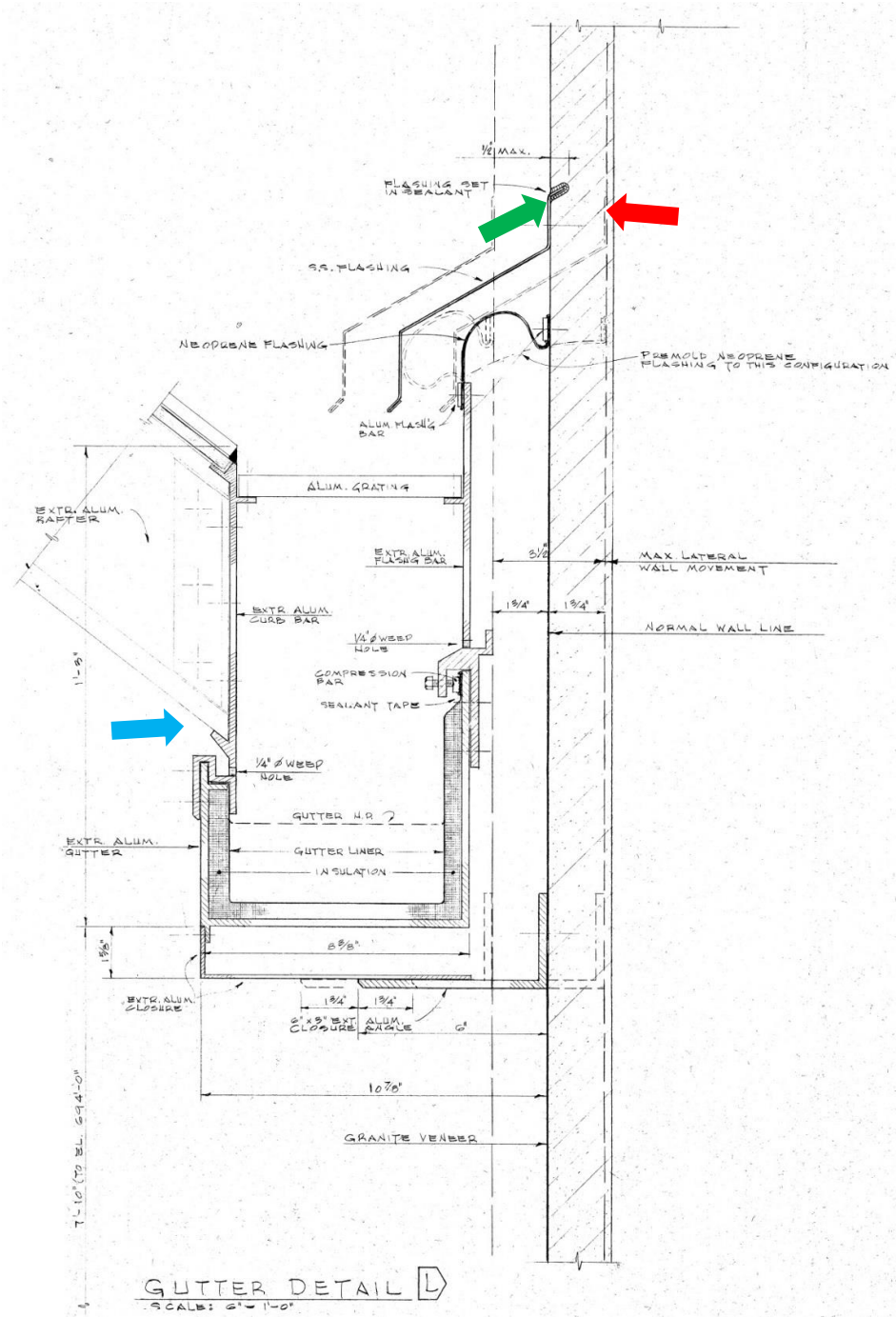


Figure 14. Excerpt of Detail L from Sheet AG8-1 of the original architectural drawings. The base of the skylight gutter terminates against the granite panel cladding of the Courts Tower. The granite panel cladding is continuous past and below the gutter (red arrow). The flashing at the top of the gutter is shown to be terminated into a reglet cut into a granite panel (green arrow). The extruded aluminum rafter terminates against an extruded aluminum curb, which contains weep holes to allow drainage of water into the gutter (blue arrow). A gutter liner is called out along the perimeter of the gutter.

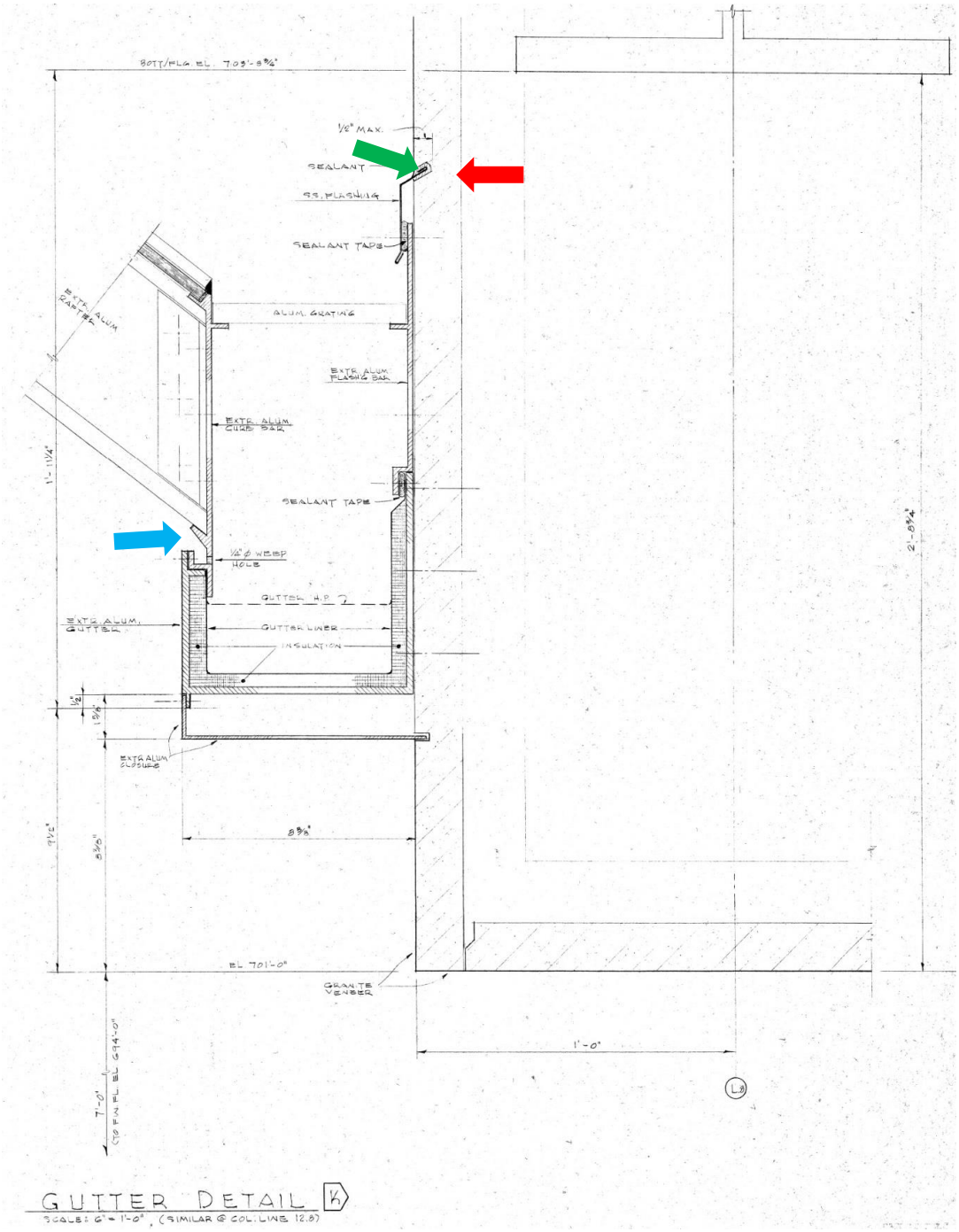


Figure 15. Excerpt of Detail K from Sheet AG8-4 of the original architectural drawings. The base of the skylight gutter terminates against the granite panel cladding of the Atrium. The granite panel cladding is continuous past and below the gutter (red arrow). The flashing at the top of the gutter is shown to be terminated into a reglet cut into a granite panel (green arrow). The extruded aluminum rafter terminates against an extruded aluminum curb, which contains weep holes to allow drainage of water into the gutter (blue arrow) A gutter liner is called out along the perimeter of the gutter.

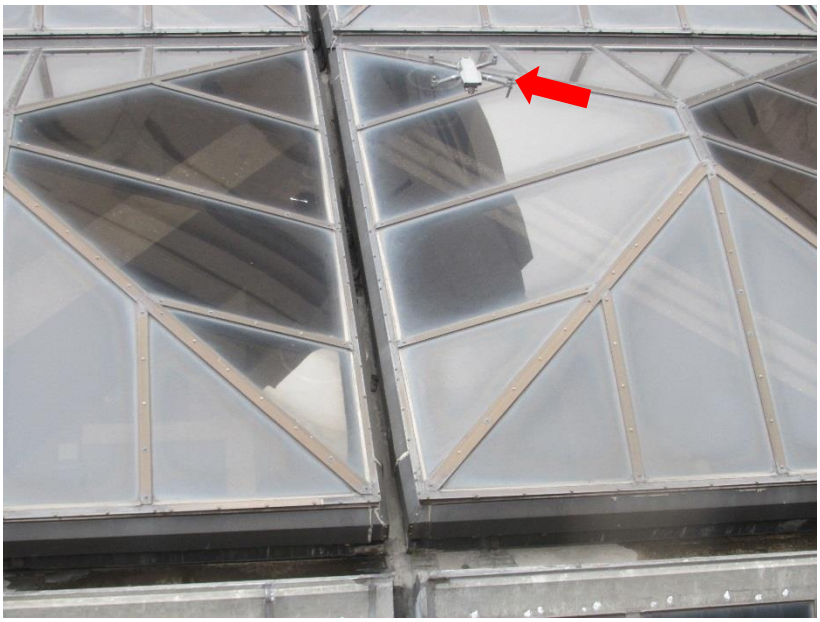


Figure 16. WJE used a drone (red arrow) to review the difficult-access areas of the skylight.

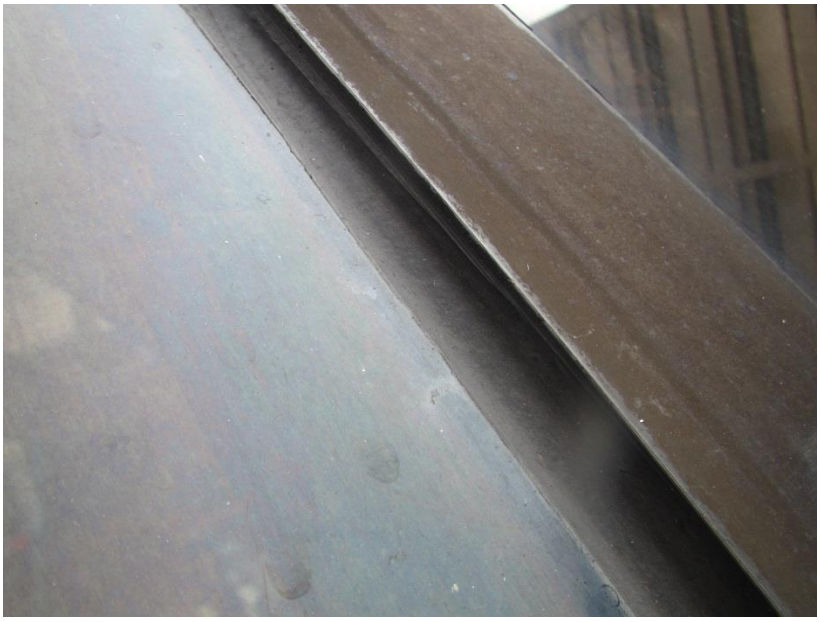


Figure 17. The sealant between the skylight frame and the glazing is visually intact.



Figure 18. Adhesively failed sealant at the skylight frame.



Figure 19. The frame joints of the Atrium skylight are sealed with sealant and are visually intact.



Figure 20. Unsealed frame joint.



Figure 21. Cohesive failure of the sealant at a frame joint.



Figure 22. Cohesive failure of the sealant at a frame joint.



Figure 23. Water emanating from a portion of an unsealed joint in the metal frame of the skylight adjacent to the copper gutter.



Figure 24. Adhesive failure of the sealant between the sill frame of the skylight and the copper flashing below.



Figure 25. Weathered sealant was present on the south side of the skylight and there are multiple adhesive failures of the sealant.



Figure 26. Adhesively failed sealant between the bottom of the sloped glazing system for the top of skylight pyramid and the sheet metal below.

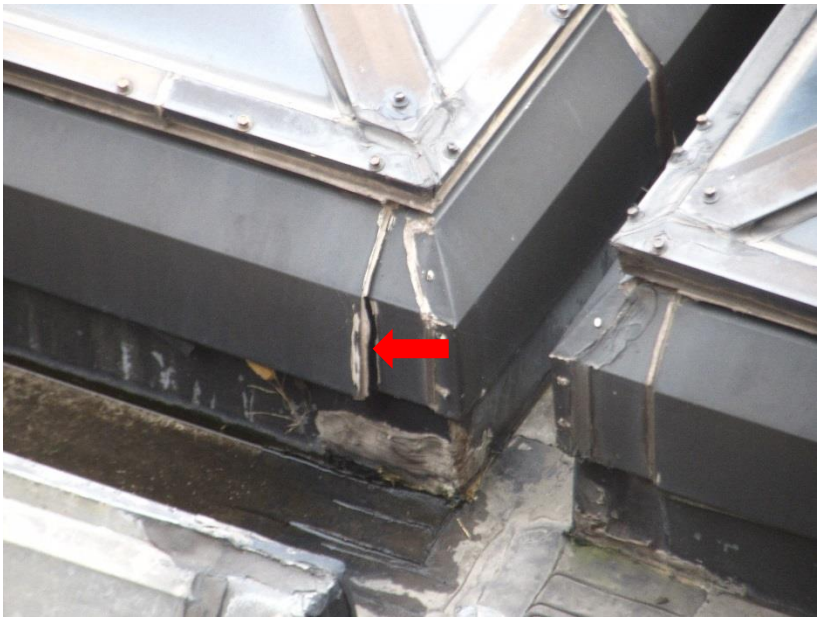


Figure 27. The sealant applied at the laps of the sheet metal below the top of skylight pyramids is adhesively failed.



Figure 28. The fastener includes a gasket washer.



Figure 29. Sealant previously installed over the top of a fastener.



Figure 30. A fastener that has been overtightened, resulting in damage to the copper flashing.

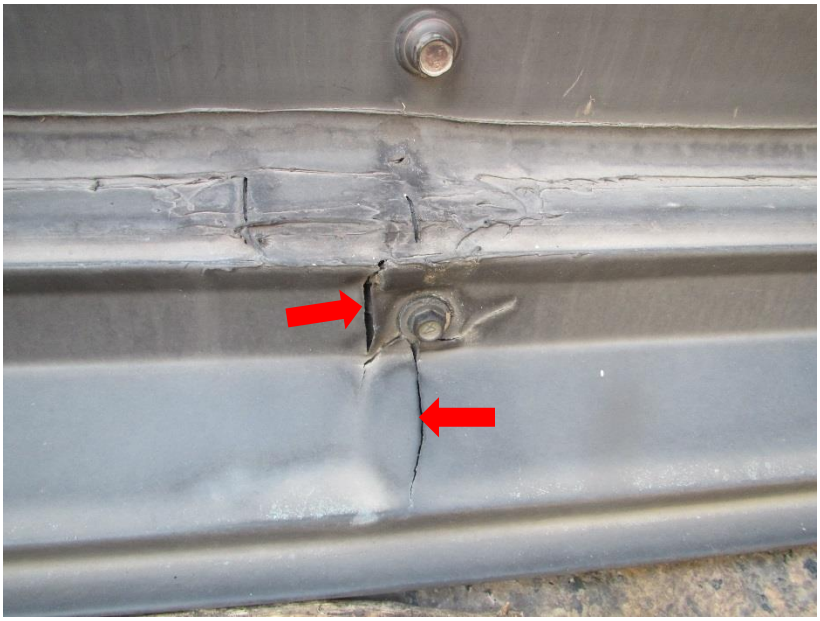


Figure 31. The copper flashing at the base of the south side of the skylight is cracked.



Figure 32. The copper flashing is bent upward on the north side of the skylight.



Figure 33. The sealant between granite panels on the Courts Tower adjacent to the skylight is adhesively failed.



Figure 34. At the south facade of the Courts Tower, the granite panels terminate just above the counterflashing that integrates with the skylight gutter.



Figure 35. At the upper wall of the Atrium, the granite panels terminate just above the counterflashing that integrates with the skylight gutter.

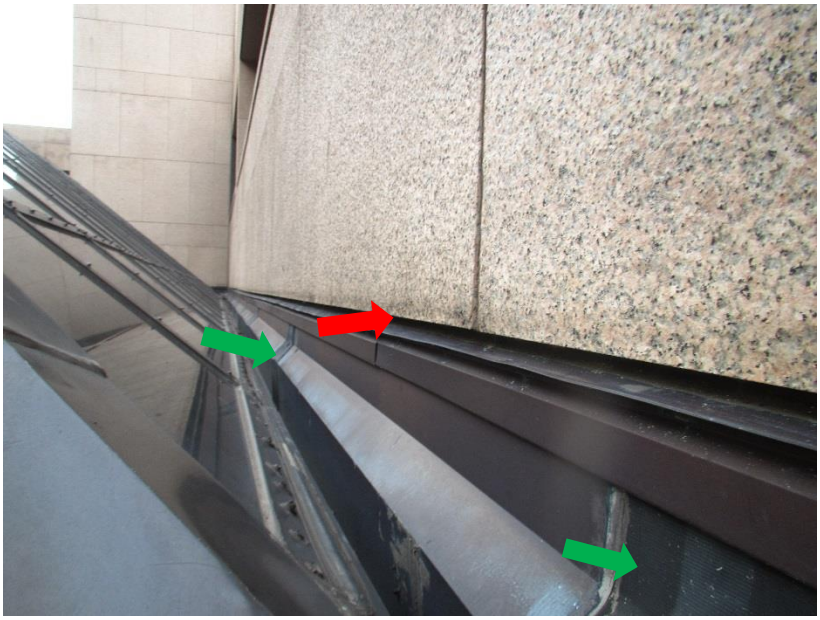


Figure 36. At the upper wall of the Atrium, the granite panels terminate just above the counterflashing that integrates with the skylight gutter (red arrow). Flexible membrane flashing and sealant has been installed at apparent splices in the copper gutter (green arrow).



Figure 37. The counterflashing is installed below and extends up and behind the granite panels.



Figure 38. The counterflashing is installed against, and the top of the gutter counterflashing is sealed to, the outboard face of the granite panel (red arrows). Flexible membrane flashing and sealant has been installed at apparent splices in the copper gutter (green arrow).



Figure 39. The counterflashing is installed against, and the top of the gutter counterflashing is sealed to, the outboard face of the granite panel.

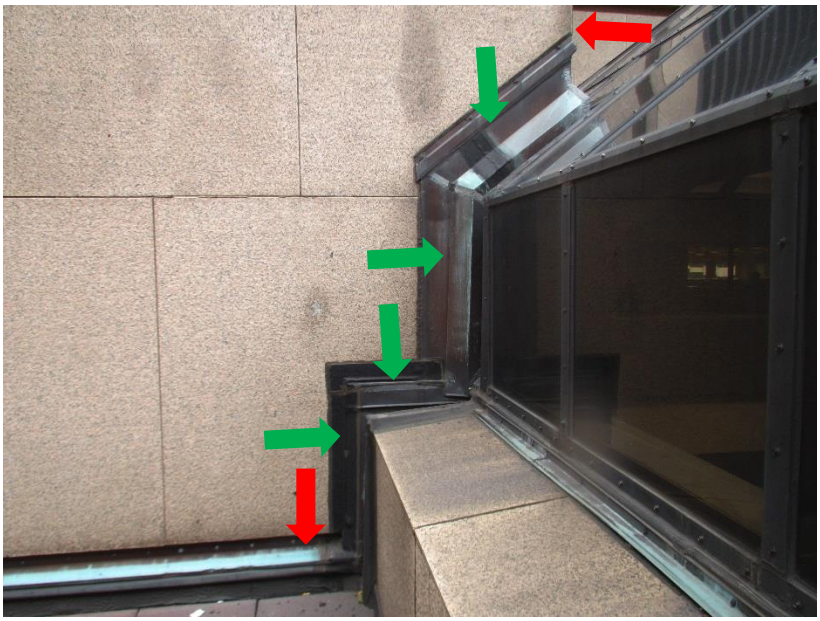


Figure 40. The granite panels continue past the counterflashing, which changes the horizontal plane of the counterflashing line relative to the location of the granite panels. Flashing is installed below and behind the granite panels (red arrows) in some locations, and in front of the panels in other locations (green arrows).

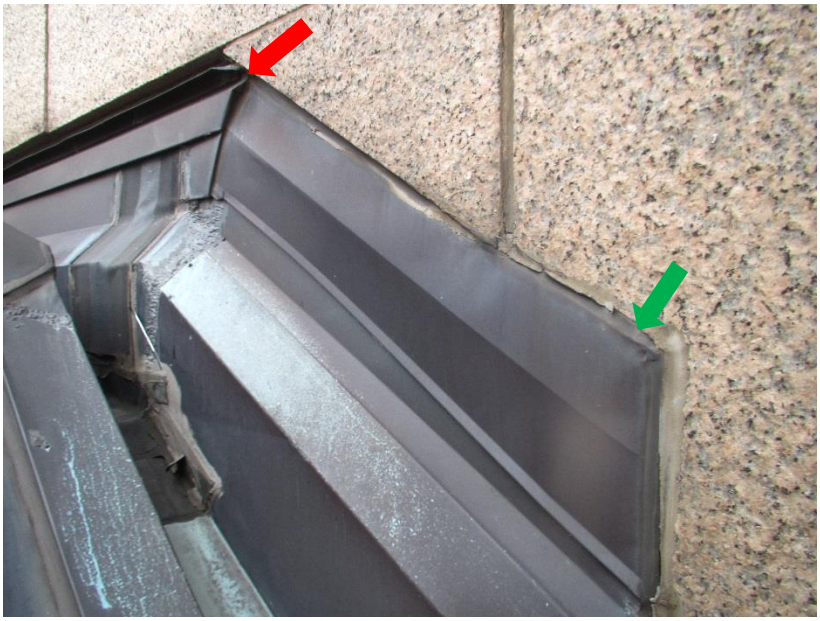


Figure 41. At the south end of the gutter along the upper wall of the Atrium, the counterflashing transitions from below the granite panels (red arrow) to the outboard face of the granite panels (green arrow).



Figure 42. The sealant between the metal counterflashing and the granite panel is adhesively failed.

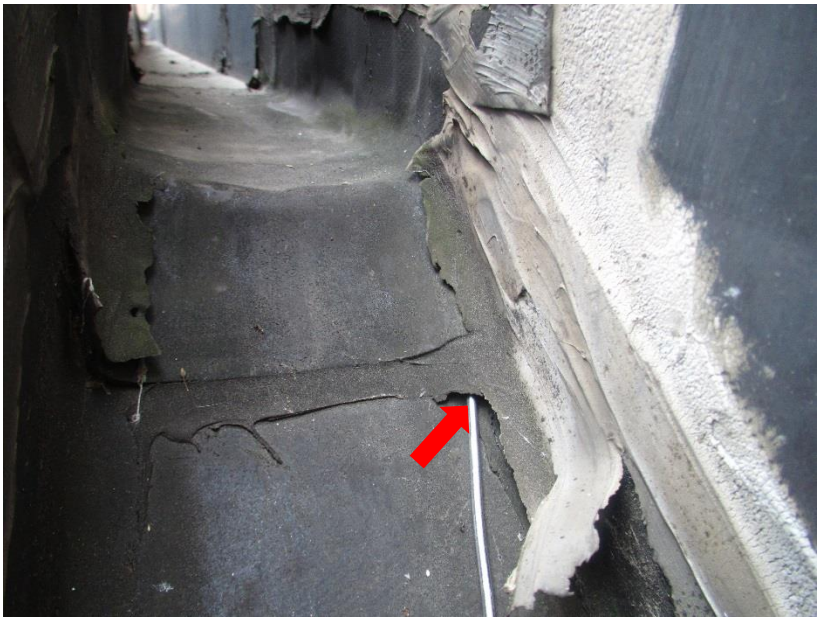


Figure 43. The sealant is adhesively failed at the flexible membrane flashing installed in the copper gutter.



Figure 44. The sealant is cohesively failed at the flexible membrane flashing installed at an apparent splice in the copper gutter.



Figure 45. The flexible membrane flashing has lost its adhesion.

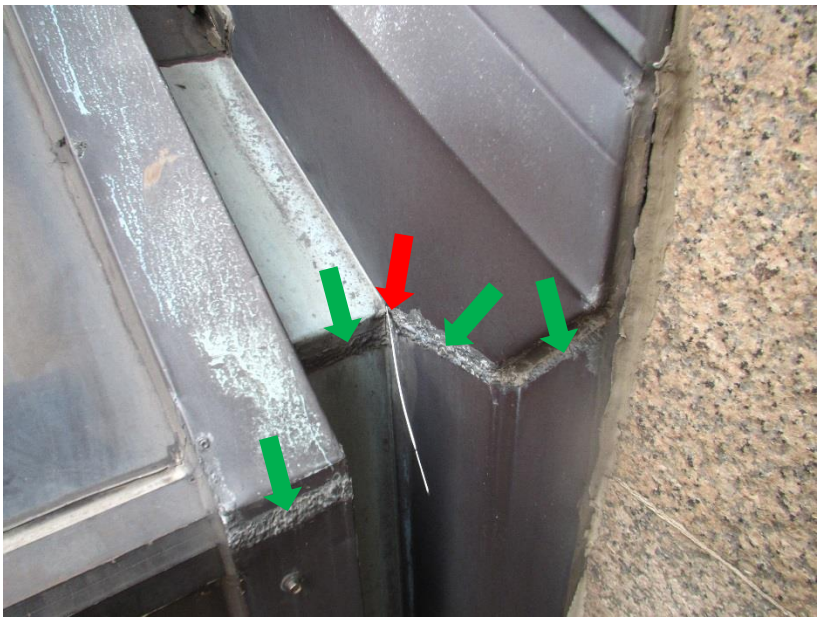


Figure 46. Near the south end of the gutter on the east perimeter of the skylight, there is a crack in the copper gutter (red arrow). Solder has been installed between sections of the copper gutter (green arrows).



Figure 47. Near the south end of the gutter on the east perimeter of the skylight, there is a crack in the copper gutter.



Figure 48. Crack in the solder.

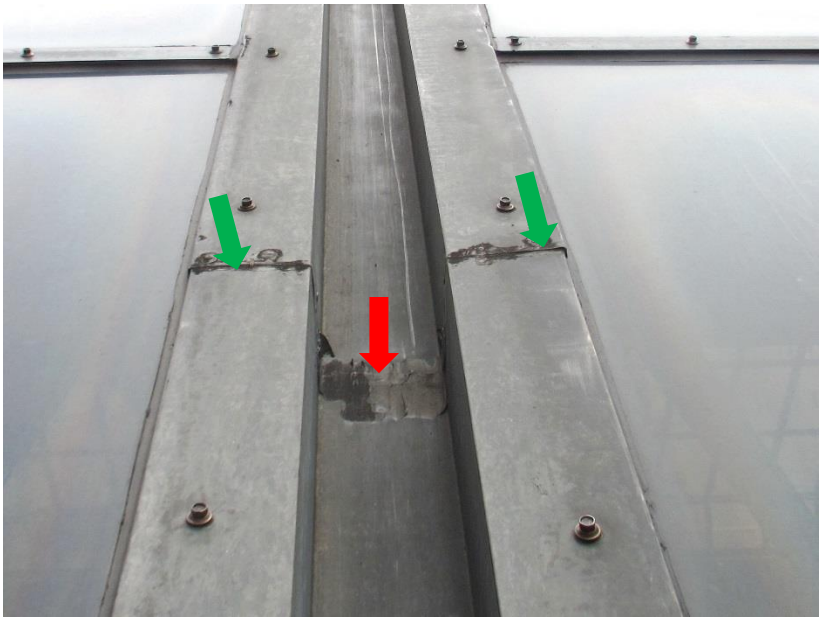


Figure 49. Sealant has previously been installed over a portion of the splice in the copper gutter (red arrow). Other areas of the splice are not fully sealed (green arrows).

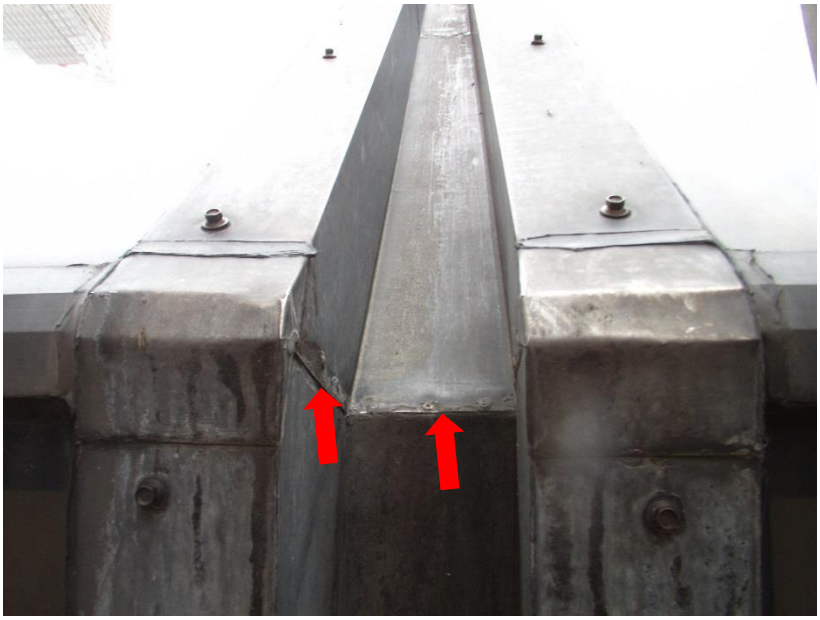


Figure 50. Sealant has not been installed over a splice in the copper gutter.



Figure 51. Sealant has been installed over the 4-way interface of the copper gutters between the top of the skylight pyramids and the sloped glazing on the side of the skylight.



Figure 52. The sealant in the copper gutter exhibits localized failures.



Figure 53. The sealant in the copper gutter exhibits localized failures.

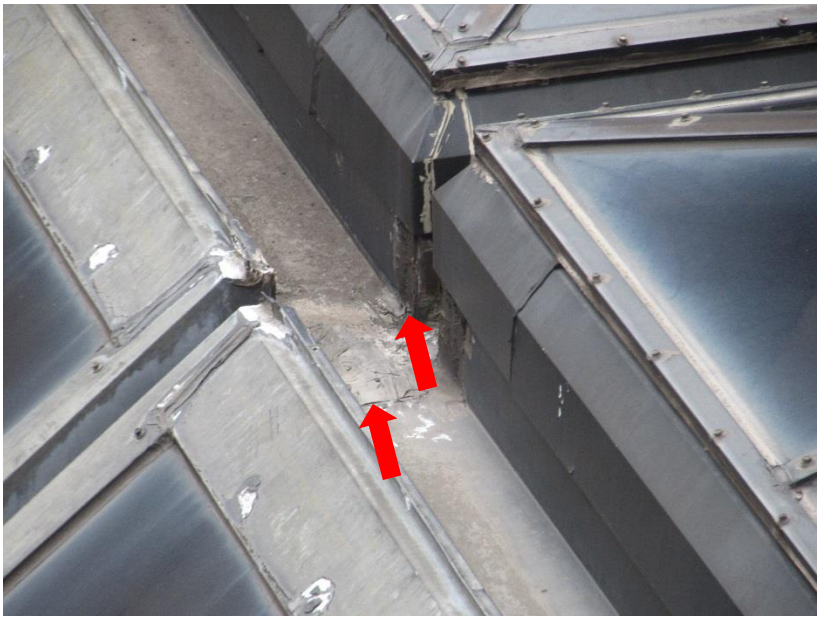


Figure 54. The sealant in the copper gutter exhibits localized failures.



Figure 55. There is debris in the gutter.



Figure 56. There is debris in the gutter.

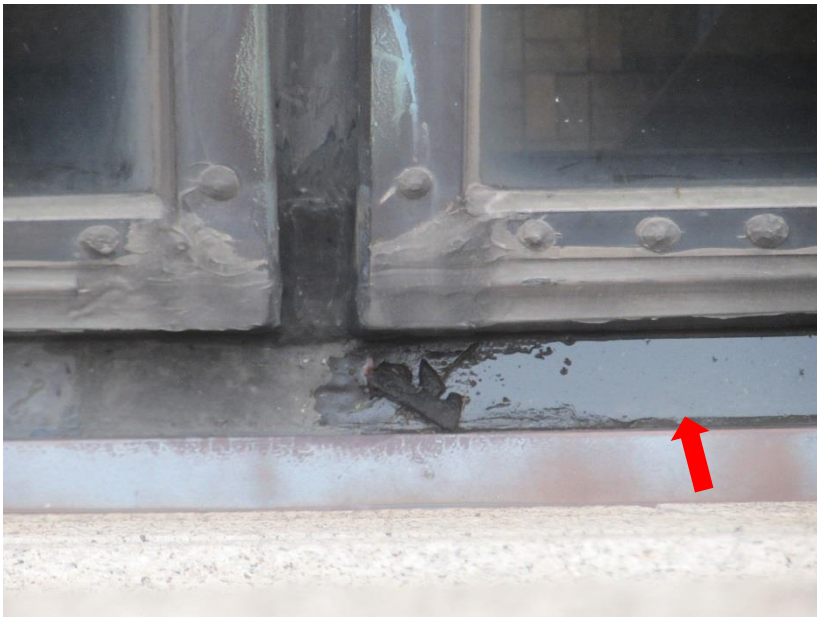


Figure 57. There is standing water in the gutter.

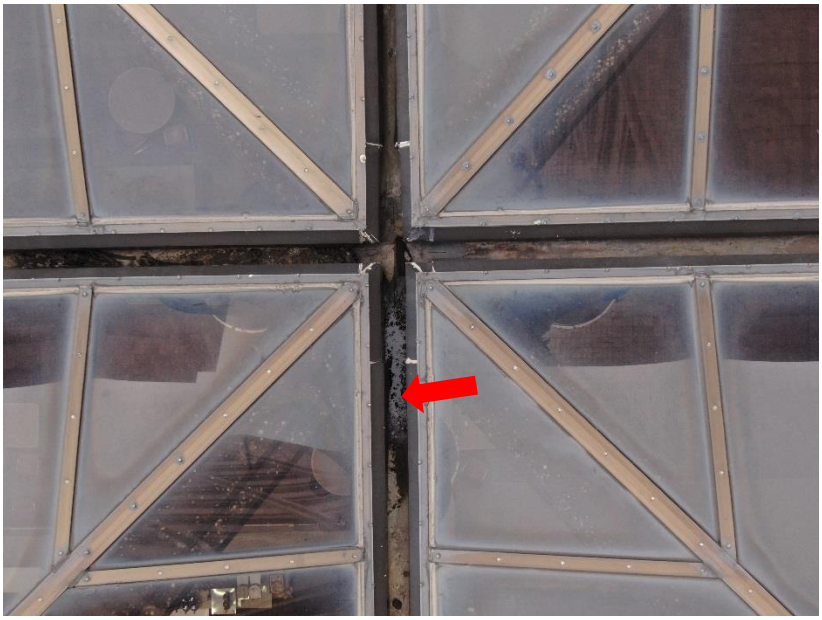


Figure 58. There is standing water in the gutter.



Figure 59. There is a drain below the terrace pavers on the south sides of the skylight as indicated by the sign attached to the granite.

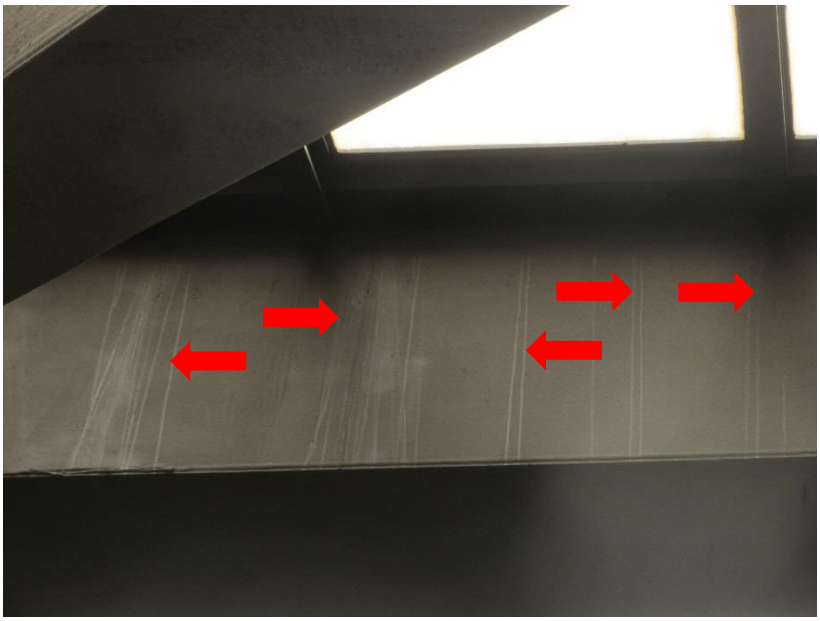


Figure 60. Water staining is present on the structural steel framework of the Atrium skylight.

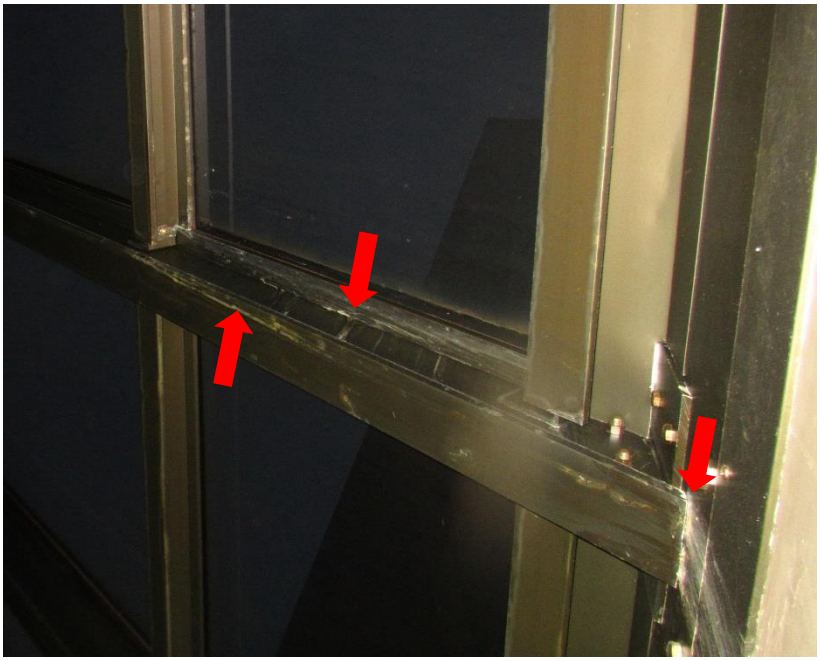


Figure 61. Water staining is present on the aluminum rafters that support the glazing.

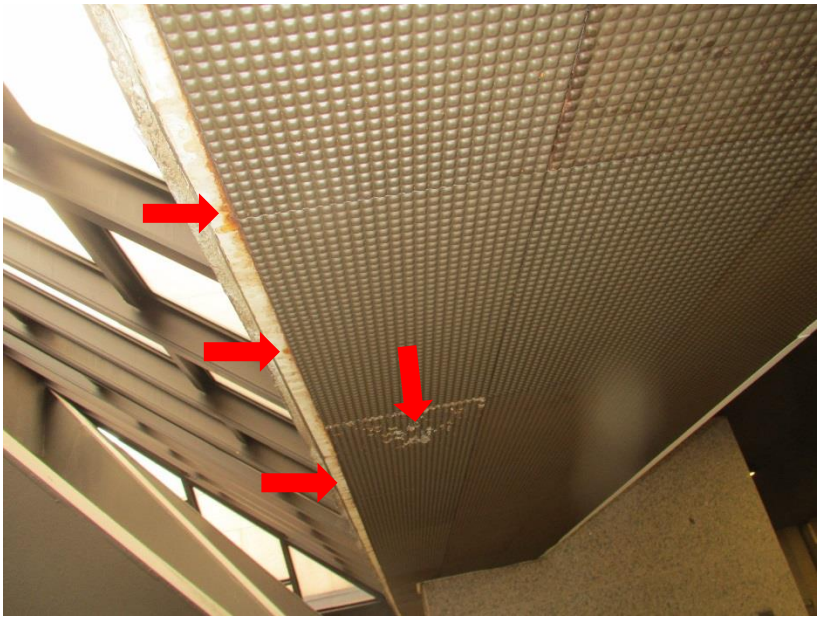


Figure 62. There is water staining on the ceiling and sheet metal panels on the interior of the Atrium below the gutter of the skylight.



Figure 63. Water staining is present on the upward facing granite panels and adjacent structural steel framing below the ceiling panels.

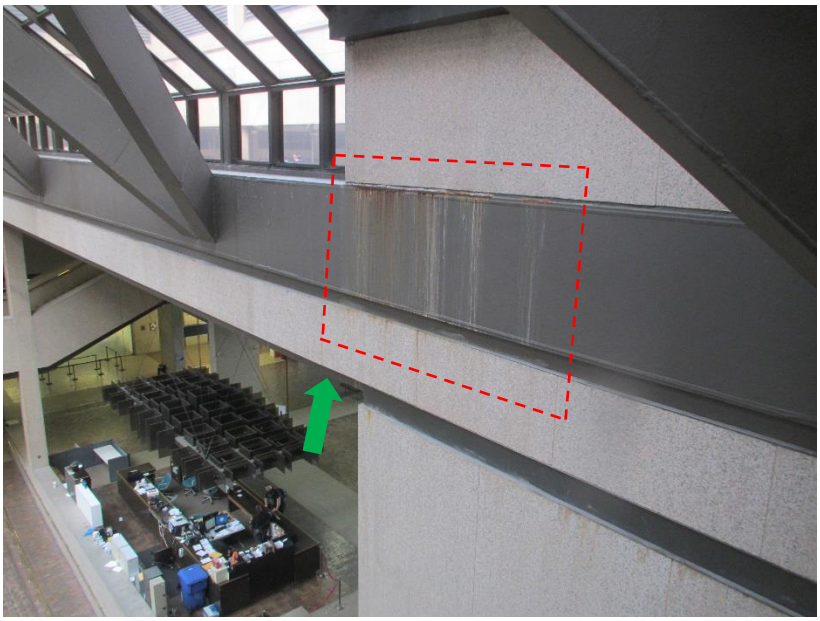


Figure 64. Water staining, efflorescence, and corrosion on the structural steel section below the gutter of the skylight (red dashed box). There is also water staining and corrosion on the sheet metal ceiling panels below this area (green arrow; see Figure 66 for a photograph of this condition).



Figure 65. Close-up view of the area shown in the red dashed box in Figure 64. There is water staining, efflorescence, and corrosion on the structural steel section below the gutter of the skylight.



Figure 66. There is water staining and corrosion on the sheet metal ceiling panels at the location indicated in Figure 64.



Figure 67. Location A: Water was observed emanating from the underside of the skylight frame members and gutter, and running down and dripping from the structural steel framework below the skylight.



Figure 68. Location B: Moisture was observed at the structural steel section below granite panels at the north side of the skylight where it abuts the Courts Tower.



Figure 69. Location B: Water was observed dripping from the sheet metal ceiling panels below the north side of the skylight where it abuts the Courts Tower.

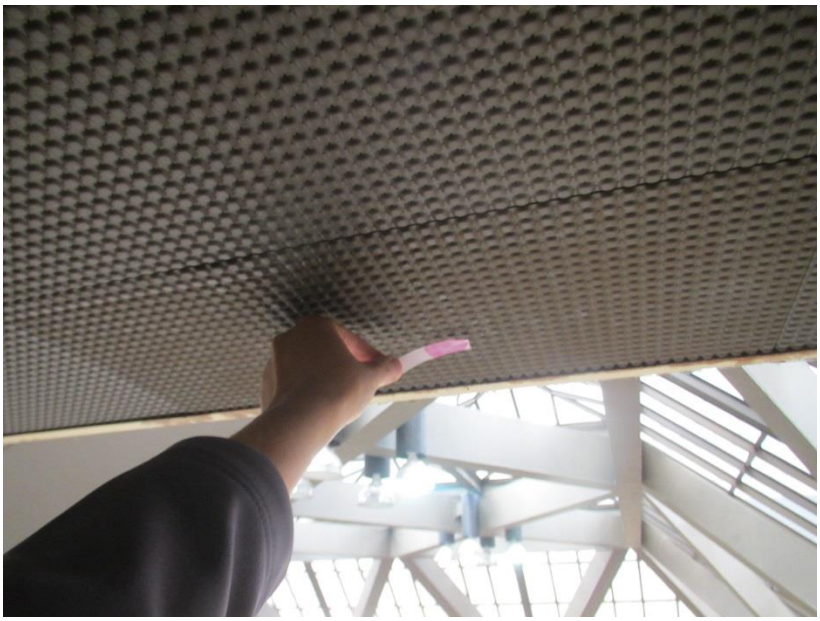


Figure 70. Location C: Water was observed dripping from the sheet metal ceiling panels. Water indicating paper was used to show the presence of moisture.



Figure 71. Location C: The water was dripping and pooling on the upward facing granite panels and adjacent structural steel framing below the ceiling panels. Water indicating paper was used to show the presence of moisture.



Figure 72. Location C: Above the ceiling panel, the lower portion of the gutter assembly is exposed (red arrow).



Figure 73. Water staining is present on the steel framing below the gutter assembly.



Figure 74. The topside of the sheet metal ceiling panel was wet and is corroded.



Figure 75. Location C: Water was observed below the gutter assembly as noted with the water indicating paper.



Figure 76. Location C: Water was dripping (red arrow) into a sloped sheet metal framing member (blue arrow) that was directing water (green arrow) onto the ceiling panel.



Figure 77. Location D: On the third floor of the Atrium on the eastern end of the south side of the skylight, water was observed dripping from a sheet metal ceiling panel.



Figure 78. Location D: On the third floor of the Atrium on the eastern end of the south side of the skylight, water was observed dripping from a sheet metal ceiling panel.



Figure 79. Testing of the gutter at the northeast corner of the skylight at the interface with the west facade of the Courts Tower.



Figure 80. Testing of the metal counterflashing and membrane flashings at the northeast corner of the skylight at the interface with the west facade of the Courts Tower. The joints in the adjacent granite panels were masked off to keep water out of the failed sealant joints between panels (red arrow).



Figure 81. Water was applied to the granite panel cladding above the level of the metal counterflashing of the gutter.



Figure 82. Water was observed dripping from the sheet metal ceiling panel and running down the interior granite panel wall.



Figure 83. Water was observed dripping from the sheet metal ceiling panel and running down the interior granite wall.



Figure 84. Moisture was observed at the structural steel section below a granite panel directly adjacent to the test location.

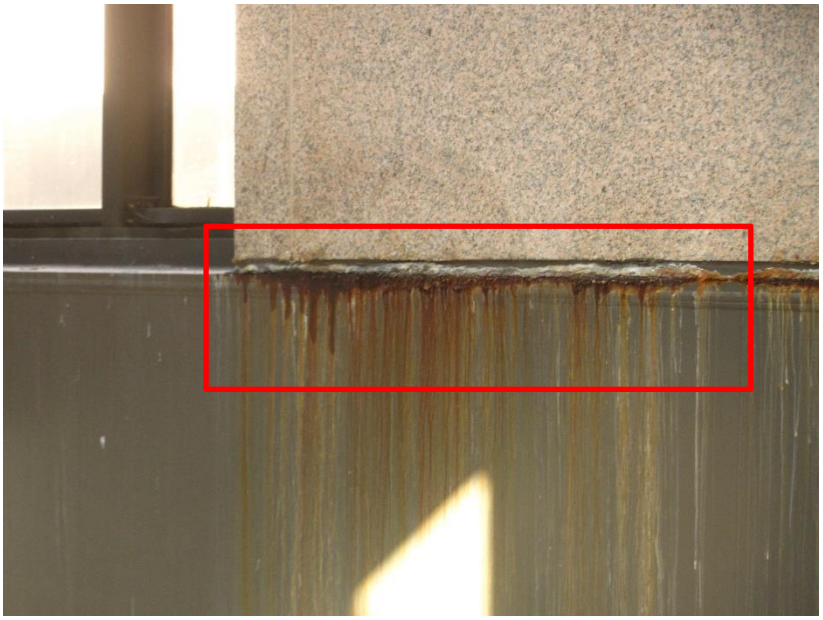


Figure 85. Moisture was observed at the structural steel section below a granite panel directly adjacent to the test location.



Figure 86. The bottom of the copper gutter along the south facade of Courts Tower was covered with water.



Figure 87. Water was applied to the granite panel cladding above the level of the metal counterflashing of the gutter.



Figure 88. On the fourth floor of the Atrium below the gutter along the east perimeter of the skylight, sheet metal ceiling panels were removed to observe the lower portion of the gutter during testing.

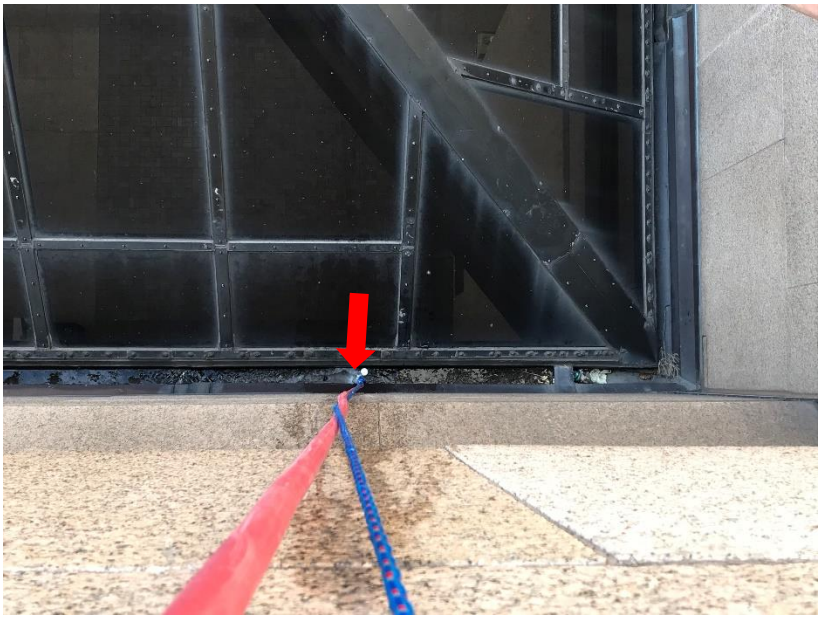


Figure 89. Using a hand-held spray nozzle, the bottom of the copper gutter along the east perimeter of the skylight was covered with water.



Figure 90. The bottom of the copper gutter along the east perimeter of the skylight was covered with water.

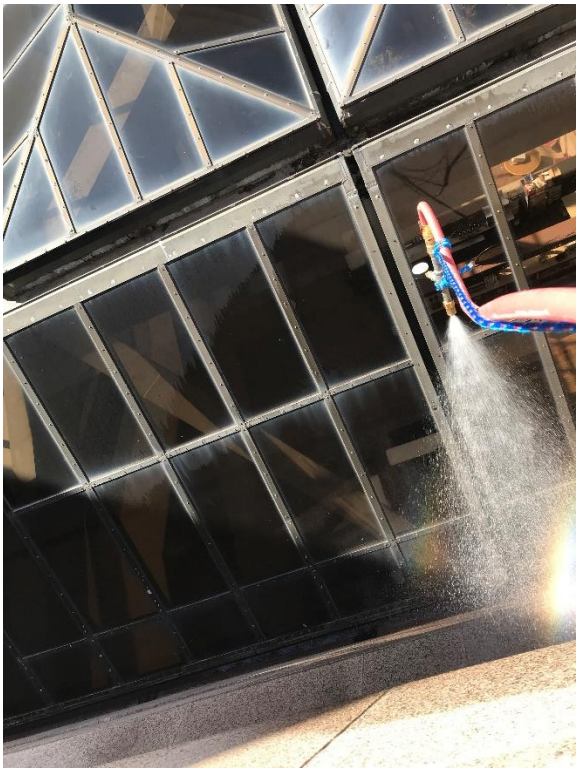


Figure 91. The granite panel cladding above the east perimeter gutter, and adjacent to the gutter set within the sloped glazing of the skylight, was tested using a hand-held spray nozzle.



Figure 92. Water infiltration (red arrow) was noted between the bottom of the gutter assembly (green arrow) and the top of the steel framing below the gutter (blue arrow) as noted with the water indicating paper.



Figure 93. Using a hand-held spray nozzle, water was applied to the lower half of the southernmost gutter set within the sloped glazing assembly of the skylight, as well as the adjacent sloped glazing assembly.



Figure 94. A hand-held spray nozzle was placed in the gutter near the 4-way interface between the top of skylight pyramids and the sloped glazing.



Figure 95. Water infiltrating below the gutter and onto the structural framing member below the 4-way interface.

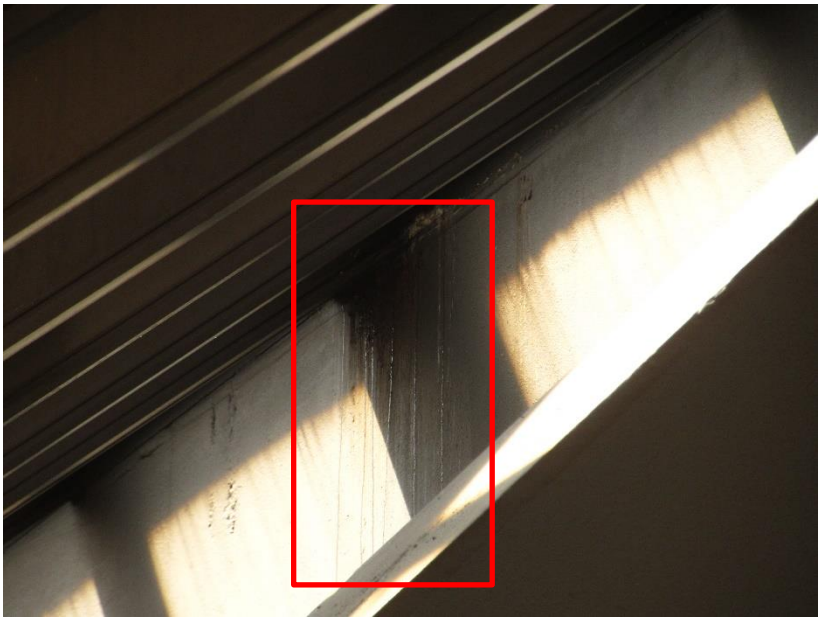


Figure 96. Water infiltrating below the gutter and onto the structural steel framing member below a 4-way interface adjacent to the test location.



Figure 97. Water infiltrating below the gutter in the area where water was being applied just north of the 4-way gutter interface.



Figure 98. A small quantity of water was observed at the edge of the ceiling panel support grid adjacent to a column (see Figure 99).

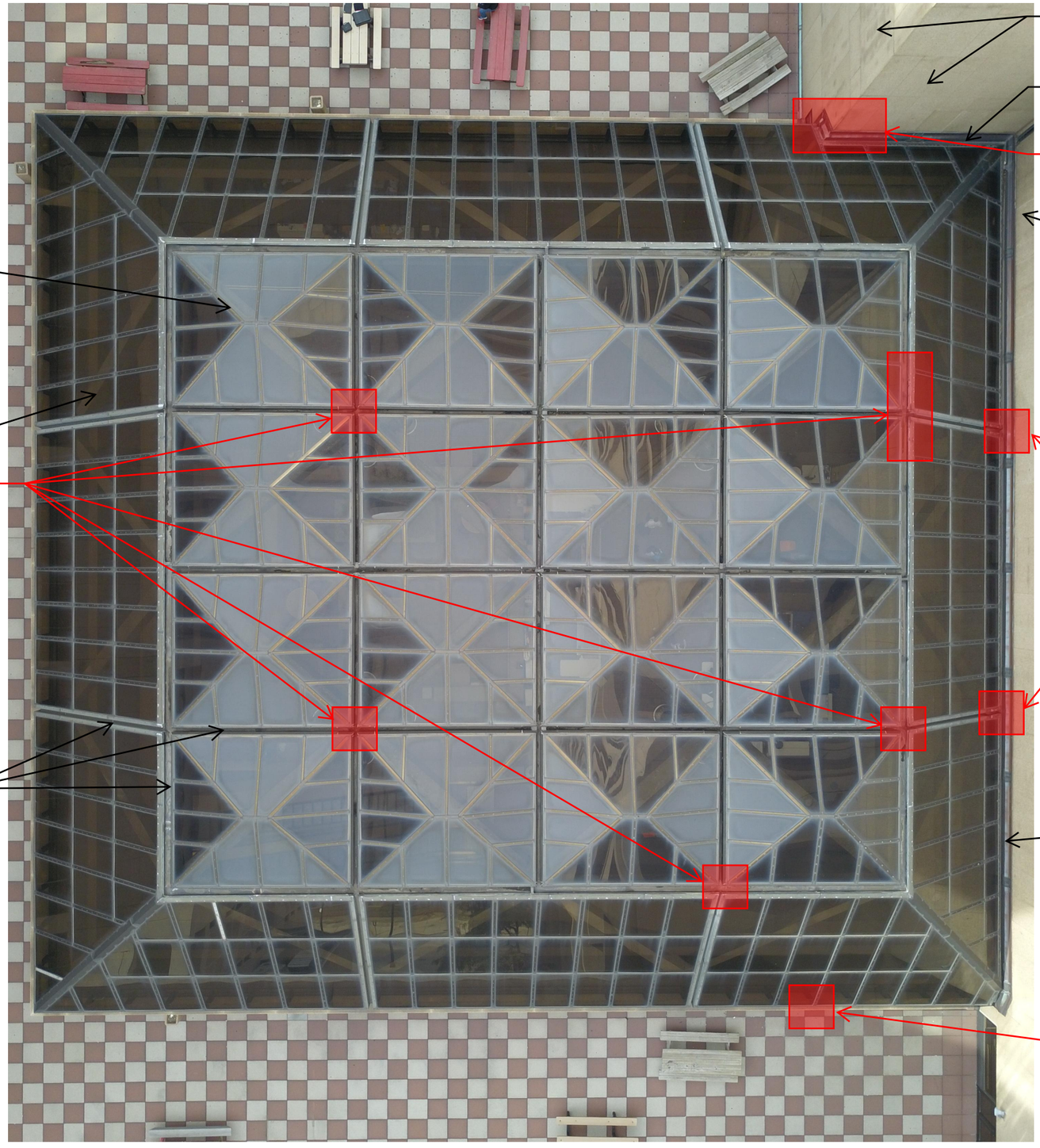


Figure 99. A small quantity of water was noted with water indicating paper at the edge of the ceiling panel support grid adjacent to a column at the location shown with a red arrow in Figure 98.

APPENDIX A: OBSERVED WATER INFILTRATION LOCATIONS

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.

Justice Center - Atrium Skylight
Water Infiltration Investigation
Appendix A
WJE Project No. 2017.4024.C

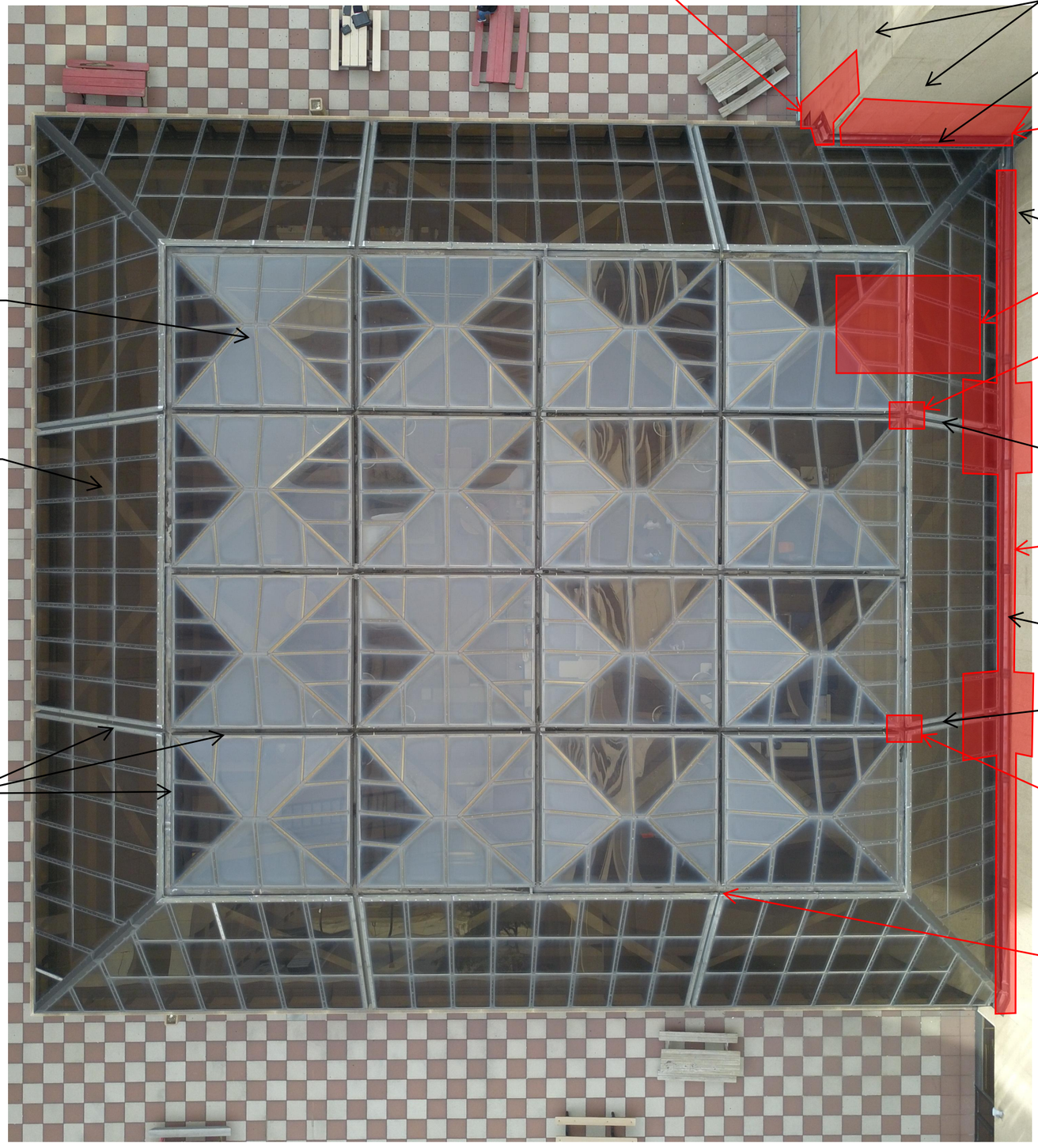


ATRIUM SKYLIGHT - OBSERVED WATER INFILTRATION LOCATIONS

APPENDIX B: WATER INFILTRATION TEST LOCATIONS

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.

Justice Center - Atrium Skylight
Water Infiltration Investigation
Appendix B
WJE Project No. 2017.4024.C



Test Location 1
South and west facades of the Courts Tower
North perimeter gutter of the skylight
Test Location 2
Upper wall of the Atrium
Test Location 6
Test Location 4
Northernmost gutter set within the sloped glazing of the skylight
Test Location 3
East perimeter gutter of the skylight
Southernmost gutter set within the sloped glazing of the skylight
Test Location 5
Location of additional water leakage observed from test performed at Test Location 5
Top of skylight pyramids (typical)
Sloped glazing (typical)
Copper gutters (typical)

NORTH

ATRIUM SKYLIGHT - WATER INFILTRATION TEST LOCATIONS



K2M DESIGN

County of Cuyahoga Department of Public Works

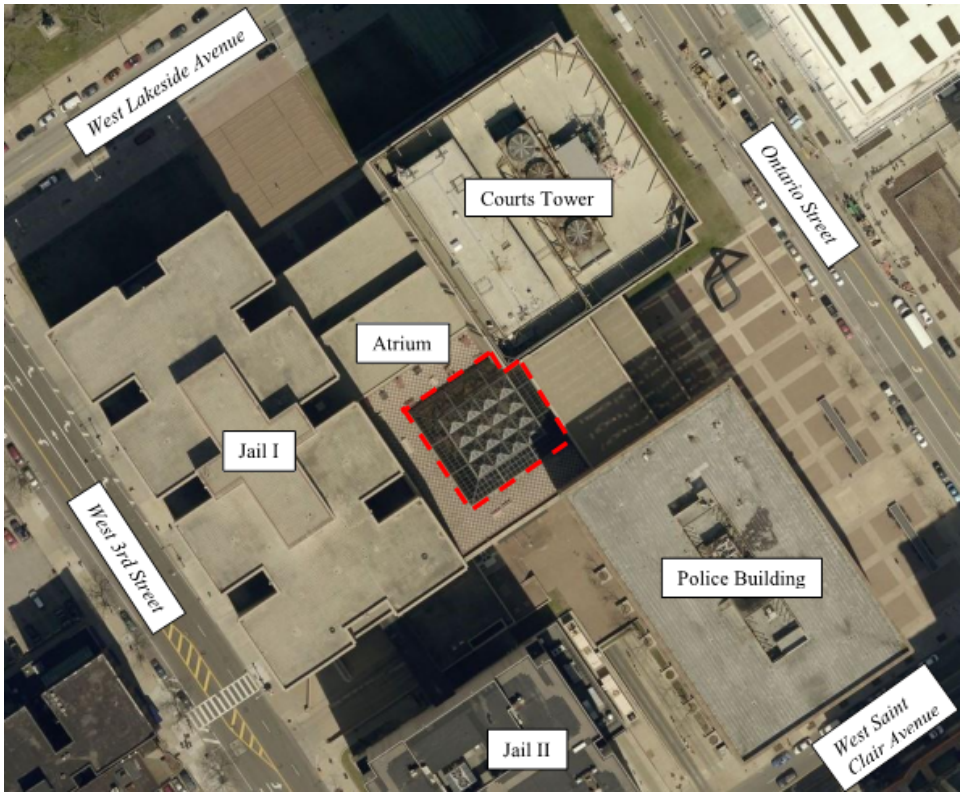
23028.02-Cuyahoga County Justice Center-Water intrusion

Cuyahoga County Justice Center – Cleveland, OH

100% Schematic Recommendations – November 28, 2023

3121 Bridge Avenue-Cleveland, OH 44113 | Phone: 216.357.2794

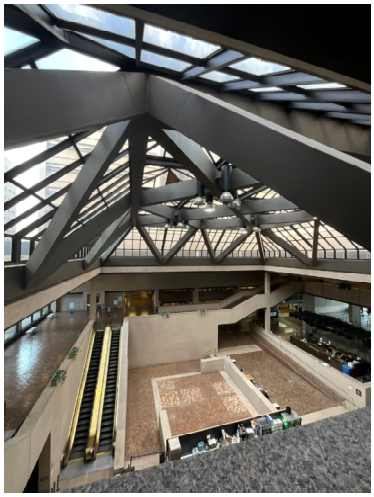
This recommendation is based on the report generated by Wiss, Janney, Elstner Associates, Inc. (WJE) dated January 8, 2019. The skylight is a aluminum-framed system which covers an atrium space and is surrounded by an outdoor terrace on three sides. The skylight is sloped on four sides and has 16 pyramid shapes making up the top of the skylight. Between these pyramids, there is a system of gutters to channel water from the 16 pyramids down the face of the sloped portions and to gutters and drains below.



Location of Skylight



Exterior view from terrace



Interior view of atrium



Exterior view from terrace

Based on the WJE inspection report, numerous locations have been identified as possible locations for water intrusion. There have been multiple locations identified where the sealant had failed or was not present.







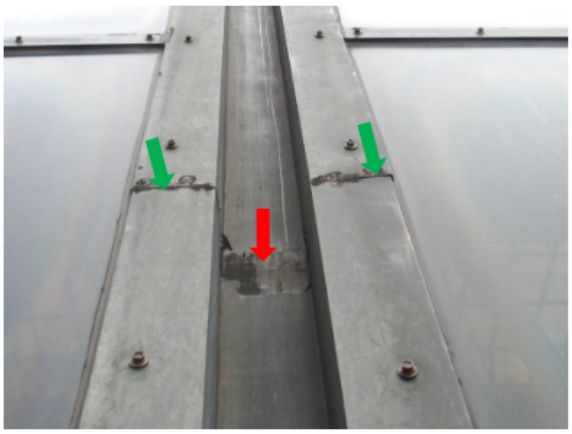






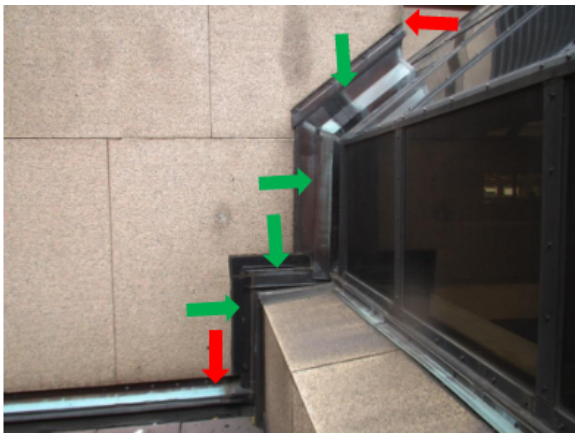
Areas where the sealant has failed or was not present are spread all over the skylight and not isolated to one specific area.

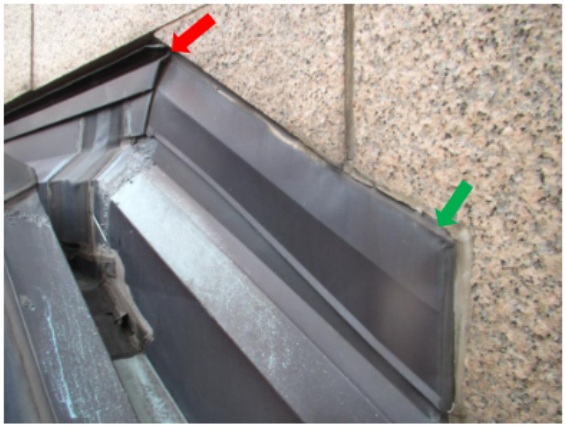
In addition to the areas of failed on nonexistent sealant, other areas identified in the report include fasteners that have been over tightened, flashing that is damaged, flashing that the sealant has failed, and membrane in the gutters that have failed.





In addition to the sealant issues, there are flashing issues that need to be fixed. One area is were the skylight meets the granit panels. Flashing was not consistantly installed as through-wall flashing, leaving areas were the flashing is sealed directly to the face of the granite panels.





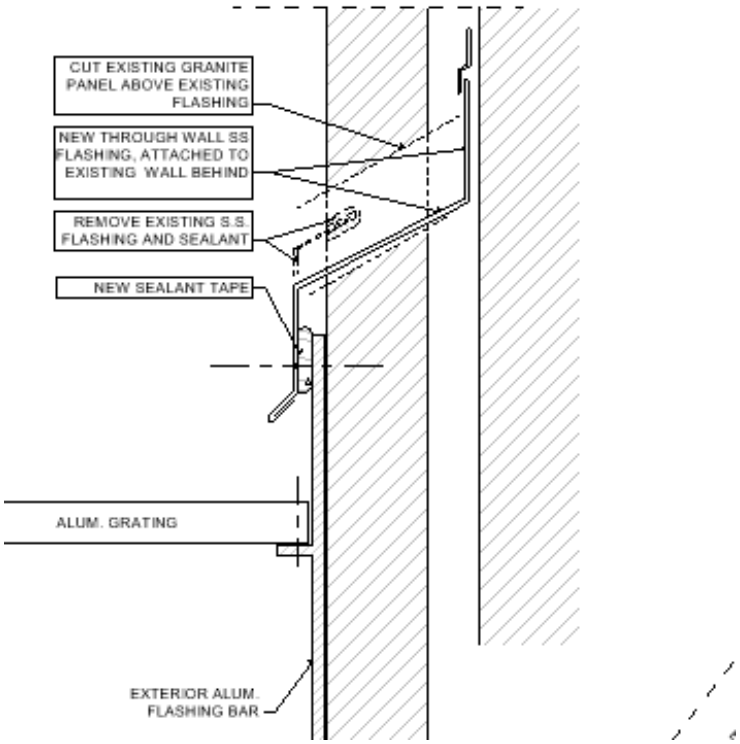
All skylight assembly sealant joints need to be inspected and all failed sealant joints need to be removed and replaced. The gutters need to be inspected and repaired as required, and a new flexible flashing membrane should be installed where the current flexible flashing membrane has failed. The metal flashing at the granite panels should be removed and installed behind the panels to act as a through-wall flashing.

In addition to the items above, debris was noted building up in the gutters. This should be removed to maintain proper drainage.

Summary:

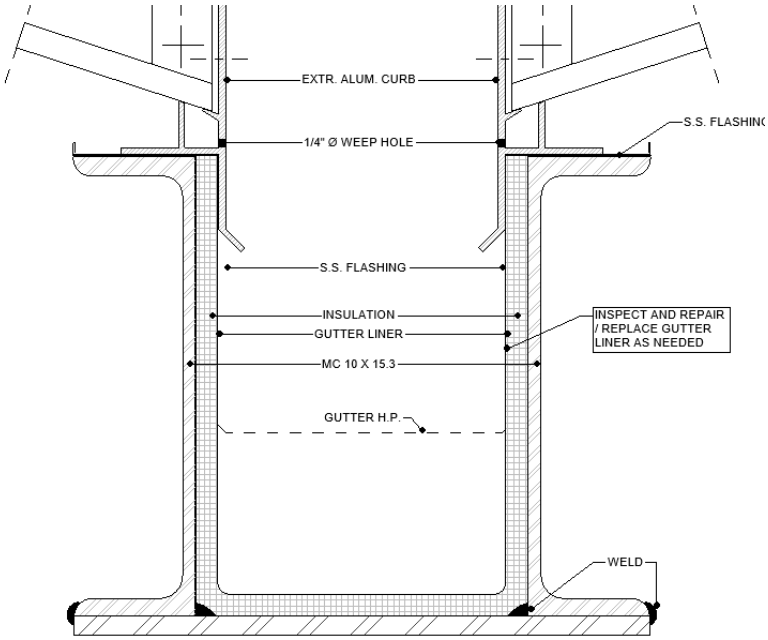
1. Flashing needs to be fixed at tower wall. Recommend cutting existing panel above current flashing and install new flashing as through-wall flashing.

a.



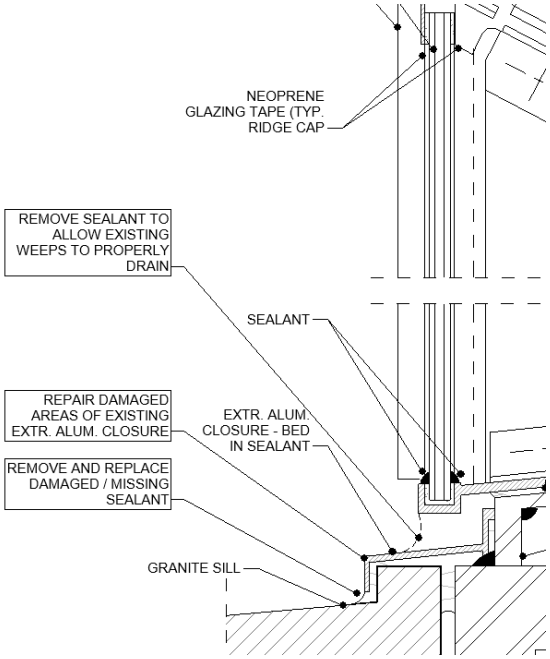
2. Gutter liner needs to be inspected and repaired/replaced as needed. Possibly line the entire gutter system with a roof membrane to create a continuous barrier.

a.



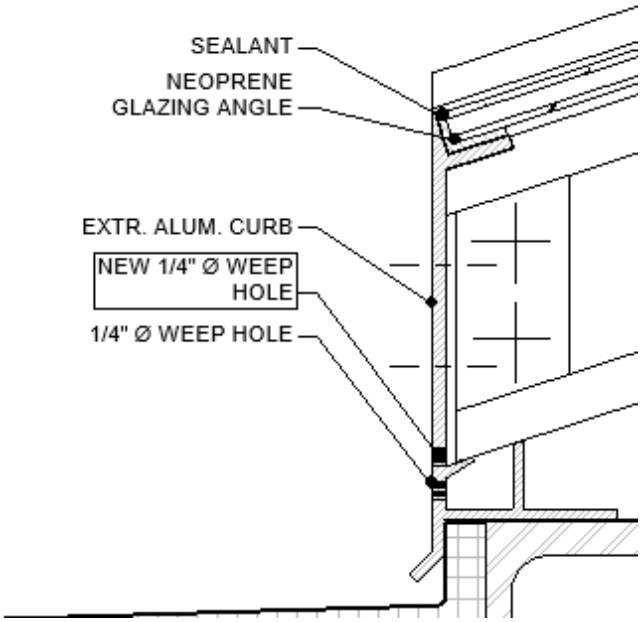
3. Existing sealant needs to be inspected and repaired/replaced where damaged and/or missing.

4. Sealant needs to be removed where existing weeps are present to allow for proper drainage.



a.

5. All frames, flashing, existing aluminum closures need to be inspected for any damage and repaired as needed.
6. New weeps may be needed for proper location.



a.

7. All gutters and drains need to be cleaned out of all debris.
8. The interior framing will need to be inspected and repaired as required.
9. Inspect, clean and repair interior walls with water damage.

10. Phase two recommendation
    a. Future Water testing may be needed after repairs have been completed based on the January 8, 2019 report by WJE. This water testing should take place in non-freezing temperatures. Estimated budget of $20,000.

FEE SCHEDULE		
Base Scope: Positive Pressure Water Penetration Tests (ASTM E1105, Modified):		
Mob, Chamber Constr, Demob (incl lift coord and logistics)	$	6,200
Perform Testing (Areas 1-2 and 3-6)	$	3,180
Rental Equipment	$	4,720
Reporting	$	1,050
Total Base Scope Fees	***$***	***15,150***
Alternate Base Scope: Spray Nozzle Water Penetration Tests (AAMA 501.2, Modified)		
Mob / Demob (incl lift coord and logistics)	$	2,220
Perform Testing (Areas 1-2 and 3-6)	$	3,420
Rental Equipment	$	4,720
Reporting	$	1,400
Total Alternate Base Scope Fees	***$***	***11,760***
ADD Alternate Scope: Zero Pressure Water Penetration Saturation Tests (ASTM E1105, Modified)		
Mob / Demob (incl lift coord and logistics)	$	2,220
Perform Testing	$	4,480
Rental Equipment	$	4,720
Reporting	$	1,400
Total ADD Alternate Fees	***$***	***12,820***

Intertek (11/7/2023)

FIELD TESTING SERVICES	TEST DAYS	RATE	TOTAL	INITIAL
Water Penetration Testing (AAMA 501.2)	3	$ 3,200	$ 9,600	
Water Penetration Testing (ASTM E1105)	2	$ 3,600	$ 7,200	
Water Penetration Testing (AAMA 501)	1	$ 3,200	$ 3,200	
FIELD TESTING SERVICES	**DURATION**	**RATE**	**TOTAL**	**INITIAL**
77' Atrium Boom Lift Rental	1 week	$ 10,000	$ 10,000	
77' Atrium Boom Lift Rental	4 week	$ 18,500	$ 18,500	

ECS Midwest (10/27/2023)

Photo Report

Client: Cuyahoga County
Facility: Cuyahoga Justice Center
Roof Section: Atrium Roof

Report Date: 11/03/2023
Title: Roof Inspection Report



Photo 1

The pavers are set on drainage pads.



Photo 2

Core Cut = flat concrete deck + water proofing membrane + 2" extruded polystyrene insulation + filter fabric +pavers on drainage pads.



Photo 3

2" thick insulation is present.



Photo 4

View of the drain area.

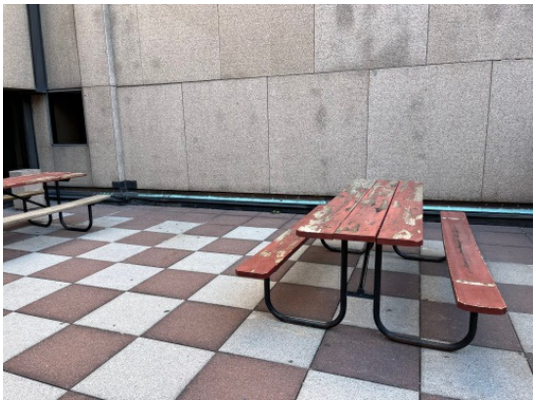


Photo 5

Overall roof photo. Minimal flashing height is present throughout.



Photo 6

View of the roof to wall expansion joint.



Photo 7

Minimal flashing height is present.



Photo 8

Overall roof photo. Minimal flashing height is present throughout.



Photo 9

Overall roof photo. Minimal flashing height is present throughout.



Photo 10

Overall roof photo. Minimal flashing height is present throughout.



Photo 11

Overall roof photo. Minimal flashing height is present throughout.

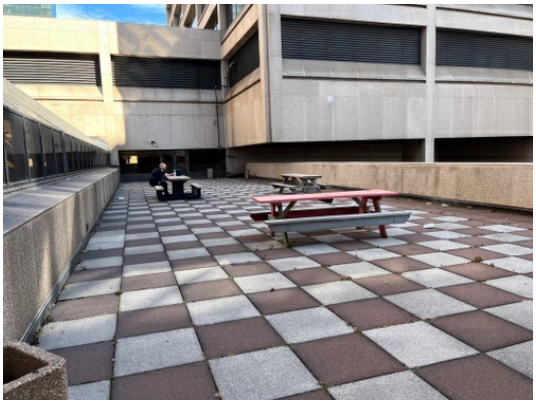


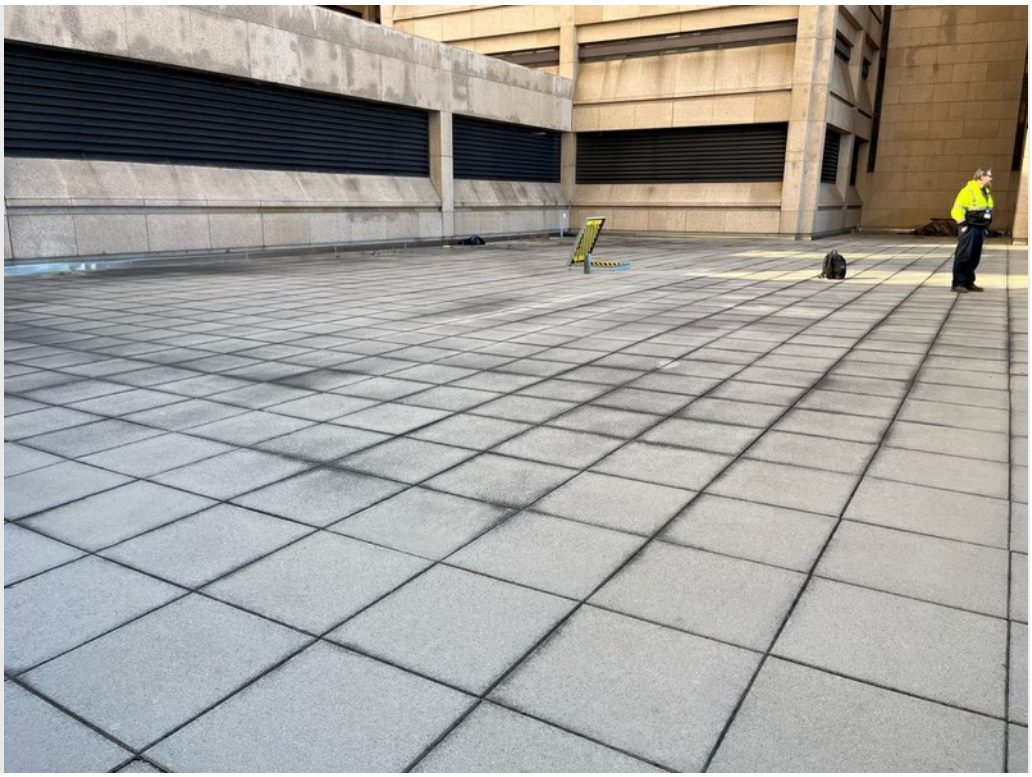
Photo 12

Overall roof photo. Minimal flashing height is present throughout.

Photo Report

CUYAHOGA COUNTY

FACILITY: Cuyahoga Justice Center	ROOF SECTION: Galleria Roof - Jail 1, Levels 3 and 4	TITLE: Roof Inspection Report	DATE: 12/16/2023



(**1**) Level 3 - overall photo. The roof deck appears to be sloped towards the drains.



(**2**) Level 3 - overall photo. There is no equipment on the roof.



(**3**) Level 3 - overall roof photo.



(**4**) Level 3 - overall roof photo.



(**5**) Level 3 - the flashing height is 5.75 inches above the pavers. The overall thickness is approximately 12 inches.



(**6**) Level 3 - view of the expansion joint up and over the parapet wall.



(**7**) Level 3 - an expansion joint runs up and over the parapet wall.



(**8**) Level 3 - view of the bump out area. A drain is present.



(**9**) Level 3 - bump out area the flashing height is 10.5 inches above the pavers. The overall thickness is approximately 16.75 inches.



(**10**) Level 3 - view of the roof height on the high side. It is 7 inches. The overall thickness is approximately 13.25 inches.



(**11**) Level 3 - view of the roof height near the drain (low side). The height is 13.5 inches. The overall thickness is approximately 19.75 inches.

Approximately 6.5 inches of drop is present. The roof width is 50 feet. The 6.5 inches of drops equals an 1/8" roof slope.



(**12**) Level 3 - view of the wall where the drains are located. A piece of masonry foam is falling out.



(**13**) Level 3 - view of the flashings along the drain wall. The flashing height is 12 inches plus the paver and roof system. Overall it's approximately 19 inches to the roof deck.



(**14**) Level 3 - close up view of the rubber piece that is falling out.



(**15**) Level 3 - view of the gap and dislodged rubber closure.



(**16**) Level 4 - overall roof photo. This roof appears to be mostly flat.



(**17**) Level 4 - view of the bump out area. The units will need to be modified to accommodate the new flashing height.



(**18**) Level 4 - close up the bump out area. A roof drain is present.



(**19**) Level 4 - view of the lore flashing height.



(**20**) Level 4 - view of the low flashing height.



(**21**) Level 4 - view of the low flashing height.



(**22**) Level 4 - the bump out area flashing height is 8 inches above the pavers. The total thickness is approximately 15 inches.



(**23**) Level 4 - view of the parapet wall opposite the roof drains. Flashing height does not appear to be an issue.



(**24**) Level 4 - the metal flashings are falling off. Standard flashings can be installed here.



(**25**) Level 4 - view of the metal flashings falling off.



(**26**) Level 4 - the coping joints need to be sealed.



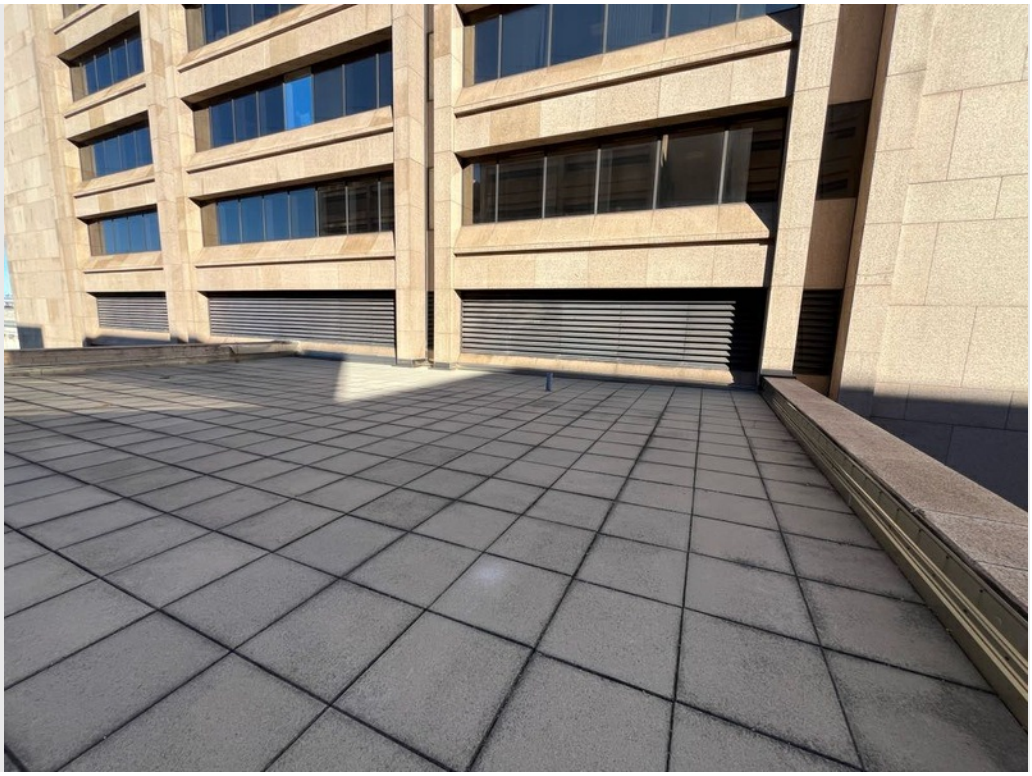
(**27**) Level 4 - wall opposite the bump out. The flashing height is slightly tapered towards the drains.



(**28**) Level 4 - view of the wall below the vents. The sealant between the vents and granite should be replaced.



(**29**) Level 4 - view of the flashing detail. The height decreases from the high side to the drains.



(**30**) Level 4 - this roof appears to be minimally tapered.



(**31**) Level 4 - core cut. Water does not properly drain.



(**32**) Core cut = concrete roof deck + drain mat + filter mat + 4.25 inches of extruded insulation + drainage mat + filter mat + pavers.



(**33**) View of the top layer of insulation.



(**34**) View of the bottom layer. The insulation is stained from standing water.

FILE COPY

ASBESTOS AND HAZARDOUS MATERIAL BUILDING INSPECTION FOR CUYAHOGA COUNTY BOCC



JAIL II CORRECTIONS FACILITY

1200 Ontario Avenue
Cleveland, Ohio 44113

Prepared by:

DLZ

February, 2001

BUILDING PROFILE SHEET

Facility Name: Cuyahoga County Jail II Corrections Facility **Bldg. I.D. No.** 4442

Address: 1200 Ontario Avenue

City, State, Zip: Cleveland, Ohio 44113

Inspector(s) Names: B. Dosunmu, S. Liston

Date(s) of Survey: November 9, 2000 **Job No.** 0022-6013-00

Year Constructed: 1992-94 **Dates(s) of Additions/Renovations:** Ongoing

Number of Floors: 13 **Approximate Square Feet:** 252,740

There is:
__Non-friable Asbestos-Containing Materials
__Assumed Asbestos-Containing Materials
X No Asbestos-Containing Materials
__Friable Asbestos-Containing Materials
__Confirmed Asbestos-Containing Materials

Building Construction: __Wood Frame **X** Steel Frame ___Masonry/Concrete Bearing Walls

Exterior Materials: ___Wood/Vinyl/Metal Siding **X** Concrete or Masonry ___Other

Roof Type: **X** Flat ___Sloped ___Other

Roof Material: ___Built-up Composite ___Metal ___Single-ply Membrane ___Composition Shingle

Building Heating & Cooling Systems:
___Self Contained ___HW/Steam/Central **X** HW/Steam, in Bldg.
___Ducted forced air ___Radiant ___Other ___Air Conditioning

Plumbing System:
X Complete Toilet/Bathing Facilities **X** Fire Protection System/Sprinkler

B. Dosunmu/ 33919
(Print/Type Name/ ODH Cert. No.)

02/01/01
(Asbestos Inspector's Signature/ Date)

Steve Liston/ 31428
(Print/Type Name/ODH Cert. No.)

2/01/01
(Asbestos Inspector's Signature/ Date)

Table of Contents

The Cuyahoga County Jail II

1	**Project Summary** Project Summary Quantity Sheet
2	**Bulk Sample Data** Sample Data Sheets Forms
3	**Drawings** Asbestos Inspection Drawings
4	**Photographs** Exterior Photographs
5	**Laboratory** (F.S.W. Laboratory) Chain of Custody Forms Analysis Result Forms
6	**Certifications** State Certifications Certificates of Training
7	**Appendices** Appendix A – Site Audit
8	
9	
10	

AVERY ® READY INDEX™ INDEXING SYSTEM

1 – PROJECT SUMMARY

PROJECT SUMMARY REPORT

Project Summary

From November 20th to November 27th, 2000, DLZ, Inc. personnel completed a site visit to the Cuyahoga County Jail II Corrections Facility, located at 1200 Ontario Avenue, Cleveland, Ohio. The purpose of this visit was to complete a survey of the building to determine the presence of asbestos containing materials. Also, an Environmental Site Audit was conducted for this property and the results can be found in Appendix A.

The asbestos survey, sampling, and analytical testing were conducted to identify the presence of regulated asbestos containing materials (RACM) at Jail II. RACM is defined as any material containing more than one (1) percent asbestos by volume. This is determined using the analytical method specified in EPA 40 CFR, Part 763, section 1, Polarized Light Microscopy. Ohio Department of Health, Certified Asbestos Hazard Evaluation Specialists, performed the assessment and sampling.

The identification of the RACM is applicable to and in compliance with:

- Environmental Protection Agency 40 CFR, Part 61, Subpart M - National Emission Standards for Hazardous Air Pollutants: Asbestos NESHAP Revision: Final Rule, November 20, 1990.

- OSHA Asbestos Regulation 29 CFR 1910.1001 - General Industry Asbestos Standard and 29 CFR 1910.1101 - construction Industry Asbestos Standard.

These regulations apply to construction/ demolition/ renovation projects as well as general operation and maintenance programs.

During the survey, 56 representative samples of suspect building materials were collected from the Cuyahoga County Jail II Corrections Facility. These samples were submitted to F.S.W. Labs, Inc. to be analyzed. The sample results and Chain of Custody forms have been attached for your reference.

Of the 56 samples submitted to the laboratory for analysis, none were found to contain asbestos in quantities greater than (1) percent. Therefore, no Operations and Maintenance Plan is required for this building.

2 – BULK SAMPLE DATA

BULK SAMPLE DATA SHEETS

BULK SAMPLE DATA SHEET
DESCRIPTION

Type of Equipment

SP	Steam Piping
HWHP	Hot Water Heating Piping
RDP	Roof Drain Piping
HWP	Hot Water Piping
CWP	Cold Water Piping
HWT	Hot Water Tank
BLR	Boiler
BS	Boiler Stack
AC	Air Condition Unit
HV	Heating & Ventilation Unit
HVAC	HVAC Unit
DW	Duct Work
HP	Heating Pump
CR	Condensate Return

Piping Suffixes

F	Fitting
V	Valve
E	Elbow

Material Covering Suffixes

CL	Canvas Lagging
CLP	Canvas Lagging Painted
KSF	Kraft Paper/ Schrim Foil
PC	Plaster Covering
MC	Metal Covering

Type of Construction

COL	Columns
MFD	Metal Floor Deck
MRD	Metal Rood Deck
ML	Metal Lath
SFF	Structural Floor Framing
SRF	Structural Roof Framing
WAL	Walls
CLG	Ceiling
FLR	Flooring
EXT	Exterior
MIS	Miscellaneous

ACM Access Difficulty

Rate the Degree of Difficulty
From 1 to 10

1	Low
10	High

Type of Material

S	Surfacing
T	Thermal
M	Miscellaneous

Material Description

SC	Sprayed Ceiling	BB	Baseboard
SI	Sprayed Insulation	PM	Packing Material
CT	Ceiling Tile	FT	Floor Tile
PFC	Plaster Finish Coat	JC	Joint Compound
PSC	Plaster Scratch Coat	WB	Wallboard (Drywall)
ICT	Insulating Cement Troweled	RC	Resilient Caulking
ICC	Insulating Cement w/ Chicken wire	WC	Window Caulking
BI	Block Insulation	G	Gypsum Board
LPI	Layered Paper Insulation	CB	Cement Board
ACI	Air Cell Insulation	FB	Fiber Board
FI	Fiberglass Insulation	C	Cork
MW	Mineral Wool	MS	Mastic
TR	Transite	GM	Gasket Material

BULK SAMPLE DATA SHEET

		Bulk Sample Material Description					Analysis % of Asbestos						
Sample #	Floor/Room	Type of Equip./Constr.	Type of Material	Material Description	Homogenous Area	Observation notes on material: - Basic characteristics - Thickness - Layering/color/variations - Salients	Amosite	Chrysotile	Crocidolite	Archived sample	None Detected	Photo #	Remarks
CJ2-001	Bsmt/ Repair	CLG	S	SI		Sprayed insulation - grey - 1" thk/ on metal beam					X		Good
CJ2-002	Bsmt/ Repair	FLR	M	FT		1' x 1' Floor tile- tan with white					X		Good
CJ2-003	Bsmt/ Repair	FLR	M	MS		Beige mastic/ floor tile					X		Good
CJ2-004	Bsmt/ Repair	WAL	M	MS		Beige mastic/ baseboard					X		Good
CJ2-005	Bsmt/ Repair	WAL	M	BB		Beige baseboard 4"					X		Good
CJ2-006	Bsmt/ Boiler	WAL	M	PM		Packing material - red/thru wall / condensate return line					X		Good
CJ2-007	Bsmt/ Boiler	CLG	S	SI		Sprayed insulation - grey - 1" thk/ on metal beam					X		Good
CJ2-008	Bsmt/ Boiler	HV	M	MS		Grey mastic					X		Good
CJ2-009	Bsmt/ Boiler	CWP	M	PM		Packing material - grey/ domestic cold water					X		Good
CJ2-010	Bsmt/ Stf RR	CLG	M	CT		2' x 2' Ceiling tile - off-white/ 1/2" thk					X		Good
CJ2-011	Bsmt/ Lndry	CLG	S	SI		Sprayed insulation - grey - 1" thk/ on metal beam					X		Fair
CJ2-012	Bsmt/ Hall	WAL	M	RC		Caulking/ off-white					X		Good
CJ2-013	Bsmt/ Cage	CLG	M	CT		2' x 2' Ceiling tile - off-white/ 1/2" thk					X		Good
CJ2-014	1st Flr	WAL	M	WB		Wallboard - pntd beige/ off-white 1/2" thk					X		Fair
CJ2-015	1st Flr	WAL	M	JC		Joint compound		0.50					Fair

DLZ

Building: Jail II

Technician: S. Liston, B. Dosunmu

Laboratory: F.S.W. Lab., Inc.

Project # : 0022-6013-00

Sample Date: November 20, 2000

BULK SAMPLE DATA SHEET

		Bulk Sample Material Description					Analysis % of Asbestos						
Sample #	Floor/Room	Type of Equip./Constr.	Type of Material	Material Description	Homogenous Area	Observation notes on material: - Basic characteristics - Thickness - Layering/color/variations	Amosite	Chrysotile	Crocidolite	Archived sample	None Detected	Photo #	Remarks
CJ2-016	1st flr/ RR	CLG	S	PFC		PFC/ off-white ceiling					X		Good
CJ2-017	1st flr/ RR	FLR	M	FT		1' x 1' Floor tile/ tan with off-white					X		Good
CJ2-018	1st flr/ RR	WAL	M	BB		Beige baseboard - 6"					X		Good
CJ2-019	1st flr/ RR	WAL	M	WB		Wallboard - pnted beige/ off-white 1/2"					X		Fair
CJ2-020	1st flr/ RR	WAL	M	JC		Joint compound		0.75					Fair
CJ2-021	2nd flr	CLG	M	CT		2' x 2' ceiling tile/ off-white - 1/2" thk					X		Good
CJ2-022	2nd flr/ MP	CLG	S	PFC		PFC/ off-white ceiling					X		Good
CJ2-023	2nd flr/ MP	CLG	S	PSC		PSC -grey					X		Good

DLZ

Building: Jail II

Technician: S. Liston, B. Dosunmu

Laboratory: F.S.W. Lab., Inc.

Project # : 0022-6013-00

Sample Date: November 20, 2000

BULK SAMPLE DATA SHEET

		Bulk Sample Material Description					Analysis % of Asbestos						
Sample #	Floor/Room	Type of Equip./Constr.	Type of Material	Material Description	Homogenous Area	Observation notes on material: - Basic characteristics - Thickness - Layering/color/variations	Amosite	Chrysotile	Crocidolite	Archived sample	None Detected	Photo #	Remarks
CJ2-024	2nd flr/ mech	HV	M	MS		Grey mastic					X		Good
CJ2-025	2nd/ rec	CLG	S	PFC		PFC/ off-white ceiling					X		Good
CJ2-026	3rd flr/ C-9	WAL	M	RC		Beige caulk					X		Good
CJ2-027	3rd flr/ RR	CLG	S	PFC		PFC/ off-white ceiling					X		Good
CJ2-028	4th flr/ 423	WAL	M	WB		Wallboard -pntd beige - off-white - 1/2" thk		0.75					Good
CJ2-029	4th flr/ 423	WAL	M	JC		Joint compound					X		Good
CJ2-030	4th flr	CLG	M	CT		2' x 2' Ceiling tile - off-white 1/2" thk					X		Good
CJ2-031	4th flr	CLG	M	CT		2' x 2' Ceiling tile - off-white 1/2" thk					X		Good
CJ2-032	4th flr	FLR	M	FT		1' x 1' Floor tile/ tan with off-white					X		Good
CJ2-033	4th flr	FLR	M	MS		Beige mastic					X		Good
CJ2-034	4th flr	CLG	M	CT		2' x 2' Ceiling tile - off-white - 1/2" thk					X		Fair
CJ2-035	4th flr	CLG	M	CT		2' x 2' Ceiling tile - off-white - 1/2" thk					X		Fair
CJ2-036	2nd/ rec	WAL	M	RC		Beige caulk					X		Good
CJ2-037	6th / rec	WAL	M			Grey wall covering					X		Good
CJ2-038	6th/ mech	CLG	S	SI		Sprayed insulation - grey 1" thk/ on metal beam					X		Fair

DLZ

Building: Jail II

Technician: S. Liston, B. Dosunmu

Laboratory: F.S.W. Lab., Inc.

Project # : 0022-6013-00

Sample Date: November 21, 2000

BULK SAMPLE DATA SHEET

		Bulk Sample Material Description					Analysis % of Asbestos						
Sample #	Floor/Room	Type of Equip./Constr.	Type of Material	Material Description	Homogenous Area	Observation notes on material: - Basic characteristics - Thickness - Layering/color/variations	Amosite	Chrysotile	Crocidolite	Archived sample	None Detected	Photo #	Remarks
CJ2-039	Penthouse	CLG	S	SI		Sprayed insulation - grey 1" thk/ on metal beams					X		Good
CJ2-040	Bsmt/ Boiler	BLR	T	GM		Boiler gasket - circular -off-white					X		Good
CJ2-041	Bsmt/ Mnt	BLR	M	GM		Manhole cover gasket/ fibrous					X		Good
CJ2-042	8th/ V5	CLG	S	PFC		PFC/ off-white					X		Good
CJ2-043	8th/ V5	CLG	S	PSC		PSC - grey					X		Good
CJ2-044	8th/ mech	SI	S	SI		Sprayed insulation - grey - 1" thk/ on metal beams					X		Fair
CJ2-045	8th/ mech	FLR	M	PM		Packing material - grey/ on conduit					X		Good
CJ2-046	8th/ visit	WAL	M	RC		Caulk- off-white					X		Good
CJ2-047	9th/ rec	CLG	M	PFC		PFC - off-white					X		Good
CJ2-048	9th/ rec	CLG	S	PSC		PSC - grey					X		Good
CJ2-049	10th	CLG	S	SI		Sprayed insulation - grey - 1" thk/ on metal beams					X		Fair

DLZ

Building: Jail II

Technician: S. Liston, B. Dosunmu

Laboratory: F.S.W. Lab., Inc.

Project # : 0022-6013-00

Sample Date: November 21, 2000

BULK SAMPLE DATA SHEET

		Bulk Sample Material Description					Analysis % of Asbestos						
Sample #	Floor/Room	Type of Equip./Constr.	Type of Material	Material Description	Homogenous Area	Observation notes on material: - Basic characteristics - Thickness - Layering/color/variations	Amosite	Chrysotile	Crocidolite	Archived sample	None Detected	Photo #	Remarks
CJ2-050	11th/ rec	CLG	M	PFC		PFC/ off-white ceiling					X		Good
CJ2-051	12th/ mech	HV	M	RC		Caulk- off-white/ around HV duct					X		Good
CJ2-052	12th/ mech	WAL	M	RC		Caulk on door frame - tan					X		Good
CJ2-053	12th/ mech	CLG	S	SI		Sprayed insulation- grey - 1" thk/ on metal beam					X		Fair
CJ2-054	12th/ mech	FLR	M	FT		1' x 1' Floor tile/ tan with off-white					X		Good
CJ2-055	12th/ mech	WAL	M	BB		Beige baseboard - 4"					X		Good
CJ2-056	12th/ mech	CLG	M	CT		2' x 2' Ceiling tile - off-white 1/2" thk					X		Good

DLZ

Building: Jail II

Technician: S. Liston, B. Dosunmu

Laboratory: F.S.W. Lab., Inc.

Project # : 0022-6013-00

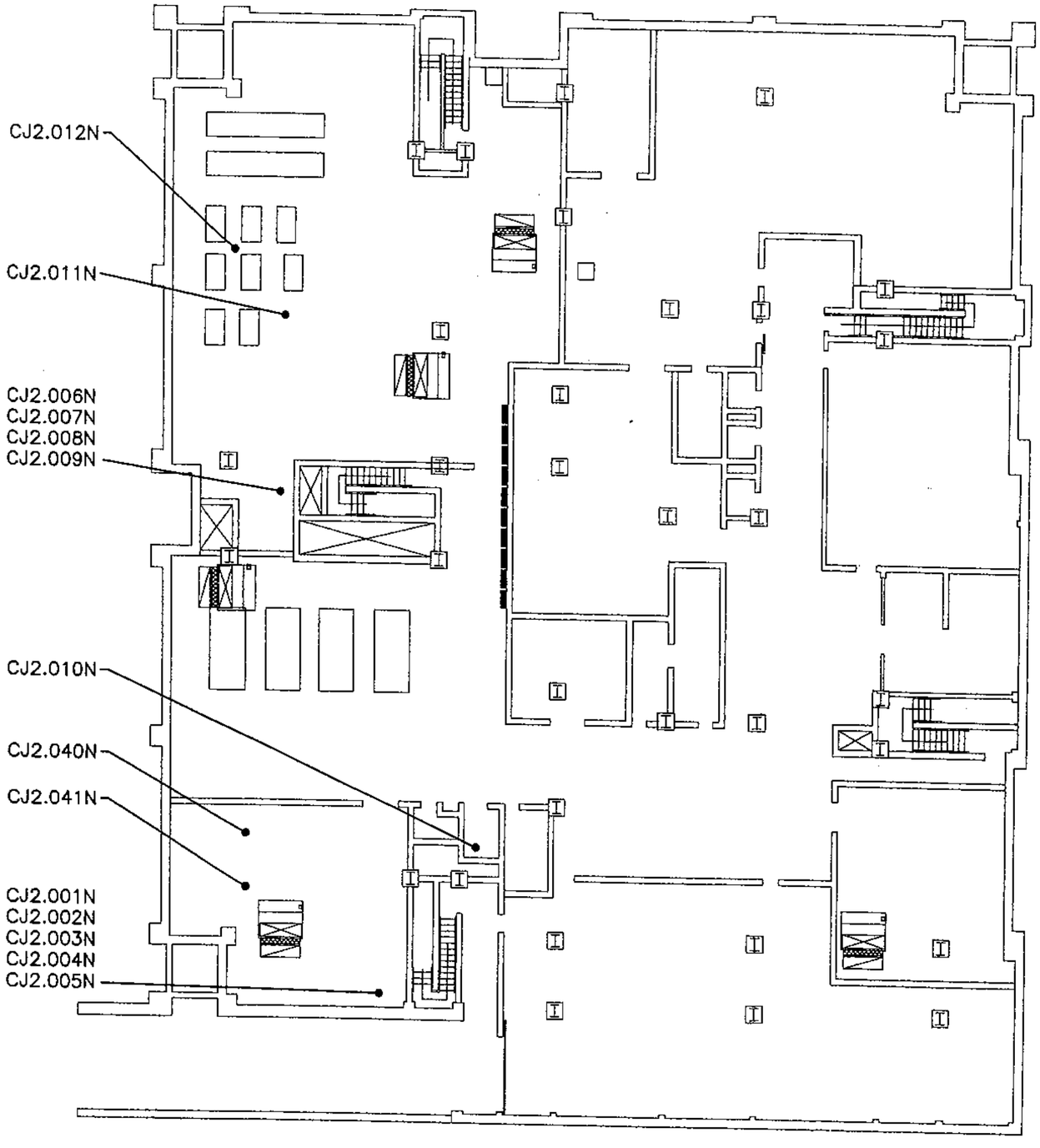
Sample Date: November 27, 2000

3 – DRAWINGS

DRAWINGS

SAMPLE LOCATIONS

GENERAL LOCATIONS OF ASBESTOS CONTAINING MATERIALS



JAIL 2
BASEMENT FLOOR PLAN

LEGEND

CA.121N
- ANALYSIS RESULTS N FOR NEGATIVE or P FOR POSITIVE
- SAMPLE NUMBER AND PHOTOGRAPH NUMBER

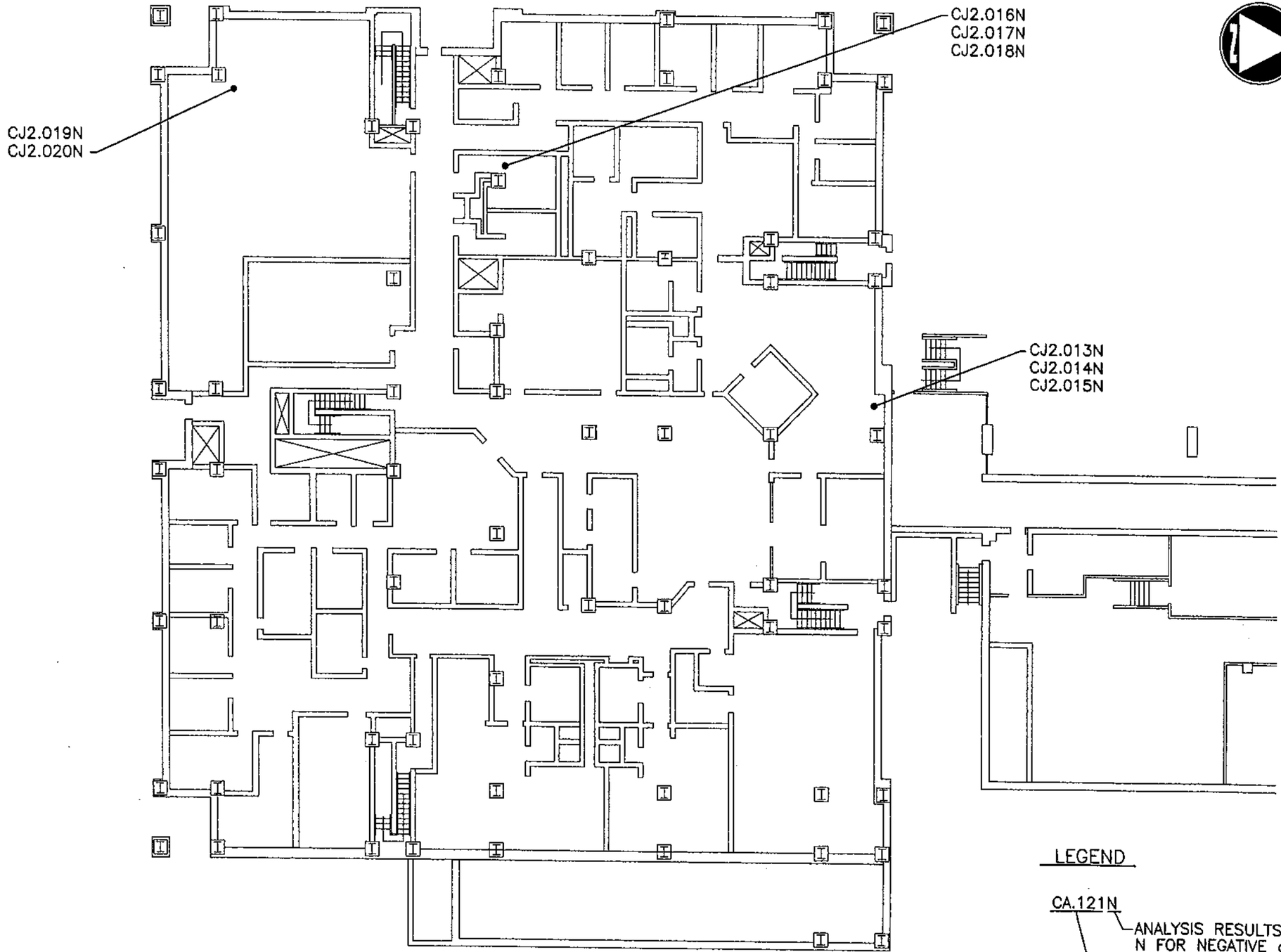
DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS
3182 FRONT STREET
CUYAHOGA FALLS, OHIO 44221
PHONE: (330) 923-0401
FAX: (330) 928-1029

DATE : JAN., 2001
SCALE : NO SCALE
DRAWN BY : RWM
CHECKED BY :
APPROVED BY :

ASBESTOS INSPECTION
FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
BASEMENT FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 1 OF 14



JAIL 2
FIRST FLOOR PLAN

LEGEND

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APPROVED BY :

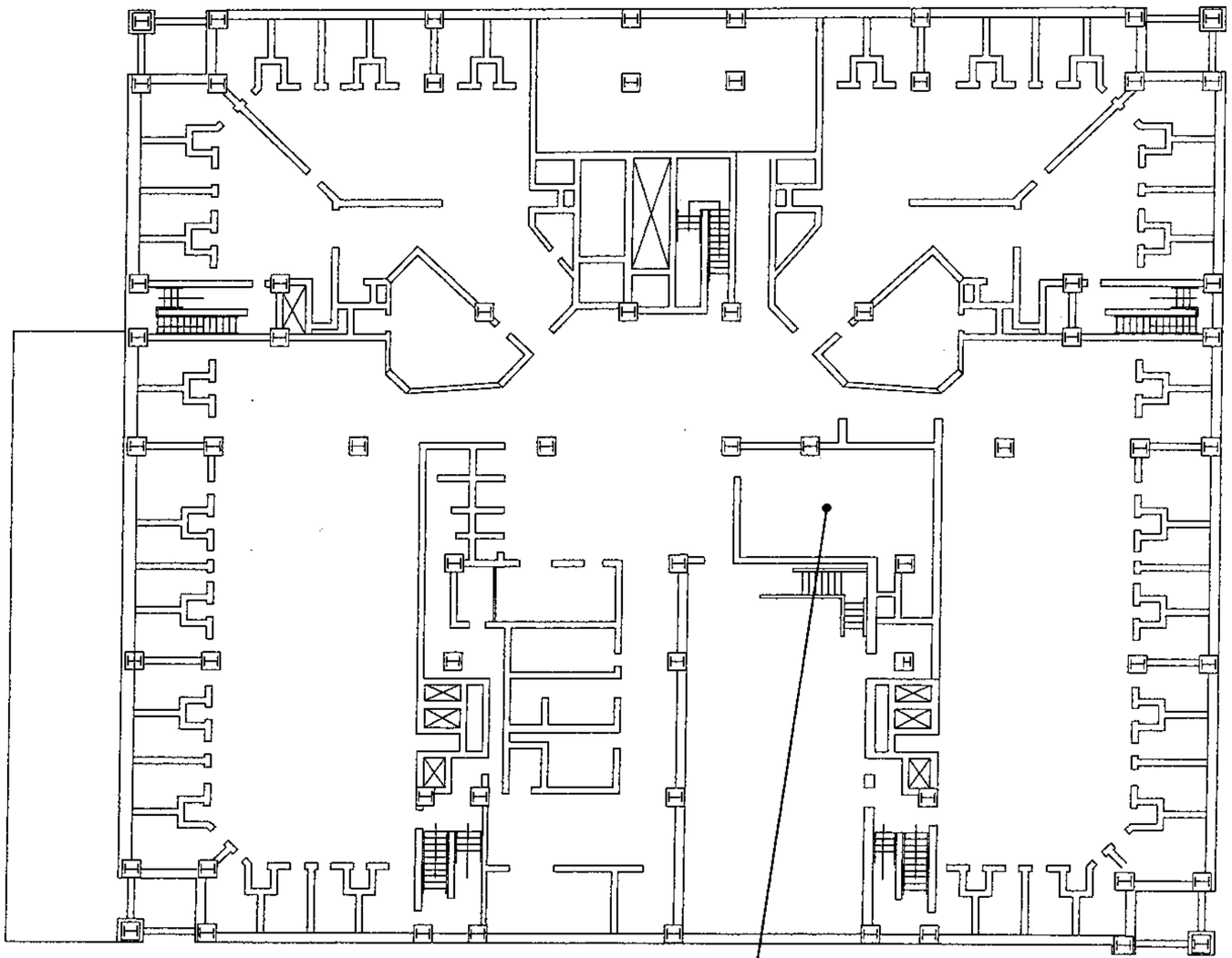
ASBESTOS INSPECTION
FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
FIRST FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 2 OF 14

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CJ2.021N
CJ2.022N
CJ2.023N

JAIL 2
SECOND FLOOR PLAN

LEGEND

CA.121N
- ANALYSIS RESULTS N FOR NEGATIVE or P FOR POSITIVE
- SAMPLE NUMBER AND PHOTOGRAPH NUMBER

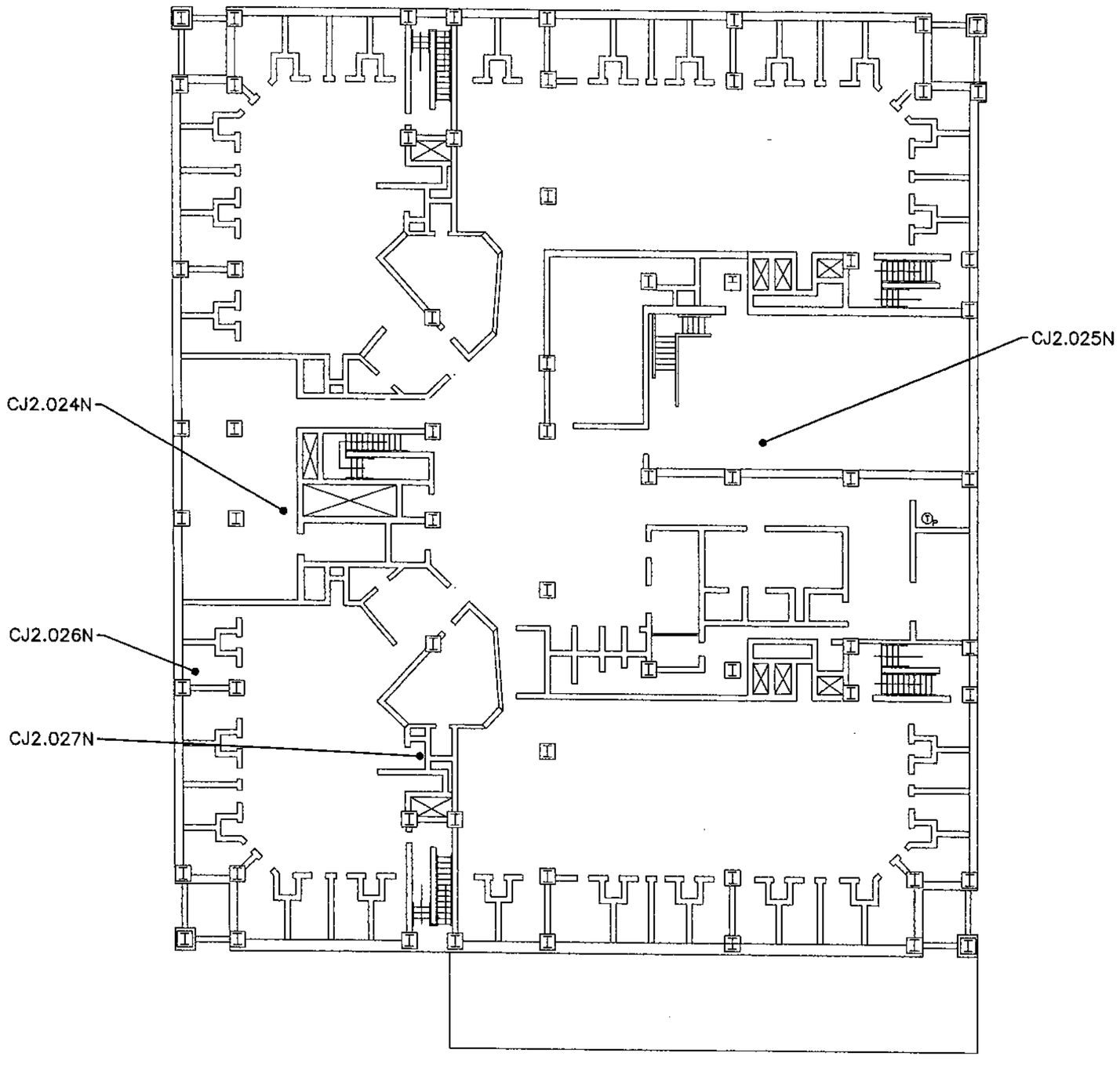
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8158 FRONT STREET
CUYAHOGA FALLS, OHIO 44221
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JAIL 2
BOARD OF CO. COMMISSIONERS
SECOND FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 3 OF 14



JAIL 2
THIRD FLOOR PLAN

LEGEND

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- ANALYSIS RESULTS N FOR NEGATIVE or P FOR POSITIVE
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3102 FRONT STREET
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FAX: (330) 928-1029

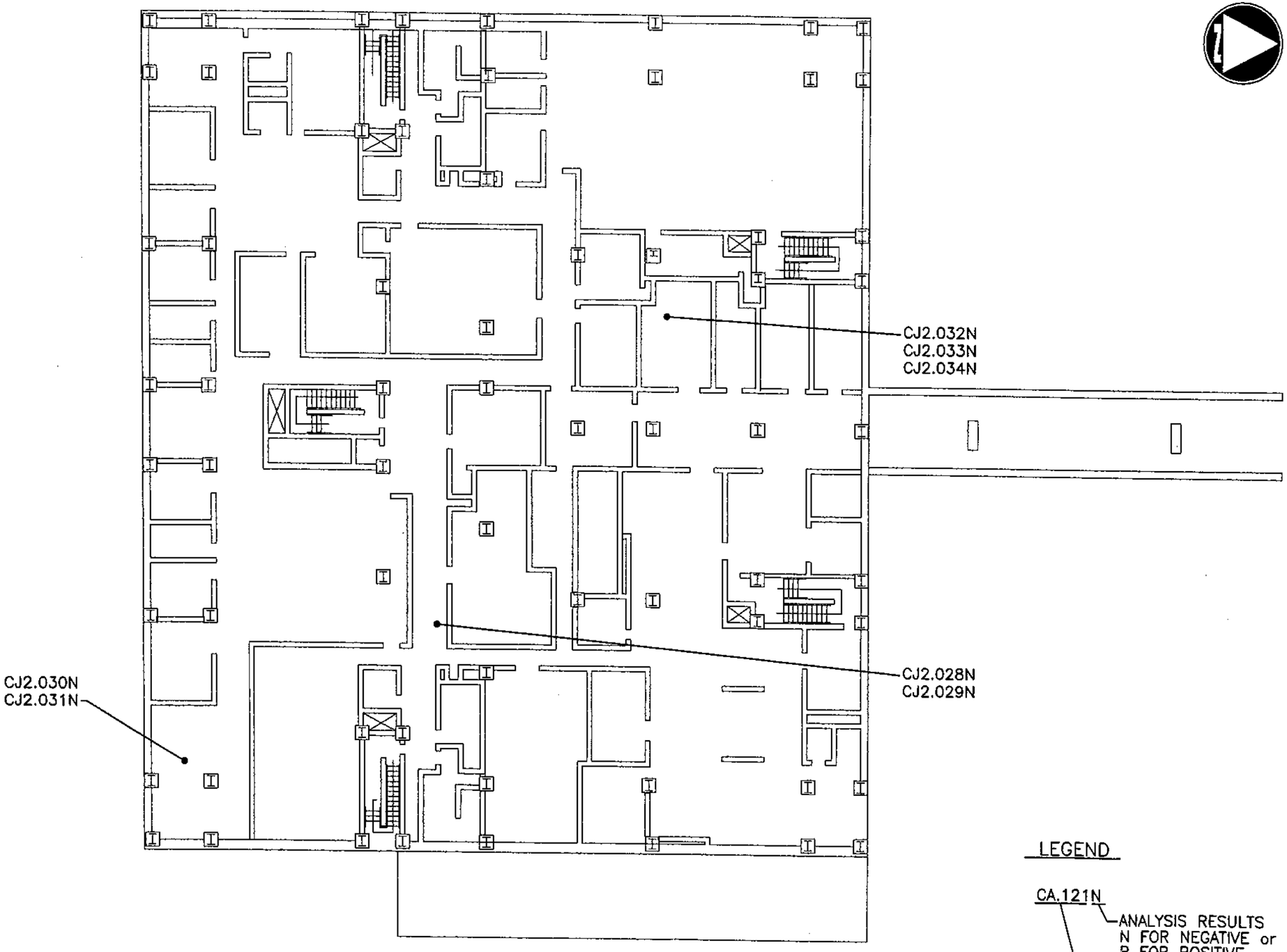
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FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
THIRD FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 4 OF 14

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JAIL 2
FOURTH FLOOR PLAN

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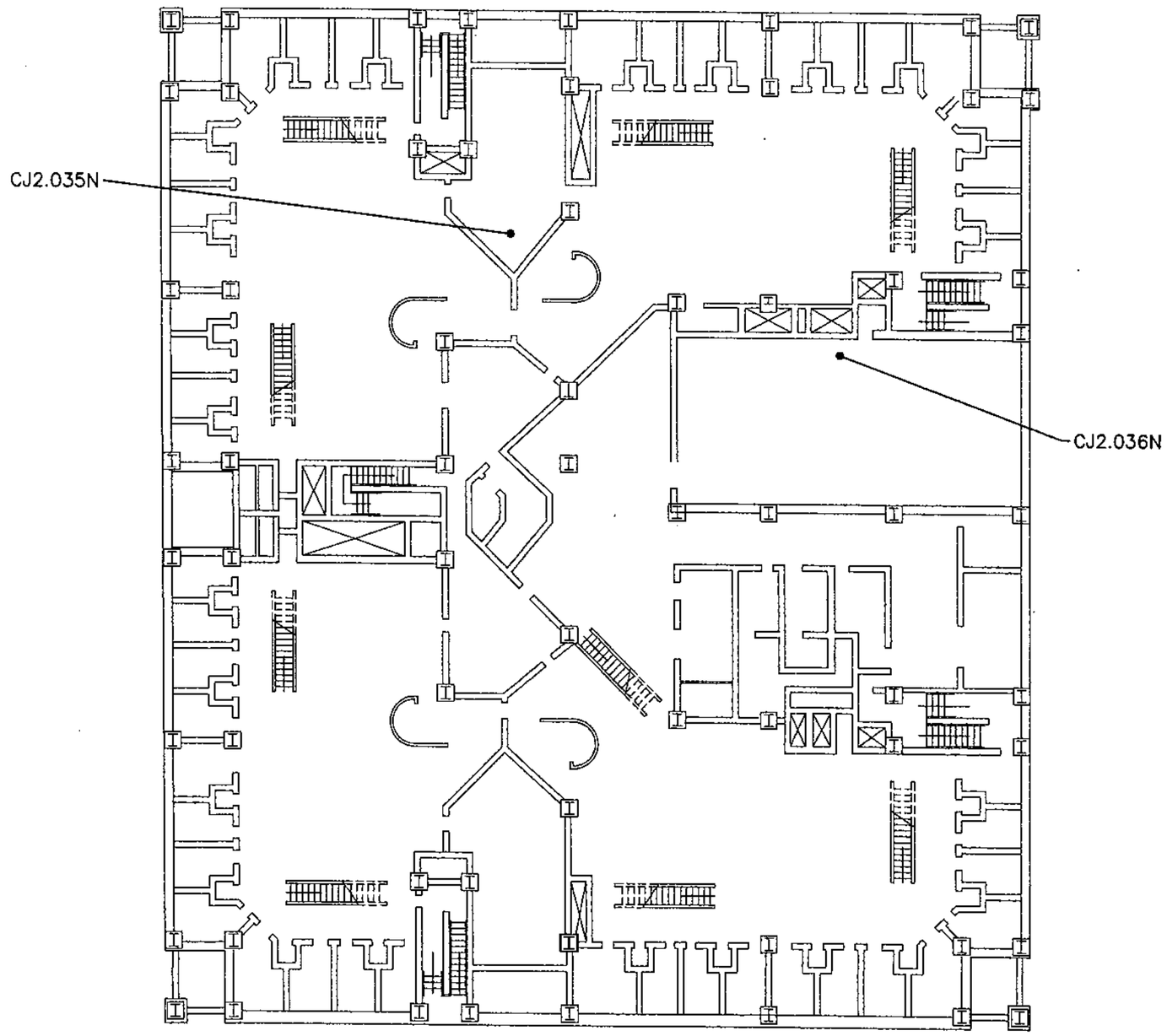
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JAIL 2
BOARD OF CO. COMMISSIONERS
FOURTH FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 5 OF 14

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JAIL 2
FIFTH FLOOR PLAN

LEGEND

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2192 FRONT STREET
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FAX: (330) 928-1029

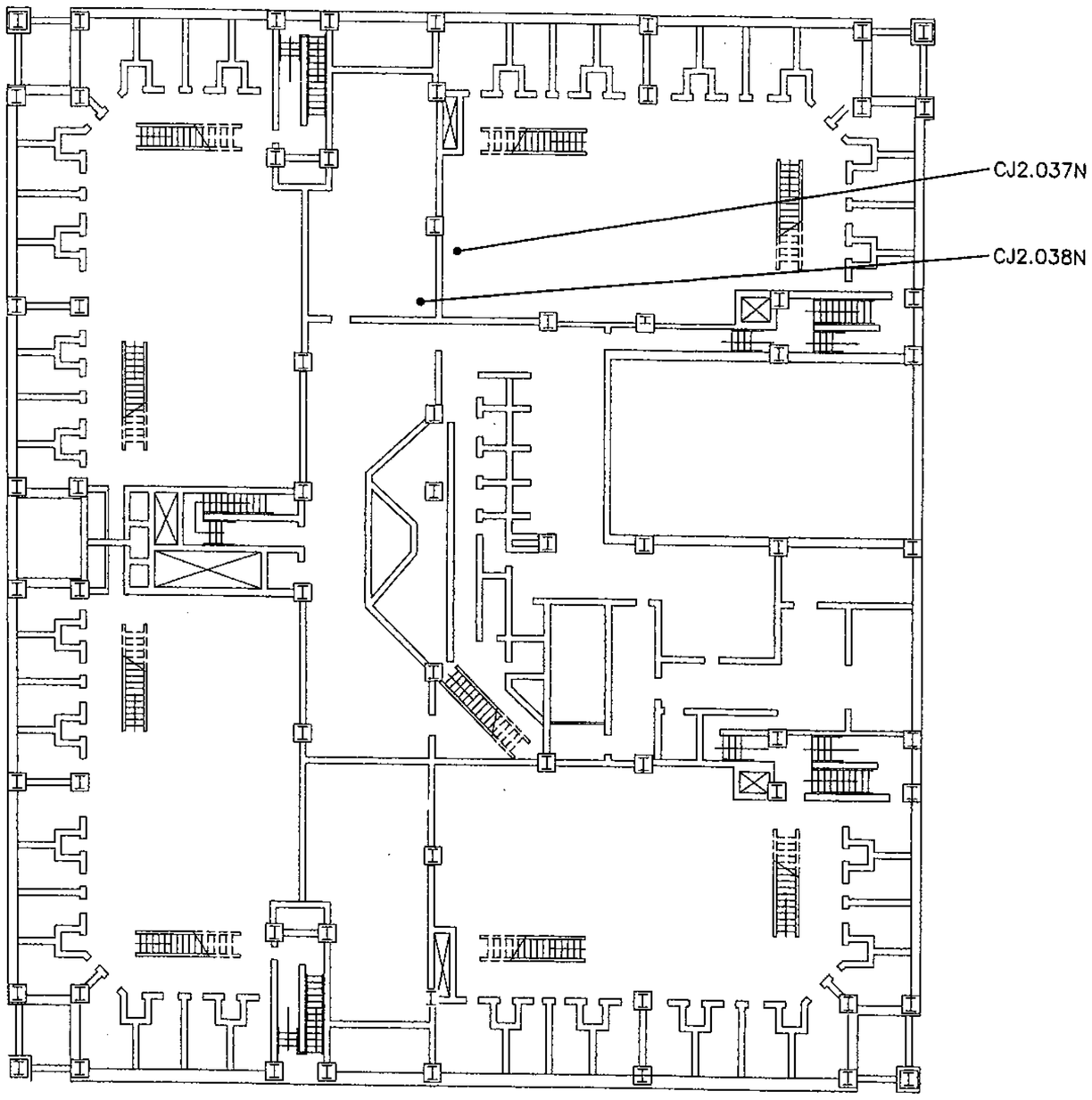
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JAIL 2
BOARD OF CO. COMMISSIONERS
FIFTH FLOOR PLAN

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JAIL 2
SIXTH FLOOR PLAN

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CUYAHOGA FALLS, OHIO 44221
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FAX: (330) 928-1029

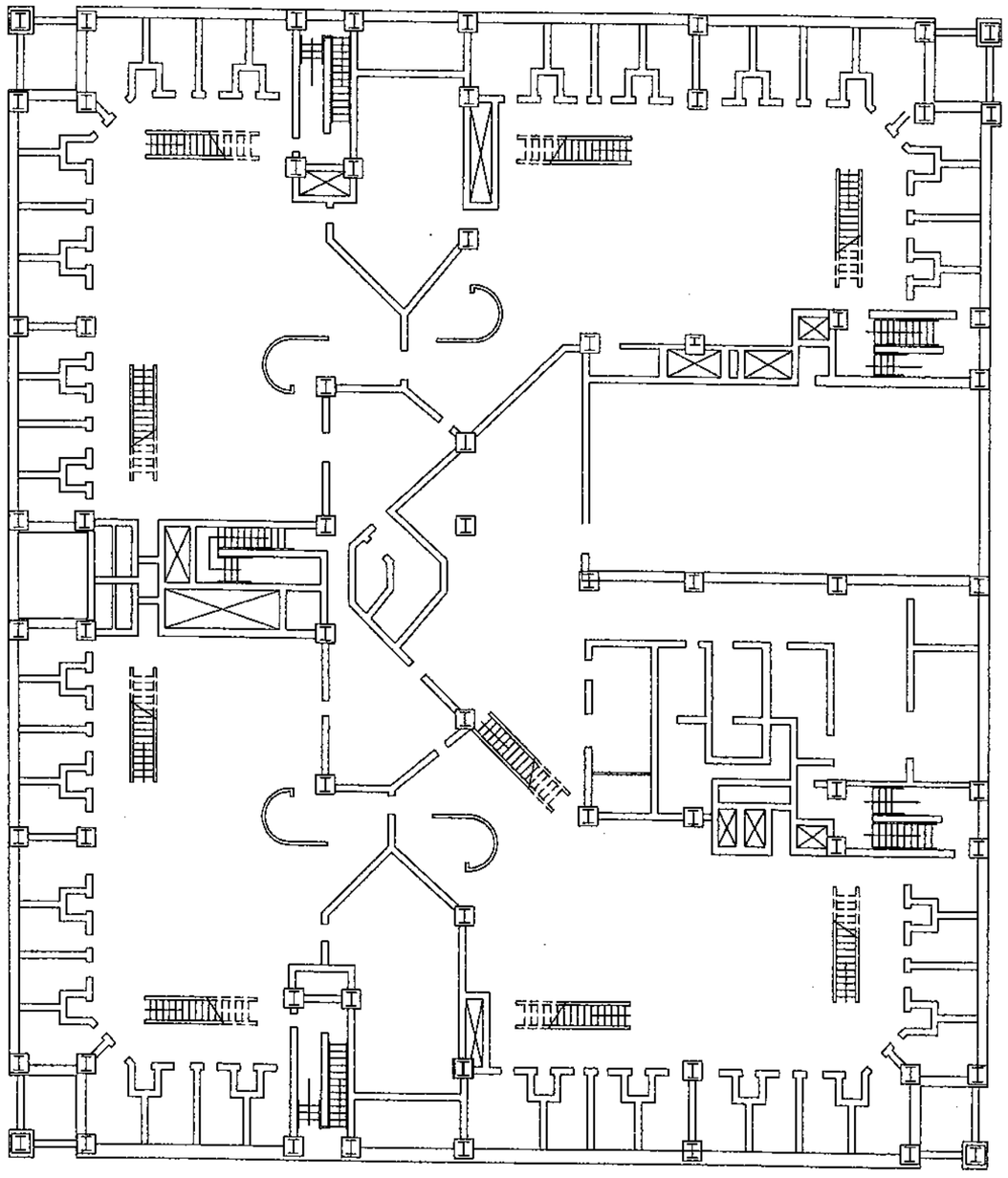
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FOR
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JAIL 2
BOARD OF CO. COMMISSIONERS
SIXTH FLOOR PLAN

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SHEET NO. 7 OF 14

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JAIL 2
SEVENTH FLOOR PLAN

LEGEND

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- SAMPLE NUMBER AND PHOTOGRAPH NUMBER

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2182 FRONT STREET
CUYAHOGA FALLS, OHIO 44221
PHONE: (330) 923-0401
FAX: (330) 928-1329

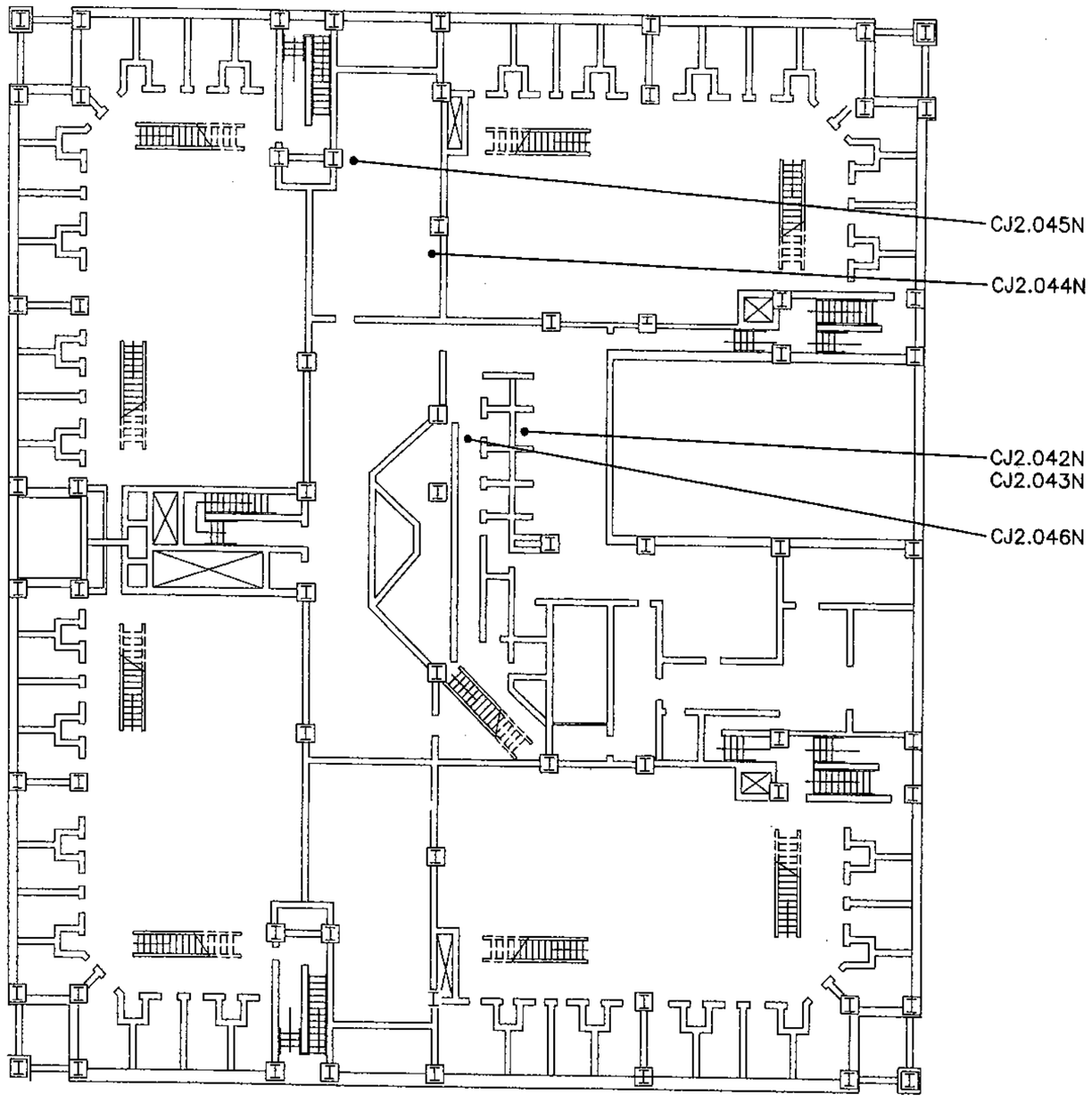
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JAIL 2
BOARD OF CO. COMMISSIONERS
SEVENTH FLOOR PLAN

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SHEET NO. 8 OF 14

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JAIL 2
EIGHTH FLOOR PLAN

LEGEND

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FAX: (330) 928-1028

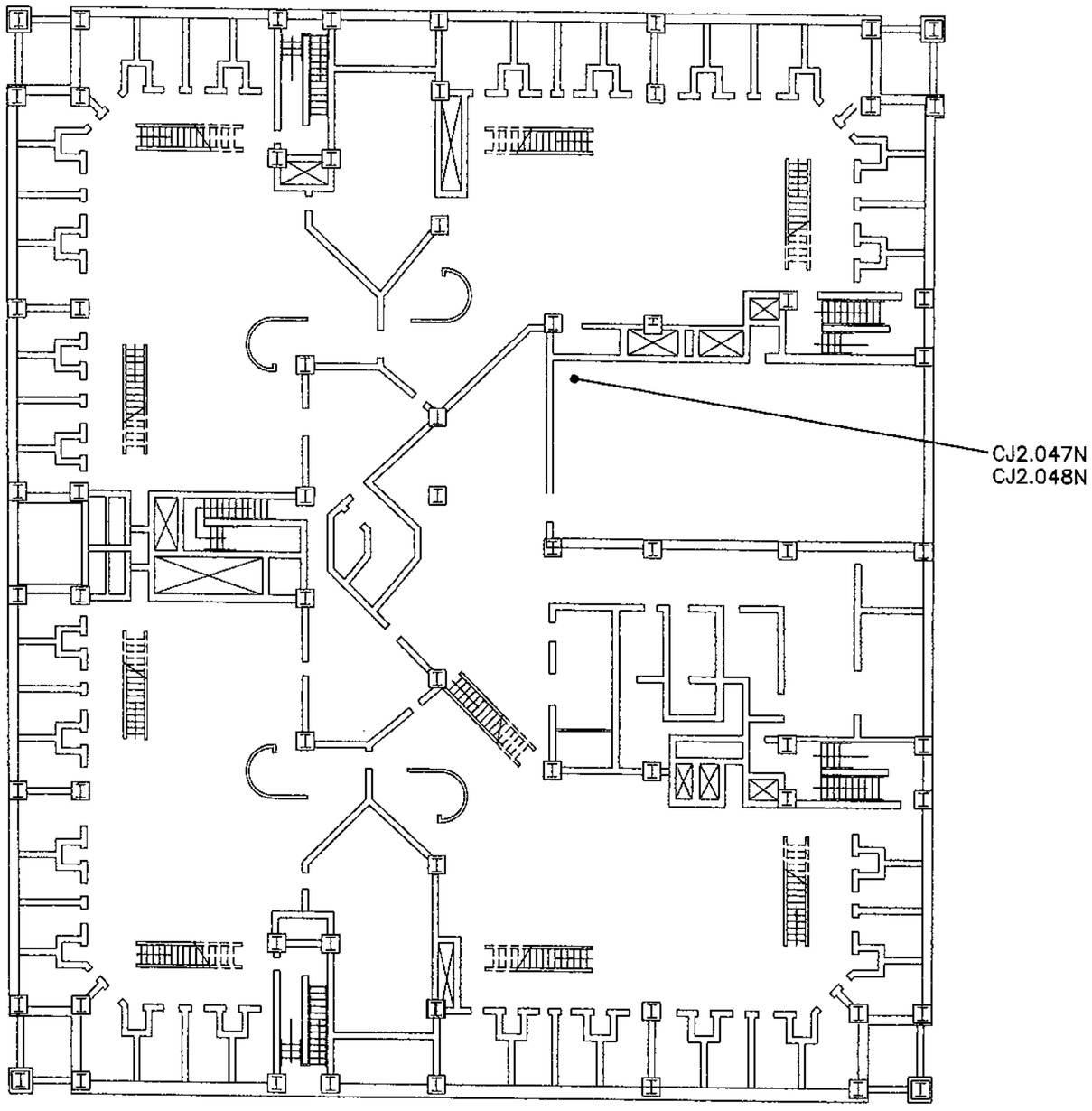
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FOR
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JAIL 2
BOARD OF CO. COMMISSIONERS
EIGHTH FLOOR PLAN

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JAIL 2
NINTH FLOOR PLAN

LEGEND

CA.121N
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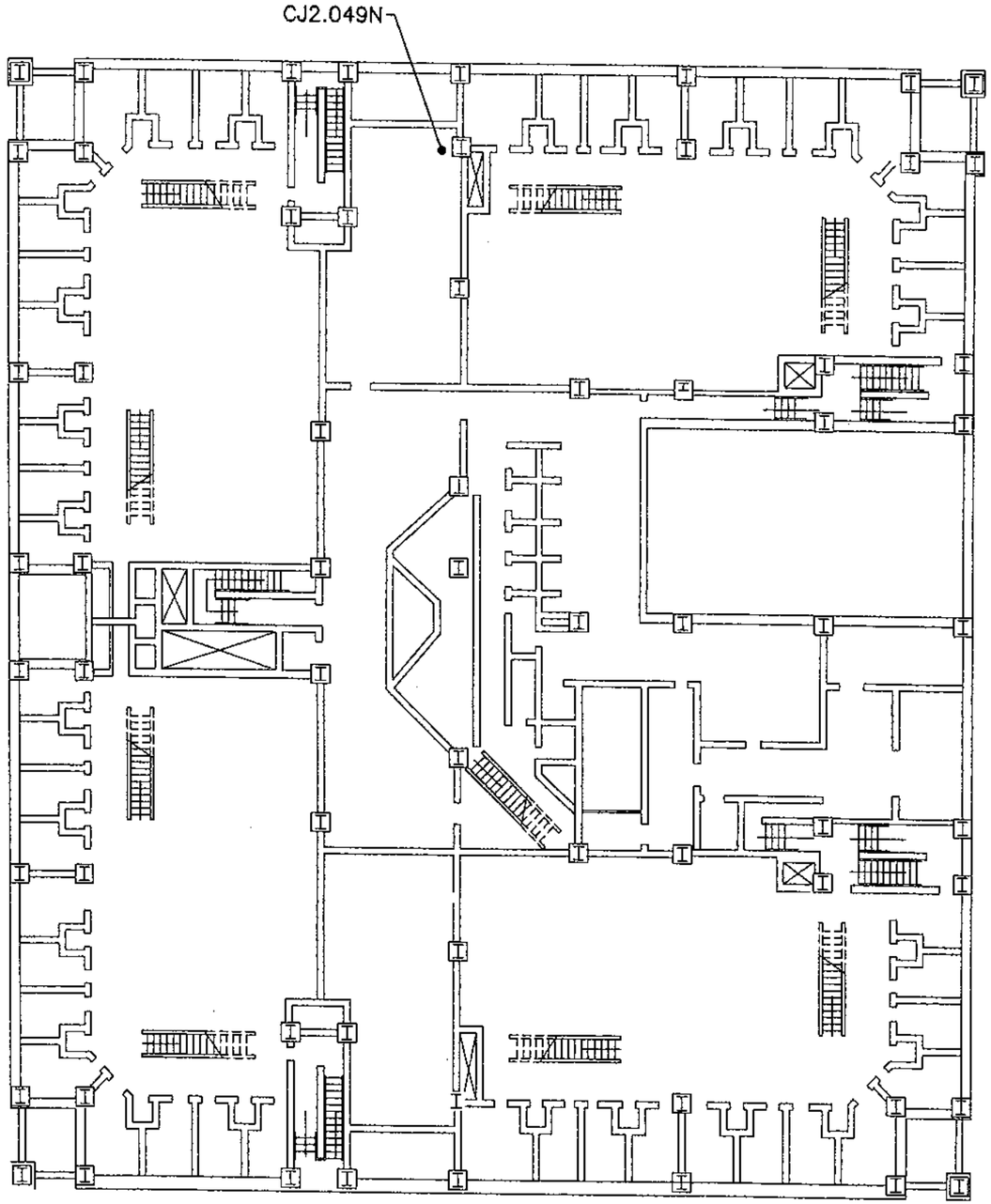
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DRAWN BY : RWM
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APPROVED BY :

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FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
NINTH FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 10 OF 14

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JAIL 2
TENTH FLOOR PLAN

LEGEND

CA.121N
- ANALYSIS RESULTS N FOR NEGATIVE or P FOR POSITIVE
- SAMPLE NUMBER AND PHOTOGRAPH NUMBER

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FAX: (330) 928-1029

DATE : JAN., 2001
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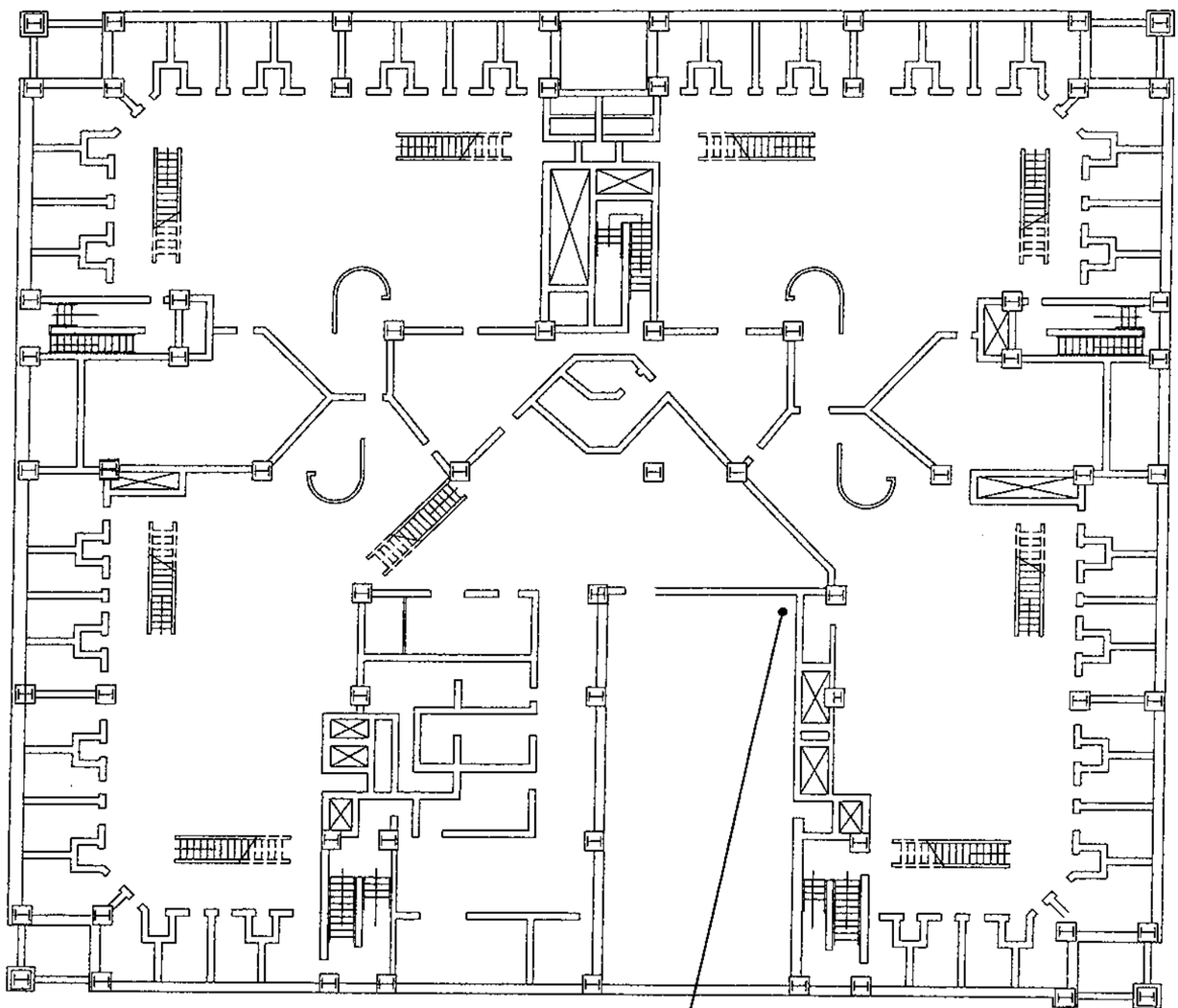
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FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
TENTH FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 11 OF 14

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JAIL 2
ELEVENTH FLOOR PLAN



LEGEND

CA.121N
ANALYSIS RESULTS
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SAMPLE NUMBER
AND PHOTOGRAPH NUMBER

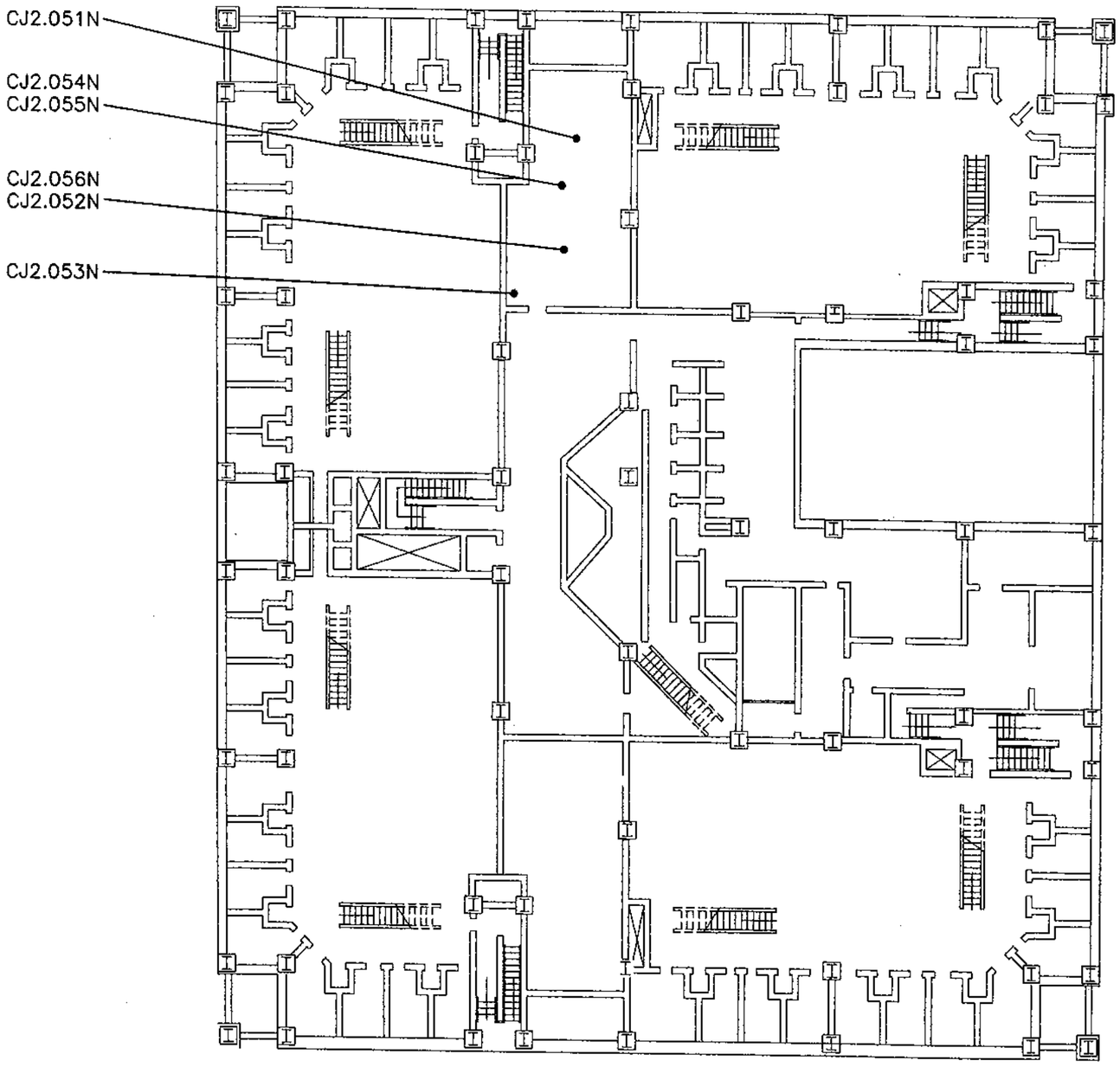
JAIL 2
BOARD OF CO. COMMISSIONERS
ELEVENTH FLOOR PLAN

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SHEET NO. 12 OF 14

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FAX: (330) 668-1028

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JAIL 2
TWELFTH FLOOR PLAN

LEGEND

CA.121N
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- SAMPLE NUMBER AND PHOTOGRAPH NUMBER

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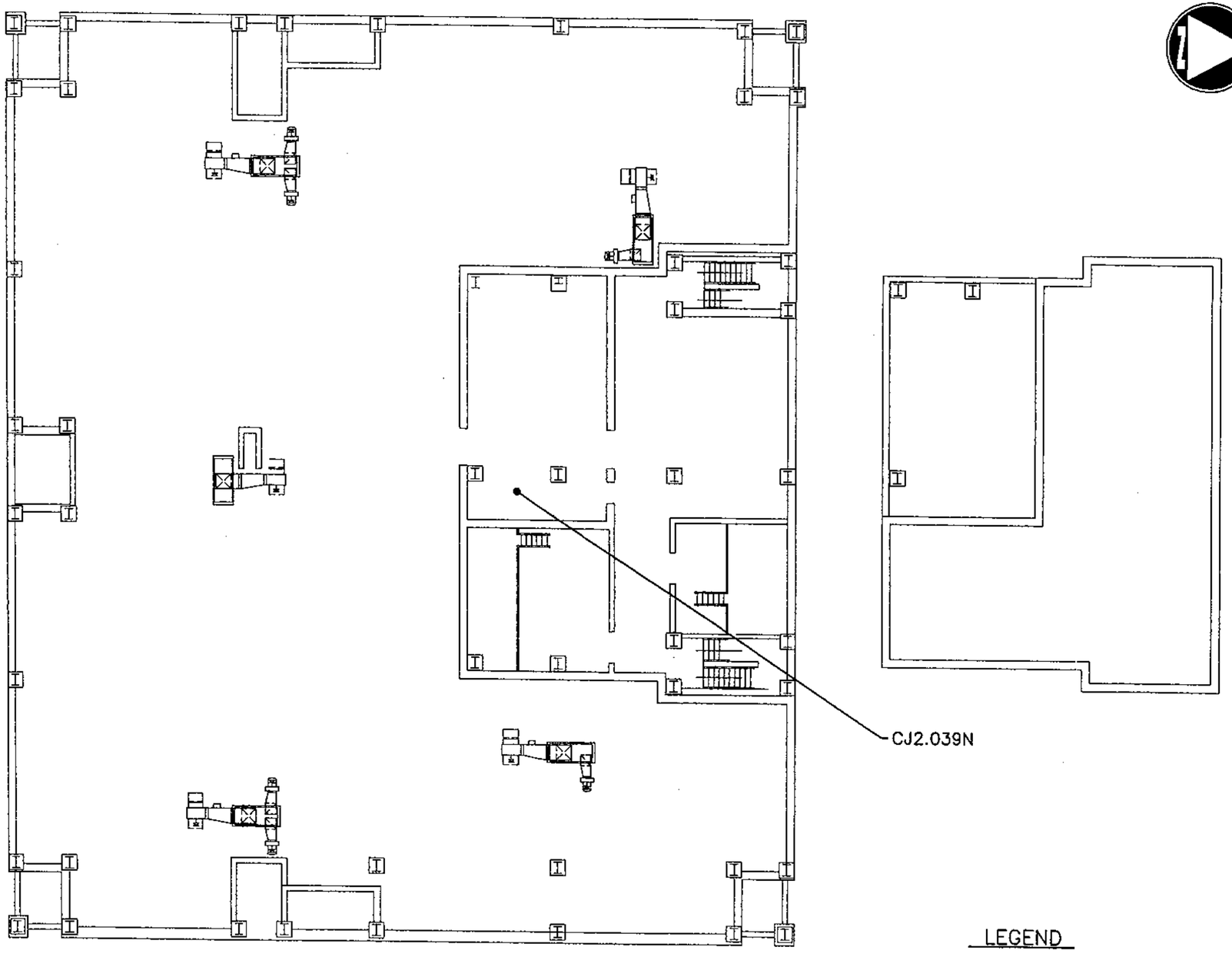
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FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
TWELFTH FLOOR PLAN

PROJ. NO. 0022601300
SHEET NO. 13 OF 14

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JAIL 2
PENTHOUSE ROOF PLAN

LEGEND

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FAX: (330) 928-1029

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FOR
CUYAHOGA COUNTY

JAIL 2
BOARD OF CO. COMMISSIONERS
PENTHOUSE ROOF PLAN

PROJ. NO. 0022601300
SHEET NO. 14 OF 14

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4 – PHOTOGRAPHS

PHOTOGRAPHS



Exterior Photo 1 - Cuyahoga County - Jail II Corrections Facility



Exterior Photo 2 - Cuyahoga County - Jail II Corrections Facility



Exterior Photo 3 - Cuyahoga County - Jail II Corrections Facility



Exterior Photo 4 - Cuyahoga County - Jail II Corrections Facility

5 – LABORATORY

F.S.W. LABORATORY

CHAIN OF CUSTODY SHEETS
LABORATORY ANALYSIS SHEETS

F.S.W. LAB., INC.
MICROSCOPIST-MICROBIOLOGIST
P.O. BOX 221246
BEACHWOOD, OHIO 44122
(216) 371-2205

NIOSH-PAT.-AIHA #9350
NIOSH 582 Certificate #0051
Ohio Dept. Health #3181, 3585
State Certificate #001615
FAX # (216) 371-2820

CLIENT DLZ OHIO, INC.
2162 FRONT STREET
CUYAHOGA FALLS, OHIO 44221-3288

DATE RECEIVED 11-21-00
JOB NUMBER
REPORT NUMBER 021121

PROJECT LOCATION BOARD OF CUYAHOGA COUNTY COMMISSIONERS
CLEVELAND, OHIO

CHAIN OF CUSTODY

LABORATORY REPORT
ASBESTOS BULK ANALYSIS REPORT

Sample I.D. #	Location	Sample Description	Components	Approx. %
CJ2-001	Basement	Spray Ins	N.A.D.	
CJ2-002	Basement	1'x1' FT	N.A.D.	
CJ2 003	Basement	Mastic	N.A.D.	
CJ2 004	Basement	Mastic	"	
CJ2 005	Basement	Baseboard	"	
CJ2 006	Basement	Packing	"	
CJ2 007	Basement	Spray Ins	"	
CJ2 008	Basement	Mastic	"	
CJ2 009	Basement	Packing	"	
CJ2 010	Basement	2x2 CT	"	
CJ2 011	Basement	Spray Ins	"	
CJ2 012	Basement	Caulking	"	
CJ2 013	1st Floor	2'x2' CT	"	
CJ2 014	1st Floor	Wallboard	"	
CJ2 015	1st Floor	Joint Compound	Chrysotile	1.00%

Relinquished By: [signature] **Date** 11/21 **Time** ____ **Received By:** [signature] 11.21.00 FSW

TEST METHOD: EPA-600/M4-82-020 - EPA-600/R-93-116
ANALYTICAL TECHNIQUE: Polarized light microscope
INSTRUMENTATION: Olympus BHTP Polarized light microscope
QUANTIFICATION: Visual microscopic examination
SAMPLE DATA TAKEN BY:
ANALYSIS PERFORMED BY:

NOTE: Point Count Methods of Analysis conducted on samples less than 10% Asbestos.

REVIEWED & APPROVED BY:
COMPLETION DATE 11-27-00

F.S.W. LAB., INC.
MICROSCOPIST-MICROBIOLOGIST
P.O. BOX 221246
BEACHWOOD, OHIO 44122
(216) 371-2205

NIOSH-PAT.-AIHA #9350
NIOSH 582 Certificate #0051
Ohio Dept. Health #3181, 3585
State Certificate #001615
FAX # (216) 371-2820

CLIENT DLZ OHIO, INC.
2162 FRONT STREET
CUYAHOGA FALLS, OHIO 44221-3288

DATE RECEIVED
JOB NUMBER
REPORT NUMBER

PROJECT LOCATION BOARD OF CUYAHOGA COUNTY COMMISSIONERS
CLEVELAND, OHIO

CHAIN OF CUSTODY

LABORATORY REPORT
ASBESTOS BULK ANALYSIS REPORT

Sample I.D. #	Location	Sample Description	Components	Approx.
CJ2-016	1st Floor	Plaster Finish Coat	M-A-D	
CJ2-017	1st Floor	1×1 FT	"	
CJ2-018	1st Floor	6" Baseboard	"	
CJ2-019	1st Floor	Wallboard	"	
CJ2-020	1st Floor	Joint Compound	Chr Ash	1.50%
CJ2-021	2ND Fl	2×2 CT	M-A-D	
CJ2-022	2ND Floor	Plaster Finish Coat	M-A-D	
CJ2-023	2ND Floor	Plaster Finish Coat	M-A-D	

Relinquished By: MA **Date** 11/21 **Time** ____ **Received By:** 11-21-00 RW

TEST METHOD: EPA-600/M4-82-020 - EPA-600/R-93-116
ANALYTICAL TECHNIQUE: Polarized light microscope
INSTRUMENTATION: Olympus BHTP Polarized light microscope
QUANTIFICATION: Visual microscopic examination
SAMPLE DATA TAKEN BY:
ANALYSIS PERFORMED BY:
REVIEWED & APPROVED BY:
COMPLETION DATE 11-22-00

NOTE: Point Count Methods of Analysis conducted on samples less than 10% Asbestos.

F.S.W. LAB., INC.
MICROSCOPIST-MICROBIOLOGIST
P.O. BOX 221246
BEACHWOOD, OHIO 44122
(216) 371-2205

NIOSH-PAT.-AIHA #9350
NIOSH 582 Certificate #0051
Ohio Dept. Health #3181, 3585
State Certificate #001615
FAX # (216) 371-2820

CLIENT DLZ OHIO, INC.
2162 FRONT STREET
CUYAHOGA FALLS, OHIO 44221-3288

DATE RECEIVED 11-24-00
JOB NUMBER
REPORT NUMBER 0211240 1

PROJECT LOCATION BOARD OF CUYAHOGA COUNTY COMMISSIONERS
CLEVELAND, OHIO

CHAIN OF CUSTODY

LABORATORY REPORT
ASBESTOS BULK ANALYSIS REPORT

Sample I.D. #	Location	Sample Description	Components	Approx. %
CJ2024	2ND FL	MASTIC	N.A.D	
CJ2-025	2ND FL/3rd FL	Plaster Finish Coat		
CJ2-026	2ND FL/3rd FL	CAULK		
CJ2-027	3rd FL	Plaster Scratch Coat		
CJ2-028	4th FL	Joint Compound	Chrysotile	1.5%
CJ2-029	4th FL	WALL BOARD	N.A.D	
CJ2-030	4th FL	2×2 CT (smooth)		
CJ2-031	4th FL	2×2 CT (smooth)		
CJ2-032	4th FL	1×1 FT		
CJ2-033	4th FL	MASTIC		
CJ2-034	4th FL	Plaster Finish Coat		
CJ2-035	5th FL	Plaster Finish Coat		
CJ2-036	2ND FL	CAULK		
CJL-037	6th FL	WALL Covering		
CJ2-038	6th FL	Spray Insulation		

Relinquished By: [signature] **Date** 11/21 **Time** ____ **Received By:** [signature] 11/22

FSW

TEST METHOD: EPA-600/M4-82-020 - EPA-600/R-93-116
ANALYTICAL TECHNIQUE: Polarized light microscope
INSTRUMENTATION: Olympus BHTP Polarized light microscope
QUANTIFICATION: Visual microscopic examination
SAMPLE DATA TAKEN BY:
ANALYSIS PERFORMED BY:

NOTE: Point Count Methods of Analysis conducted on samples less than 10% Asbestos.

REVIEWED & APPROVED BY:
COMPLETION DATE 11-27-00

F.S.W. LAB., INC.
MICROSCOPIST-MICROBIOLOGIST
P.O. BOX 221246
BEACHWOOD, OHIO 44122
(216) 371-2205

NIOSH-PAT.-AIHA #9350
NIOSH 582 Certificate #0051
Ohio Dept. Health #3181, 3585
State Certificate #001615
FAX # (216) 371-2820

CLIENT DLZ OHIO, INC.
2162 FRONT STREET
CUYAHOGA FALLS, OHIO 44221-3288

DATE RECEIVED
JOB NUMBER
REPORT NUMBER

PROJECT LOCATION BOARD OF CUYAHOGA COUNTY COMMISSIONERS
CLEVELAND, OHIO

CHAIN OF CUSTODY

LABORATORY REPORT
ASBESTOS BULK ANALYSIS REPORT

Sample I.D. #	Location	Sample Description	Components	Approx. %
CJ2-039	ELEVATOR	SPRAY INSULATION	N.A.D	

Relinquished By: Steve Luston **Date** 11/21 **Time** ____ **Received By:** [signature] FSW 11/22

TEST METHOD: EPA-600/M4-82-020 - EPA-600/R-93-116
ANALYTICAL TECHNIQUE: Polarized light microscope
INSTRUMENTATION: Olympus BHTP Polarized light microscope
QUANTIFICATION: Visual microscopic examination
SAMPLE DATA TAKEN BY:
ANALYSIS PERFORMED BY:

NOTE: Point Count Methods of Analysis conducted on samples less than 10% Asbestos.

REVIEWED & APPROVED BY:
COMPLETION DATE

F.S.W. LAB., INC.
MICROSCOPIST-MICROBIOLOGIST
P.O. BOX 221246
BEACHWOOD, OHIO 44122
(216) 371-2205

NIOSH-PAT.-AIHA #9350
NIOSH 582 Certificate #0051
Ohio Dept. Health #3181, 3585
State Certificate #001615
FAX # (216) 371-2820

CLIENT DLZ OHIO, INC.
2162 FRONT STREET
CUYAHOGA FALLS, OHIO 44221-3288

DATE RECEIVED
JOB NUMBER
REPORT NUMBER

PROJECT LOCATION BOARD OF CUYAHOGA COUNTY COMMISSIONERS
CLEVELAND, OHIO

CHAIN OF CUSTODY

LABORATORY REPORT
ASBESTOS BULK ANALYSIS REPORT

Sample I.D. #	Location	Sample Description	Components	Approx. %
CJ2-040	Boiler Rm	Gasket		
CJ2-041	Repair Shop	Gasket		
CJ2-042	8 th Fl	Plaster Finish Coat		
CJ2-043	8 th Fl	Plaster Scratch Coat		
CJ2-044	8 th Fl	Spray Insulation		
CJ2-045	8 th Fl	Filler-Sonalt		
CJ2-046	8 th Fl	Caulking		
CJ2-047	9 th Fl	Plaster Finish Coat		
CJ2-048	9 th Fl	Plaster Scratch Coat		
CJ2-049	10 th Fl	Spray Insulation patch		

Relinquished By: _____ **Date** 11/22 **Time** _____ **Received By:** _____ 11/22

TEST METHOD: EPA-600/M4-82-020 - EPA-600/R-93-116
ANALYTICAL TECHNIQUE: Polarized light microscope
INSTRUMENTATION: Olympus BHTP Polarized light microscope
QUANTIFICATION: Visual microscopic examination
SAMPLE DATA TAKEN BY:
ANALYSIS PERFORMED BY:

NOTE: Point Count Methods of Analysis conducted on samples less than 10% Asbestos.

REVIEWED & APPROVED BY:
COMPLETION DATE

F.S.W. LAB., INC.
MICROSCOPIST-MICROBIOLOGIST
P.O. BOX 221246
BEACHWOOD, OHIO 44122
(216) 371-2205

NIOSH-PAT.-AIHA #9350
NIOSH 582 Certificate #0051
Ohio Dept. Health #3181, 3585
State Certificate #001615
FAX # (216) 371-2820

CLIENT DLZ OHIO, INC.
2162 FRONT STREET
CUYAHOGA FALLS, OHIO 44221-3288

DATE RECEIVED 11-30-w
JOB NUMBER
REPORT NUMBER D2113021

PROJECT LOCATION BOARD OF CUYAHOGA COUNTY COMMISSIONERS
CLEVELAND, OHIO

CHAIN OF CUSTODY

LABORATORY REPORT
ASBESTOS BULK ANALYSIS REPORT

Sample I.D. #	Location	Sample Description	Components	Approx. %
CJ2-050	11th Floor	PFC		
CJ2-051	12th Floor	CAULK		
CJ2-052	12th Floor	CAULK		
CJ2-053	12th Floor	Spray Insulation		
CJ2-054	12th Floor	Floor Tile		
CJ2-055	12th Floor	BB		
CJ2-056	12th Floor	2x2 CT		

Relinquished By: [signature] **Date** 11/22 **Time** ____ **Received By:** [signature] 11-28-00

TEST METHOD: EPA-600/M4-82-020 - EPA-600/R-93-116
ANALYTICAL TECHNIQUE: Polarized light microscope
INSTRUMENTATION: Olympus BHTP Polarized light microscope
QUANTIFICATION: Visual microscopic examination
SAMPLE DATA TAKEN BY:
ANALYSIS PERFORMED BY:

NOTE: Point Count Methods of Analysis conducted on samples less than 10% Asbestos.

REVIEWED & APPROVED BY:
COMPLETION DATE 12-4-w

6 – CERTIFICATIONS

CERTIFICATIONS

STATE CERTIFICATIONS
EPA CERTIFICATIONS

CERTIFIED ASBESTOS HAZARD ABATEMENT
PROJECT DESIGNER

GINA DE MARINIS

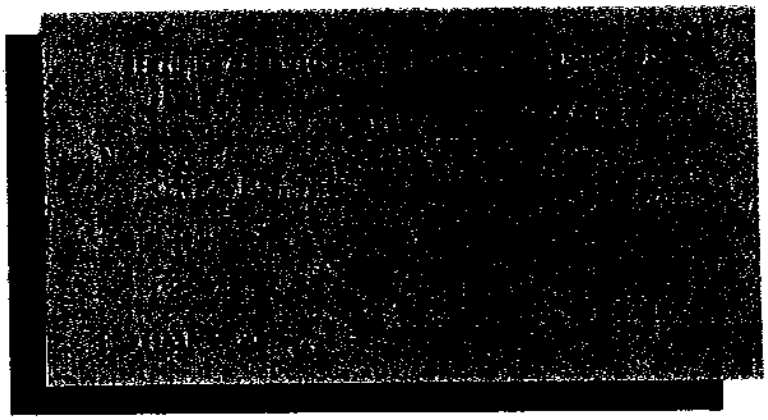
NAME

276-80-6133

SOCIAL SECURITY NO.

NO. 60492 EXPIRES 07/31/01

HEA 5343 (Rev. 1 94)



CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST

STEVE LISTON

Name

278-52-1007

Social Security #

No. 31428 Expires 03/19/2001

HEA 5333 (REV. 8/98)

CERTIFIED ASBESTOS HAZARD ABATEMENT
PROJECT DESIGNER

ROBERT SKUFCA

NAME

286-44-9243

SOCIAL SECURITY NO.

NO. 60125 EXPIRES 06/15/01

HEA 5343 (Rev. 1 94

CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST

GINA DE MARINIS

Name

276-80-6133

Social Security #

No. 33667 Expires 07/13/2001

HEA 5333 (REV. 8/98)

CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST

ROBERT SKUFCA

Name

286-44-9245

Social Security #

No. 3747 Expires 08/28/2001

HEA 5333 (REV. 8/98)

JAMES E. DAGUE ASSOCIATES, INC.

397 YAGER ROAD - CLINTON, OHIO 44216 - (330) 882-4922 - FAX (330) 882-4922

CERTIFIES THAT

GINA DeMARINIS (276-80-6133)

HAS ATTENDED THE COURSE AND SUCCESSFULLY PASSED THE EXAMINATION FOR:

ASBESTOS HAZARD BUILDING INSPECTOR REFRESHER COURSE

IN ACCORDANCE WITH TSCA TITLE II
INDIANA RULE, 326 IAC 18-2
AND
CHAPTER 3701.34, OHIO ADMINISTRATIVE CODE

COURSE HELD: JUNE 21, 2000
EXAM HELD: JUNE 21, 2000

CERTIFICATE NUMBER: 0023405189
CERTIFICATE EXPIRATION DATE: JUNE 21, 2001

James E Dague
COURSE DIRECTOR

James E Dague
EXAM ADMINISTRATOR

JAMES E. DAGUE ASSOCIATES, INC.

397 YAGER ROAD - CLINTON, OHIO 44216 - (330) 882-4922 - FAX (330) 882-4922

CERTIFIES THAT

GINA DeMARINIS (276-80-6133)

HAS ATTNDED THE COURSE AND SUCCESSFULLY PASSED THE EXAMINATION FOR:

ASBESTOS HAZARD MANAGEMENT PLANNER REFRESHER COURSE

IN ACCORDANCE WITH TSCA TITLE II
INDIANA RULE, 326 IAC 18-2
AND
CHAPTER 3701.34, OHIO ADMINISTRATIVE CODE

COURSE HELD: JUNE 21, 2000
EXAM HELD: JUNE 21, 2000

CERTIFICATE NUMBER: 0023405189
CERTIFICATE EXPIRATION DATE: JUNE 21, 2001

James E. Dague
COURSE DIRECTOR

James E. Dague
EXAM ADMINISTRATOR

TSI TRAINING SERVICES INTERNATIONAL

ASBESTOS PROJECT DESIGNER
REFRESHER CERTIFICATE

This is to certify

Gina De Marinis
276-80-6133

attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory refresher course for Asbestos Project Designer and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2.

7/13/01	7/13/00	7/13/00	Cleveland, Ohio
Expiration Date	Dates of Course	Examination Date	Course Location

Douglas D. Schafer
Training Manager

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
Ph: (800) 750-2260

The State Board of Sanitarian Registration
77 South High Street, 16th Floor
Columbus, OH 43266-0322
Phone: 614-466-1771 Fax: 614-644-8112

0 TSI N° 3849 pdr

TSI TRAINING SERVICES INTERNATIONAL

ASBESTOS INSPECTOR
INITIAL CERTIFICATE

This is to certify

Bolaji Dosunmu

302-66-6063

attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for Asbestos Worker and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2 and Chapter 3701-34 Ohio Administrative Code.

10/11/01	10/9-11/00	10/11/00	Columbus, Ohio
Expiration Date	Dates of Course	Examination Date	Course Location

Wayne K. Ingram
Course Instructor

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
Ph: (800) 750-2260

The State Board of Sanitarian Registration
77 South High Street, 18th Floor
Columbus, OH 43266-0582
Phone 614-466-1772 Fax 614-644-8115

0 TSI Nº 4329

ii

TSI TRAINING SERVICES INTERNATIONAL

ASBESTOS MANAGEMENT PLANNER
INITIAL CERTIFICATE

This is to certify

Balaji Dosunmu

302-66-6063

attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for Asbestos Workers and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2 and Chapter 3701-34 Ohio Administrative Code.

10/13/01	10/12-13/00	10/13/00	Columbus, Ohio
Expiration Date	Dates of Course	Examination Date	Course Location

Douglas D. Schafer
Training Manager

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095

The State Board of Sanitarian Registration

0 TSI Nº 4338 mpi

JAMES E. DAGUE ASSOCIATES, INC.

397 YAGER ROAD - CLINTON, OHIO 44216 - (330) 882-4922 - FAX (330) 882-4922

CERTIFIES THAT

STEVE LISTON [278-52-1007]

HAS ATTENDED THE COURSE AND SUCCESSFULLY PASSED THE EXAMINATION FOR:

ASBESTOS HAZARD BUILDING INSPECTOR REFRESHER COURSE

IN ACCORDANCE WITH TSCA TITLE II
INDIANA RULE, 326 IAC 18-2
AND
CHAPTER 3701.34, OHIO ADMINISTRATIVE CODE

COURSE HELD: DECEMBER 6, 2000
EXAM HELD: DECEMBER 6, 2000

CERTIFICATE NUMBER: 0026805251
CERTIFICATE EXPIRATION DATE: DECEMBER 6, 2001

James E Dague
COURSE DIRECTOR

James E Dague
EXAM ADMINISTRATOR

JAMES E. DAGUE ASSOCIATES, INC.

397 YAGER ROAD - CLINTON, OHIO 44216 - (330) 882-4922 - FAX (330) 882-4922

CERTIFIES THAT

STEVE LISTON (278-52-1007)

HAS ATTNDED THE COURSE AND SUCCESSFULLY PASSED THE EXAMINATION FOR:

ASBESTOS HAZARD MANAGEMENT PLANNER REFRESHER COURSE

IN ACCORDANCE WITH TSCA TITLE II
INDIANA RULE, 326 IAC 18-2
AND
CHAPTER 3701.34, OHIO ADMINISTRATIVE CODE

COURSE HELD: DECEMBER 6, 2000
EXAM HELD: DECEMBER 6, 2000

CERTIFICATE NUMBER: 0026805251

CERTIFICATE EXPIRATION DATE: DECEMBER 6, 2001

James E. Dague
COURSE DIRECTOR

James E. Dague
EXAM ADMINISTRATOR

TSI TRAINING SERVICES INTERNATIONAL

ASBESTOS BUILDING INSPECTOR
REFRESHER CERTIFICATE

This is to certify

Robert B. Skufca
286-44-9243

attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory refresher course for Asbestos Building Inspector and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2.

Douglas D. Schafer	5/10/01	5/10/00	5/10/00	Cleveland, Ohio
Douglas D. Schafer Training Manager	Expiration Date	Dates of Course	Examination Date	Course Location

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
Ph: (800) 750-2260

0 TSI N° 3537 ir

TSI TRAINING SERVICES INTERNATIONAL

ASBESTOS MANAGEMENT PLANNER
REFRESHER CERTIFICATE

This is to certify

Robert B. Skufca
286-44-9243

attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory refresher course for Asbestos Management Planner and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 1AC 18-2.

Douglas D. Schafer	5/10/01	5/10/00	5/10/00	Cleveland, Ohio
~~Douglas D. Schafer~~ ~~Training Manager~~	~~Expiration Date~~	~~Dates of Course~~	~~Examination Date~~	~~Course Location~~

0 TSI N° 3555 mpr

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
Ph: (800) 750-2260

TSI TRAINING SERVICES INTERNATIONAL

ASBESTOS PROJECT DESIGNER
REFRESHER CERTIFICATE

This is to certify

Robert B. Skufca
286-44-9243

attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory refresher course for Asbestos Project Designer and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 1AC 18-2.

Douglas D Schafer	3/16/01	3/16/00	3/16/00	Cleveland, Ohio
Douglas D. Schafer Training Manager	Expiration Date	Dates of Course	Examination Date	Course Location

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
Ph: (800) 750-2260

0 TSI Nº 3257 pdr

7 – APPENDICES

APPENDIX A

ENVIRONMENTAL SITE AUDIT
FOR
CUYAHOGA COUNTY BOCC
PROPERTY

FACILITY NAME	**Jail II Corrections Facility**
ADDRESS	**1200 Ontario Avenue**
CITY	**Cleveland, Ohio 44113**
BUILDING I.D. NUMBER	**4442**
DIVISION	**Common Pleas Court**
DEPARTMENT	**Board of County Commissioners**
DATE OF CONSTRUCTION	**1992-94**
NUMBER OF FLOORS	**13**
APPROXIMATE SQUARE FEET	**252,740**
DATE OF ASSESSMENT	**November 27, 2000**

I certify that to the best of my knowledge and belief, the facts and data obtained in this inspection are true and accurate, based on currently accepted and available information as of the inspection date.

Steve Liston
(print/type name)

1/15/01
(Environmental Inspector's Signature/Date)

Name of Firm: DLZ , Corp.

QUESTIONNAIRE FOR ENVIRONMENTAL SITE AUDIT

Please complete the following questions. If the question is not applicable, use N/A. ***Do not leave a blank***:

1. Name of facility: Jail II Corrections Facility

2. Address: 1200 Ontario Avenue

   City/State: Cleveland/ Ohio ZIP: 44113

3. Phone Number: (216) 348-4153

4. Please describe the current land and building use on this property:
Cuyahoga County Corrections Facility

5. How many buildings are located on this property? 1

   A. Are any of the buildings vacant? ____YES __X_NO
   If yes:
   1. How many? _____

   2. Please list them and describe their prior usage.
      a. _____
      b. _____
      c. _____

6. Please list the previous owners of property if applicable and if known (company name).
   A. N/A
   B. _____
   C. _____

7. Please list prior uses of property, if applicable and if known.

   A. Mott Building - Offices
   B. Charles Building - Offices
   C. _____

8. Please describe the land use on each property that abuts the above listed County property.

   North – Justice Center
   South – St. Clair Avenue
   East – Cleveland Police Headquarters
   West – West 3rd Street
   _____

9. Is this facility currently or has it ever previously been used for equipment or vehicle maintenance? ____YES _X_NO
   If yes:
   A. How is waste generated by equipment or vehicle maintenance disposed?

   _____
   _____
   _____

10. Is there presently, or has there previously been, any use of pesticides or herbicides at this location? _X_YES ____NO
    If Yes:
    A. Are they stored on property site? _X_YES _X_NO
    B. Where are they stored?_____
       Laundry room – chemicals for body lice, etc.
       Pesticides – Private Contractor – stored off-site

11. Presence of Asbestos-Containing Materials

    __X__Asbestos-containing materials are not present in this facility.
    _____ACM is present, but its disturbance is not anticipated.
    _____ACM is present and may be disturbed

12. Presence of lead-based paint.

    A. Is there flaking or peeling suspect lead-based paint? _X_YES ___NO
    If Yes:
    Location(s): Mechanical rooms
    _____

13. Radon
    A. Does this facility need to be tested for radon? ___YES _X_NO
    Has this facility ever had a radon survey, If so, are the results of the survey available?

14. Are there any other oil products or hazardous substances located on this property? _X_YES ____NO
    If Yes:
    A. Please list trade names: _____

    _____

    B. What are they used for? Compressor oil _____

    Coil cleaner – degreaser _____

    _____

    C. Where are they located? Repair shop _____

    _____

    _____

15. Are there any containers, tanks or drums that are empty or contain unknown substances located on this property?
    ____YES _X_NO

    Comments:_____

    _____

    _____

16. Have there been any releases or spills of oil or hazardous substances on this property?
    ___YES _X_NO
    If Yes:
    A. What were the contents of the spill?_____

    _____

    _____

    B. How often has this occurred? (List dates, if applicable.)

    _____

    _____

    _____

C. Have there ever been spills or mixing of process water with storm water or other substances? _____YES __X__NO

D. Has there been any contamination of the ground as a result of the spill?
_____YES __X__NO

17. Are there any underground storage tanks (UST's) or above-ground tanks (AGT's) located on this property?
_____YES __X__NO

If Yes:

A. How many? _____

B. Use and contents of UST's/AGT's._____

_____

_____

C. Size of UST's/AGT's._____

_____

D. Year installed or approved. _____

_____

18. Have any UST's been removed from this property?

_____YES __X__NO How many _____

19. Are there any electrical transformers located on this property?
__X__YES _____NO

If Yes:

A. How many? Approximately 35

B. Name of transformer's manufacturer. General Electric _____

_____

C. Age of transformer Less than 10 years ____

D. Do they contain PCB's?
_____YES __X__NO

20. Is there any other electrical equipment, which may contain PCB's? (i.e., capacitors or switches (for submersible pumps), circuit breakers, reclosers, voltage regulators, electromagnets, or cable). ____YES __X__NO

21. Are there any water wells located on this property? ____YES __X__NO
If yes:
A. Is there monitoring of wells? ____YES ____NO

22. Are there any oil or gas wells on this property? ____YES __X__NO

23. Are there any other types of wells? ____YES __X__NO
If yes:
A. Please describe._____

_____

24. Are any of the above wells unused or abandoned? ____YES __X__NO
If yes:
A. Please describe._____

_____

25. What type of surface drainage exists on this property?
A. __X__storm sewer
B. _____ditch
C. _____other (please describe)_____

_____

26. Is sanitary sewage generated at this site? __X__YES ____NO
If yes:
A. What method of disposal is used:
1. __X__A sanitary sewer?

2. _____An on-site sewage treatment facility?
a. _____septic tank
b. _____package WWTP
c. _____other (please describe)_____

_____

3. _____Other means of sanitary disposal? (please describe)_____

_____

27. Is the building sewer lateral fitted with a grease and oil interceptor?
____YES __X__NO
If yes:
A. How often is the grease and oil interceptor cleaned? _____

_____

B. Where does the facility dispose of the material removed from the grease and oil interceptor? _____

_____

28. What means of trash disposal is currently being used at this location:
    A. _____public
    B. __X__private
    C. _____other (please describe) _____

    _____

29. Are there any conditions present not mentioned above, that need to be corrected to remove any potential environmental of health risk? _____YES _X__NO

    Comments:_____

    _____

    _____

30. Activities of adjacent properties may pose potential environmental risks to the subject property. _____YES __X___NO

    _____

    _____

    _____

31. Please list any additional comments. (General field observations)

    _____

    _____

    _____