Hardening / Shelter State EOC Hardening / Shelter

State Application	Y	N
Descriptive Project Name	X	
Detailed Project Budget	X	
Project Type	X	
Regular/Phased	X	
Applicant Data	X	
Descriptive Project Title	X	
Project Type	X	
State/County/Community	X	
Tax ID Number & FIPS Code	X	
DUNS Number	X	
Legislative/Congressional Districts	X	
Non-Profit		X
NFIP Community ID#		X
NFIP Participant/date entered		X
NFIP good standing/proof		X
Last CAV Date		X
Mitigation Plan Approval	X	
Mitigation Plan Name	X	
Mitigation Plan Expriation Date	X	
Point of Contact/Alter.	X	
Application Preparer (Physical address)	X	
Directions to applicant office	X	
Authorized Applicant Agent	X	
Assurances (State & Federal)	X	
PROJECT LOCATION	X	
Physical Location	X	
Title Holder	X	
Structures Protected	X	

Project Description	Y	N
Explanantion of Problem	X	
Hazard(s) to be mitigated	X	
Type of proposed project	X	
# persons protected	X	
Level of protection	X	
Engineering Calculations	X	
Useful life of project	X	
Alternative 1 (cost)	X	
Alternative 2 (cost)	X	
Alternative 3 (cost)	X	
Source Funds	X	
Federal Share	X	
State Share	X	
In kind service	X	
Global Match	X	
Other source		X
Estimated budget	X	
Professional Services	X	
Contractual Services	X	
Project Management	X	
Other Expenses	X	
Work Schedule	X	
Needs to be 36 months, 1095 days	X	
Environmental, Historical	X	
Number No Responses Alt.1	X	
Number No Responses Alt.2	X	
Number No Responses Alt.3	X	
Environmental Impact	X	
Public Notifaction	X	
Name & Address of source	X	
Post Project Land Use		X
Intentions for land		X

SHELTER RETROFIT	Y	N
Project Information	X	
Building size and use	X	
Building Value	X	
Building Contents	X	
Displacement Costs	X	
Public Value Non-Profit Service	X	
Rent and Business Income	X	
Mitigation Project Data	X	
Temporary Relocation Costs	X	

- ~~Redo Sect/Budget~~
- BCA
- PSI packet
- Building Value
- Historical Damages
- CD
- ~~Re~~

WEST VIRGINIA SUB-RECIPIENT APPLICATION
HAZARD MITIGATION GRANT PROGRAM
STRUCTURAL

STATE OF WEST VIRGINA HM SUB-GRANT APPLICATION PRE-CHECK
INITIAL EACH PERTANENT LINE ITEM TO INDICATE IT IS INCLUDED

PROJECT NAME: State EOC Hardening / Shelter
PROJECT BUDGET: **$5,000,000.00**

_____ Private Property Demolition Removal (Participation Packet)
X _____ COMPLETED HM GRANT APPLICATION
X _____ COMMITMENT LETTER OF 25% MATCH (if non-federal share is not available. Check with the State for this item)

PROJECT TYPES

_____ MITIGATION RECONSTRUCTION (Demo/Rebuild)

_____ Design to International Building Code 2009 or later.
_____ Floodplain, State and Local Ordinances.
_____ Elevation Certificate
_____ Construction Drawings (preliminary)
_____ Maps and photographs of project sites

_____ • Benefit Cost Analyst (Mitigation Reconstruction Cost Higher Than $175,000.)

_____ Complete home owner packet: Property Inventory Form, HM Voluntary Participation Agreement, Assignment of Coverage - D, Increased Cost of Compliance Coverage/NFIP and WV Hazardous Materials Property Survey

_____ ELEVATION (Structurally Sound)

_____ Elevation Certificate
_____ Maps and photographs of project sites
_____ Complete home owner packet: Property Inventory Form, HM Voluntary Participation Agreement, Assignment of Coverage - D, Increased Cost of Compliance Coverage/NFIP and WV Hazardous Materials Property Survey

_____ ACQUISITION/DEMOLITION (in the flood way)

_____ Maps And Photographs Of Project Site(s)
_____ Complete home owner packet: Property Inventory Form, HM Voluntary Participation Agreement, Assignment of Coverage - D, Increased Cost of Compliance Coverage/NFIP and WV Hazardous Materials Property Survey
_____ Submit the Original Mitigation Application and an Electronic Copy

RECEIVED
APR 10 2018
BY: FEMA

THIS SECTION FOR STATE USE ONLY

__ Standard HMGP	__ Planning / Technical Assistance	__ Application Complete
__ Initial Submission	__ Resubmission	
__ 5% Initiative		

__ Conforms with State Plan __ In Designated Area __ Statewide	**Applicant Type:** __ State or Local Government __ Private Non-Profit (Tax ID Received) __ Indian Tribe or Tribal Organization	**Project Type(s):** __ Flood __ Seismic __ Wind __ Landslide __ Other
NFIP Status: __ NFIP Participant __ In Good Standing		

State Application ID: Application received on:

SHMO Receiving Signature: Date:

State Reviewer: Date:

Reviewer Phone:

Reviewer FAX:

Part 1: Applicant Data:

1. Project Title: WVDHSEM EOC Hardining / Shelter Application
FEMA Identifier: (State use only) FEMA-4273-DR-WV

2. Project Type:
Elevation: ____ Mitigation Reconstruction: ____ Local Plan: ____
Relocation: ____ Localized Flood Reduction: ____ Generator: ____
Acquisition: ____ Flood-Proofing: (Historical/Commercial) X Other:

3. State: WV 4. County: 5. Community:

6. FIPS Code: 054-00000 7. DUNS Number: 192434900

8. Tax ID Number: (b)(4) 9. Community ID #:

10. State Legislative District:

11. State Congressional District:

12. Federal Congressional District: 1,2,3

13. Is the recipient of funds a private non-profit organization? Provided 501 (c)(3) ____ Yes X No

14. Does the community participate in the NFIP? X Yes ____ No

15. If yes, what date did they enter the NFIP? 2/9/1971

16. If no, when do you anticipate entering the NFIP?

17. Is the community in good standing with the NFIP? X Yes ____ No

18. Does your community have an approved mitigation plan? X Yes ____ No

19. Mitigation Plan Name: 2013 WV Statewide Standard Hazard Mitigation Plan Update

20. Mitigation Plan Expiration Date: 10/17/2018

Part 2: Contact Information:

21. Primary Point of Contact:

Name:	Brian Penix	Nickname:	
Organization:	WVDHSEM	Job Title:	SHMO
Address:		Telephone:	304-957-2572
	1746 Coonskin Dr.	FAX:	
	Charleston, WV 25311	Email:	brian.m.penix@wv.gov

22. Alternate Point of Contact:

Name:	Jimmy Gianato	Nickname:	
Organization:	WVDHSEM	Job Title:	Director, WVDHSEM
Address:		Telephone:	304-558-5380
	Capitol Complex Building 1	FAX:	
	1900 Kanawha Blvd. E.	Email:	Jimmy.J.Gianato@wv.gov
	Charleston, WV 25302		

23. Application Preparer

Name:		Nickname:	
Organization:		Job Title:	
Address:		Telephone:	
		FAX:	
		Email:	

24. Directions and Physical Address to the applicant office:

Take I-64 to Greenbrier Street North. Continue onto WV-114 N/Greenbrier Street. Turn left onto Coonskin Drive. I.D. is required for entry to the National Guard. Once past the guard station, continue on Coonskin Dr. to 1746 on the right.

Part 2a: Authorized Signatures:

The Authorized Agent and Chief Executive Officer (NOT the application preparer) MUST sign this for the application to be valid.

I certify that I am the Authorized Agent for the applicant having purview over the development and completion of this application, and all statements and information contained herein are true and accurate.

 Authorized Agent's Signature	3/12/18 Date
Jimmy Gianato Name (Typed or printed)	Director, WVDHSEM Title

I certify that I am the Chief Executive Officer of the applicant and the above named individual is the authorized agent on

 Chief Executive Officer's Signature	3/12/18 Date
Jimmy Gianato Name (Typed or printed)	Director, WVDHSEM Title

Before submitting this application, ensure you have provided all requested information. An incomplete application may result in an unfavorable evaluation, or delay grant funding.

Part 3: Assurances:

*If the project is funded, the applicant must adopt an ordinance or other policy that demonstrates the community shall comply with the following (applicant, not applicant preparer, **MUST** initial each item.)*

_____ The applicant **MUST** designate an Authorized Agent for the Project.

_____ All participants **MUST** sign a statement acknowledging the program is voluntary and, therefore, are not entitled to relocation assistance under URA.

_____ Each potential property owner **MUST** be notified in writing that, for the purpose of this program, the community shall not use its power of eminent domain for any properties if a voluntary agreement is not reached.

The following restrictive covenants shall be conveyed in the deed to any property acquired:

The property shall be dedicated and maintained in perpetuity for uses compatible with open space, recreational or wetlands management practices; and no new structure(s) shall be built on the property as indicated below:

A public restroom; or

A structure that is compatible with open space, recreational or wetlands management usage and proper floodplain management policies and practices, which the Regional Administrator approves in writing before the construction begins. The premises shall remain in public ownership. After completion of the project, no application for additional disaster assistance shall be made for any purpose with respect to the property to any Federal entity or source, and no Federal entity or source will provide such assistance.

_____

In general, allowable open space, recreational and wetlands management uses include parks for outdoor recreational activities, nature reserves, cultivation, grazing, camping (except where adequate warning time is not available to allow evacuation), temporary storage in the open of wheeled vehicles which are easily movable (except mobile homes), unimproved, previous parking lots, and buffer zones. In either event, any open space plans **MUST** have written approval from both FEMA **AND** the State.

_____

_____ Any structure built on the property according to the above stipulations, shall be flood-proofed or elevated to the ordinance freeboard. If the community lacks freeboard, then a minimum of the Base Flood Elevation plus two feet of freeboard is required.

_____ A public meeting **MUST** be conducted to explain project policy and procedures.

_____ Priority of mitigation reconstruction, elevation, relocation or acquisition of properties **MUST** be established in writing and publicized upon approval of the grant.

_____ A standard policy of appraisal will be established for fair market value (FMV). Based on this appraisal, owners will be offered a FMV less any duplication of benefits as identified by FEMA.

_____ In the event that the appraisal less duplication of benefits is a negative figure or less than the land only value, and the property owner still desires to sell the property in an acquisition project, the property owner will be offered the FMV of the land only (not the structure). However, the community will take deed to both the structure and land.

If subject property was purchased after the flood/event on an "as is" basis, the amount of the new post flood owner paid for the property plus any verifiable improvements will be the FMV offered. The post flood property owner will not be offered the pre-flood FMV if they were not the property owner during / before the event. In addition, any benefits the previous owner received for repair of the property will not be deducted from the offer. In no event will the offer to the post-flood owner exceed the pre-flood FMV.

_____

Any tenants renting properties 90 days prior to the start of negotiations with the owner will be offered relocation assistance. Renter relocation assistance is formula driven but in no event will the relocation payment exceed $7,200.00 plus actual moving expense.

Each property closing will be proceeded by a title search. The title **MUST** be clear of all liens before the community will take title to the property.

The property owner will agree to satisfy all liens or have the lien amount deducted from the purchase offer at the time of closing.

Current property owners will be responsible for the property taxes from the first of the tax year through the date specified by the community buyout policy. (e.g. either the date of closing or the date of the event) on a pro-rated basis.

Until the title is transferred, the property owner remains solely responsible for the property.

The community **WILL** submit to WVDHSEM copies of their Single Audit Act Report for the year in which the grant was received, and for each subsequent year that the community receives funding under this grant.

In the event that applicant fails to expend or is over advanced Federal and / or State disaster funds in accordance with Federal or State disaster assistance laws or programs, the Governor's Authorized Representative reserves the right to recapture funds in accordance with Federal or State laws and requirements.

The applicant will not enter into a contract with a contractor who is on the debarred contractors list.

The applicant will prohibit any employee, governing body, contractor, subcontractor or organization from participating in or presenting the appearance of a conflict of interest or kickbacks.

Budgeted line items **MUST NOT** be exceeded without prior written approval of the State **AND** FEMA. Any over-runs of budgeted items without authorization becomes the responsibility of the applicant. Failure to submit written requests for over-runs constitutes grounds for recapture of grant funds for non-performance.

Both the State and FEMA reserves the right to recapture funds for non-performance of the stipulations of the grant including any open space requirements in perpetuity or other maintenance requirements.

The applicant **MUST** agree to a drug free work environment and that no project funds will be used for lobbying. (Attach the corresponding assurances as part of this application).

Any changes to the scope of this grant **MUST** have the written approval of both FEMA **AND** the State. This includes changes to the budget, the participant list and timeline. Failure to submit written requests for changes in scope constitutes grounds for recapture of funds for non-performance.

Authorized Agent Agreement:

Should our community be awarded FEMA funds to implement a mitigation project, we agree to the stipulations outlined above as conditions of receiving funds and implementing said project.

Authorized Agent's Signature	3/12/18 Date
Jimmy Gianato Name (Printed or typed)	Director, WVDHSEM Title

Part 4: Project Location:

Describe, in detail, the location of your community's project. Include its topography and attach map(s) indicating all

The project is located on the West Virginia National Guard building 1703 which follows the same directions as above for Coonskin Drive but located directly across the street.

Part 5: Explanation of the Problem / Event:

27. Describe in detail the event precipitating the need for this project and its effects on the community.

The State Emergency Operations Center (EOC) is currently located in the basement of the capitol complex building one. The capitol has been identified as being in the Special Flood Hazard Area (SFHA) for the Kanawha River. It further cannot support operations due to limitations in spacing as well as being vulnerable to both weather and human caused disasters. Structural Retrofitting of the existing structure for emergency management responders and officials and community leaders to assess the needs of their respective communities and determine the best ways to organize and strengthen their community's assets, capacities, and interests before, during and after a catastrophic event. This Hazard Mitigation project will include modifications to the structural elements of a building to reduce or eliminate the risk of future damage and to protect inhabitants. The structural elements of a building that are essential to protect or to prevent damage include foundations, load-bearing walls, beams, columns, building envelope, structural floors and roofs, and the connections between these elements.

EOC designed and construction will be to FEMA 361/ Standards if it is to be used as a shelter to house Emergency. First Responders that cannot evacuate, and that must stay behind, during natural hazard events will be safely house at the EOC pre and post event. The engineering assessment from roof to foundation will provide data and recommendation for the feasibility of the mitigation project upgrades.

The envelop of the structure will be upgraded which includes reinforcing the roof, hardening of walls, upgrade and retrofit the windows to protect against winds, be fire resistant and water tight doors. Upgrade of EOC utilities, backup generator, commination equipment, essentials to provide emergency services pre/post event.

Hardening of the exteriors walls is as follows, grout filled cement block with exterior stone façade. Some windows are level 4 ballistic and the bottom height of all windows is a minimum of 4' from the floor providing protection if the windows are compromised by gunfire. Interior passage way doors are all prison grade with mag locks. Interior glass is all security glass. All Doors are alarmed and monitored. 360® camera view including roof and selected interior areas. Electric power is backed up with # of generators which run independently and are capable of providing power individually. All mission critical equipment is located on elevated flooring with straps and alarms under the floor to detect moisture.

Part 6: Solutions to the Problem:

28.Proposed Activity: **EOC Hardining / Shelter**

Describe in detail the proposed project activity.

--How will your proposed project address a repetitive problem, or one that poses a significant risk to public health and safety?

--Upon completion, how will the proposed project reduce the potential for future damages?

--Does the proposed project solve the problem independently, or in conjunction with other solutions? Please explain.

--Specify the number of properties / structures and the number of people that will be protected with the proposed project.

--Calculate the estimated cost, including the present cost of implementation and the future maintenance of the acquired property, as well as the potential future losses from natural disasters.

The current EOC is located in the SFHA in the basement of the main capitol building. It is susceptible to flooding, human terror incidents and access impediments. It further is not hardened for any conditions including weather events and human caused incidents. Upon completion, the new EOC will be capible of withstanding the forces of nature, man made events and will also become a shelter for the first responders should such a situation arise. The hardening will be both interior and exterior and be self sufficient in both communications and utility systems.

29. Alternative 1: **Construct a new EOC**

Describe in detail another mitigation measure (e.g., elevation, wet or dry flood proofing, detention ponds, drainage ditches, etc.) that is a feasible alternative solution to the problem described.

--How will the mitigation measure solve the problem described?

--Explain how it is effective in addressing a recurrent or repetitive problem.

--Calculate the estimated cost, including the present cost of implementation and the future maintenance of the acquired property, as well as the potential future losses from natural disasters.

Constructing a new EOC would have the same hardening effects as retrofitting an existing structure but would be cost prohibitive. The State would be required to acquire land, construct the structure in accordance to FEMA 361 and provide the redundant systems described above. It would further have to ensure both structural safety from flood, wind, earthquake and human caused incidents. The addition of the land as well as the construction of the entire structure would have to be undertaken.

30. Alternative 2: **No Action**

Describe in detail the effects that no action would have on the problem described.

--Explain the present and future effects of doing nothing to solve the problem.

--Identify the estimated present and future costs and losses of doing nothing.

Taking no action would mean the citizens of West Virginia would still be at risk when catastrophic disasters struck.

Alternative 2 Cost $0.00

Potential Losses (Benefits) $0.00

Part 7: Projected Source Funds:

38. Federal Share	**$3,750,000**	Percent	75.00%	Source	FEDERAL
39. State Share	**$0**	Percent		Source	STATE
40. In Kind Service	**$0**	Percent		Source	COMMUNITY
41.Other Source	**$1,250,000**	Percent	25.00%	Source	OTHER

Other is CDBG-DR

Part 8: Estimated Budget (Non-MT Reconstruction and Other):

Special care needs to be taken when estimating the project budget to ensure that the community doesn't under-estimate. An under-estimated budget can lead to a cost over-run which could result in delays and even cancellation of the grant due to non-performance. If in doubt, estimate high.

NOTE: SUBMIT YOUR BUDGET WORKSHEET JOB AID WITH THIS APPLICATION!

Phase I:

A. Design Facility (Phase I)		$145,000
B. Architectural Services (Phase I)		$55,000
C. Structural Engineering and Design (Phase I)		$17,000
D. Mechanical and Utility Design (Phase I)		$22,000
E. Feasibility assessment consultation		$20,000
	Sub-Total	$259,000

Phanse II:

F. Estimated Construction upgrade Cost [Phase II]		$3,000,000
G. Estimated Roof and Structural upgrades		$750,000
H. Site work preparation/mobilization/Demobilization		$50,000
	Sub-Total	$3,800,000

Generators / Independent Water

I. Emergency Generators		$325,000
J. Independent Water Supply		$308,000
K. Independent Waste Water		$308,000
L.		$0
	Sub-Total	$941,000

M.		$0
N.		$0
O.		$0
P.		$0
Q.		$0
R.		$0
	Sub-total	$0

Project Management:

S. Travel Fees		$0
T. Office Supplies / Equipment Fees		$0
U. Phone Fees		$0
W. Project Manager Fees		$0
X. Time and Attendance Fees		$0
Y. Other Project Management Fees (Give Details)		$0
	Sub-total	$0

Other Project Expenses (Give Details):

AA.		$0
BB.		$0
CC.		$0
DD.		$0
	Sub-total	$0
	GRAND TOTAL	**$5,000,000**

Part 8a: Estimated Budget (MT Reconstruction ONLY):

Special care needs to be taken into account for Mitigation Reconstruction funding. Line items are for the major items found in a reconstruction. INCLUDE THE MITIGATION RECONSTRUCTION WORKSHEET WITH YOUR APPLICATION!

NOTE: SUBMIT YOUR BUDGET WORKSHEET JOB AID WITH THIS APPLICATION!

39. Project Scoping:

A. Property Verification (Legal)		$0
B. Preliminary Elevation Determination		$0
C. Environmental Site Assessment Phase		$0
D. Engineering Feasibility Study (e.g., Can an existing structure be elevated? Is mitigation reconstruction feasible?)		$0
E. Benefit-Cost Analysis		$0
F. Title Search		$0
	Sub-Total	$0

40. Pre-construction Activities:

G. Site Survey		$0
H. EHP Testing / Analysis		$0
I. Permitting		$0
J. Architectural Design and Plan Development		$0
K. Architectural Plan Review		$0
	Sub-Total	$0

41.Construction Activities Exterior:

L. Disposal of routine asbestos, lead-based paint, and household		$0
M. EHP mitigation		$0
N. Demolition NOT covered by 407 Mitigation		$0
O. Erosion control / grading / drainage		$0
P. Utility Connections		$0
Q. Site Stabilization (e.g., Seeding)		$0
R. Walkways and Driveways		$0
S. Elevated Foundation Construction		$0
T. Inspection of Foundation System		$0
U. Framing		$0
V. Exterior Doors		$0
W. Windows (includes protection)		$0
X. Access / Egress		$0
Y. Exterior Cladding		$0
Z. Roofing		$0
	Sub-Total	$0

42.Construction Activities Interior:

AA. Drywall		$0
AB. Trim		$0
AC. Painting		$0
AD. Interior Doors		$0
AE. Insulation		$0
AF. Interior Partitioning		$0
	Sub-total	$0

43. Construction Activities Utility Equipment:

AG. Heating, Ventilation, and Air Conditioning		$0
AH. Plumbing		$0
AI. Electrical		$0
AJ. Hot Water System		$0
	Sub-total	$0

44. Construction Activities Fixtures:

AK. Sinks / Toilets / Showers		$0
AL. Lighting		$0
AM. Cabinets and Countertops		$0
AN. Flooring		$0
	Sub-total	$0

45. Construction Finalization and Certification:

AO. Building Inspections		$0
AP. Certificate of Occupancy		$0
AQ. Final Elevation Certificate		$0
AR. Tenant Displacement Costs		$0
AS. Recorded Final Deed Restriction Costs (Legal)		$0
	Sub-total	$0
	GRAND TOTAL	**$0**

Part 9: Work Schedule:

42. The work schedule sets the performance period for the project. The maximum time allowed for mitigation projects i
community under-estimates the project time, delays can occur while extension requests are processed. Furthermore, e
90 day increments a total of two times. Care should be taken when estimating times. Take into account time of year (w

Description	
Phase 1	
- Survey Facility	2 Months
- Mechanical and Utilities Assessment	2 Months
- Feasibility Assessment Consultation	2 Months
- Engineering Design Drawings/Plans	2 Months
- Permitting	2 Months
Phase 2	
- Award announcement	2 Months
- Advertise Bids	2 Months
- Award Contract	2 Months
- Securing Materials	6 Months
- Construction	9 Months
- Reimbursement	2 Months
- Final Inspection	2 Months
- Project Close Out	3 Months

Total Number of 36 Mont

Part 10: Property Inventory Summary:

43. List all the properties, in alphabetical order, to be considered in this application. Properties that are to be considered "over subscription" MUST be marked as such. Properties not on this inventory will not be considered for this project. Ensure that the sequence number matches the property site inventories and that all the inventories are accounted for. This number will be used later in the project to identify the structure.

Seq. #	Owner's Name	Address	Map / Parcel Number	FMV
			TOTAL FMV	$0

Part 11: Property Inventory - Tenant Data:

44. List all renters that qualify for the Uniform Relocation Assistance Act (URA) funding here. To qualify for URA, a renter must have occupied the property 90 days prior to negotiations (closing). Occupation at the time of the event does NOT qualify a tenant for URA if they have moved because of the event.

Property Owner		Telephone Number	
Property Address		Annual Rental Income	

Tenant's Name	Monthly Rent	Telephone (day / Night)	Mailing Address

Part 12: Environmental, Historical and Socioeconomic Information:

45. For each Hazard Mitigation alternative your community is considering, answer "Yes", "No", "Possibly" or "Don't Know" to each question. Then compare the columns. The column with the most "No" answers is the most community-friendly alternative.

	Proposed Activity	Alternative	No Action
Socioeconomic and Land Use Issues			
46. Will the project hinder or violate general land use in the area?	No	Possibly	No
47. Will the project conflict with local zoning ordinances?	No	No	No
48. Will any structures be relocated?	No	No	No
49. Will the project negatively affect area economic activities?	No	No	No
50. Will the project have a disproportionately high or adverse impact on a minority or low income population?	No	No	Yes
51. Will the project decrease or hinder prime farmland?	No	No	No
Natural Resources			
52. Will marine, aquatic or terrestrial vegetation be removed?	No	No	No
53. Will there be construction in marshlands or wetlands?	No	No	No
54. Will the project adversely affect any wetland areas?	No	No	No
55. Will the project impact wetlands? (flood, drain, excavate, dredge, fill, shade, etc.)	No	No	No
56. Do endangered or rare species live in the project area?	Unknown	Unknown	No
57. Is the project area in or near a wildlife conservation area?	Possibly	Possibly	No
Natural Resources			
58. Are there any properties that appear to be 50 years of age included in your project? (if yes, please provide a list of these properties with the owner(s) name, address, map and parcel numbers and photographs of all four sides of the structure).	Yes	No	Yes
59. Does the project area have any archeological, cultural or historical significance?	No	Unknown	No
60. Is your project located within or near a National Register listed historic district, or are any of the properties individually listed on the National Register of Historic Places? (If in or near a district, please enclose a sketch map of the district, which outlines the project targets.)	No	No	No
61. Has the project properties / neighborhood ever been reviewed for its eligibility for the National Register of Historic Places?	No	No	No
62. Has a survey to locate archeological sites and / or historic structures been carried out on the project area? If so, please provide a copy of the survey with this application indicating the date of the survey, the firm who did the survey, and if the survey is on record with the State Historic Office.	No	No	No
63. Will the project require excavation or disturbance of soil?	Yes	Yes	No
64. Has there been a public meeting, which provided an opportunity for public comment regarding various mitigation options? If yes, please attach details describing the meeting venue(s), date(s), and attendance.	Yes	No	No
Total "No" Responses	14	14	12

Part 13: Environmental Information:

65. Consider hazardous materials that may be found on the properties you plan to mitigate. Answer "Yes," "No," "Possibly," or "Don't know" to each of the following questions. If the answer is "Yes" for even one property, then answer "Yes" to the question. For any question to which you answered "Yes" or "Possibly," please attach additional pages using "overflow" explaining each hazardous material and planned abatement. if there is enough room on this page to answer any question other than "no", you may answer them on this page.

66. Were the properties previously or are the properties currently used for commercial, light industrial, transportation or institutional purposes?	No
67. Are there any above ground storage tanks, underground storage tanks, or leaking storage tanks present on the properties?	No
68. Is there presently, or has there been in the past, any generation, treatment, storage, disposal, release, or spill of petroleum products, solid or hazardous substances and/or wastes, other than normal quantities of household substances on the properties?	No
69. Have unusual odors or discoloration been noticed in the soil, or drinking or surface water on or near the properties?	No
70. Are there any past or ongoing environmental investigations conducted by federal, state, local government agencies, or private firms; or Occupational Safety and Health Administration (OSHA) citations or notices of violation on the properties related to environmental or toxic hazards?	No
71. Will there be abatement of any hazardous materials (e.g., lead, asbestos, septic tanks, heating oil tanks, etc.) on any of the properties? Identify and describe.	Possibly
72. Are there any other issues or concerns associated with hazardous or toxic materials on the properties? (i.e. Asbestos siding and roofing material)	Possibly

Part 14: Historical and Socioeconomic Narrative Questions:

Please respond to the following in regard to the community's proposed solution.

73. Identify and describe any historic resources on or near any of the properties. Explain how the project will affect those historic resources.

None

74. Identify and describe any archeological sites on or near any of the properties. Explain how the project will affect those archeological sites.

None

75. Identify and explain any significant cultural or social issues that might affect or be affected by the project.

None

76. Identify and explain any economic concerns or issues that might affect or be affected by the project.

Failure to implement the project could leave the State vulnerable to catastrophic disaster without response. The economic impact of such a disaster is considered to be in the millions as well as a significant loss of life.

Part 15: Public Notification Sources:

77. Federal and State law requires public participation associated with the project. Please state below the media outlets used in your project area to ensure public participation.

Local Newspaper Name _____
Address 1 _____
Address 2 _____
Phone Number _____

Circulation Type (Daily, weekly, _____
If weekly, what day of the week is _____

Newspaper most often read (if different from above)

Other Media Outlet Name _____
Address 1 _____
Address 2 _____
Phone Number _____
Distribution Day? _____

Attach copies of any articles to this application.

Part 16: Post Project Land Use (Acquisition / Demolition only):

78. Describe the community's intentions for the use of any acquired land after project completion.

State on the line provided below who will maintain the project (Community where the project work occurred).

Community or private non-profit environmental entity maintainer: WVDHSEM

Part 17: Agency Contacts:

THIS SECTION FOR STATE / FEMA USE ONLY

Identify the State and Federal agencies contacted in the development of the project and in the preparation of the environmental

_____ State Historic Preservation Office
_____ US Fish and Wildlife
_____ State Division of Environmental Protection
_____ State Division of Natural Resources
_____ US Department of the Interior
_____ US Environmental Protection Agency
_____ US Geological Survey
_____ US Natural Resources Conservation Service
_____ State Department of Social Services (DHHR)
_____ Other (Specify) _____

79. The applicant should contact the following agencies for acquisition / demolition and relocation projects for notification

State Department of Transportation	Date of Contact	N/A
	Date of Response	N/A
Army Corps of Engineers	Date of Contact	N/A
	Date of Response	N/A

Part 18: Attachments and Enclosures:

81. Use the space below to name and number ALL the attachments and enclosures. If you need more lines, use the "overflow" tab below.

Before submitting this application, ensure you have provided all requested information. An incomplete application may result in an unfavorable evaluation, or delay grant funding. List all attachments and enclosures on the next page.

Be sure to include the following:

N/A	Individual Participant Forms	N/A	Elevation Certificates
X	4 Photos (per Structure)	X	Construction Drawings Preliminary (Mitigation
N/A	Property Tax Records	X	Benefit Cost Analysis
X	Maps of project areas	N/A	Letters from environmental agencies
X	Street maps	N/A	Advertisements (Public notices) for project meetings
N/A	Resolutions supporting the application	N/A	Sign-in sheets for public meetings
N/A	Clearance letters from DOT	N/A	Letters on fair housing, hazardous materials and minority
N/A	Clearance letters from ACOE	X	Engineering documents
N/A	Authorized agent resolution		

List of Attachments and Enclosures	
Number	**Title or Description of Attachment**

Building Size and Use: The existing drill hall for the WVARNG Armory is approximately 7,000 SF in size and is used for drill exercises (troop formations, etc.) and assemblies (instructional/informational).

Building Value: The approximate value of the existing WVARNG Armory Drill Hall building is $2,100,000.00 (based on current construction values). The approximate value of the new EOC (building only) is $3,500,000.00 (based on current construction values; building equipment/furnishings would add approximately $1,000,000.00 to this construction value).

Building Contents: The building currently contains two wall-mounted basketball hoops, tables, chairs and a stage.

Displacement Costs: The rental cost for room(s) of comparable size at the Charleston Civic Center for the drill hall/EOC purposes is approximately $2,500.00 per day.

Rent and Business Income: The rental rate for the Drill Hall breaks down as follows.

Commercial Rental Rate: Flat fees below may be used if fees are based on rates below and an estimate of the number of persons who would normally attend this type of event or activity is used.

Admission Charged: 30 cents per person or 10% of the Admission Charge (exclusive of taxes) whichever is greater

No Admission Charged: 30 cents per person plus 5% of gross revenue (concessions, programs, souvenirs, other articles, auctions) (exclusive of taxes)

Flat Rental Fees:	$40.00 (0-200 persons)
	$80.00 (200-400 persons)
	$100.00 (over 400 persons)

Non-Commercial Rental Rate: Flat fees below may be used if fees are based on rates below and an estimate of the number of persons who would normally attend this type of event or activity is used.

Admission Charged: 30 cents per person or 10% of the Admission Charge (exclusive of taxes) whichever is greater

No Admission Charged: 30 cents per person plus 5% of gross revenue (concessions, programs, souvenirs, other articles, auctions) (exclusive of taxes)

Flat Rental Fees:	$60.00

Charges for all drill hall rentals (commercial or non-commercial) include the following fees.

Operating Charges:	$15.00
Utilities:	$15.00
Variable Operating Charges:	$21.63/hr (Caretaker Rate)
	$10.63/hr (Extra Help Rate)
	$1.00 ea. (Tables over 30)
	$10.00 (Ice, 0-200)
	$2.00 per section (Wood Stage, 8 Sections)
Managerial Committee:	20% TOTAL FEE (Maximum)
Clerical Fees:	$10.00 per contract (Maximum)

Building Size and Use: The existing drill hall for the WVARNG Armory is approximately 7,000 SF in size and is used for drill exercises (troop formations, etc.) and assemblies (instructional/informational).

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	$2.00 per section (Wood Stage, 8 Sections)
Managerial Committee:	20% TOTAL FEE (Maximum)
Clerical Fees:	$10.00 per contract (Maximum)

Walls, doors and other exterior openings designed for 250 MPH winds per FEMA P-361 (pg. B3-7, Figure B3.1 and Pg. 3-14, Tornado wind speed design speed notation) and in consideration of safe rooms within host building (ICC 500 Sections 304.8 & 304.9 per FEMA P-361, Pg. B3-4)

Note: Structure mounted to existing concrete slab or a replacement slab below proposed multi-use safe room per "Latest in ICC 500 Storm Shelter and FEMA Safe Room Requirements" presentation by Bob Franke, FEMA Region VII

Note: Referenced edition of FEMA P-361 is Third Edition, March 2015. For edition of ICC 500 used, please refer to FEMA P-361, Third Edition, March 2015

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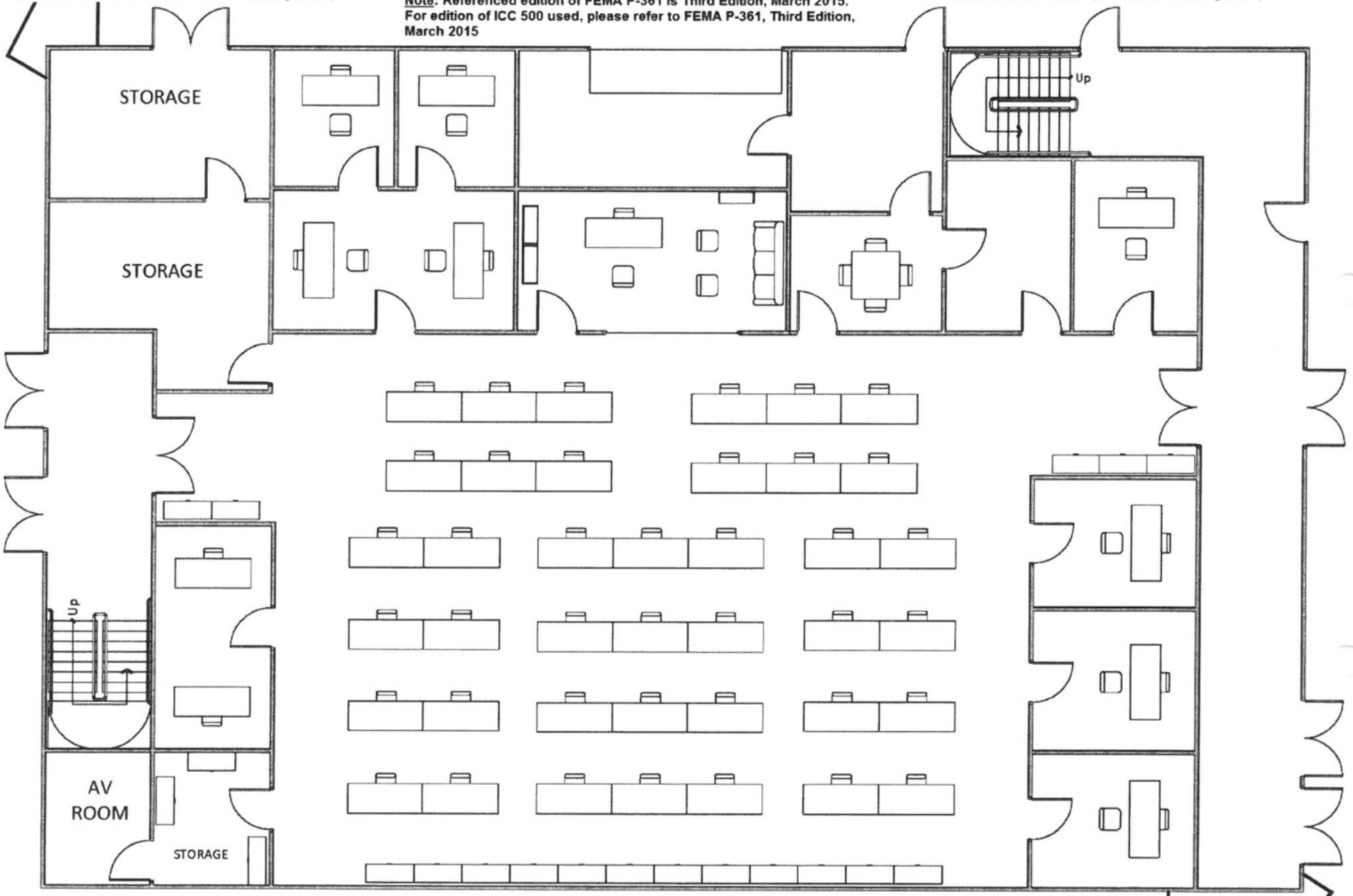


Walls, doors and other exterior openings designed for 250 MPH winds per FEMA P-361 (pg. B3-7, Figure B3.1 and Pg. 3-14, Tornado wind speed design speed notation) and in consideration of safe rooms within host building (ICC 500 Sections 304.8 & 304.9 per FEMA P-361, Pg. B3-4)

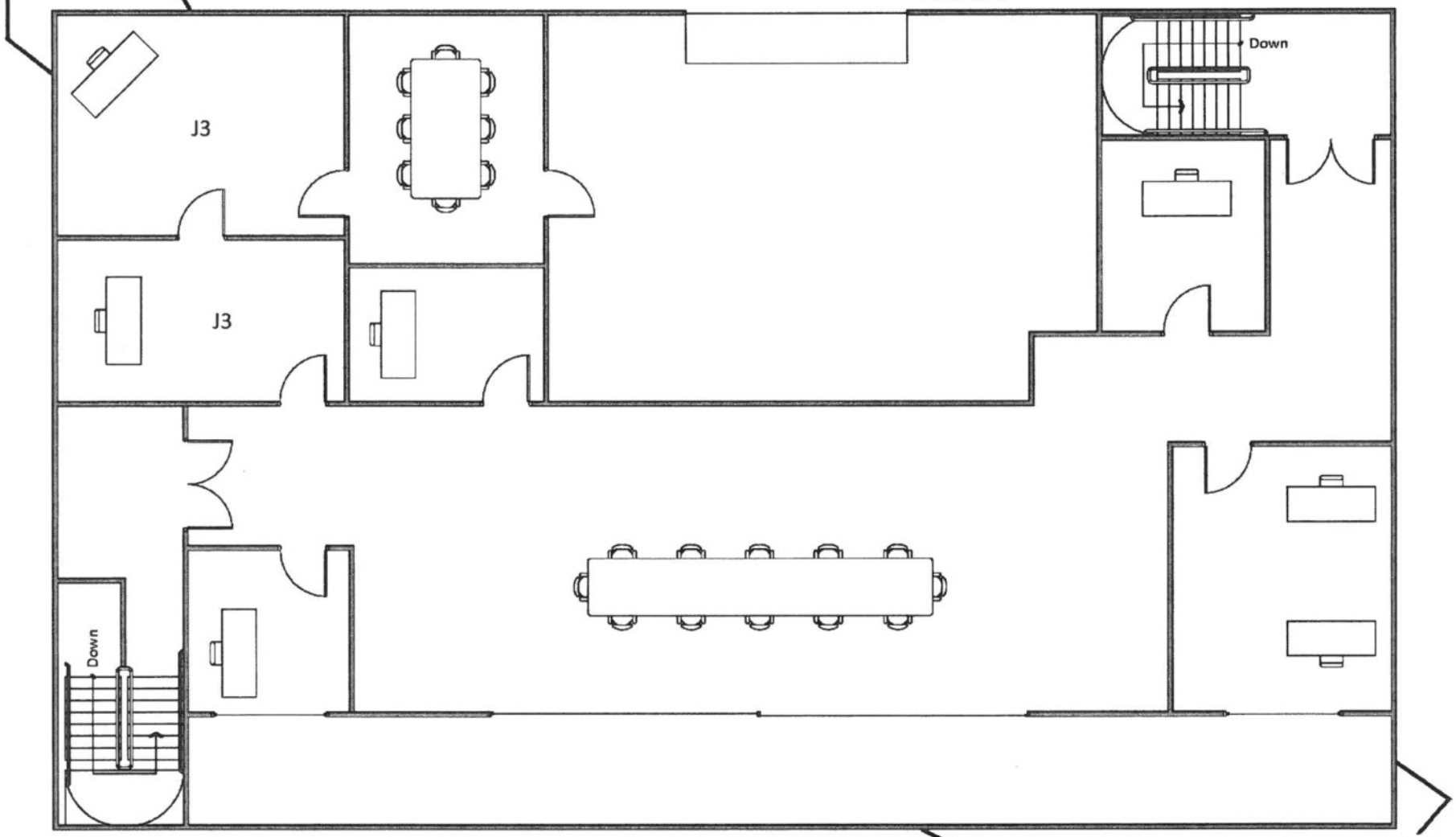
First Floor of Multi-Use Safe Room located at Charleston WVNG JFHQ on existing Drill Hall floor

Walls, doors and other exterior openings designed for 250 MPH winds per FEMA P-361 (pg. B3-7, Figure B3.1 and Pg. 3-14, Tornado wind speed design speed notation) and in consideration of safe rooms within host building (ICC 500 Sections 304.8 & 304.9 per FEMA P-361, Pg. B3-4)

Note: Roof of interior structure to be designed according to FEMA P-361 and related editions of ICC 500 and ASCE 7-10.

Note: Structure mounted to existing concrete slab or a replacement slab below proposed multi-use safe room per "Latest in ICC 500 Storm Shelter and FEMA Safe Room Requirements" presentation by Bob Franke, FEMA Region VII

Note: Referenced edition of FEMA P-361 is Third Edition, March 2015. For edition of ICC 500 used, please refer to FEMA P-361, Third Edition, March 2015

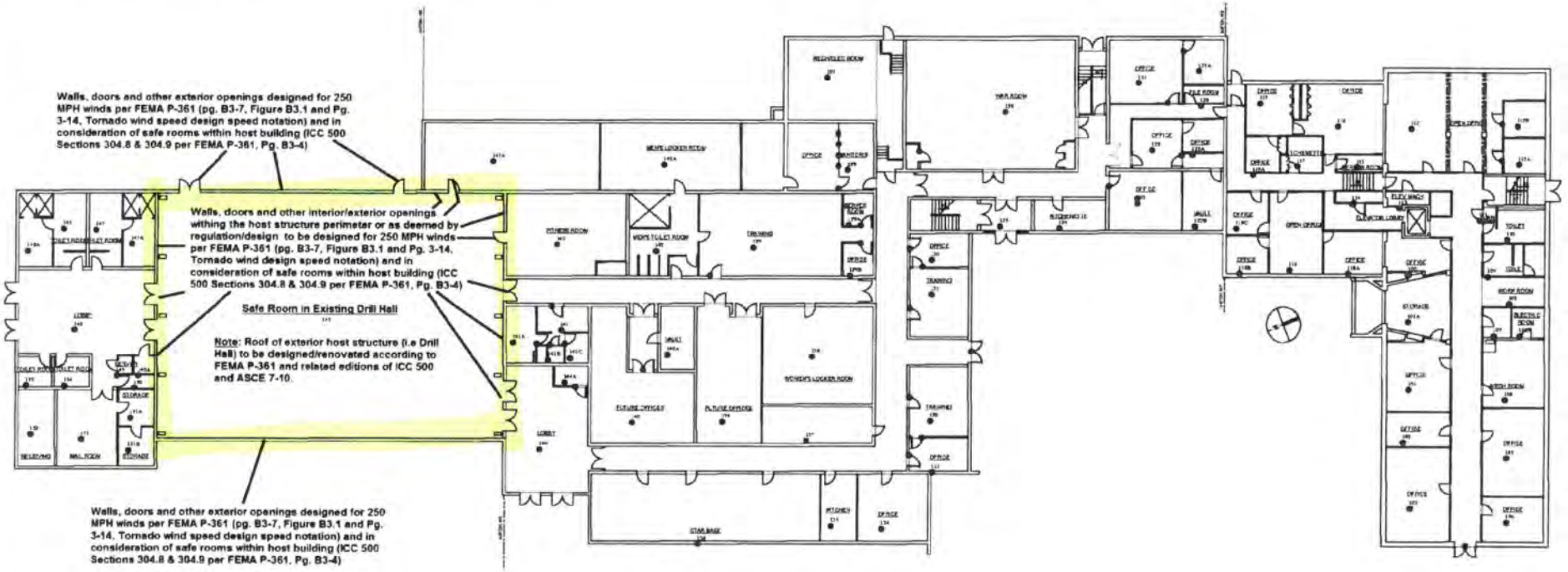


Walls, doors and other exterior openings designed for 250 MPH winds per FEMA P-361 (pg. B3-7, Figure B3.1 and Pg. 3-14, Tornado wind speed design speed notation) and in consideration of safe rooms within host building (ICC 500 Sections 304.8 & 304.9 per FEMA P-361, Pg. B3-4)

Second Floor of Multi-Use Safe Room located at Charleston WVNG JFHQ on existing Drill Hall floor

West Virginia National Guard
Armory Main Building
Floor Plan

100 50 0 100 Feet

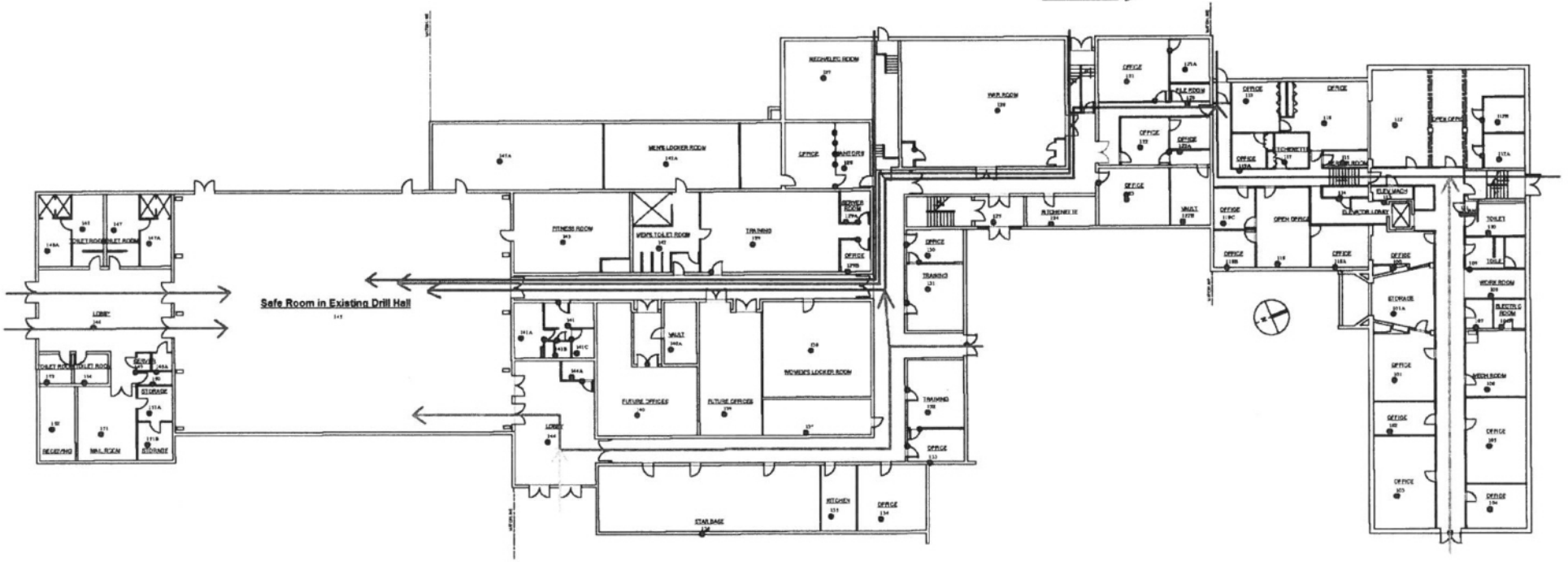


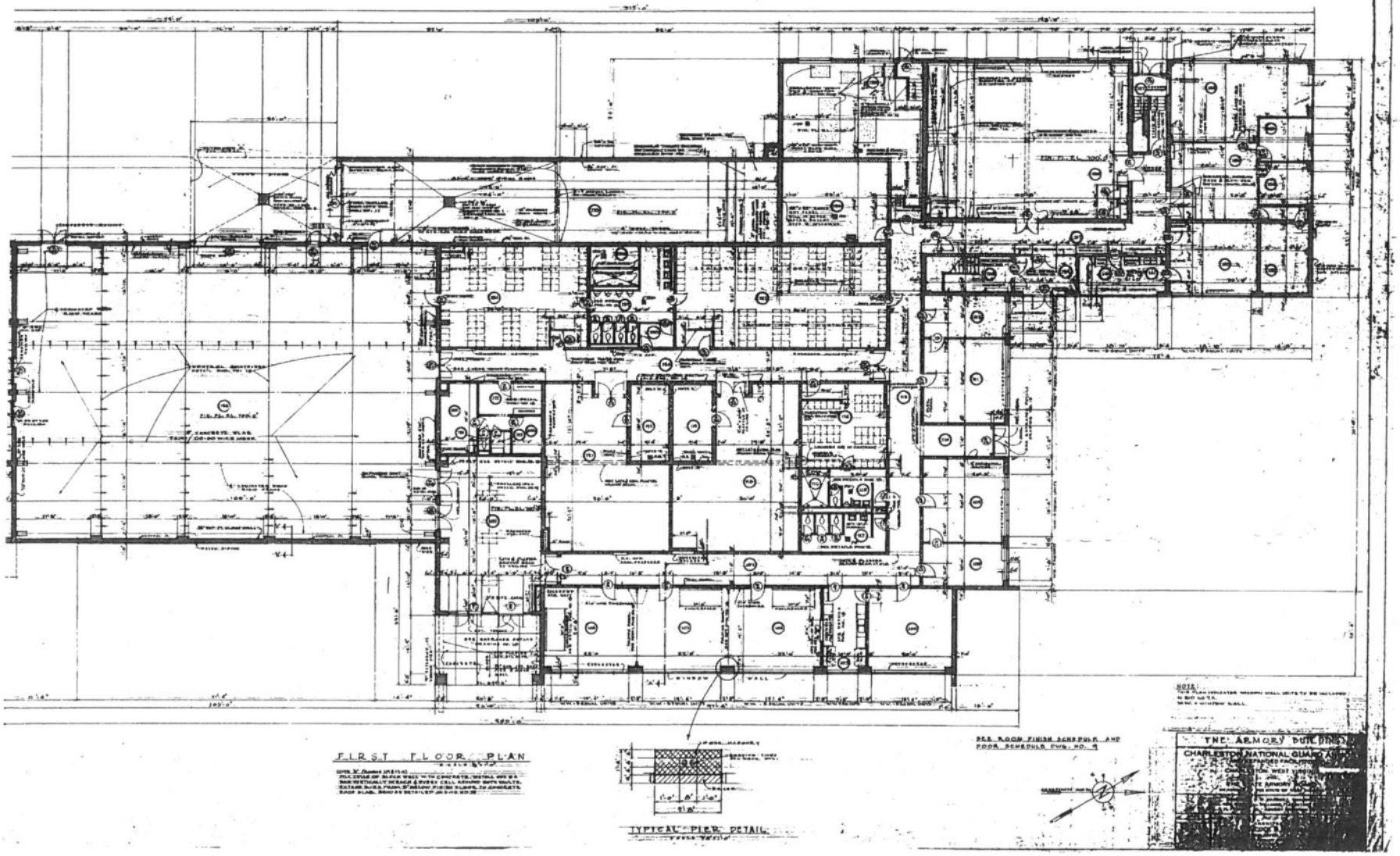
West Virginia National Guard
Armory Main Building
Floor Plan

100 50 0 100 Feet

NOTE: Color lines indicate the paths of entrance available to the safe room area from the interior and exterior of the existing building

Various paths of entrance to safe room area

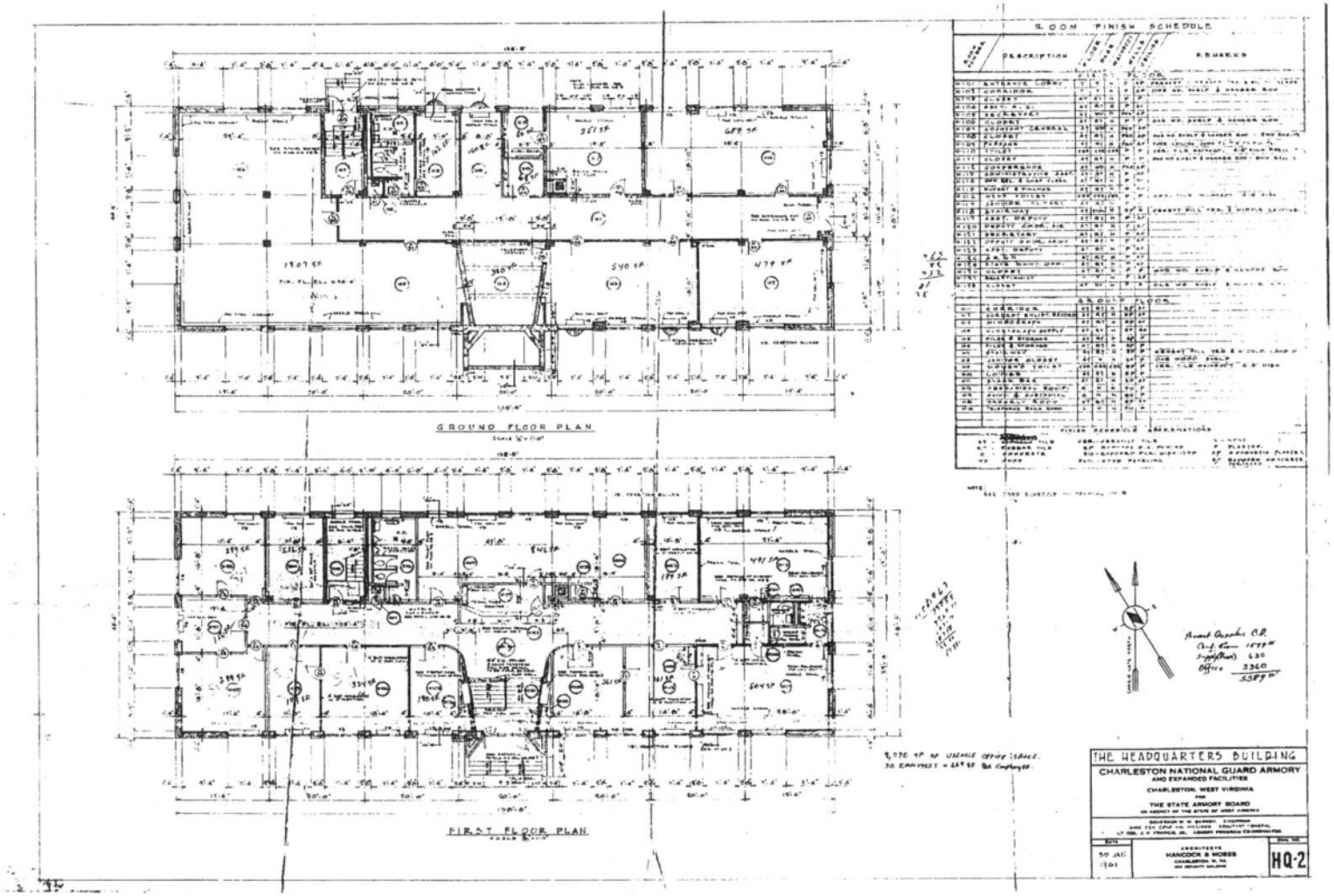


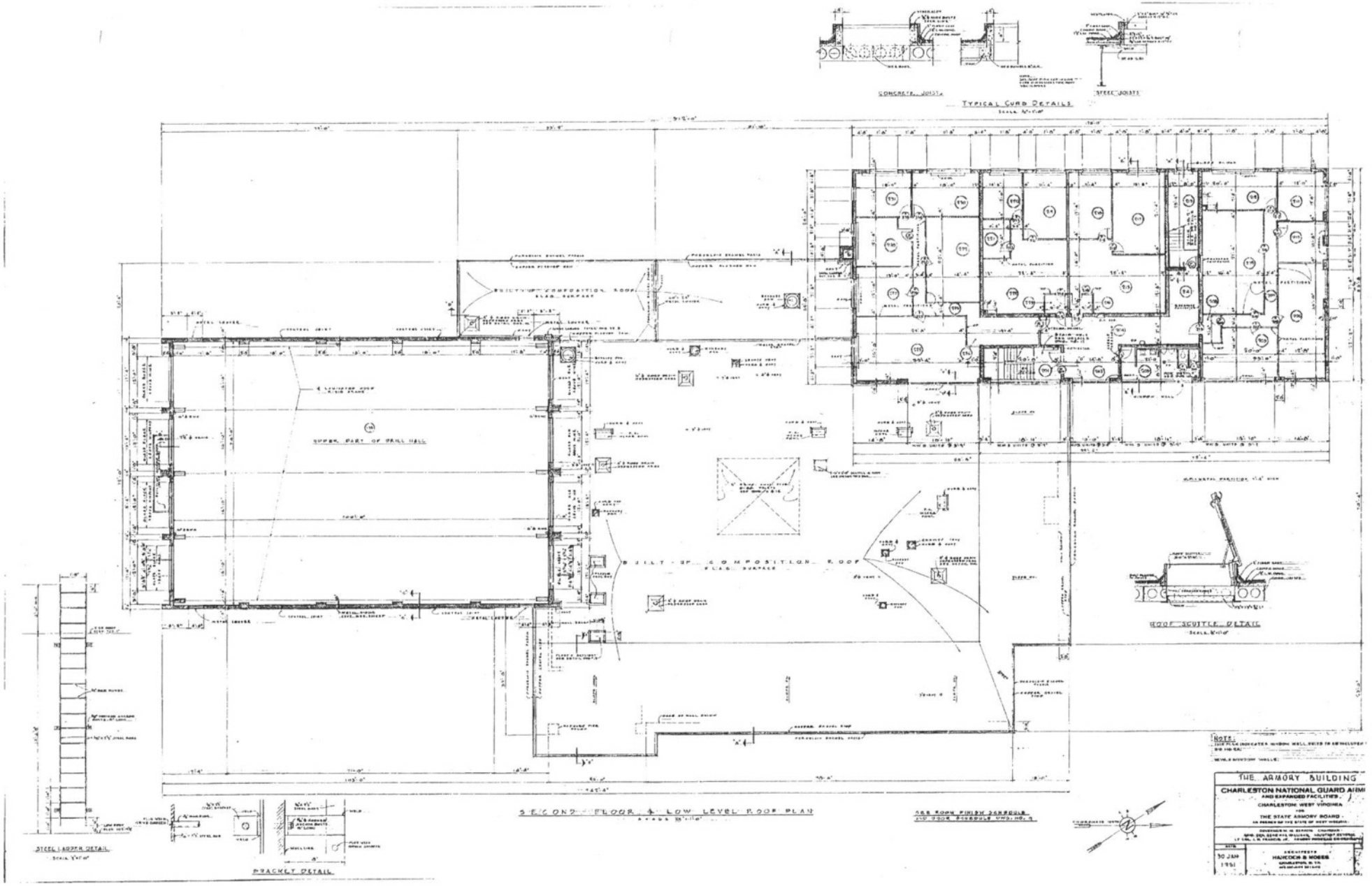


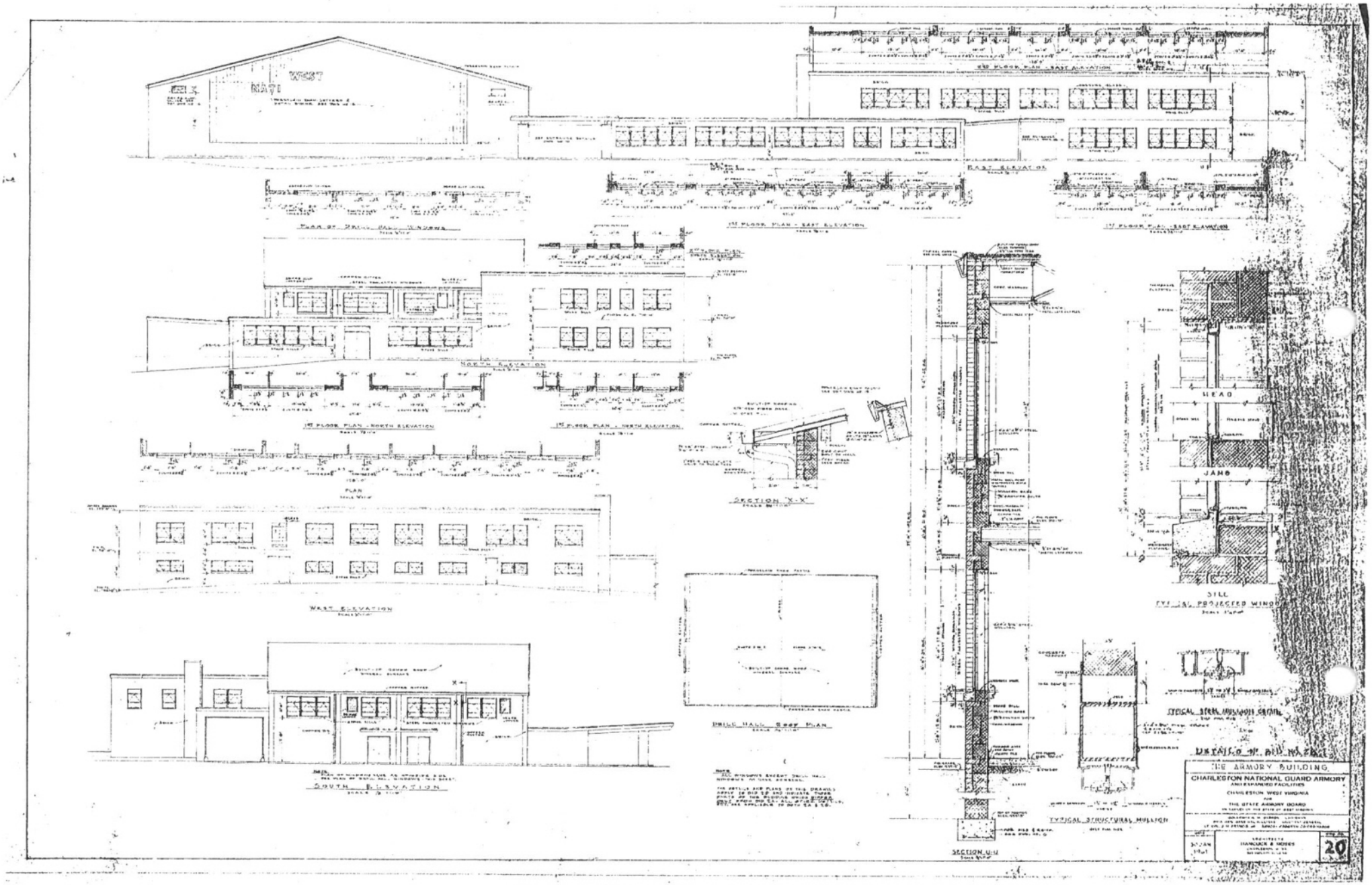
FIRST FLOOR PLAN

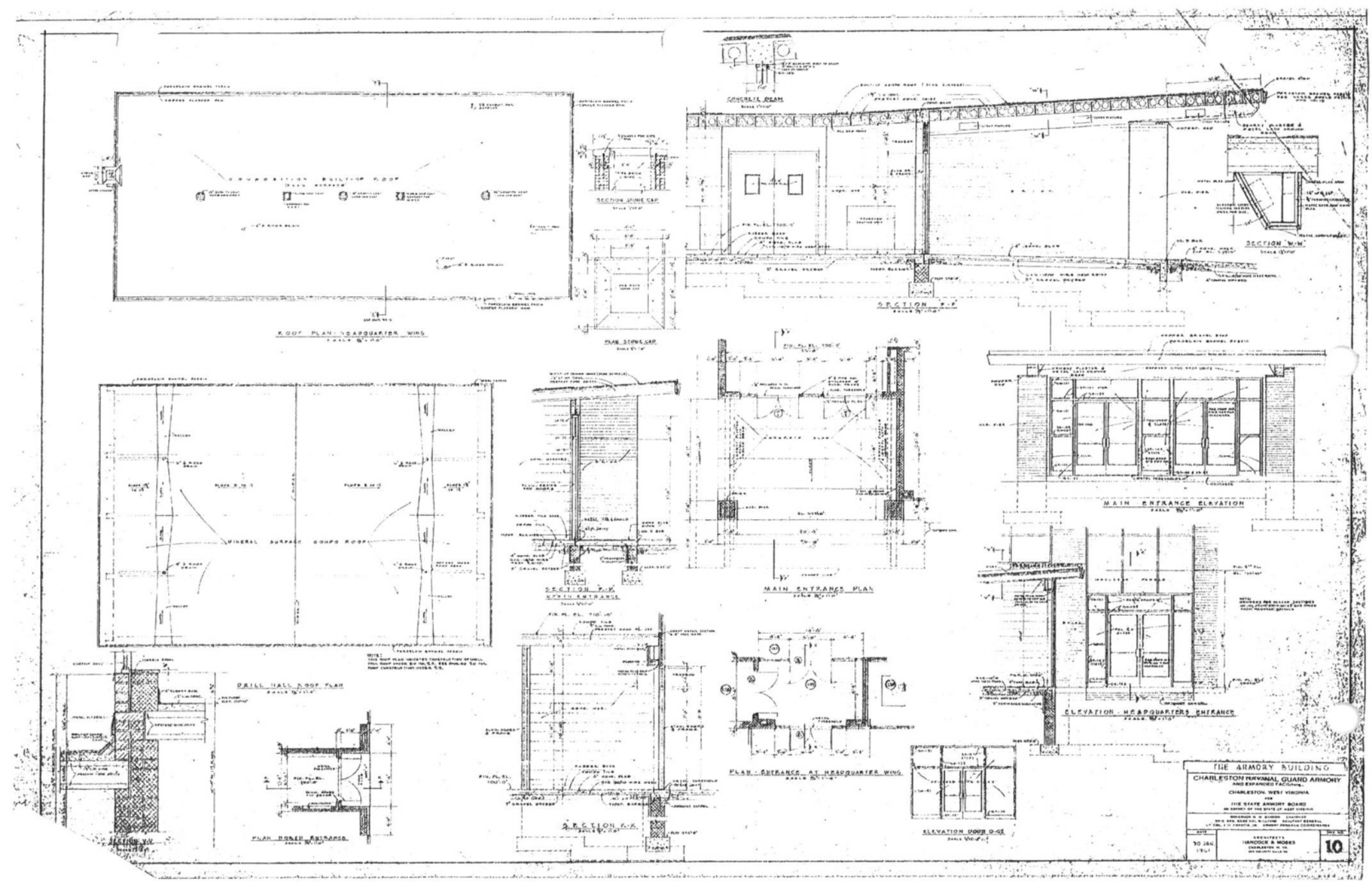
TYPICAL PIER DETAIL

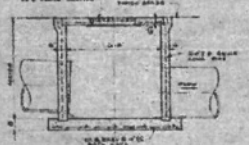
THE ARMORY BUILDING


GROUND FLOOR PLAN
FIRST FLOOR PLAN
ROOM FINISH SCHEDULE
DESCRIPTION
REMARKS
FINISH SCHEDULE ABBREVIATIONS
THE HEADQUARTERS BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND EXPANDED FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD
ARCHITECTS
HANCOCK & HOBBS
HQ-2

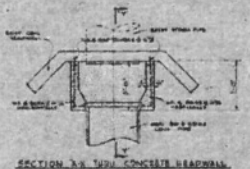

CONCRETE JOISTS
STEEL JOISTS
TYPICAL CURB DETAILS
UPPER PART OF DRILL HALL
BUILT-UP COMPOSITION ROOF
ROOF SCUTTLE DETAIL
STEEL LADDER DETAIL
BRACKET DETAIL
SECOND FLOOR & LOW LEVEL ROOF PLAN
ROOM FINISH SCHEDULE
NOTE:
THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND EXPANDED FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD
AN AGENCY OF THE STATE OF WEST VIRGINIA
30 JAN 1951
ARCHITECTS
HANCOCK & MOSES
CHARLESTON, W. VA.


WEST
EAST ELEVATION
NORTH ELEVATION
PLAN
SECTION "X-X"
HEAD
JAMB
SILL
WEST ELEVATION
DRILL HALL ROOF PLAN
SOUTH ELEVATION
SECTION U-U
TYPICAL STRUCTURAL MULLION
THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY
CHARLESTON WEST VIRGINIA
THE STATE ARMORY BOARD
HANLOCK & MOSES
20

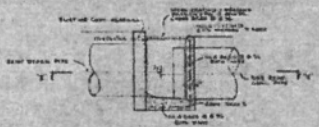

CONCRETE BEAM
SECTION STONE CAP
PLAN STONE CAP
SECTION W-W
SECTION E-E
ROOF PLAN - HEADQUARTER WING
MINERAL SURFACE BUILT-UP ROOF
MINERAL SURFACE COMPO ROOF
SECTION F-F
MAIN ENTRANCE
MAIN ENTRANCE PLAN
MAIN ENTRANCE ELEVATION
ELEVATION - HEADQUARTERS ENTRANCE
DRILL HALL ROOF PLAN
PLAN POWER ENTRANCE
SECTION G-G
PLAN - ENTRANCE AT HEADQUARTER WING
ELEVATION DOOR D-65
THE ARMORY BUILDING
CHARLESTON NAVAL AND GUARD ARMORY
AND EXPANDED FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD
OF THE STATE OF WEST VIRGINIA
ARCHITECTS
HANCOCK & MOBES
30 JAN 1961
10



TYPICAL MANHOLE

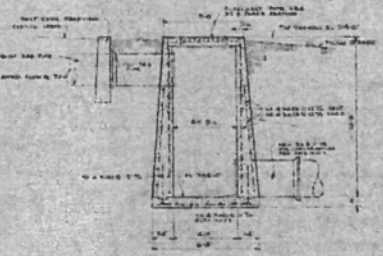


SECTION XX THRU CONCRETE HEADWALL

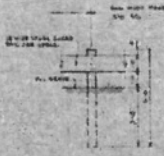


SECTION YY THRU CONCRETE HEADWALL

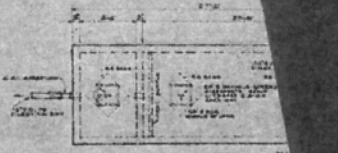
BID NO. 1



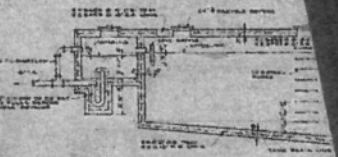
DETAIL OF MANHOLE AT EXIST. 4 NG ROAD



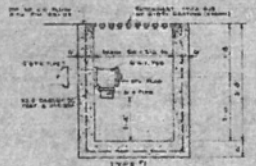
GUARD RAIL DETAIL



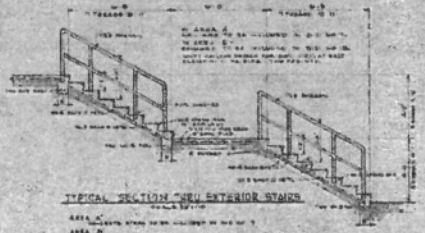
PLAN OF DOSING TANK & SEPT. S



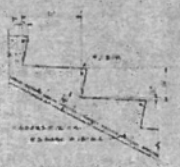
SECTION THRU DOSING TANK & SEPTIC T



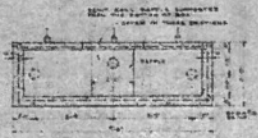
TYPICAL CATCH BASIN DETAIL



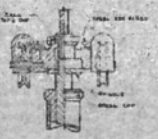
TYPICAL SECTION THRU EXTERIOR STAIRS



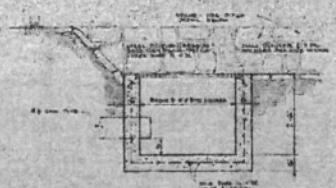
TYPICAL TREAD & RISER



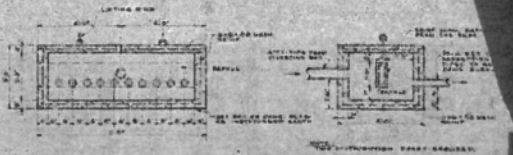
DISPOSING BOX



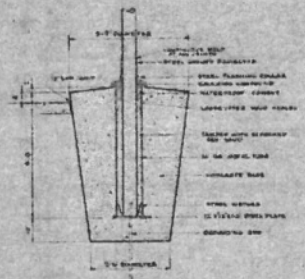
REVOLVING TRUCK & RAIL



CATCH BASIN DETAIL TYPE D



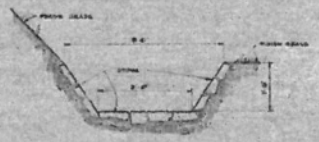
DISTRIBUTION BOX



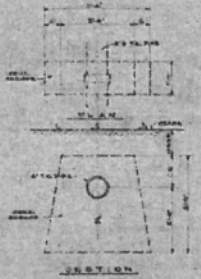
BASE

FLAGPOLE DETAILS

BID NO. 6



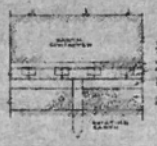
DRAINAGE DITCH DETAIL



PLAN

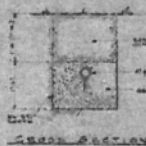
SECTION

CONCRETE ANCHOR DETAIL



LONGITUDINAL SECTION

DRAIN TILE TRENCH DETAILS



CROSS SECTION

SITE WORK - DETAILS

CHARLESTON NATIONAL GUARD ARMORY AND EXPANSION FACILITIES

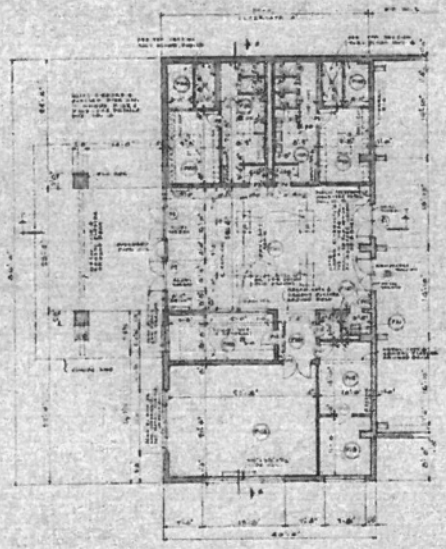
CHARLESTON, WEST VIRGINIA

FOR

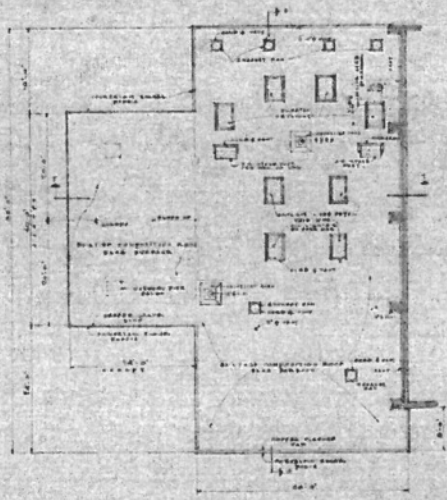
THE STATE ARMORY BOARD

JOAN 1961

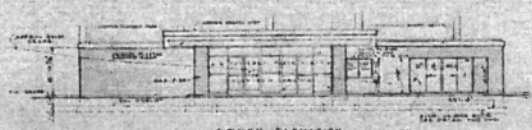
ARCHITECTS
HANCOCK & BUSSEE



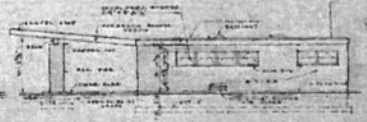
FLOOR PLAN



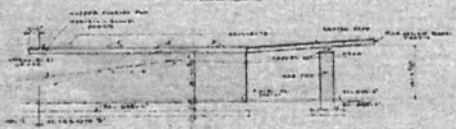
ROOF PLAN



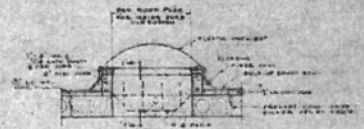
SOUTH ELEVATION



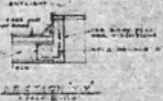
EAST ELEVATION



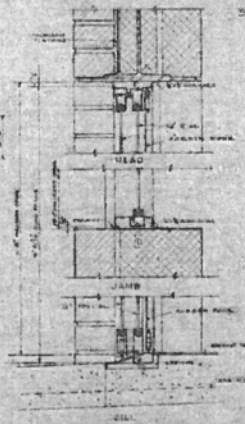
WEST ELEVATION



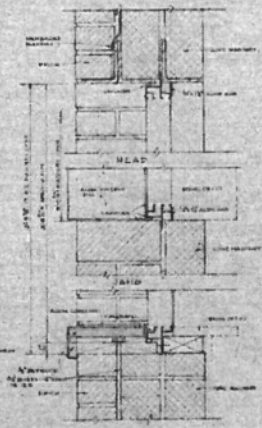
SECTION THRU PLASTIC SKYLIGHT



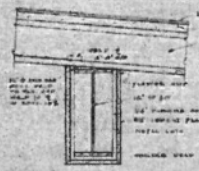
SECTION "A"



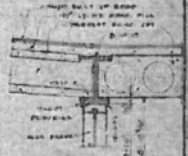
DETAIL LIGHT WELL SILL



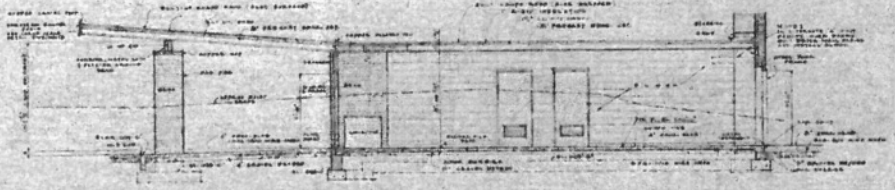
DETAIL SILL WINDOW



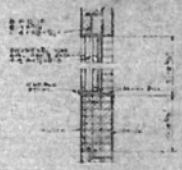
BEAM DETAIL AT CANOPY



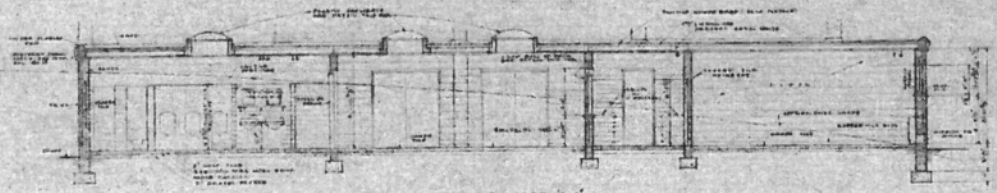
BEAM DETAIL AT ENTRANCE



CROSS SECTION "Y"



SCHEME DETAIL



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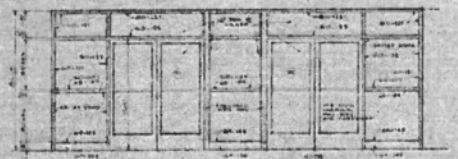
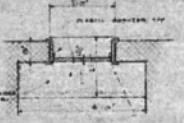
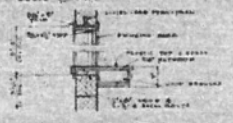


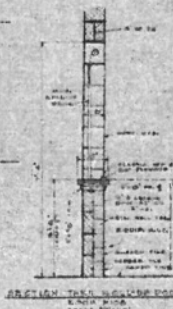
ENTRANCE ELEVATION



PLAN TICKET BOOTH WINDOW



DETAIL TICKET BOOTH WINDOW



SECTION THRU ROLLING DOOR

ALTERNATE "A"

PARK RECREATION CENTER

CHARLESTON NATIONAL GUARD ARMORY AND EXPANDED FACILITIES

CHARLESTON, WEST VIRGINIA

FOR

THE STATE ARMORY BOARD

DEPARTMENT OF MILITARY AFFAIRS

DATE: 30 JUNE 1958

ARCHITECTS: HAYNES & MORRIS, CHARLESTON, W. VA.

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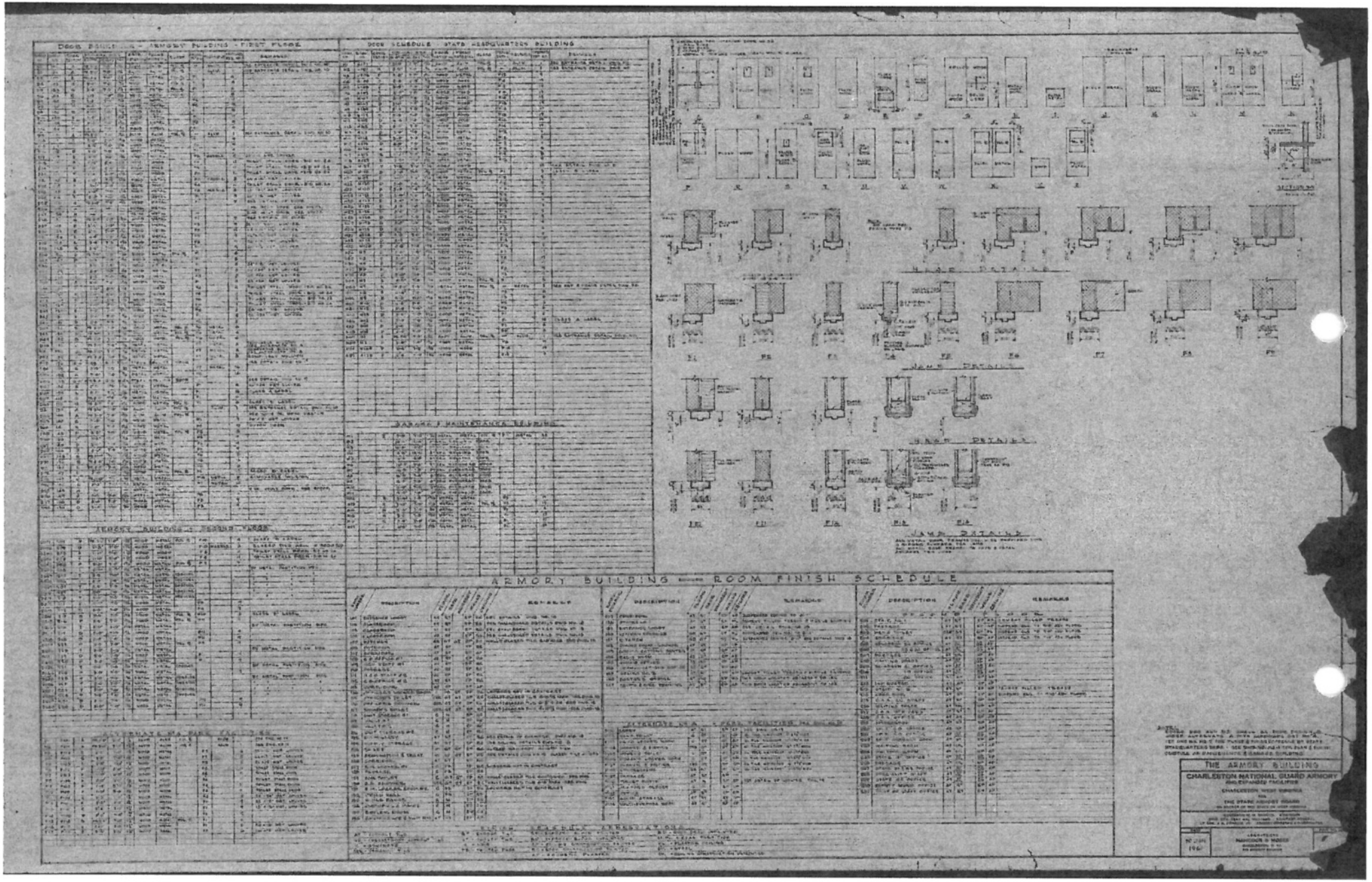


DOOR SCHEDULE - ARMORY BUILDING - FIRST FLOOR

DOOR SCHEDULE - STATE HEADQUARTERS BUILDING

GARAGE & MAINTENANCE BUILDING

TERRACE BUILDING - FIRST FLOOR

ALTERNATE BID ITEM NO. 1

JAMB DETAILS

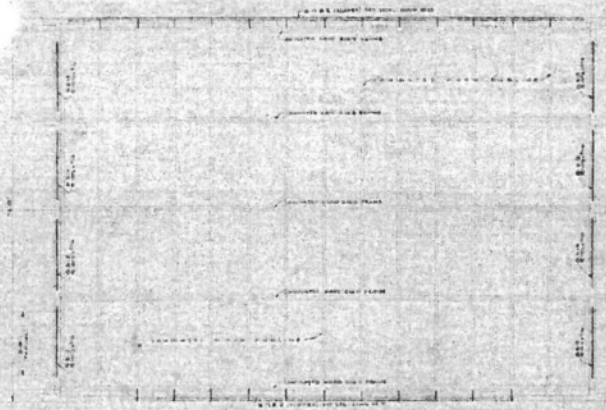
JAMB DETAILS

JAMB DETAILS

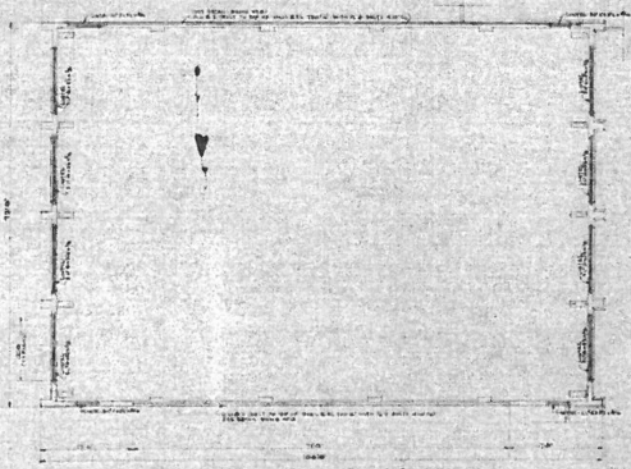
ARMORY BUILDING — ROOM FINISH SCHEDULE

EXTERIOR DOOR & FRAME SCHEDULE

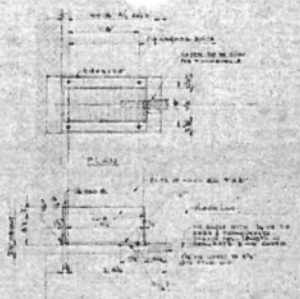
THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND EXPANDED FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ADJUTANT GENERAL



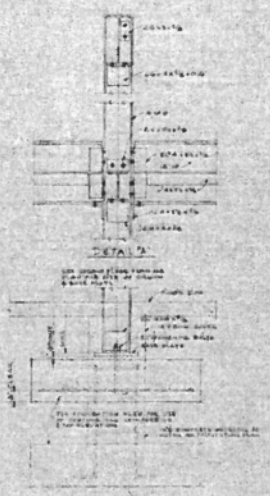
ROOF FRAMING PLAN OF DRILL HALL



INTERMEDIATE FRAMING PLAN OF DRILL HALL

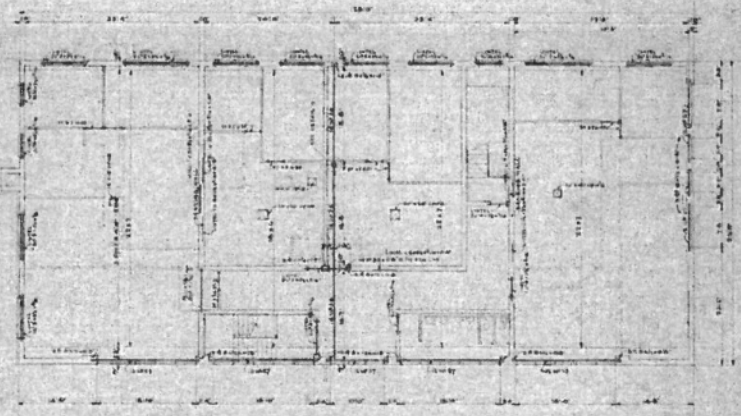


BASE DETAIL-WOOD RIGID FRAME

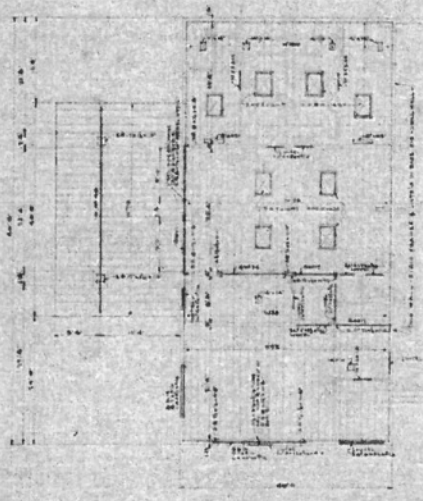


BASE

COLUMN DETAILS



ROOF FRAMING HEADQUARTERS WING



ROOF FRAMING PLAN-ALTERNATE

GENERAL NOTES:

THE ARMORY BUILDING

CHARLESTON NATIONAL GUARD ARMORY

AND EXPANDED FACILITIES

CHARLESTON, WEST VIRGINIA

FOR

THE STATE ARMORY BOARD

OF AGENCY OF THE STATE OF WEST VIRGINIA

ARCHITECTS

HANCOCK & BOGGS

CHARLESTON, W. VA.

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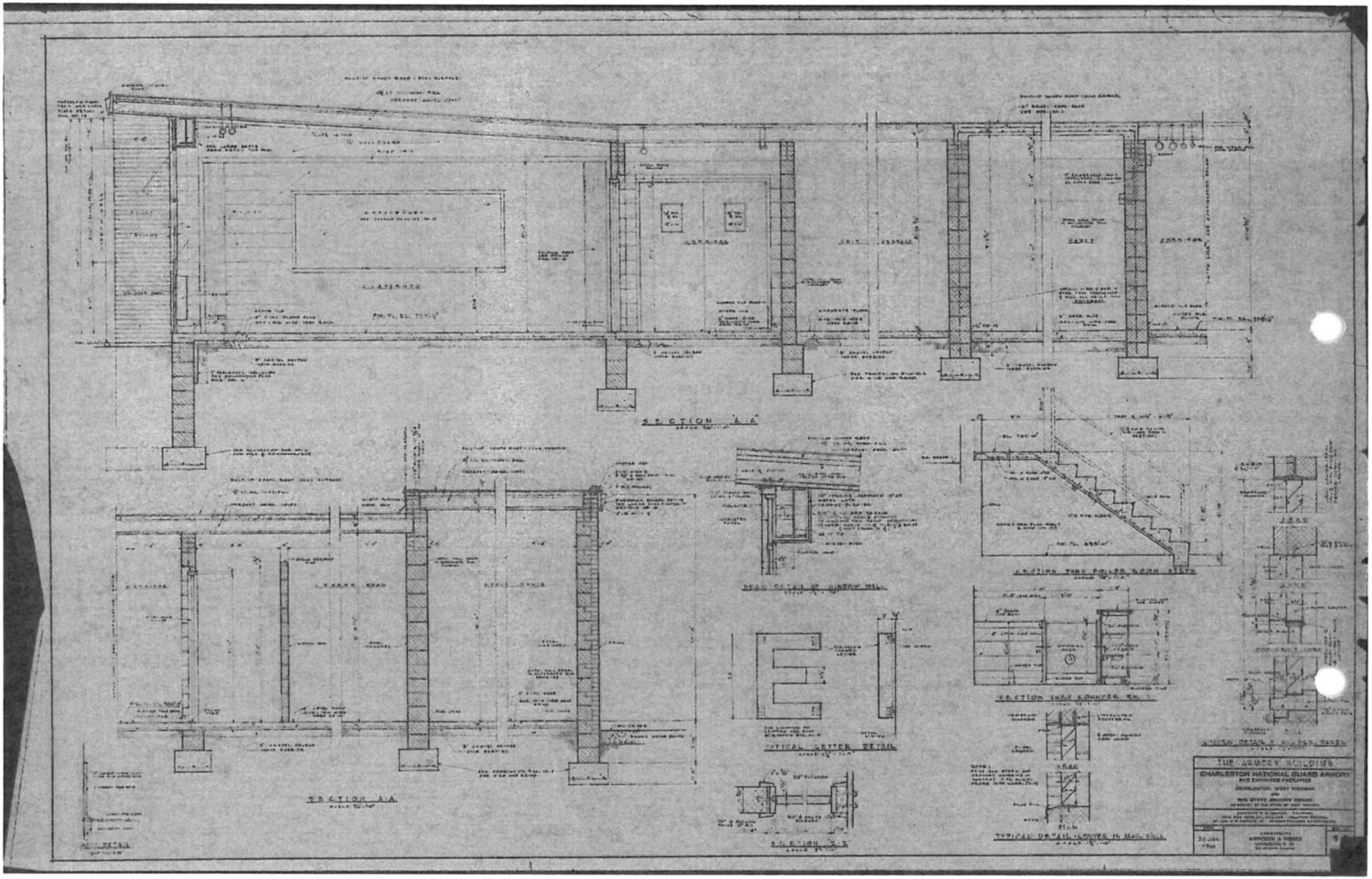
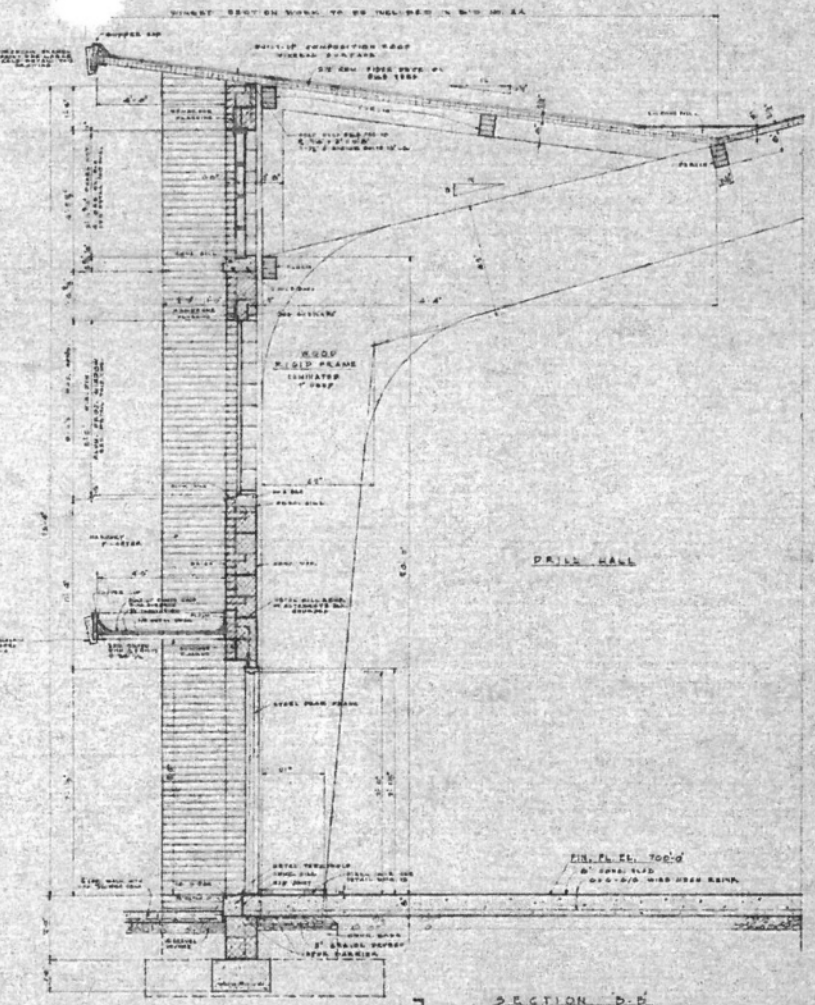
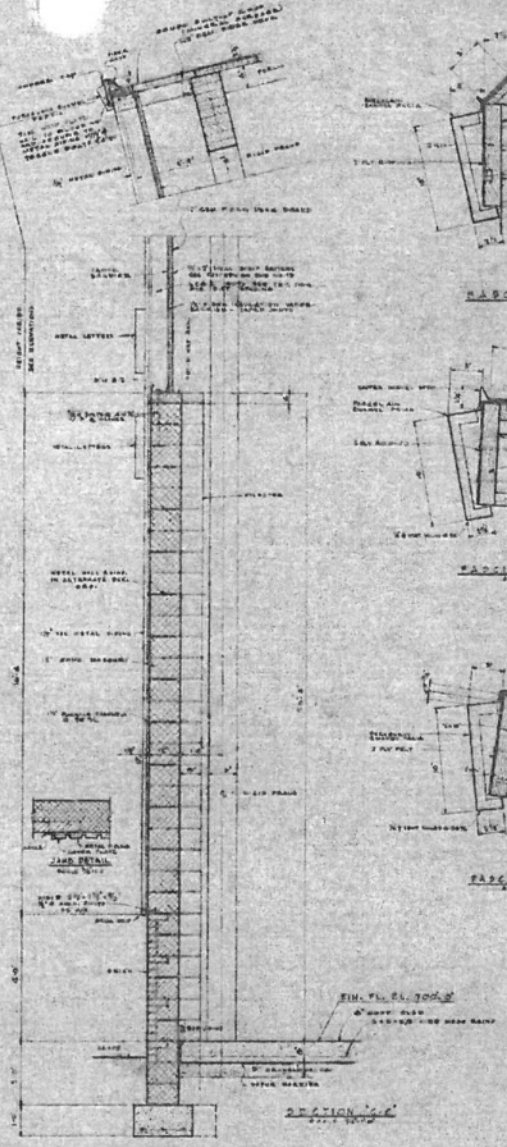
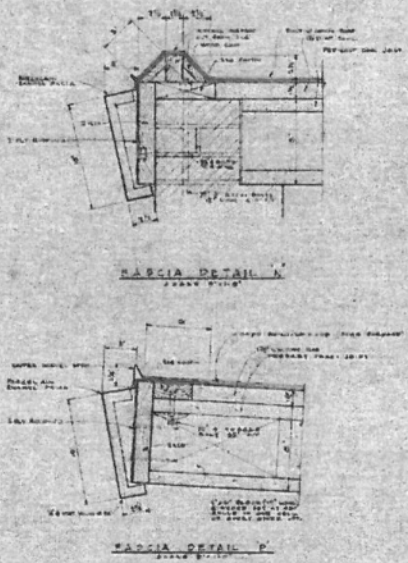
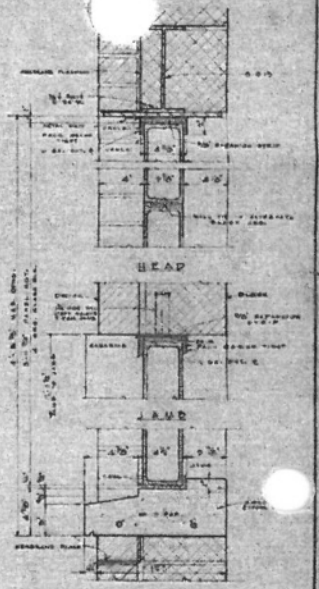
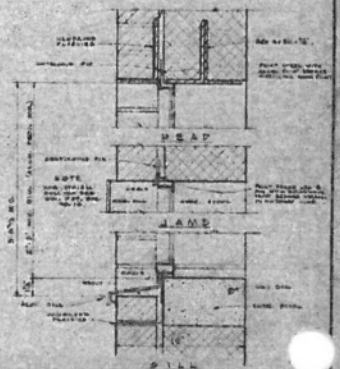

SECTION A-A
SECTION A-A
TYPICAL LETTER DETAIL
SECTION B-B
SECTION THRU TOILET ROOM STAIR
SECTION THRU COUNTER TOP
TYPICAL DETAIL - LOUVER IN MAS. WALL
THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND EXPANSION FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD
OF THE STATE OF WEST VIRGINIA











THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND EXPANDED PHALANX
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD

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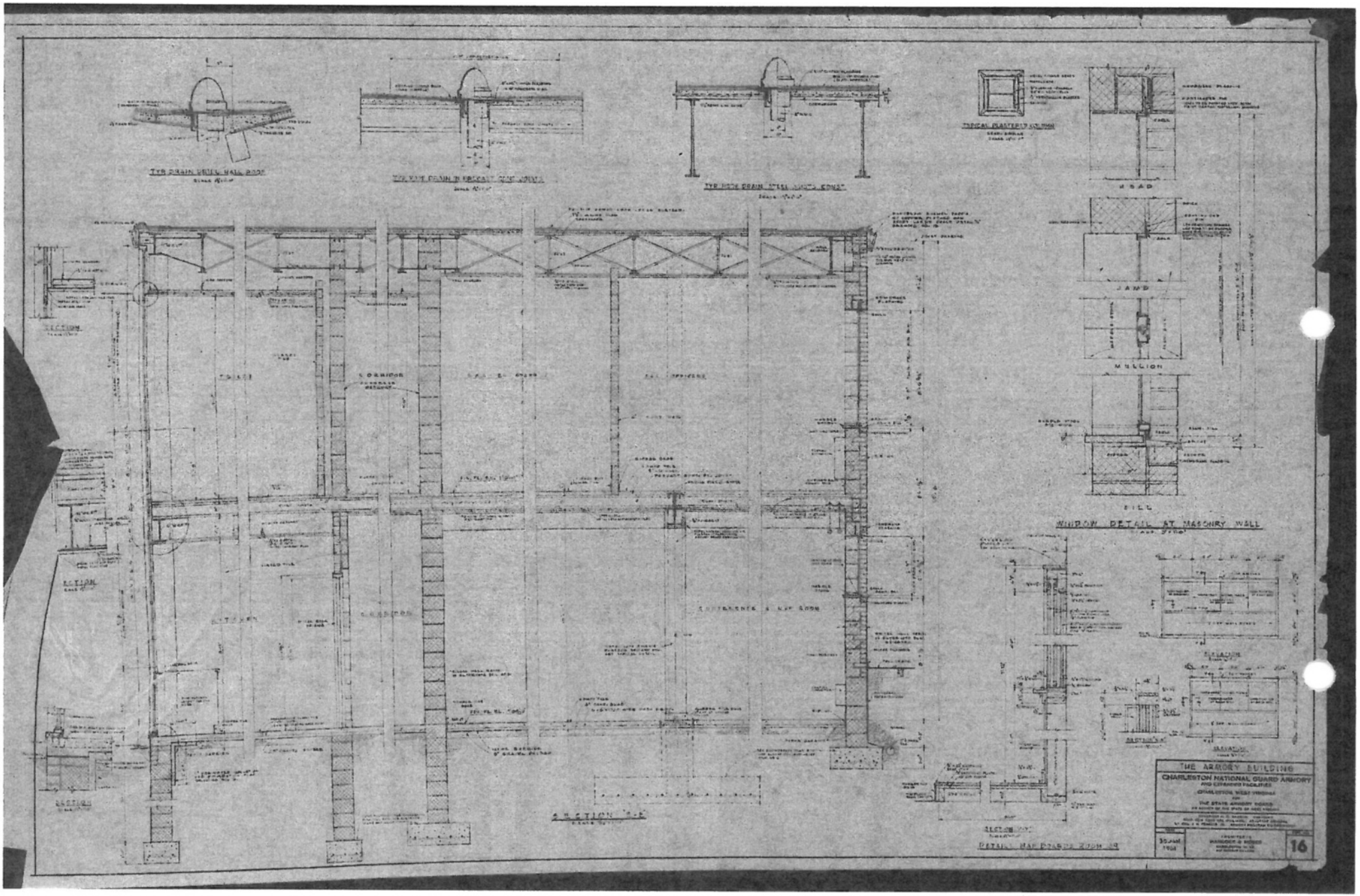
TYP. DRAIN DETAIL WALL ROOF
TYP. DRAIN DETAIL PRECAST CONC. ROOF
TYP. PITCH DRAIN STEEL JOISTS ROOF
TYPICAL CLERESTORY WINDOW
HEAD
JAMB
MULLION
SILL
WINDOW DETAIL AT MASONRY WALL
SECTION
CORRIDOR
CONFERENCE & MAP ROOM
SECTION "A-A"
SECTION
ELEVATION
ELEVATION
SECTION
SECTION
DETAIL MAP STORAGE ROOM 49
THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY AND EXPANDED FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD
AN AGENCY OF THE STATE OF WEST VIRGINIA
30 JAN 1961
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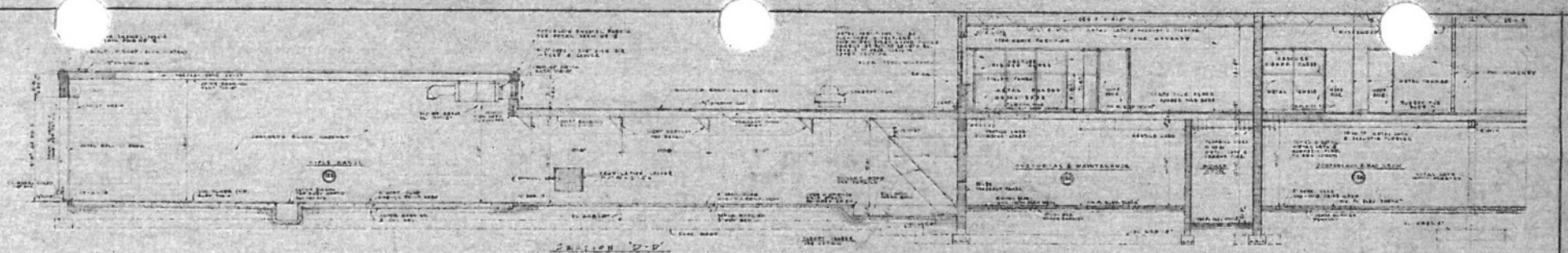
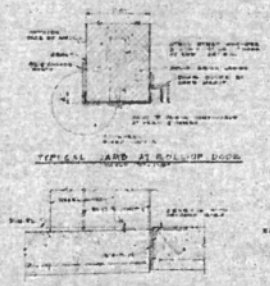
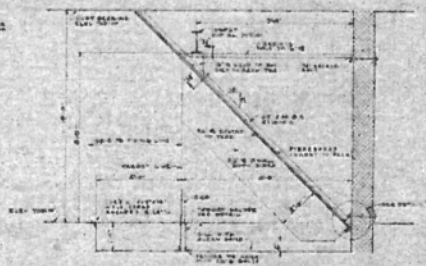


SECTION 'Y-Y'

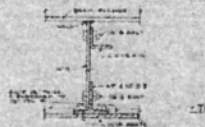


TYPICAL JAMB AT ROLLUP DOOR

DETAIL OF ANGLE THRESHOLD



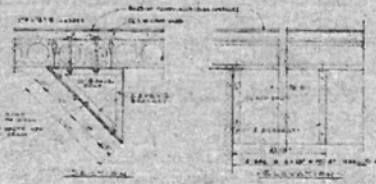
SECTION THRU ROLLUP DOOR



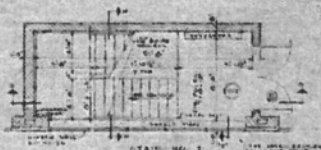
SECTION 'M-M'

DETAIL 'N'

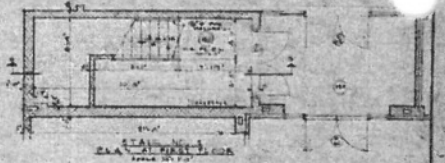
TARGET HOLDER DETAIL



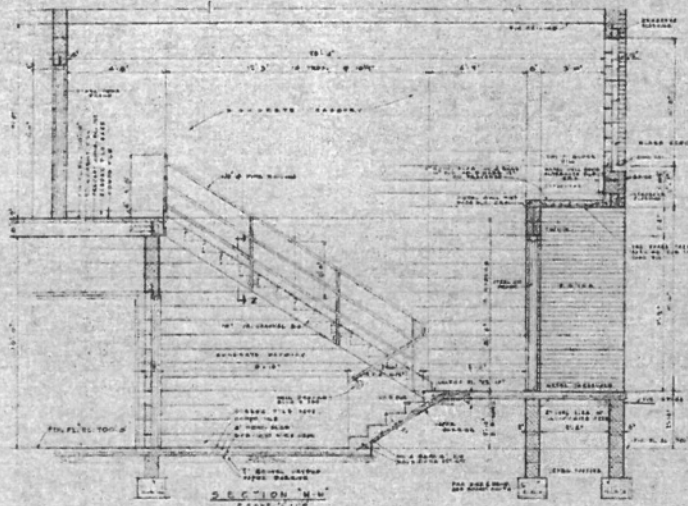
DETAILS OF LIGHT BAFFLE



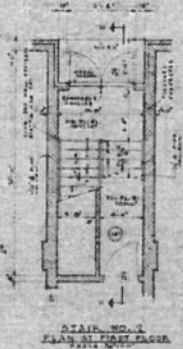
STAIR NO. 1
PLAN AT GROUND FLOOR



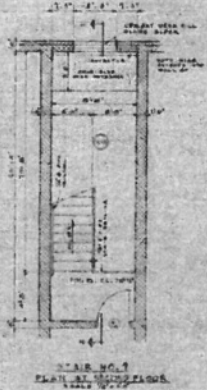
STAIR NO. 1
PLAN AT FIRST FLOOR



SECTION 'N-N'

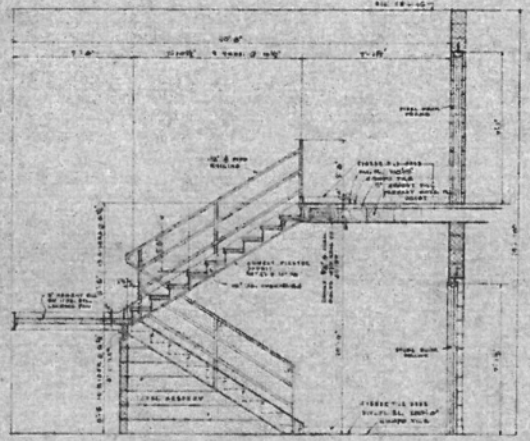


STAIR NO. 2
PLAN AT FIRST FLOOR

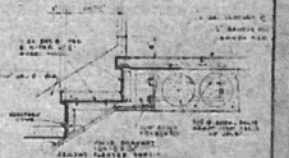


STAIR NO. 2
PLAN AT SECOND FLOOR

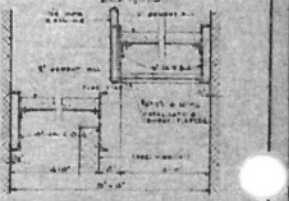
SECTION 'Z-Z'



SECTION 'G-G'



TYPICAL STAIR CONNECTION DETAIL



SECTION 'M-M'

THE ARMORY BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND EXPANDED FACILITIES
CHARLESTON, WEST VIRGINIA
FOR
THE STATE ARMORY BOARD
OF THE STATE OF WEST VIRGINIA

10 JUL 1961

ARCHITECTS
HANDLAN & BOSWORTH
CHARLESTON, W. VA.

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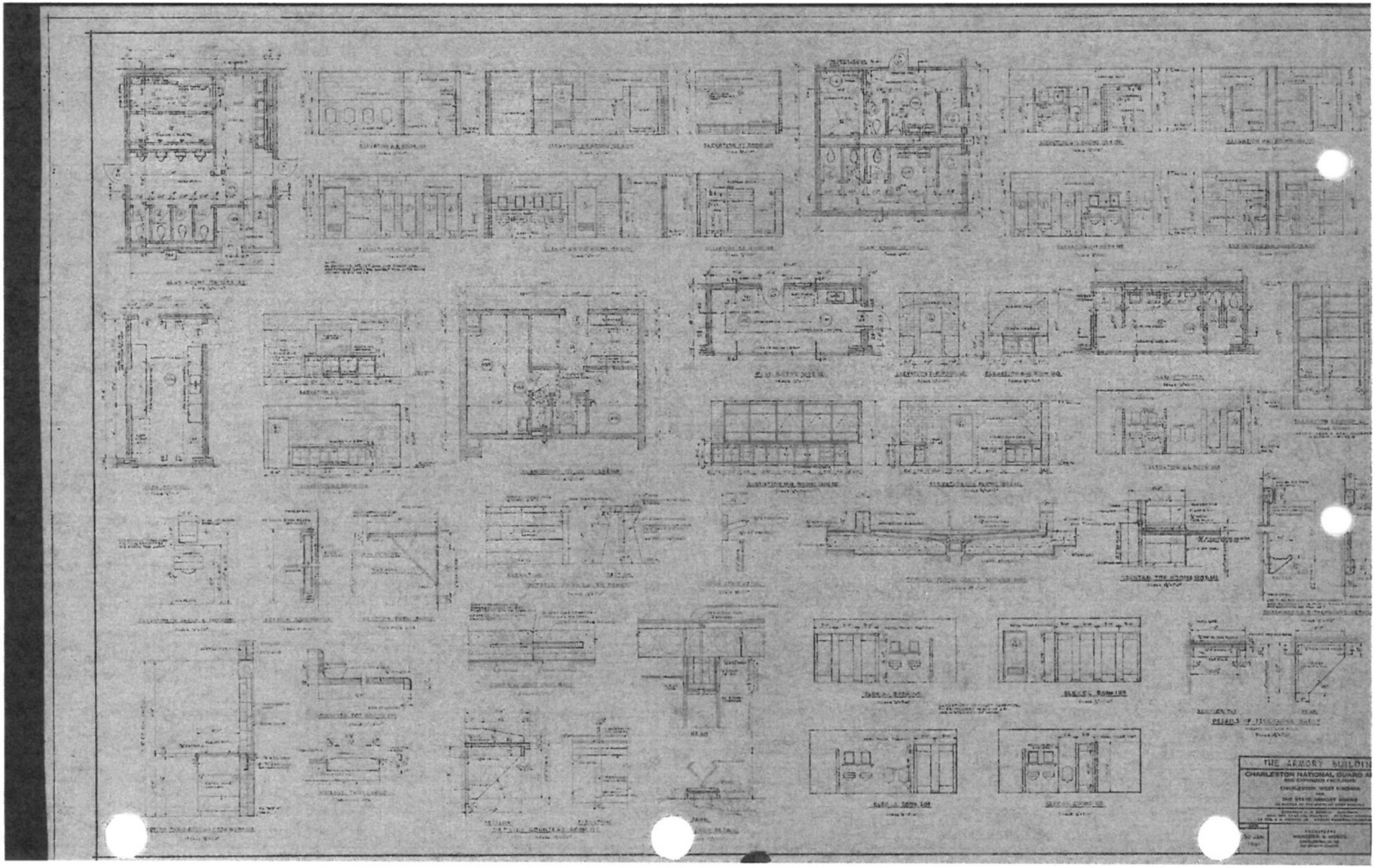
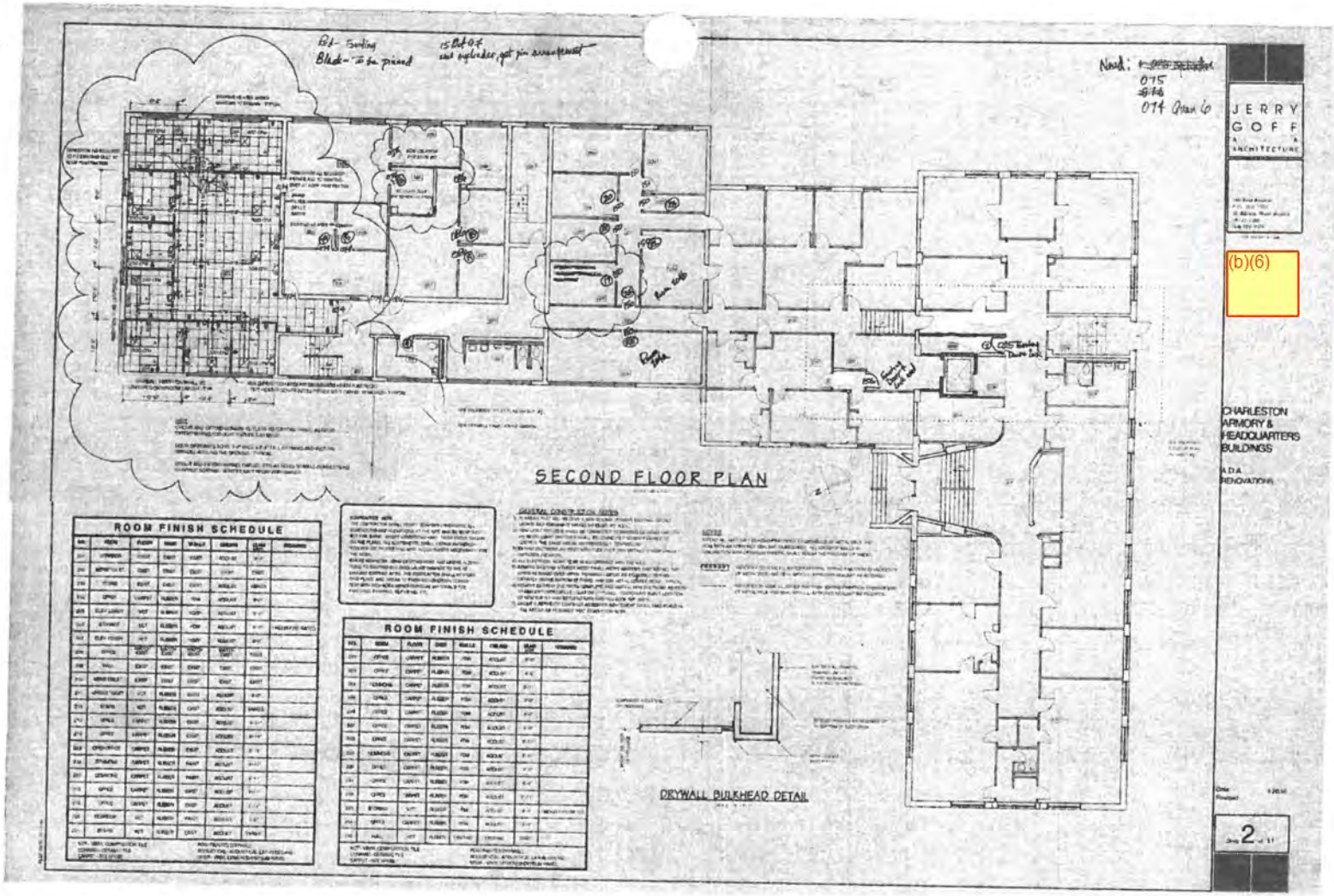
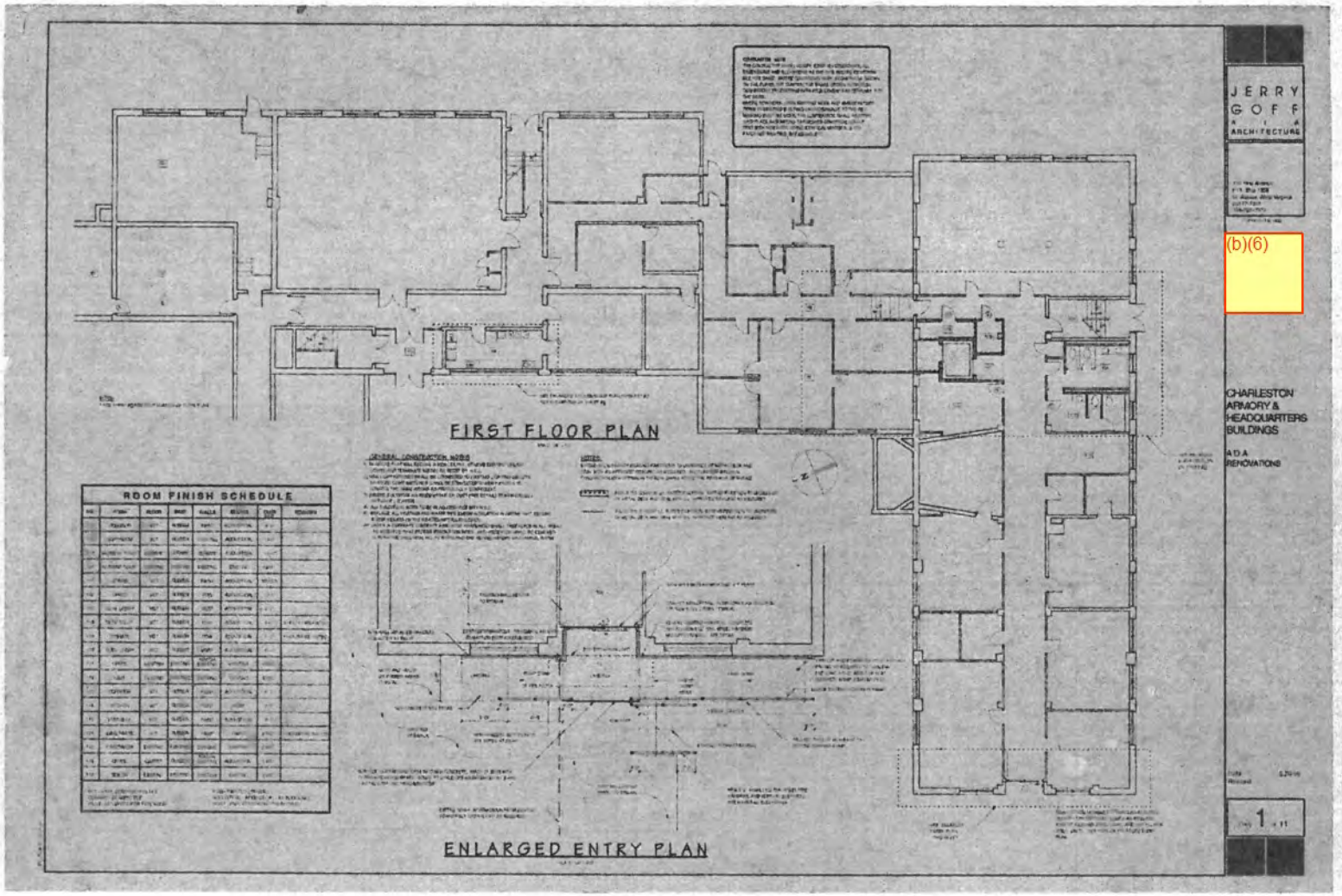
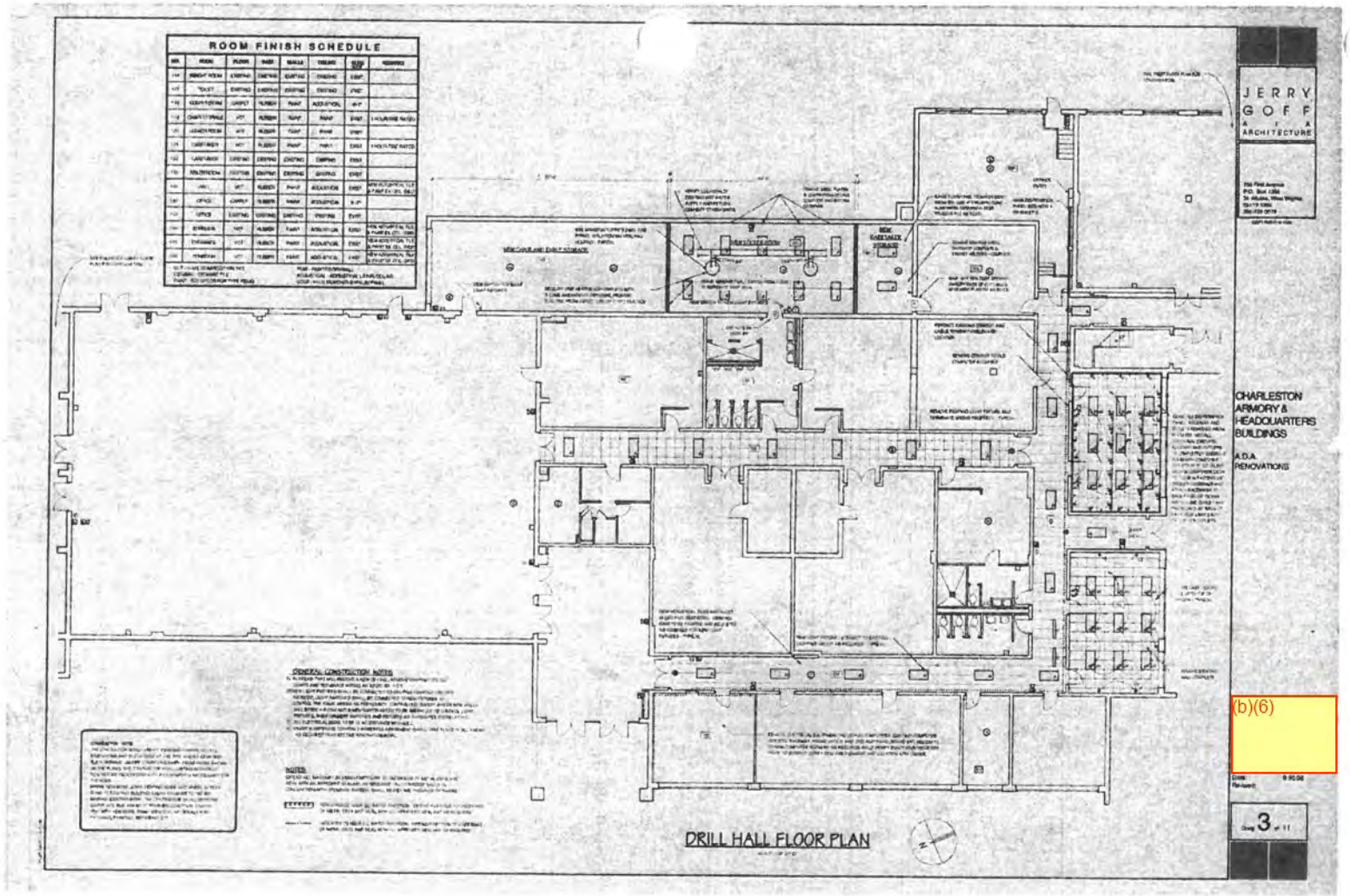
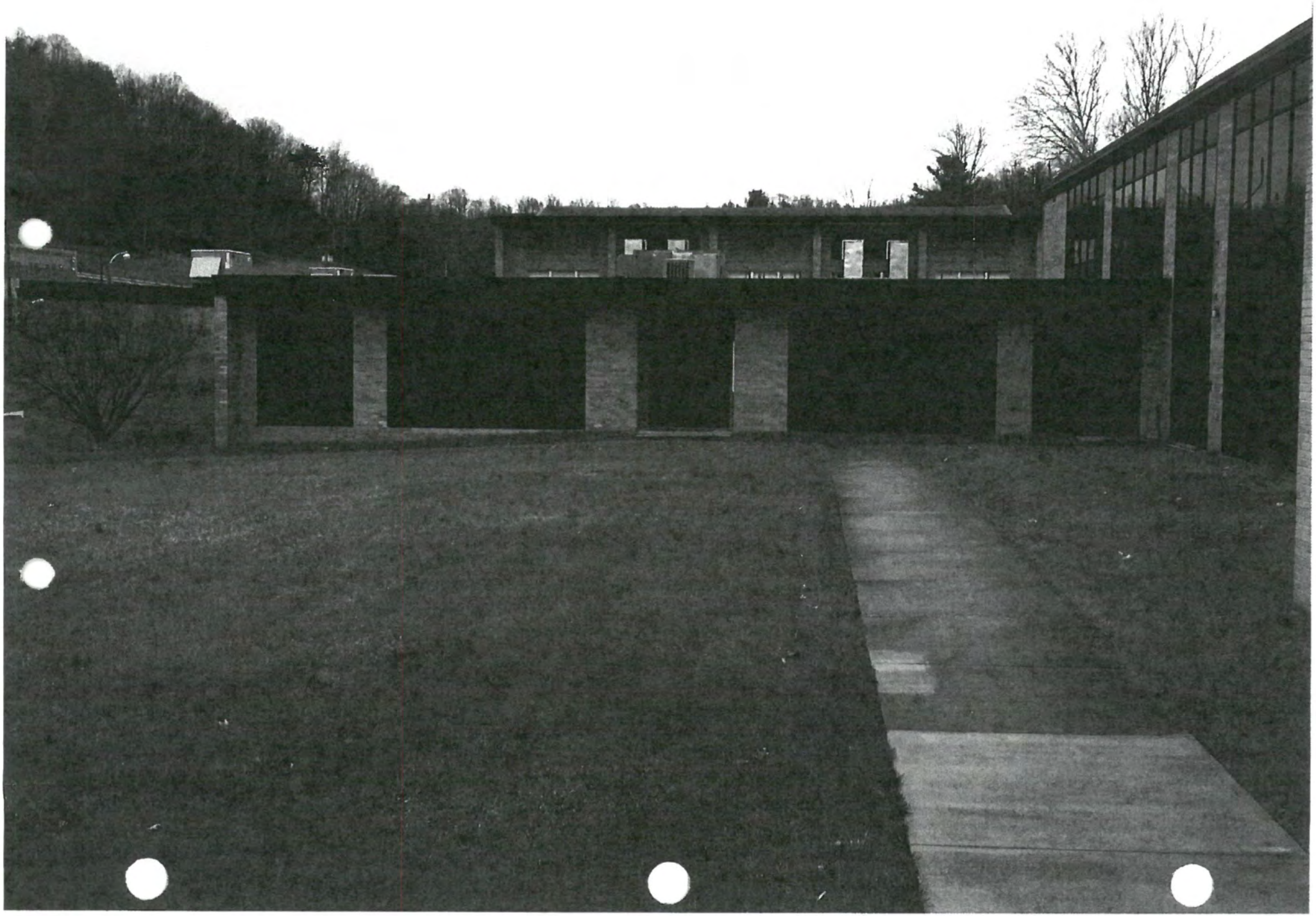


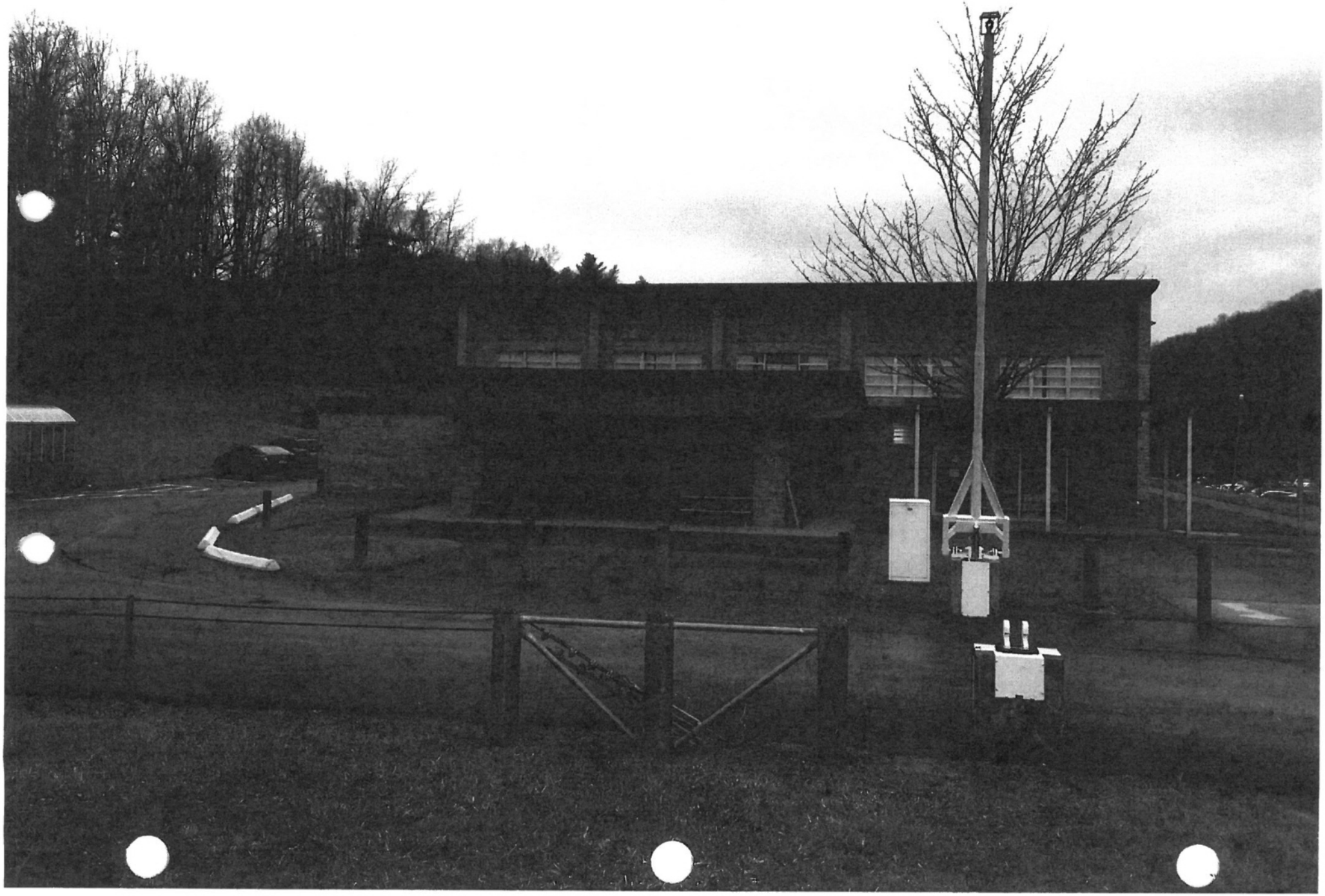

SECOND FLOOR PLAN
ROOM FINISH SCHEDULE
ROOM FINISH SCHEDULE
DRYWALL BULKHEAD DETAIL
JERRY GOFF ARCHITECTURE
(b)(6)
CHARLESTON ARMORY & HEADQUARTERS BUILDINGS
ADA RENOVATIONS
2


JERRY GOFF A I A ARCHITECTURE
(b)(6)
CHARLESTON ARMORY & HEADQUARTERS BUILDINGS
ADA RENOVATIONS
FIRST FLOOR PLAN
ROOM FINISH SCHEDULE
ENLARGED ENTRY PLAN
1


ROOM FINISH SCHEDULE
JERRY GOFF A I A ARCHITECTURE
CHARLESTON ARMORY & HEADQUARTERS BUILDINGS
A.D.A. RENOVATIONS
(b)(6)
DRILL HALL FLOOR PLAN


WEST VIRGINIA
NATIONAL GUARD ARMORY





DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

CERTIFICATIONS REGARDING LOBBYING; DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS; AND DRUG-FREE WORKPLACE REQUIREMENTS

O.M.B NO. 1660-0025
Expires September 30, 2017

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Public reporting burden for this form is estimated to average 1.7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing, and submitting the form. This collection of information is required to obtain or retain benefits. You are not required to submit to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20472-3100, and Paperwork Reduction Project (1660-0025). **NOTE: Do not send your completed form to this address.**

Applicants should refer to the regulations cited below to determine the certification to which they are required to attest. Applicants should also review the instructions for certification included in the regulations before completing this form. Signature of this form provides for compliance with certification requirements under 44 CFR Part 18, "New Restrictions on Lobbying" and 28 CFR Part 17, "Government-wide Debarment and Suspension (Nonprocurement) and Government-wide Requirements for Drug-Free Workplace (Grants)." The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Federal Emergency Management Agency (FEMA) determines to award the transaction, grant, or cooperative agreement.

1. LOBBYING

As required by section 1352, Title 31 of the U.S. Code, and implemented at 44 CFR Part 18, for persons entering into a grant or cooperating agreement over $ 100,000, as defined at 44 CFR Part 18, the applicant certifies that:

(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any Federal grant, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement.

(b) If any other funds than Federal appropriated funds have been paid or will be paid to any other person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or an employee of Congress, or employee of a member of Congress in connection with this Federal Grant or cooperative agreement, the undersigned shall complete and submit Stand Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants, contracts under grants and cooperative agreements, and subcontracts) and that all subrecipients shall certify and disclose accordingly.

☐ Standard Form-LLL "Disclosure of Lobbying Activities" attached
(This form must be attached to certification if non-appropriated funds are to be used to influence activities.)

2. DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS (DIRECT RECIPIENT)

As required by Executive Order 12549, Debarment and Suspension, and implemented at 44 CFR Part 67, for prospective participants in primary covered transactions, as defined at 44 CFR Part 17, Section 17.510-A.

A. The applicant certifies that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of Federal benefits by a State or Federal court, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this application been convicted of a or had a civilian judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or perform a public a public (Federal ,State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and

(d) Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause of default; and

B. Where the applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

3. DRUG-FREE WORKPLACE (GRANTEE OTHER THAN INDIVIDUALS)

As required by the Drug-Free Workplace Act of 1988, and implemented at 44 CFR Part 17, Subpart F, for grantees, as defined at 44 CFR Part 17.615 and 17.620-

A. The applicant certifies that it will continue to provide a drug-free workplace by;

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an on-going drug free awareness program to inform employees about-

(1) The dangers of drug abuse in the workplace;

(2) The grantee's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant to be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will-

(1) Abide by the term of the statement; and

(2) Notify the employee in writing of his or her conviction for a violation of a criminal drug statute occurring ion the workplace no later than five calendar days after such convictions;

(e) Notifying the agency, in writing, within 10 calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position, title, to the applicable FEMA awarding office, i.e., regional office or FEMA office.

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is convicted-

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation act of 1973, as amended; or

(2) Requiring such an employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, City, County, State, Zip code)

☐ There are workplaces on file that are not identified

Sections 17.630 of the regulations provide that a grantee that is a State may elect to make one certification in each Federal fiscal year. A copy of which should be included with each application for FEMA funding. States and State agencies may elect to use a state wide certification.

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

ASSURANCES-NONCONSTRUCTION PROGRAMS

O.M.B NO. 1660-0025
Expires September 30, 2017

Paperwork Burden Disclosure Notice

Public reporting burden for this data collection is estimated to average 1.7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting this form. This collection of information is required to obtain or retain benefits. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20472 Paperwork Reduction Project (1660-0025). **NOTE: Do not send your completed form to this address.**

NOTE:
Certain of these assurances may not be applicable to your project or program. If you have any questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability *(including funds sufficient to pay the non-Federal share of project costs)* to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal gain.

4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. Section 4727-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statues or regulations specified in Appendix A of OPM's Standards for Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

6. Will comply with all Federal statues relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P. L. 88-352) which prohibits discrimination on the basis of race, color, or national origin; (b) Title IV of the Education Amendments of 1972, as amended (20 U.S.C. Sections 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. Sections 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970,) P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) Sections 523 and 527 of the Public Health Service Act of 1912, (42 U.S.C. 290-dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Acts of 1968 (42 U.S.C. Section 3601 et. seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provision in the specific statue(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statue(s) which may apply to the application. 7. Will comply, or has already complied, with the requirements of Title II and III of the Uniformed Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or Federally assisted programs. These requirements apply to all interest in real property acquired for project purposes regardless of Federal participation in purchase.

8. Will comply with provisions of Hatch Act (5 U.S.C. Sections 1501-1508 and 7324-7328) which limit the political activities of employees whose principle employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. Sections 276a to 276a-7) the Copeland Act (40 U.S.C. Section 276c and 18 U.S.C. Sections 874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. Sections 327-333), regarding labor standards for federally assisted construction subagreements.

10. Will comply, if applicable with flood insurance purchase requirements of Section 102a of the Flood Disaster Protection Act of 1973 (P.L. 93-234)which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988;(e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16) U.S.C. Sections 1451 et seq.); (f) conformity of Federal actions to State (Clear Air) Implementation Plans under Section 176 (c) of the Clear Air Act of 1955, as amended (42 U.S.C. Section et seq.); (g) protection underground sources of drinking water under Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).

12. Will comply with the wild and Scenic Rivers Act of 1968 (16 U.S.C. Sections 1271 et seq.) related to protecting components of the national wild and scenic rivers systems.

13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-et seq.).

ASSURANCES-NONCONSTRUCTION PROGRAMS Cont.

14. Will comply with P.L 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 9-544, as amended, 7 U.S.C. 2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poising Prevention Act (42 U.S.C. Sections 4801 et seq.) which prohibits the use of lead based paint in construction or rehabilitation of residence structures.

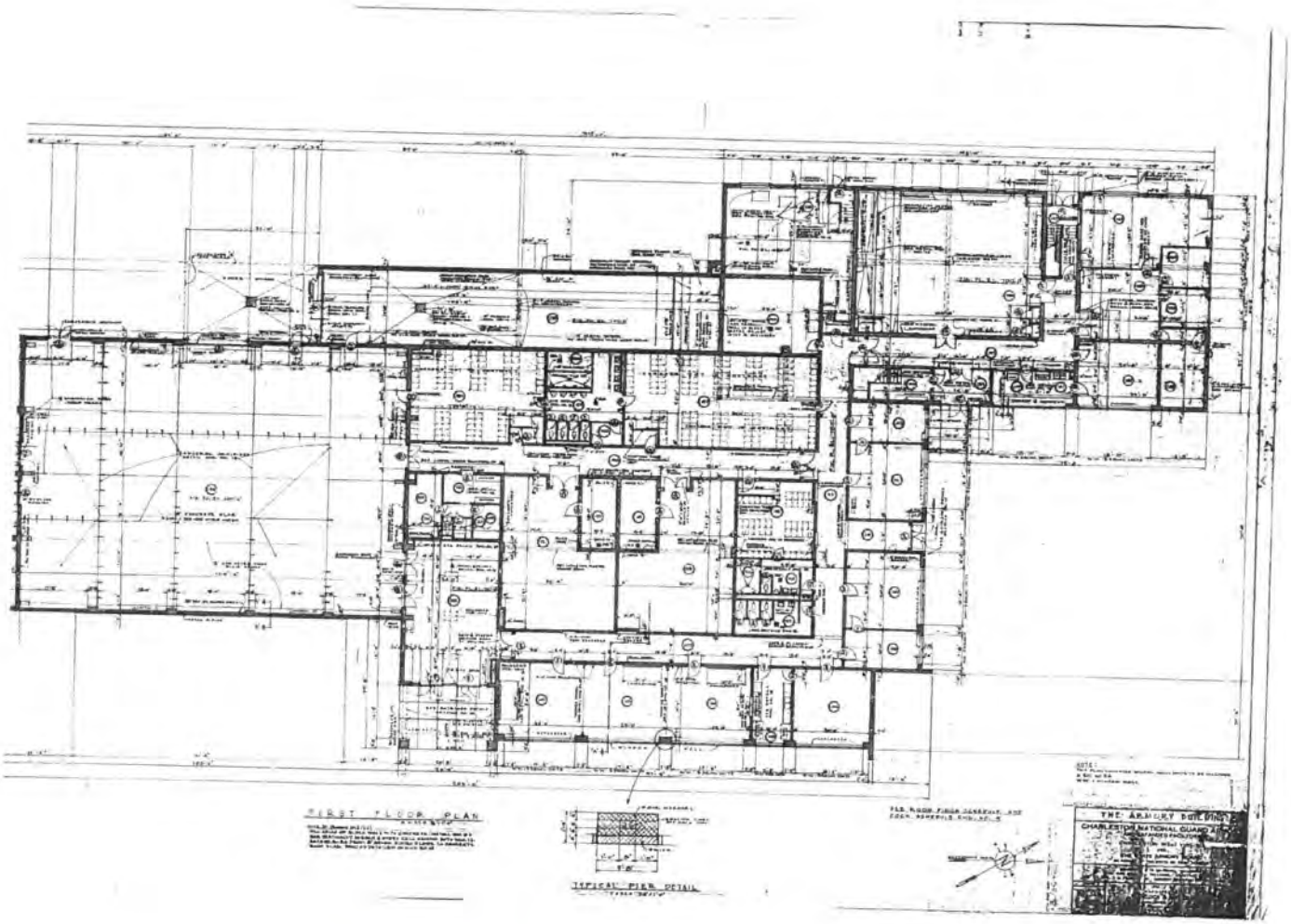
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act of 1984.

18. Will comply with all applicable requirements of all other Federal laws,executive orders, regulations and policies governing this program.

19. It will comply with the minimum wage and maximum hours provisions of the Federal Fair Labor Standards Act (29 U.S.C. 201), as they apply to employees of institutions of higher education, hospitals, and other non-profit organizations.

DR#4213-53-EOC

EAST



Current Layout - 2018

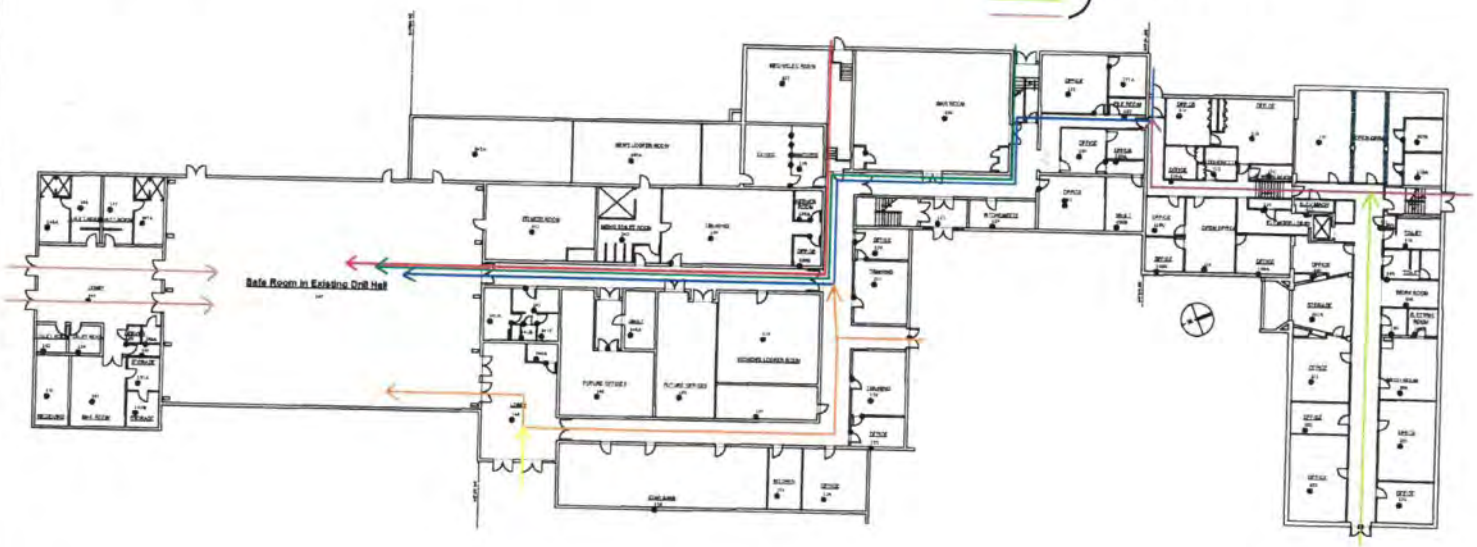
HMGP Safe Room Requirements

West Virginia National Guard Armory Main Building Floor Plan

100 50 0 100 Feet

NOTE: Color lines indicate the paths of entrance available to the safe room area from the interior and exterior of the existing building

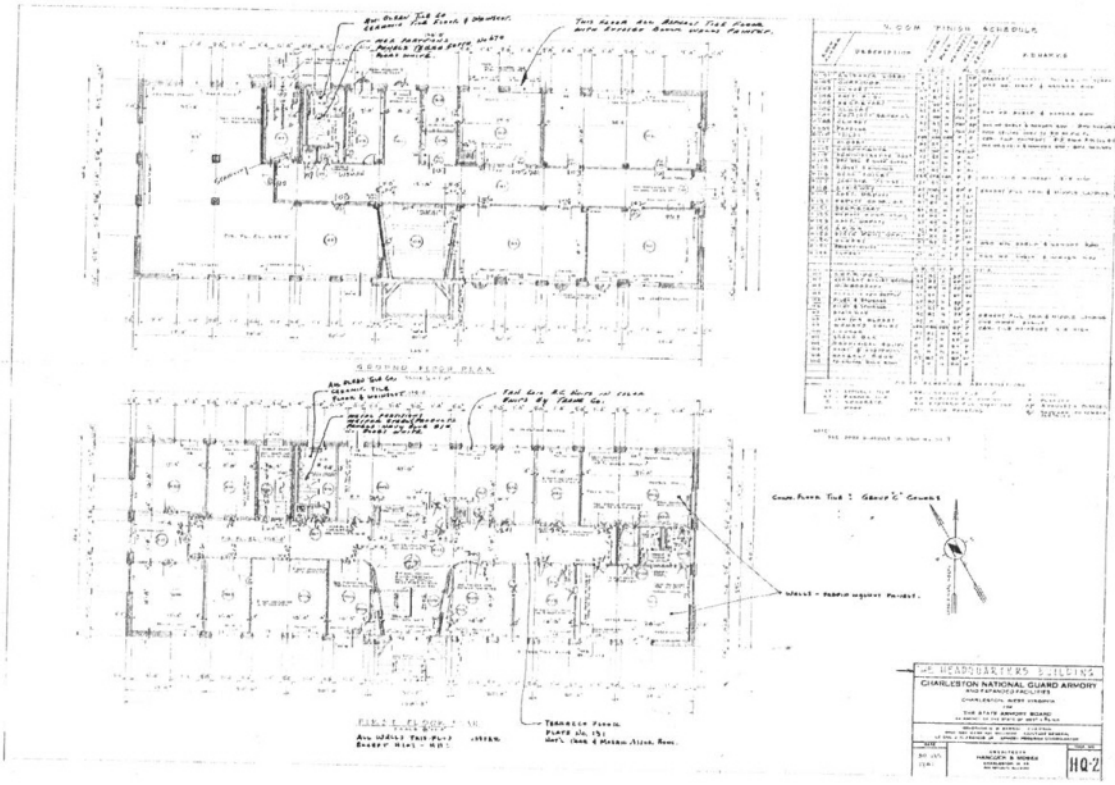
Various paths of entrance to safe room area

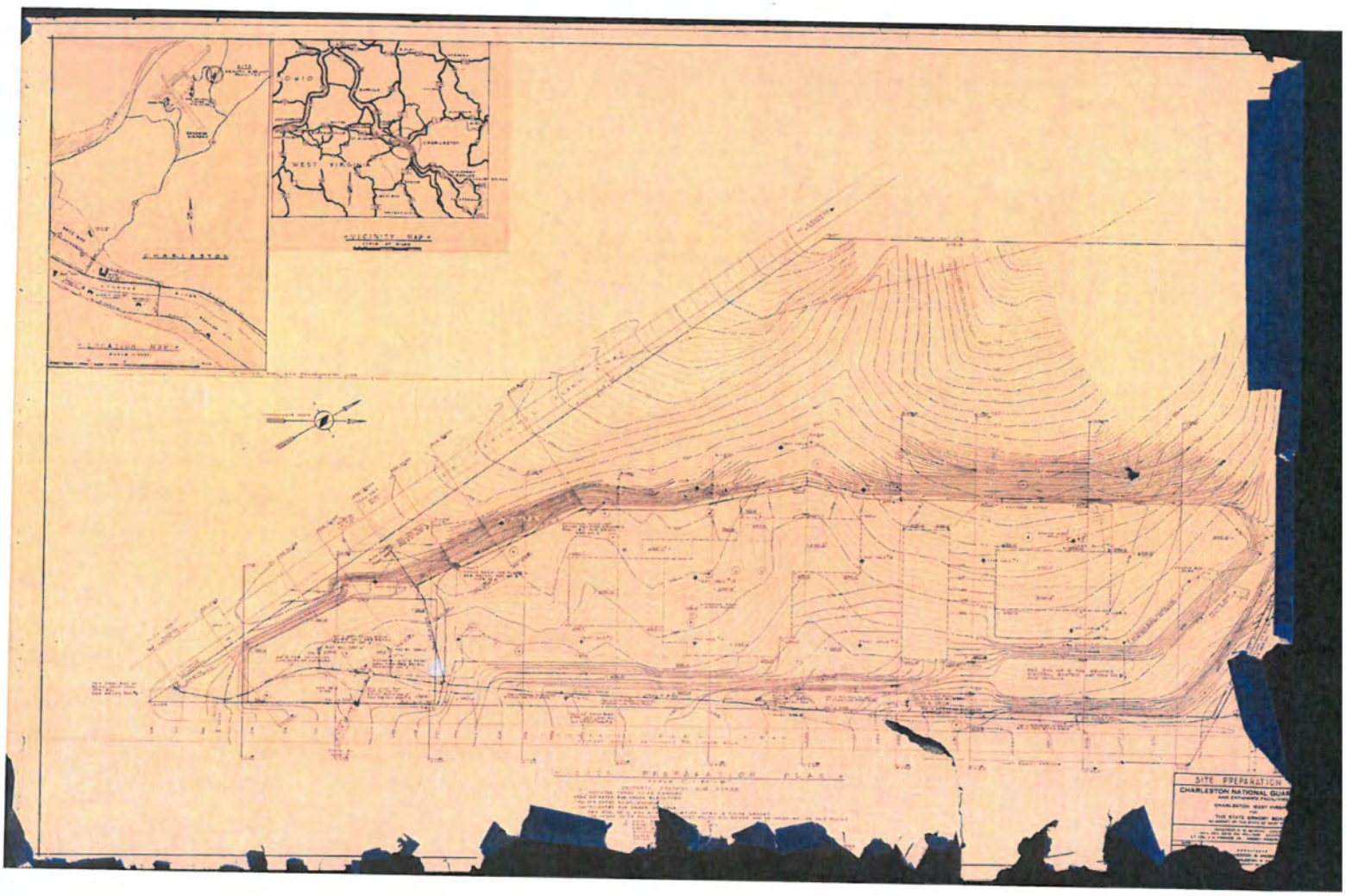


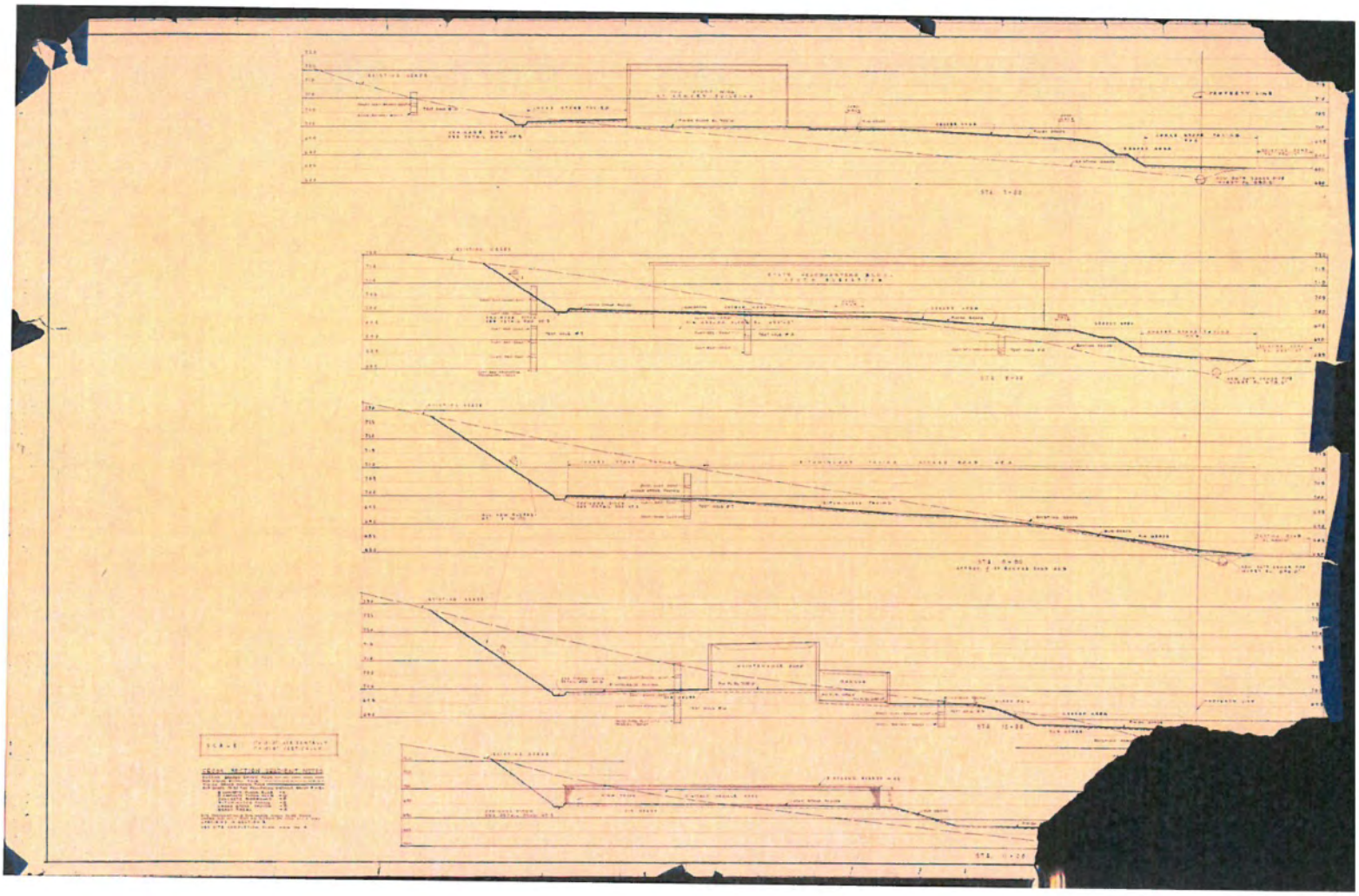
NORTH

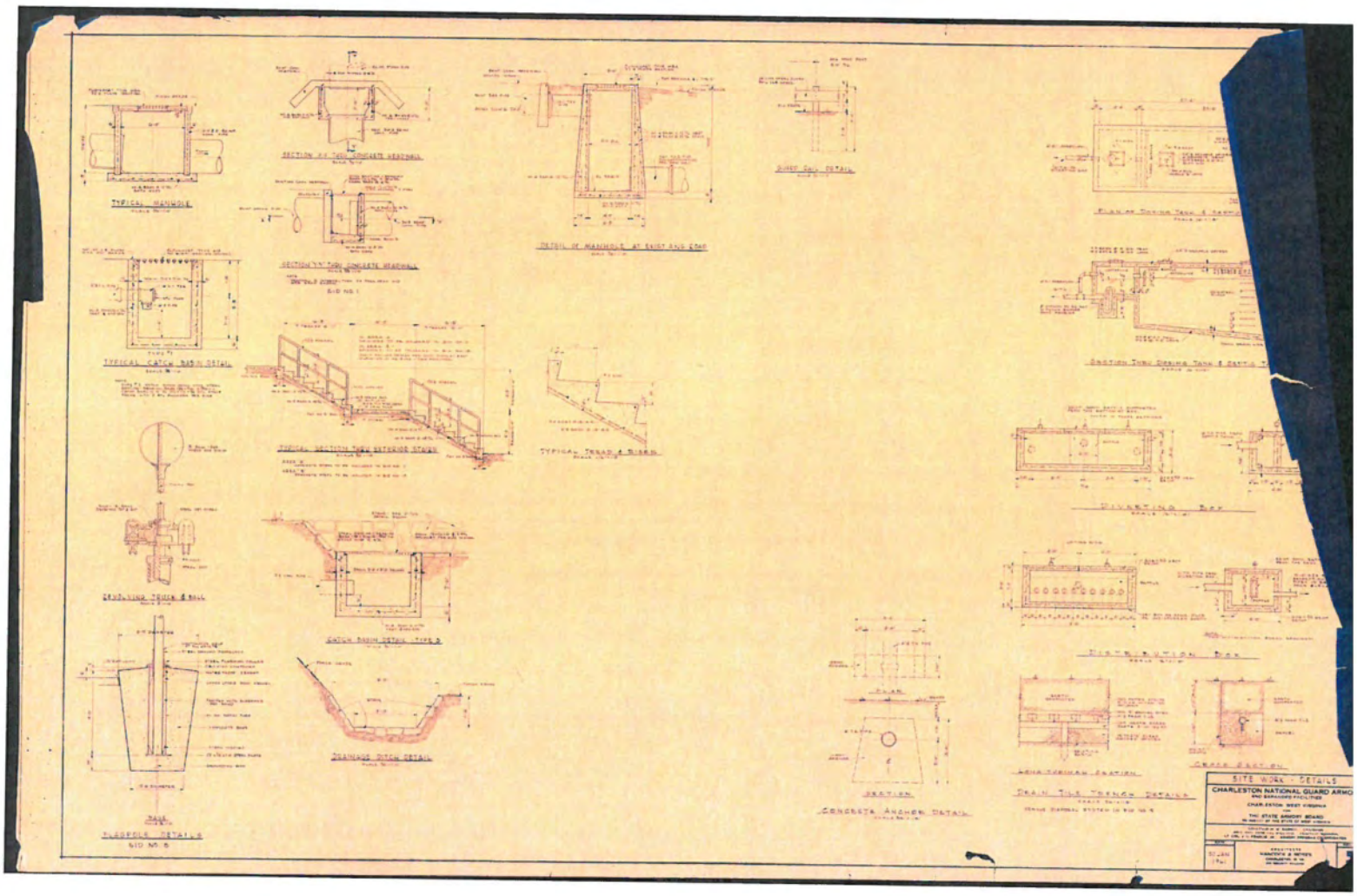
SOUTH

WEST


ROOM FINISH SCHEDULE
GROUND FLOOR PLAN
FIRST FLOOR PLAN
HEADQUARTERS BUILDING
CHARLESTON NATIONAL GUARD ARMORY
AND PARADE FACILITIES
HQ-2


OHIO
WEST VIRGINIA
CHARLESTON
SITE PREPARATION




TYPICAL MANHOLE
SECTION XX THRU CONCRETE HEADWALL
SECTION YY THRU CONCRETE HEADWALL
DETAIL OF MANHOLE AT EXIST END
TYPICAL CATCH BASIN DETAIL
TYPICAL SECTION THRU EXTERIOR STAIR
TYPICAL TREAD & RISER
DRILLING TRUCK & RIG
CATCH BASIN DETAIL TYPE B
DRAINAGE DITCH DETAIL
FLAGPOLE DETAILS
SID NO. 5
SECTION
CONCRETE ANCHOR DETAIL
DRAIN TILE TYPICAL DETAILS
SITE WORK - DETAILS
CHARLESTON NATIONAL GUARD ARMO
AND BARRACKS FACILITIES
CHARLESTON, WEST VIRGINIA
THE STATE ARMORY BOARD

Sub-Section from the HMA Addendum Re: Safe Rooms provided to WVDHSEM

For example, a community may decide to build a multi-use facility that includes a tornado safe room function in a community center. The new facility may include an assembly or multi-purpose room that has 1,185 square feet. In order to use the space as a community tornado safe room, the gross square footage must be reduced to account for egress circulation, partitions, interior columns, furnishings, finishes, equipment, and other features. The calculation may be exact or estimated using the methodology in FEMA P-361. For this example, the area is considered an open floor plan, and only 85 percent of the gross area can be considered net usable area for the occupants seeking shelter. Using 85 percent of the gross square footage as usable square footage, the 1,185 square feet is reduced to 1,007 usable square feet:

1,185 (0.85) = 1,007 square feet

Per FEMA P-361 design criteria, a minimum of 5 square feet per safe room occupant must be provided in a tornado community safe room (see **Table 2**). In this example, safe room designers must also account for the use of durable medical equipment, for example wheel chairs, walkers, or hospital beds, as well as consider individuals who are handlers of service animals.

A community safe room should be sized to accommodate a minimum of one wheelchair space (at 10 square feet) for every 200 occupants or portion thereof. Therefore, the 1,007-square-foot usable floor area would provide enough space for the protection of 200 occupants (see **Table 3**) and would be eligible for **HMGP** and **PDM** funding. It would not be reasonable for an application in this example to include a request for usable square footage of 2,000 square feet because that amount of space has not been demonstrated as being necessary for an identified at-risk population of 200 occupants.

Table 3: Example Community Safe Room Size

Occupants	Required Square Feet per Person	Total Square Footage
199 occupants	5	995
1 occupant in a wheelchair	10	10
Total 200 occupants	—	1,005

Applicants and subapplicants should refer to FEMA P-361 for further guidance on sizing criteria.

C.3.1.2 Population Impacted by Hurricanes

This section provides information to help Applicants and subapplicants identify and define the population impacted by hurricanes and identify who may require a safe room facility.

C.3.1.2.1 Information Sources

Determining the hurricane safe room population depends on the assumptions used in the evacuation or emergency response plans and policies being administered by local, State, and

Federal (if applicable) emergency management organizations. Therefore, Applicants and subapplicants are encouraged to coordinate with the relevant agency in the jurisdiction that developed the plans. In addition, local or federally-recognized tribal mitigation plans are required to include a risk assessment that defines the hazard characteristics within an area and the specific needs for the affected population. Evacuation plans are likely to be more specific in terms of population, but the risk assessment in a community's existing mitigation plan may also be a source for this information. Documentation to support the determination of the impacted population may be directly related to the planning tools mentioned above and should be included in the application.

C.3.1.2.2 Hurricane Population Categories

Generally, two broad categories of potential hurricane safe room occupants may be identified as part of the limited population in need of life-safety protection: (1) first responders, critical and essential services personnel, and facility occupants and (2) those that cannot evacuate because of limitations.

The impacted population should be accommodated within the safe room for a minimum of 24 hours (the FEMA P-361 minimum design occupancy time for hurricane safe rooms). Applicants and subapplicants are encouraged to use verifiable information, such as emergency evacuation plans and local emergency management plans (or other applicable sources), to identify potential safe room occupants from the categories listed below:

Category 1: First Responders, Critical and Essential Services Personnel, and Facility Occupants
The civilian personnel of emergency response services, also known as first responders, may be required to remain in harm's way. First responders include, but are not limited to, fire and police department personnel, rescue squads, Emergency Operations Center (EOC) personnel, emergency medical and ambulance service providers, search and rescue teams, and similar personnel whom a local community may depend upon for a successful response to an extreme wind event.

In many cases, other critical services personnel may be required to remain in harm's way to facilitate the continued operation of certain critical facilities, including material storage facilities, communications and data centers, and others that a local community may depend on for a successful response to an extreme wind event.

Category 2: Individuals that Cannot Evacuate
This category may include occupants of facilities, such as patients in hospitals, residents of long-term care facilities, and other occupants for which evacuation would be detrimental to their well-being. This category also could include jail/inmates who are unable to be evacuated safely.

Documentation

Applicants and subapplicants must provide documentation to support the identified population for the safe room and must also submit adequate documentation in support of their risk assessments to allow grant program reviewers to determine whether the proposed safe room size is appropriate for the identified population. The documentation should be sufficiently detailed to be verified during the grant review process. Applicant and subapplicant coordination with the local, State, or Federal (if applicable) agency responsible for developing emergency evacuation plans is critical.

Each grant program identifies documentation requirements, but in general, documents that can be used to quantify the disproportionately impacted population, such as evacuation plans, emergency response plans, and meeting notes, are acceptable. For example, the population categories listed above may be part of the affected population identified in an emergency evacuation plan.

In all cases, planning and operation of **PDM** and **HMGP** safe rooms, including the identification of the population to be protected, should not conflict with State and/or local evacuation plans. **PDM** and **HMGP** safe room activities should not be used as a substitute for, or as an option for individuals to ignore, local community and/or State evacuation plans or any other law or ordinance.

Travel Time Considerations

The issues to consider in estimating travel time to the safe room facility include local emergency management and law enforcement requirements, mandatory evacuations, evacuation times from the anticipated area of impact, and any other plans that affect the movement of at-risk populations. Further guidance is provided in FEMA P-361.

Warning Capabilities

In addition to design and construction criteria, an accessible and effective warning system must be in place to notify prospective community safe room occupants when they should evacuate to the safe room facility. Occupants of homes (residences) with a residential safe room that meets the siting and elevation requirements in FEMA P-361 are assumed to use that room and require no evacuation and only minimal travel time. Applicants and subapplicants for community safe room projects must demonstrate that the population can be properly notified to allow sufficient travel time to the community safe room.

Period of Protection

As identified in FEMA P-361, the hazard mitigation time of protection for safe rooms is a minimum of 24 hours for hurricane events. Therefore, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room.

C.3.1.3 Population Impacted by Tornadoes

This section provides information to help identify and define the population impacted by tornadoes.

Populations impacted by tornadoes are generally limited to the family or group of families who live in the dwelling or dwellings served by the safe room, workers who have access to a safe room at their place of business, and individuals who have access to an onsite community safe room. In addition, because of the short period between tornado identification and impact, these at-risk populations must be close to the safe room in order to benefit from it.

Tornado safe room populations are determined based on limited warning times (minutes, not days) and the maximum reasonable travel time for potential safe room occupants to reach the safety of the facility. These populations that cannot reach the safe room within a reasonable time are not considered as potential occupants of the safe room.

Tornadoes strike without timely warning, often depriving the affected population sufficient time to seek safety. Only about 20 minutes (or less) of warning time may be provided before a tornado strikes. For a limited or no-warning storm event, at-risk individuals have various degrees of susceptibility.

The following two aspects of higher risk should be considered when identifying and quantifying the population impacted by a tornado:

- The physical characteristics of the built environment (buildings or other structures) in which the population resides. Because buildings differ in their susceptibility to damage from a tornado, building occupants are exposed to varying risks of injury or death. Individuals living in non-engineered housing, older housing, and manufactured housing are more susceptible to catastrophic damage from a tornado.
- The ability of the population to mobilize to the safe room during a tornado, irrespective of where they are located. A 20-minute warning may not be sufficient time for all to get access to the safe room. Children and adults with disabilities and others with access and functional needs may require a greater level of assistance, time to mobilize, and attention during an emergency. These considerations should be factored into planning.

C.3.1.3.1 Documentation

Applicants and subapplicants must provide documentation to support the identified population for the safe room and must also submit adequate documentation in support of their risk assessments to allow grant program reviewers to determine whether the proposed safe room size is appropriate for the identified population. The documentation should be sufficiently detailed to be verified during the grant review process. Applicant and subapplicant coordination with the local, State, or Federal (if applicable) agency responsible for developing emergency action plans is critical.

Each grant program identifies documentation requirements, but in general, emergency response plans, area maps, building construction drawings, and meeting notes that can be used to quantify the population are acceptable. In addition, local or federally-recognized tribal mitigation plans are required to describe the susceptibility of the community and structures, in particular high-risk populations, and may also be sources for this information. Applicants and subapplicants must provide this information; otherwise, the application review may be delayed or the application may be rejected.

C.3.1.3.2 Travel Time Considerations

The two aspects of higher risk listed above will facilitate identifying and targeting high concentrations of impacted populations. The most effective tornado safe rooms minimize occupant travel time. Consequently, onsite community safe rooms, built either as integral parts of a building or as separate structures, offer the greatest level of protection to occupants. Community safe rooms in hospitals, schools, long-term care centers, and other facilities that house highly susceptible populations are the most successful in minimizing the risks. These safe rooms may be designed to serve the community at large in addition to onsite residents. In such cases, the population of the safe room is limited by the proximity of potential occupants to the safe room, which is defined by the maximum allowed travel time and/or the maximum distance to the safe room.

The distance from the safe room for the at-risk population is based on a maximum walking travel time of 5 minutes or a maximum driving travel distance of approximately 0.5 mile. When considering a single- or multi-use community safe room, the 5-minute walk time or the equivalent 0.5-mile driving distance must be calculated by the actual travel route or pathway that a pedestrian or a driver will be required to follow. The pathway should not be restricted, bottlenecked, or obstructed by barriers such as multi-lane highways, railroad tracks, bridges, or similar facilities or by topographic features. Traffic congestion (including parking constraints) during the movement of the potential affected population to the safe room once a storm watch/warning notification is issued should be considered when defining the limited population for the community safe room. In either case, whether walking or driving, prospective safe room occupants must be able to safely reach the facility within 5 minutes of receiving a tornado warning or notice to seek shelter.

C.3.1.3.3 Period of Protection

As identified in FEMA P-361, the hazard mitigation time of protection for safe rooms is a minimum of 2 hours for tornado events. Therefore, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room.

C.3.2 Cost Estimates

Applications for safe room projects must include detailed, line-item costs in the project cost estimates. Well-documented project cost estimates contain quantities, unit costs, and a source for each unit cost. In contrast, lump-sum cost estimates do not provide quantities and unit costs required to evaluate the accuracy of the project cost estimate. Lump-sum cost estimates are not acceptable.

Under **HMGP** and **PDM**, project cost estimates include unit costs related to the proposed square footage of the protected area or areas of the safe room (see Addendum Part C.3.1.1 for safe room sizing criteria). Unit costs may also be related to the protected population (occupants) of the safe room.

C.3.2.1 Program Funding Limits

Potential Applicants and subapplicants should understand that **HMGP** or **PDM** funding for safe room projects is subject to all program-specific rules and regulations, including any pre-determined limitations on the Federal share of project costs. Detailed information on funding program limits is provided in Part I, B of the HMA Guidance. Potential Applicants and subapplicants should also consult the appropriate State Hazard Mitigation Officer for details on funding limitations.

C.4 Implementation

The implementation guidance in this section is intended to ensure that Applicants and subapplicants pursuing **PDM** or **HMGP** funds for safe room projects adequately understand and address all of the requirements that are unique to this type of mitigation.

C.4.1 Environmental Planning and Historic Preservation Review and Compliance

Safe room project designs must take into consideration potential impacts on a wide variety of EHP resources, such as wetlands, floodplains, historic structures, and archaeological sites.

To assist with the EHP review, FEMA has prepared a Programmatic Environmental Assessment to help project application developers and reviewers streamline the evaluation of potential impacts to the human environment resulting from the construction of residential and non-residential (individual) safe rooms and community safe rooms that are proposed for **HMGP** or **PDM** funding. The Programmatic Environmental Assessment provides the public and decision-makers with helpful information necessary to understand and evaluate the potential environmental consequences of these hazard mitigation actions and helps streamline the National Environmental Policy Act (NEPA) review process. Additional EHP review, aside from compliance with NEPA, may still be required.

C.4.2 Americans with Disabilities Act Compliance for Residential and Community Safe Rooms

The needs of the whole community requiring safe room space must be considered. Safe room construction should integrate considerations for:

- Proximity of location to affected populations
- The size of the safe room
- Egress/ingress of the safe room to accommodate the affected populations
- Ensuring facilities within the safe room comply with Americans with Disabilities Act (ADA) regulations
- Accessible alerts and warnings

The appropriate access for persons with disabilities must be provided in accordance with all Federal, State, and local ADA requirements and ordinances.

C.4.3 Eligible and Ineligible Components of Residential and Community Safe Rooms

Safe room cost estimates contained in applications and subapplications should include only eligible costs. For examples of eligible and ineligible costs see Addendum Part C.4.4. **Table 4** shows eligible and ineligible components of residential and community safety rooms. This table can be referred to when determining whether a component is an eligible cost of a safe room application. Note that there are differences in what is considered an eligible cost for a residential safe room versus a community safe room because of the different scope of the projects.

Table 4: Eligible and Ineligible Components of Residential and Community Safe Rooms

Building Systems and Components	Residential	Community
Structural systems that directly support or protect the safe room to provide near-absolute, life-safety protection	Yes	Yes
Doors, windows, and opening protection	Yes	Yes
Protection of backup mechanical, electrical, ventilation, and communication equipment necessary to provide life-safety for the safe room	Yes	Yes
Signage	Yes	Yes
Communications, including LAN drops and wiring if used for emergency communication during an event	Yes	Yes
Alternate source of power	Yes	Yes
First aid supplies and equipment	No	Yes
Fire-suppression systems (sprinklers systems and fire extinguishers)	No*	Yes

Building Systems and Components	Residential	Community
Electrical lighting and outlets	Yes	Yes
ADA Requirements	Yes	Yes
Ventilation	Yes	Yes
HVAC used for required ventilation	Yes	Yes
HVAC not used for required ventilation	No	No
Accessible toilets and hand washing stations in safe room	No	Yes*
Planning/engineering/architecture design fees	Yes	Yes
Engineering study to calculate undefined flood elevations	Yes	Yes
Engineering peer review	Yes	Yes
Site preparation	Yes	Yes
Inspections, including special inspections	Yes	Yes
Soil test	No	Yes
Storage room for food, water, and safety equipment	No	Yes
Purchase of land	No	Yes
Safe room maintenance	No	No
Restroom fixtures not required by code or FEMA P-361	No	No
Paint on walls and ceilings of safe room	No	No
Floor coverings – subfloors not required for life safety	No	No
Removal of structures from developed land	No	No
Kitchen cabinets, countertops, and other equipment not required for life safety	No	No
Security cameras and EOC-type equipment	No	No
Landscaping	No	No
Parking and all non-building elements unless required for ADA compliance	No	No
Community-wide, mass notification systems	No	No

* Eligible if required by local codes
LAN = Local Area Network
ADA = Americans with Disabilities Act
HVAC = Heating, ventilation, and air conditioning
EOC = Emergency Operations Center

C.4.4 Eligible and Ineligible Costs

Allowable costs for **PDM** and **HMGP** safe room projects are costs for project components (e.g., design, construction, project administration) that are related directly to and necessary for the hazard mitigation purpose of providing immediate life-safety protection by means of the structure and the building envelope to the limited population that must remain in the impact area during an extreme wind event.

For each structure type, eligible project costs are limited to:

- **Protection by design components**, including and limited to the safe room portion of the envelope (walls, ceilings, doors, windows, as specified in FEMA P-320, FEMA P-361, ICC 500 and local building codes, such as the 2009 *International Building Code* [IBC], or later editions)
- **Ancillary components** required by P-361, including standby (backup) power, communications, and emergency electrical lighting limited to the safe room portion of the building, as well as protection of ancillary components to the same degree as the safe room
- **Design and construction components** for safe room portion only, including engineering fees, permit fees, special inspection fees, and excavation
- **Required features** necessary for safe room function and habitation, including ventilation, permanent electrical lighting, ADA requirements, and accessible toilets and hand washing stations

Costs associated with providing facilities for any function that is not essential for life-safety protection of occupants are not eligible. If a safe room facility can fulfill its basic function of life-safety protection for occupants during a storm without a building feature or component that provides conveniences or additional comfort, costs associated with that feature or component are not eligible. Examples are flooring, seating, and food preparation facilities. This is a significant issue in multi-use community safe rooms, which are designed to provide other functions.

C.5 Safe Room Closeout

The following information covers the O&M plan, with the final plan required upon project closeout. For more information and guidance on considerations for an O&M plan, see FEMA P-361.

C.5.1 Operations and Maintenance Plans for Community Safe Rooms

To be considered for funding, **PDM** and **HMGP** community safe room project applications must include a written statement acknowledging that the requested community safe room will be operated and maintained in a manner that achieves the proposed hazard mitigation. FEMA will only consider O&M plans that have considered the guidance in FEMA P-361. O&M plans are not required for residential safe rooms.

Community safe rooms are built and operated to provide immediate life-safety protection during extreme wind hazards. To achieve this purpose, community safe rooms must be built to the design criteria specified in Addendum Part C.2.2, and they must admit occupants and provide them with the services they need in a timely manner. Subapplicants must provide an O&M Plan Statement of Assurances with the safe room project application acknowledging that the requested

community safe rooms will be operated and maintained in a manner that achieves the proposed hazard mitigation.

Prior to closeout, the Recipient and FEMA will review the subapplicant's final signed O&M Plan. FEMA will only consider O&M Plans that incorporate FEMA P-361.

The steps in meeting the O&M Plan requirements are as follows:

Step 1. The subapplicant develops a description of the O&M Plan that includes an assurance that the O&M Plan will be developed during project implementation and includes the description in the application (see Addendum Part C.2.1)

Step 2. The subapplicant develops the O&M Plan (see Addendum Part C.5.2.3)

Step 3. The Recipient and FEMA review the Final O&M Plan, which is due before project closeout (see Addendum Part C.5.3)

C.5.1.1 Descriptive Statement of an Operations and Maintenance Plan

A statement acknowledging the requirement for an O&M plan for the community safe room must be included in the application. The statement should include:

- A description of the maintenance procedures
- A brief statement about the operation of the safe room when it is in use
- Basic information about how the safe room will be used, including how use is initiated, the warning system, and basic procedures for opening the doors to the public
- Key components of the safe room maintenance procedures
- The office that will be responsible for the operation and maintenance of the safe room
- Assurance that the O&M Plan will be developed and completed before project closeout

C.5.2 Development of an Operations and Maintenance Plan

The development of an O&M Plan should be coordinated with the appropriate entities using and operating the community safe room and should be signed by the appropriate officials in these organizations.

The O&M Plan may be based on preliminary engineering drawings and should include, at a minimum, the components listed below. FEMA P-361 provides additional information on O&M Plan components.

C.5.2.1 Operations Components

The operations components of an O&M Plan should include the following, at a minimum:

- Community organization(s) responsible for operating and maintaining the community safe room, such as the local emergency management office and contact information for the relevant office(s)
- Command and management roles and responsibilities for key individuals, such as the safe room manager and site coordinator, and their essential duties and/or the agency responsible for fulfilling these roles
- Major tasks that the safe room management team will perform during a *tornado/hurricane watch* issued by the National Weather Service
- Major tasks that the safe room management team will perform during a *tornado/hurricane warning* issued by the National Weather Service
- General operation tasks in the community safe room from the time the emergency is announced to the time occupants may safely leave

C.5.2.2 Maintenance Components

The maintenance components of an O&M Plan should include assurance from the organization responsible for operating and maintaining the community safe room of the following during the useful life of the community safe room:

- Non-mitigation uses will not prohibit the use of the community safe room to perform its hazard mitigation purpose of life-safety protection, i.e., the approved safe room occupancy will be available at all times
- Regular maintenance will be scheduled and performed by a designated party during the useful life of the community safe room
- Basic exterior and interior signage will be posted as necessary and appropriate for adequate safe room operations
- A redundant power source, such as batteries or generators, will be available to provide standby (emergency) power for lighting and ventilation for the community safe room in the event of primary power failure, as required
- The community safe room inventory will include essential equipment and supplies, such as communications equipment, emergency equipment, first-aid supplies, water, and sanitary supplies

C.5.2.3 Development of a Final Operations and Maintenance Plan

The development of a Final O&M Plan should be coordinated with the appropriate entities that are using and operating the community safe room and should be signed by appropriate officials in these organizations.

A Final O&M Plan is required before project closeout. The Final O&M Plan must include:

- The O&M components listed in Addendum Part C.5.2
- The signature of the subrecipient for the approved application
- The signature of authorized officials from the community organization(s) responsible for operating and maintaining the community safe room, if different from the subrecipient

C.5.3 Recipient Review of Final Operations and Maintenance Plan

FEMA requires that the Recipient affirm that the Final O&M Plan is consistent with FEMA P-361 criteria by:

- Reviewing the Final O&M Plan to ensure it addresses the O&M components and has the required signatures listed above
- Coordinating with the subrecipient to address any missing components
- Transmitting the Final O&M Plan to FEMA with a written statement affirming that it is consistent with FEMA P-361 guidance

C.5.4 FEMA Review of Final Operations and Maintenance Plan

The Recipient is informed in writing once FEMA has determined that the Final O&M Plan has considered the guidance in FEMA P-361. FEMA's comments on the Final O&M Plan must be addressed before FEMA makes a final determination of consistency. Recipients not completing a Final O&M Plan at closeout will be subject to recoupment of award funds as determined by FEMA.

D. Mitigation Reconstruction Projects

Part D of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance. For additional mitigation reconstruction resources, see Part IX, C of the HMA Guidance.

D.1 Overview

Mitigation reconstruction is the construction of an improved, elevated building on the same site where an existing building and/or foundation has been partially or completely demolished or destroyed. These projects include either total or partial demolition of the structure and result in the construction of code-compliant and hazard-resistant structures on elevated foundation systems. Mitigation reconstruction projects are not allowed in the regulatory floodway or Coastal High Hazard Area (Zone V). Mitigation reconstruction projects must be designed using the best available data, including Advisory Base Flood Elevations (ABFEs), if available. Activities that result in the construction of new living space at or above the BFE will only be considered when consistent with the mitigation reconstruction requirements.

D.2 Additional Project Eligibility Requirements

Mitigation reconstruction projects can be funded by FEMA through **HMGP**, **PDM**, and **FMA**. For **FMA** only, all properties included in a subapplication for mitigation reconstruction funding must be NFIP-insured at the time of the application submittal. The flood insurance must be maintained through completion of the mitigation activity and for the life of the structure. Mitigation reconstruction projects cannot be combined with other activity types in the same project subapplication to ensure that the subapplication scope, schedule, and budget adhere to programmatic requirements.

D.2.1 Feasibility and Effectiveness Requirement

The height to which a foundation can be constructed is a key factor in determining feasibility. Assistance in evaluating flood mitigation techniques can be found in FEMA 551, *Selecting Appropriate Mitigation Measures for Floodprone Structures* (2007). All proposed mitigation measures in FEMA 551 must be consistent with other HMA program criteria, such as eligible activities.

FEMA has developed guidance for the design of appropriate foundations based on the requirements of the International Codes and other applicable coastal construction standards. This guidance is included in FEMA P-550, *Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations* (2009), which also includes sample foundation design calculations and drawings and detailed descriptions of the considerations for determining

Memorandum

To: *Cristina Trott, FEMA Region III*

From: (b)(6)

Date: *May 3, 2019*

Subject: *Updated Technical Feasibility and BCA Technical Review – DR-4273 – Subapplication 53: State EOC Hardening Project*

Additional documentation was received from the subapplicant on January 29, 2019. An analysis of this additional documentation was performed, and new commentary summarizing our findings is indicated in ***bold italic text*** below.

Background

The West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) is proposing to structurally upgrade the existing Drill Hall located within the West Virginia National Guard Armory Building to create a community multi-use safe room for the State Emergency Operations Center (EOC). The Drill Hall is currently used for drill exercises and assemblies but is an ideal site for a safe room due to its size, open floor plan, and location outside of the special flood hazard area. The current state EOC is in the basement of the Capitol Complex Building One, approximately 3.5 miles from the proposed safe room site. Although the current EOC does not appear to be in a special flood hazard area per the current FEMA FIRM map, its proximity to the Kanawha River renders it vulnerable to flooding. The subapplicant also indicates the current EOC is susceptible to terror incidents, access impediments, and cannot support operations due to limitations in spacing. The new safe room will strengthen the community's assets and protect inhabitants during and after a catastrophic event.

Feasibility and Effectiveness

The proposed safe room will be designed to meet or exceed the standards set forth in FEMA P-361 (*Safe Rooms for Tornadoes and Hurricanes*), as required for HMGP funding. While detailed structural designs have not been prepared yet, the subapplicant expects to upgrade the envelop of the structure by reinforcing the roof, hardening walls, upgrading and retrofitting the windows to protect against winds, ensuring fire resistant and water tight doors, and upgrading utilities and backup generator equipment. Provided the design will meet FEMA P-361 standards, the proposed safe room is expected to achieve near absolute protection.

As a hardened EOC safe room, the proposed project is expected to provide at least 2 hours of protection in tornado events, as per FEMA P-361 requirements. While the subapplicant has not indicated the period of protection, it should be noted that this timeframe should be verified. In addition, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room. Doors and windows should be designed to withstand windborne debris missile impacts.

A preliminary conceptual layout of the proposed safe room has been provided by the subapplicant. The layout shows the existing space within the Drill Hall being converted to a two-floor multi-use safe room consisting of partitioned storage rooms, conference rooms, offices, and a large classroom or auditorium. Specific dimensions are not provided, but it appears the first-floor footprint is the same as that of the existing Drill Hall (100 ft x 70 ft), while the second floor footprint is slightly smaller than this. The subapplicant should provide detailed dimensions for both floors, as this information is relevant to complete the benefit-cost analysis.

An estimated budget was provided by the subapplicant but appears to include lump sum costs for various phases of the project and does not include all aspects of the project, including but not limited to project management fees, project scoping, and construction costs.

The subapplicant provided new documentation pertaining to occupants of the EOC safe room that would be protected in the event of a tornado. The documentation indicates a total service population of 2,014 persons. This occupancy includes WV Army Guard personnel, WV Air Guard personnel, WVMA Civ personnel, DHSEM personnel, Airport personnel, Airport customers, and local residents within a 0.5-mile radius of the proposed EOC safe room.

Review

A Benefit-Cost Analysis (BCA) has not been performed by the subapplicant yet, but several initial observations were made with respect to the information provided to date. The below parameters are necessary inputs to evaluate the benefits and costs using the Tornado Safe Room module. The benefits in this module are based solely on providing life safety benefits for the safe room occupants. The benefits (avoided losses) represent the difference between injuries that would occur without the safe room and the reduced injuries after the safe room is constructed. The injuries before mitigation (safe room construction) are determined based on potential damage to the building types that potential occupants would be taking refuge during the storm.

- **Project useful life**: The subapplicant did not provide a project useful life, but the FEMA standard value of 30 years can be used for a community safe room project. If a value other than the standard value is used, documentation and justification are required.

- **Project cost**: The subapplicant indicates an estimated project cost of $5,000,000. However, this cost is based on lump sum costs for various phases of the project. A detailed cost-estimate with line items, quantities, and unit costs is necessary to substantiate the project cost. The subapplicant should aim to develop a well-documented project cost estimate with

detailed, line-item costs. It should contain quantities, unit costs, and a source for each unit cost to accurately reflect the total project cost. The subapplicant should also be aware of eligible and ineligible costs for safe room projects. Eligible costs should include only the project components related directly to and necessary for providing immediate life-safety protection. Additional information on eligible costs can be referenced in Section C.4.3 of the Addendum to the Hazard Mitigation Assistance Guidance.

- **Annual maintenance costs**: Annual maintenance costs were not specified.

- **Safe room maximum occupancy**: The subapplicant does not provide the safe room maximum occupancy. The maximum occupancy for a community tornado safe room is based on the type of occupant and usable floor area.

  The maximum occupancy is identified as the population expected to seek refuge in the proposed safe room. This is indicated as 2,014 persons and represents the population within a 0.5-mile radius of the proposed safe room. While the subapplicant provides a list of population sources, it is unclear where the occupancy numbers were obtained from. No records were provided to validate the number of persons coming from each source.

  In addition, it should be noted that per FEMA P-361 requirements, there are limitations to the travel time needed for all protected occupants to reach the safe room. In particular, occupants must have a maximum walking travel time of 5 minutes or a maximum driving travel distance of approximately 0.5 miles to reach the safe room. With the large number of protected occupants, it may be difficult for all occupants to safely enter the safe roof in this short timeframe.

- **Gross area (sqft) of the safe room**: The gross area of the safe room is the total area from wall to wall for the portion of the building used as a safe room. The footprint of the Drill Hall, or the first floor of the proposed multi-use safe room, is 7,000 sqft. This square footage was confirmed by the as-built drawings provided by the subapplicant. However, the square footage of the second floor of the proposed safe room should be provided by the subapplicant. The total gross area of the safe room will be 7,000 sqft plus the square footage of the second floor.

- **Usable area (sqft) of the safe room**: The usable area (sqft) of the safe room was not provided by the subapplicant. The total gross area of the safe room should be reduced accordingly to account for the usable area.

  The identified service population of 2,014 occupants directly affects the proposed safe room design size. The anticipated population that will use the safe room must be carefully considered, so sufficient space is afforded to the occupants. Funding is not provided for safe rooms that are larger than the size required to accommodate the

identified population. From a design and construction standpoint, there is no limitation on the maximum population that a safe room may be designed to protect.

The usable floor area should allow for appropriate space requirements for various safe room occupants, such as standing or seated occupants (5 sqft required), wheelchair-bound occupants (10 sqft required), and bedridden occupants (30 sqft required). In addition, per FEMA P-361 guidelines, a community safe room should have space for one wheelchair-bound occupant for every 200 occupants.

While the usable area of the safe room has not been provided by the subapplicant, a preliminary value can be calculated and used for guidance based on the maximum occupancy of 2,014 persons.

For 2,014 occupants, the safe room should accommodate at least 10 wheelchair-bound occupants, per FEMA P-361 requirements.

- ***10 wheelchair-bound occupants x 10 sqft = 100 sqft.***

There should also be at least 5 sqft of minimum usable space for the remaining standing or seating occupants.

- ***Remaining occupants = 2,014 – 10 = 2,004 occupants.***
- ***2,004 occupants x 5 sqft = 10,020 usable sqft .***

Therefore, the minimum usable area of the safe room should be at least 100 sqft + 10,020 sqft = 10,120 sqft. Given that the safe room will have two floors, it is likely there will be sufficient usable area, as the second floor appears to consist of a significant amount of space. However, this value of 10,020 sqft should be confirmed with usable area provided by the subapplicant (when available) to determine if the safe room is sufficiently sized to support the required space for the service population.

- **Design wind speed**: The subapplicant indicates the safe room will be designed to withstand winds of 250 mph, as per the "Safe Room Design Wind Speeds for Tornados" map in Figure B3-1 of FEMA P-361. Based on the location of the proposed safe room and reference to this map, the appropriate design wind speed is 200 mph.

- **Safe room service radius**: The subapplicant does not specify the size of the community that will use the safe room. The FEMA standard value of 0.5 miles can be used if additional justification is not provided.

  The safe room service radius is identified as 0.5 miles. This radius represents a maximum 0.5-mile travel distance or maximum walking travel time of 5 minutes for safe room occupants to reach the safe room.

- **Predominant structure types that people will leave to go to the safe room**: The subapplicant does not indicate the predominant structure types, but a preliminary assessment of buildings within a 0.5-mile radius of the Drill Hall indicates that institutional buildings (government facilities) and one- or two- family residences are the predominant structure types.

  The predominant structure type that people will leave to go to the safe room appears to be institutional buildings. Personnel using the safe room are expected to leave from the WV Army Guard (360 people), WV Air Guard (1,128 people), WVMA Civ (216 people), DHSEM (75 people), and the Airport (35 people). In addition, 75 Airport customers are expected to use the safe room. A small number of local residents (125 people) are also expected to utilize the safe room. Although the subapplicant's documentation does not explicitly identify the residential structure type for these local residents, an assessment using publicly-available online mapping services indicates these residents appear to come from one- or two- family residences.

- **Percent of total occupancy coming from each structure type**: The subapplicant does not specify occupancy percentages coming from each structure type during the day (6:00am-6:00pm), night (midnight-6:00am), and evening (6:00pm-midnight).

  Although the population that would seek refuge in the safe room has been identified, the documentation does not indicate what percent of total occupancy is expected to come from each structure type (institutional buildings and one- or two- family residences) during the three-time segments (day, night, and evening). Knowing the percentage of occupants who will be coming from each structure type is important because each structure type has a different wind performance. This data input helps determine the number of casualties prevented.

Summary and Concerns with Documentation

While the project appears to be necessary, additional information is required to confirm technical feasibility and cost-effectiveness. The following issues were identified when reviewing the application:

- An Operations and Maintenance (O&M) Plan is required. The subapplicant should describe the approach use to prepare the O&M Plan and include a written statement acknowledging the requested community safe room will be operated and maintained in a manner that supports the mitigation project. The plan should be consistent with guidance provided in FEMA P-361.
- Certification from a licensed Professional Engineer or Registered Architect that the project meets or exceeds FEMA P-361 standards. At a minimum, the subapplicant should include an affirmative statement that the project will be designed and constructed to meet or exceed these standards.

- Given that the EOC safe room will likely be designed for more than 50 occupants, peer review by an independent registered design professional will be required to verify conformance with the design criteria set forth in FEMA P-361.
- In order to complete the BCA, the subapplicant should provide documentation for the project cost (via a detailed project cost estimate), annual maintenance costs, safe room maximum occupancy, gross area of the safe room, usable area of the safe room, safe room service radius (if different from 0.5 miles), predominant structure types from which safe room occupants will be coming from (within the service radius), and occupancy percentages throughout the day for each predominant structure type.

  The safe room maximum occupancy, safe room service radius, and predominant structure types have been provided with the additional information received from the subapplicant.

Conclusions and Recommendations

Based on the provided information, additional clarifications are needed to verify the technical feasibility and to evaluate the cost effectiveness of the project. We recommend requesting the following information:

- If the subapplicant intends to use a project useful life other than the FEMA standard value of 30 years, documentation and justification should be provided to support the value used.
- A detailed project cost-estimate with line items, quantities, unit costs, and sources for the unit costs is necessary to substantiate the estimated project cost of $5,000.000. The current cost estimate appears to be based on lump sum costs for various phases of the project.
- Documentation for annual maintenance costs necessary for the upkeep or repair of safe room and associated components is necessary.
- The subapplicant should provide documentation for the safe room maximum occupancy. The maximum occupancy for a community tornado safe room is based on the type of occupant and usable floor area. For example, each standing or seated occupant requires a minimum of 5 sqft of usable floor area. Wheelchair-bound occupants require a minimum of 10 sqft each, and bedridden occupants require a minimum of 30 sqft each. In addition, the safe room must have space for at least one wheelchair-bound occupant for every 200 occupants. The occupancy data will also depend on the expected safe room occupants within the response distance (i.e., the radius surrounding the safe room for which the safe room is expected to service).

  The safe room maximum occupancy has been identified as 2,014. The subapplicant should also provide documentation to verify that the protected population of 2,014

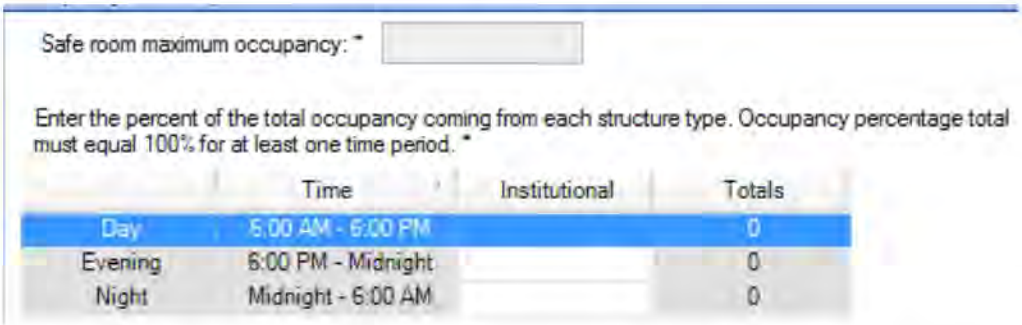
persons can meet the 5-minute time travel frame, as it may be difficult for this large number of people to safely enter the safe room in this short period and access considerations for the WV Guard facility may significantly impact the ability of local residents or airport customers to access the safe room.

- The subapplicant should provide detailed overall dimensions for the first and second floors of the proposed safe room. This information is necessary to determine the gross floor area.

- The subapplicant should provide detailed dimensions for all partitioned spaces on the first and second floors of the proposed safe room. This information is necessary to determine the usable floor area. The usable floor area should be determined by subtracting from the gross floor area of excluded spaces, partitions and walls, columns, fixed or movable objects, furniture, equipment, and other items that cannot be removed or stored during use as a safe room. The usable area should not include unused spaces or areas that are normally locked, such as mechanical rooms, storage closets, or offices. Additional guidance for calculating the usable area can be referenced in FEMA P-361.

- The subapplicant should confirm the safe room design wind speed to be used. While the subapplicant indicates the safe room will be designed to withstand 250 mph winds, the subapplicant should be aware that the minimum requirement is 200 mph based on the project location. It is important to note that designing the safe room to withstand 250 mph winds will likely result in increased costs and therefore, a reduction in the benefit-cost ratio.

- The subapplicant should specify the percent of total occupancy coming from each predominant structure type. Occupancy percentages coming from each structure type during the day (6:00am-6:00pm), night (midnight-6:00am), and evening (6:00pm-midnight) should be documented. The percentage of occupancy during at least one of these three time periods should equal 100 percent.


Safe room maximum occupancy: *

Enter the percent of the total occupancy coming from each structure type. Occupancy percentage total must equal 100% for at least one time period. *

	Time	Institutional	Totals
Day	6:00 AM - 6:00 PM		0
Evening	6:00 PM - Midnight		0
Night	Midnight - 6:00 AM		0

It should be noted that a follow-up RFI letter was issued from FEMA to WVDHSEM on August 10, 2018. The letter reiterated the need for the following information, which was initially requested from the subapplicant on May 23, 2018:

- Value of structure

- Historical damages (specifically wind damages from past years)
- Annual expenditures
- Displacement costs
- Property packet (including VPA, acknowledgement of conditions, and hazardous materials survey)
- CD with photos of the structure interior
- Footprint of the structure, identifying area to be retrofitted

While the BCA analysis focuses primarily on life-safety benefits, some of this information may be helpful toward investigating additional benefits for the BCA, should the project not achieve a passing benefit-cost ratio of 1.0 or greater.

U.S. Department of Homeland Security
Region III
One Independence Mall, 6th Floor
615 Chestnut Street
Philadelphia, PA 19106-4404

FEMA

August 10, 2018

Mr. Jimmy J. Gianato
Governor's Authorized Representative
West Virginia Division of Homeland Security
and Emergency Management
1900 Kanawha Blvd., East
Building 1, Room EB-80
Charleston, West Virginia 25305-0360

Re: FEMA-DR-4273-WV-0053
Request for Information (RFI) – 2nd Request
Hazard Mitigation Grant Program (HMGP)

Dear Mr. Gianato:

This is to inform you that we are unable to continue our review of the **State EOC Hardening Project (FEMA-DR-4273-WV-0053).**

On May 23, 2018, our office requested (via email) that the information below be submitted to our office in order to complete the eligibility review of this project. As of today, we have not received the requested information. This is the information necessary to continue our eligibility review:

- A Benefit Cost Analysis demonstrating cost effectiveness along with the supporting documentation such as:
  - The value of the structure,
  - Historical damages (specifically wind damages over the years),
  - Annual expenditures, and
  - Displacement costs
- Property Packet (including VPA, Acknowledgement of Conditions, Hazardous Materials Survey),
- CD that includes photographs of the interior of the structure,
- Footprint of the structure identifying the area to be retrofitted.

Please address this request and submit the information within fourteen (14) calendar days from the date of this letter. In order to help expedite this process, a copy of this letter will be emailed to your office.

If you have any questions, please contact Nancy Carpenter, Chief, Hazard Mitigation Assistance Branch, at (215) 931-5508 or nancy.carpenter@fema.dhs.gov.

Sincerely,

for

Janice P. Barlow
Director, Mitigation Division

cc: Michael Todorovich, Alternate Governor's Authorized Representative
Maggie R. Leaptrot, Alternate Governor's Authorized Representative
Brian Penix, State Hazard Mitigation Officer
Regeane Frederique, Director, Grants Division

From: (b)(6)
Sent: 7 Nov 2018 19:48:16 +0000
To: Pop, Cristina
Cc: (b)(6) Robinette, Carrie;Kenney, Eric
Subject: 70FA6018F00000061 - Region III HMGP Support
Attachments: DR-4273-083 Logan County Mud Fork Waste Water Project.docx, DR-4273-053 State EOC Hardening Project.docx

Cristina

Attached please find our initial feedback on two applications DR-4273-053 and -083. Both of these projects have outstanding RFIs which may address some of the identified concerns and we will update these memos as those data are received so a final recommendation can be made. For both of these projects we believe an initial conversation with our reviewers and FEMA will be useful to confirm a BCA approach before reaching out to the applicant / subapplicant to gather additional data.

- -053 – hardening of an existing structure to FEMA 361 standards to serve as an EOC
- -083 – connection of homes to a sanitary sewer system to prevent backups.

We are on track to transmit initial feedback on 6 of the remaining projects this week and are reviewing the additional data received over the last week for projects -055, -068, and -087.

Eric is in an all-day training tomorrow as well as Tuesday and Wednesday next week, but if there is a time next week (or this Friday) that works to discuss the first set of reviews, please us know and we can verify staff availability at our end and then set up a discussion to keep these projects moving forward. If you prefer to wait until you have all 11 project feedback memos just let us know.

Thank you,,

Dana

(b)(6)
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CDM Smith

Memorandum

To: *Cristina Pop, FEMA Region III*

Date: *November 6, 2018*

Subject: *Technical Feasibility and Benefit Cost Analysis Technical Review – DR-4273-083 Logan County Mud Fork Waste Water Project*

Background

The Logan County Public Service District (LCPSD), located in Logan County, West Virginia, is proposing the construction of new sanitary sewer lines in the Mudfork and Verdunville areas. The proposed would consist of approximately 23,460 feet of sanitary sewer line and 126 manholes, as well as cleanouts, residential laterals and other appurtenances. The proposed project would cost $5,940,900 in 2017 dollars. The documents submitted with the project application include a benefit-cost analysis report and narrative, construction drawings, and construction budget.

Review

A Benefit-Cost Analysis (BCA) was performed by the subapplicant performed in the FEMA BCA software version 5.3. A BCA report was included in the project application which utilized 41 separate historical flooding events in the before mitigation module. An additional BCA report and BCA software export was included in the documentation given to CDM Smith which utilized three historical events in the before mitigation module. CDM Smith reviewed both BCA's along with the provided supporting documentation. The following provides details on the analysis:

- **Useful life:** Gravity sanitary sewer line – 50-years, FEMA standard value for utility improvement.
- **Project Cost:** The BCA contains a total estimated cost of $5,940,900, excluding maintenance costs; which matches the cost as indicated in the project narrative. The project cost estimate includes a 10% construction contingency which is not an acceptable cost per FEMA guidance and should be removed or assigned to labor or material for the project cost. The total project cost, including maintenance of $3,000 per year, is estimated at $5,982,302.
- **Maintenance Costs:** $3,000/year –Documentation does not indicate how maintenance costs were calculated or estimated.
- **Recurrence Intervals:**

- Recurrence intervals (RI) for the project as shown in the application BCA were calculated by the BCA software. When four or more historical events as well as an analysis period are entered into the software, RI are calculated.
- Pre-mitigation events for the project as shown in the submitted documentation included three events where the RI was defined by the user. The RI was determined by comparing historical precipitation depths to point precipitation frequency estimates found in NOAA Atlas 14.

- **Pre-mitigation Damages:**
  - The pre-mitigation damages for both BCA's uses the same justification. Flooding as a result of excessive precipitation causes damages to buildings in the project area. The BCA narrative provides supporting documentation for the damage related to flooding through the NOAA storm event database.
  - It is unclear whether the damage amounts indicated in both BCA's was related only to the 223 structures proposed to be connected by the sanitary sewer project.
  - The proposed project does not appear to mitigate flooding, but only connect structures to an existing sanitary sewer system. It is not sufficiently explained in the project narrative, how the proposed project would have reduced damages from the historical events.
- **Post-mitigation damages:**
  - The project BCA states, "During a meeting at the Logan County Commission office on November 28, 2017, the Logan County Commission and GAI were directed by FEMA that after mitigation damages were not applicable for this project." It is likely that at some recurrence interval this project would no longer function as designed, which should be considered for post-mitigation benefits.

Summary and Concerns with Documentation

The project will likely be technically feasible. This project would likely fall under the 2013 SRIA streamlining memo as the project design is straight forward. The submitted construction drawings appear to meet industry standards. One issue related to the construction drawings; parts of the proposed system and several of the homes to be connected to the system are in the regulated floodway. It should be confirmed that this is acceptable per FEMA HMA guidance.

Currently, 90% of the homes in the project area are not compliant with minimum standard of section P2602.1 of the international code as stated in the application. HMA guidance states that activities intended to remedy a code violation are not eligible. It is unclear whether this project would be eligible for HMA funding.

The included documentation does not support the BCA and therefore it is unknown if the project is cost effective. The benefits of the project are related to providing wastewater collection to 223 structures. The pre-mitigation damages should be influenced by the proposed project, and this does not appear to be shown in the included documents.

The hazard to be mitigated may need additional clarification. It is stated in the project application and BCA narrative that the hazard in the area is wastewater entering homes during flooding events. While this would constitute a health issue, the flooding that would still be possible, and not mitigated by the project, would still be a hazard to the residences. Other projects approved by FEMA for connection of residences to sanitary sewer have demonstrated benefits by showing loss of function of current sanitary systems during a rain event and the improvement of function once the residences are connected to the sewer. If it can be shown that the residences lose function of the current sanitary system of direct flow into the adjacent water body during a rain event, it may be possible to show that it is cost effective to connect the residence to a sanitary sewer and improve function.

A request for information (RFI) as been issued by FEMA Region III to obtain additional information related to this project. Stated in correspondence between Region III and the State of West Virginia requested information includes

- Necessary additional capacity at the downstream wastewater treatment plant (WWTP)
- Confirmation of the expected useful life of the WWTP matching the expected useful life of the proposed project
- Any additional maintenance cost associated with this project downstream of the project area
- Any additional pump stations or outfall that may be necessary as a part of this project
- Construction documents in addition to the construction drawings

Conclusions and Recommendations

Based on the provided information, clarification is needed to verify the project cost and cost effectiveness of the project. We recommend requesting the following information:

- Evaluation of the eligibility of this project related to construction in the regulated floodway as well as proposed construction to ensure residences conform to international code requirements.
- Supporting documentation to show loss of function of current sanitary sewer systems of the residences to be included in the proposed project. This information should show, at one or more recurrence intervals, the duration of loss of function for each residence (or in aggregate) of the current sanitary sewer system. The level of protection of the new system should also be included. It should be stated at what recurrence interval and for what duration

the residences in the proposed project area would flood, causing the proposed system to become ineffective.

- The applicant should include an updated cost estimate which identifies the cost category of items currently associated with construction contingency.

Additionally, several minor updates to the BCA should be made/verified once the data need above are resolved.

- Verification on the total project cost as current value.
- An updated BCA analysis that uses the current Federal mileage rate and traffic counts.

Resources:
Logan WV-083 BCA 2.pdf
Logan-WV-083 application.pdf
Logan-WV-083 application 1.pdf
Logan-WV-083 application 2.pdf
Logan WV-083 Correspondence.pdf
Mud Fork BCA.zip
Mud Fork Waste Water Project.pdf

Memorandum

To: *Cristina Pop, FEMA Region III*

Date: *November 6, 2018*

Subject: *Technical Feasibility and BCA Technical Review – DR-4273 – Subapplication 53: State EOC Hardening Project*

Background

The West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) is proposing to structurally upgrade the existing Drill Hall located within the West Virginia National Guard Armory Building to create a community multi-use safe room for the State Emergency Operations Center (EOC). The Drill Hall is currently used for drill exercises and assemblies but is an ideal site for a safe room due to its size, open floor plan, and location outside of the special flood hazard area. The current state EOC is in the basement of the Capitol Complex Building One, approximately 3.5 miles from the proposed safe room site. Although the current EOC does not appear to be in a special flood hazard area per the current FEMA FIRM map, its proximity to the Kanawha River renders it vulnerable to flooding. The subapplicant also indicates the current EOC is susceptible to terror incidents, access impediments, and cannot support operations due to limitations in spacing. The new safe room will strengthen the community's assets and protect inhabitants during and after a catastrophic event.

Feasibility and Effectiveness

The proposed safe room will be designed to meet or exceed the standards set forth in FEMA P-361 (*Safe Rooms for Tornadoes and Hurricanes*), as required for HMGP funding. While detailed structural designs have not been prepared yet, the subapplicant expects to upgrade the envelop of the structure by reinforcing the roof, hardening walls, upgrading and retrofitting the windows to protect against winds, ensuring fire resistant and water tight doors, and upgrading utilities and backup generator equipment. Provided the design will meet FEMA P-361 standards, the proposed safe room is expected to achieve near absolute protection.

As a hardened EOC safe room, the proposed project is expected to provide at least 2 hours of protection in tornado events, as per FEMA P-361 requirements. While the subapplicant has not indicated the period of protection, it should be noted that this timeframe should be verified. In addition, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room. Doors and windows should be designed to withstand windborne debris missile impacts.

A preliminary conceptual layout of the proposed safe room has been provided by the subapplicant. The layout shows the existing space within the Drill Hall being converted to a two-floor multi-use safe room consisting of partitioned storage rooms, conference rooms, offices, and a large classroom or auditorium. Specific dimensions are not provided, but it appears the first floor footprint is the same as that of the existing Drill Hall (100ft x 70 ft), while the second floor footprint is slightly smaller than this. The subapplicant should provide detailed dimensions for both floors, as this information is relevant to complete the benefit-cost analysis.

An estimated budget was provided by the subapplicant but appears to include lump sum costs for various phases of the project and does not include all aspects of the project, including but not limited to project management fees, project scoping, and construction costs.

Review

A Benefit-Cost Analysis (BCA) has not been performed by the subapplicant yet, but several initial observations were made with respect to the information provided to date. The below parameters are necessary inputs to evaluate the benefits and costs using the Tornado Safe Room module. The benefits in this module are based solely on providing life safety benefits for the safe room occupants. The benefits (avoided losses) represent the difference between injuries that would occur without the safe room and the reduced injuries after the safe room is constructed. The injuries before mitigation (safe room construction) are determined based on potential damage to the building types that potential occupants would be taking refuge during the storm.

- **Project useful life**: The subapplicant did not provide a project useful life, but the FEMA standard value of 30 years can be used for a community safe room project. If a value other than the standard value is used, documentation and justification are required.

- **Project cost**: The subapplicant indicates an estimated project cost of $5,000,000. However, this cost is based on lump sum costs for various phases of the project. A detailed cost-estimate with line items, quantities, and unit costs is necessary to substantiate the project cost. The subapplicant should aim to develop a well-documented project cost estimate with detailed, line-item costs. It should contain quantities, unit costs, and a source for each unit cost to accurately reflect the total project cost. The subapplicant should also be aware of eligible and ineligible costs for safe room projects. Eligible costs should include only the project components related directly to and necessary for providing immediate life-safety protection. Additional information on eligible costs can be referenced in Section C.4.3 of the Addendum to the Hazard Mitigation Assistance Guidance.

- **Annual maintenance costs**: Annual maintenance costs were not specified.

- **Safe room maximum occupancy**: The subapplicant does not provide the safe room maximum occupancy. The maximum occupancy for a community tornado safe room is based on the type of occupant and usable floor area.

- **Gross area (sqft) of the safe room**: The gross area of the safe room is the total area from wall to wall for the portion of the building used as a safe room. The footprint of the Drill Hall, or the first floor of the proposed multi-use safe room, is 7,000 sqft. This square footage was confirmed by the as-built drawings provided by the subapplicant. However, the square footage of the second floor of the proposed safe room should be provided by the subapplicant. The total gross area of the safe room will be 7,000 sqft plus the square footage of the second floor.

- **Usable area (sqft) of the safe room**: The usable area (sqft) of the safe room was not provided by the subapplicant. The total gross area of the safe room should be reduced accordingly to account for the usable area.

- **Design wind speed**: The subapplicant indicates the safe room will be designed to withstand winds of 250 mph, as per the "Safe Room Design Wind Speeds for Tornados" map in Figure B3-1 of FEMA P-361. Based on the location of the proposed safe room and reference to this map, the appropriate design wind speed is 200 mph.

- **Safe room service radius**: The subapplicant does not specify the size of the community that will use the safe room. The FEMA standard value of 0.5 miles can be used if additional justification is not provided.

- **Predominant structure types that people will leave to go to the safe room**: The subapplicant does not indicate the predominant structure types, but a preliminary assessment of buildings within a 0.5-mile radius of the Drill Hall indicates that institutional buildings (government facilities) and one- or two- family residences are the predominant structure types.

- **Percent of total occupancy coming from each structure type**: The subapplicant does not specify occupancy percentages coming from each structure type during the day (6:00am-6:00pm), night (midnight-6:00am), and evening (6:00pm-midnight).

Summary and Concerns with Documentation

While the project appears to be necessary, additional information is required to confirm technical feasibility and cost-effectiveness. The following issues were identified when reviewing the application:

- An Operations and Maintenance (O&M) Plan is required. The subapplicant should describe the approach use to prepare the O&M Plan and include a written statement acknowledging the requested community safe room will be operated and maintained in a manner that supports the mitigation project. The plan should be consistent with guidance provided in FEMA P-361.

- Certification from a licensed Professional Engineer or Registered Architect that the project meets or exceeds FEMA P-361 standards. At a minimum, the subapplicant should include an affirmative statement that the project will be designed and constructed to meet or exceed these standards.
- Given that the EOC safe room will likely be designed for more than 50 occupants, peer review by an independent registered design professional will be required to verify conformance with the design criteria set forth in FEMA P-361.
- In order to complete the BCA, the subapplicant should provide documentation for the project cost (via a detailed project cost estimate), annual maintenance costs, safe room maximum occupancy, gross area of the safe room, usable area of the safe room, safe room service radius (if different from 0.5 miles), predominant structure types from which safe room occupants will be coming from (within the service radius), and occupancy percentages throughout the day for each predominant structure type.

Conclusions and Recommendations

Based on the provided information, additional clarifications are needed to verify the technical feasibility and to evaluate the cost effectiveness of the project. We recommend requesting the following information:

- If the subapplicant intends to use a project useful life other than the FEMA standard value of 30 years, documentation and justification should be provided to support the value used.
- A detailed project cost-estimate with line items, quantities, unit costs, and sources for the unit costs is necessary to substantiate the estimated project cost of $5,000.000. The current cost estimate appears to be based on lump sum costs for various phases of the project.
- Documentation for annual maintenance costs necessary for the upkeep or repair of safe room and associated components is necessary.
- The subapplicant should provide documentation for the safe room maximum occupancy. The maximum occupancy for a community tornado safe room is based on the type of occupant and usable floor area. ***For example, each standing or seated occupant requires a minimum of 5 sqft of usable floor area. Wheelchair-bound occupants require a minimum of 10 sqft each, and bedridden occupants require a minimum of 30 sqft each. In addition, the safe room must have space for at least one wheelchair-bound occupant for every 200 occupants. The occupancy data will also depend on the expected safe room occupants within the response distance (i.e., the radius surrounding the safe room for which the safe room is expected to service).***
- The subapplicant should provide detailed overall dimensions for the first and second floors of the proposed safe room. This information is necessary to determine the gross floor area.

- The subapplicant should provide detailed dimensions for all partitioned spaces on the first and second floors of the proposed safe room. ***This information is necessary to determine the usable floor area. The usable floor area should be determined by subtracting from the gross floor area of excluded spaces, partitions and walls, columns, fixed or movable objects, furniture, equipment, and other items that cannot be removed or stored during use as a safe room. The usable area should not include unused spaces or areas that are normally locked, such as mechanical rooms, storage closets, or offices. Additional guidance for calculating the usable area can be referenced in FEMA P-361.***

- The subapplicant should confirm the safe room design wind speed to be used. While the subapplicant indicates the safe room will be designed to withstand 250 mph winds, the subapplicant should be aware that the minimum requirement is 200 mph based on the project location. ***It is important to note that designing the safe room to withstand 250 mph winds will likely result in increased costs and therefore, a reduction in the benefit-cost ratio.***

- The subabpplicant should specify the safe room service radius. ***The FEMA standard value of 0.5 miles can be used if additional justification is not provided. The distance from the safe room for the at-risk population is based on a maximum walking travel time of 5 minutes, or a maximum driving travel distance of approximately 0.5 miles.***

- The subapplicant should confirm the predominant structure types within the service radius from which safe room occupants are leaving. ***A useful resource that can be used is the West Virginia Property Viewer at https://www.mapwv.gov/parcel/. This website allows the user to draw a desired radius around the specified location and to view parcel information on buildings included within.***

- The subapplicant should specify the percent of total occupancy coming from each predominant structure type. ***Occupancy percentages coming from each structure type during the day (6:00am-6:00pm), night (midnight-6:00am), and evening (6:00pm-midnight) should be documented. The percentage of occupancy during at least one of these three time periods should equal 100 percent. Common sources of occupancy data may include the US Census Bureau, enrollment data, or attendance information from building officials.***

It should be noted that a follow-up Request for Information letter was issued from FEMA to WVDHSEM on August 10, 2018. The letter reiterated the need for the following information, which was initially requested from the subapplicant on May 23, 2018:

- Value of structure
- Historical damages (specifically wind damages from past years)
- Annual expenditures

- Displacement costs
- Property packet (including VPA, acknowledgement of conditions, and hazardous materials survey)
- CD with photos of the structure interior
- Footprint of the structure, identifying area to be retrofitted

While the BCA analysis focuses primarily on life-safety benefits, some of this information may be helpful toward investigating additional benefits for the BCA, should the project not achieve a passing benefit-cost ratio of 1.0 or greater.

From: Robinette, Carrie
Sent: 3 May 2019 12:44:46 +0000
To: (b)(6) R;Penix, Brian M
Cc: Trott, Cristina;Jones, Susan;(b)(6)
Subject: FW: DR4273-53, City of Charleston, Updated Project Memorandum
Attachments: DR-4273-053 State EOC Hardening - Updated.docx

Good morning (b)(6) and Brian,

As you are aware, we have been working with CDM Smith to review and support the technical and engineering side of the infrastructure projects that were submitted under DR-4273.

Attached are the documents relating to the review of DR-4273-053 (State EOC Hardening Project). As you can see by the attached memo, there is information and documentation that is required in order for a BCA to be completed and for FEMA to complete the eligibility review of this project.

FEMA will be providing WVDHSEM a more formal RFI letter for this project in the coming days identifying any additional information needed to complete the review and eligibility determination for this project.

If you have any questions, please do not hesitate to let us know.

Thanks,

Carrie Y Robinette, *CFM*

Lead Emergency Management Specialist
WV FEMA Integration Team | WV FIT

(C) 202.549.4320 | *carrie.robinette@fema.dhs.gov*

FEMA

From: (b)(6) @cdmsmith.com>
Sent: Wednesday, April 24, 2019 3:06 PM
To: Trott, Cristina <Cristina.Pop@fema.dhs.gov>; Robinette, Carrie <carrie.robinette@fema.dhs.gov>
Cc: (b)(6) @cdmsmith.com>; (b)(6) @cdmsmith.com>
Subject: RE: DR4273-53, City of Charleston, Updated Project Memorandum

Cristina

CDM Smith has prepared an updated memorandum (see attached) regarding DR-4273-53, City of Charleston, State EOC Hardening project. We have reviewed the additional data provided and if FEMA wants us versus the sub-applicant to run the BCA using this additional information please let us know. In addition, please review our updated memo and let us know if you have any questions. Thank-you.

(b)(6)

(b)(6)

@cdmsmith.com | cdmsmith.com

Memorandum

To: *Cristina Trott, FEMA Region III*

From: (b)(6)

Date: *April 24, 2019*

Subject: *Updated Technical Feasibility and BCA Technical Review – DR-4273 – Subapplication 53: State EOC Hardening Project*

Additional documentation was received from the subapplicant on January 29, 2019. An analysis of this additional documentation was performed, and new commentary summarizing our findings is indicated in ***bold italic text*** below.

Background

The West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) is proposing to structurally upgrade the existing Drill Hall located within the West Virginia National Guard Armory Building to create a community multi-use safe room for the State Emergency Operations Center (EOC). The Drill Hall is currently used for drill exercises and assemblies but is an ideal site for a safe room due to its size, open floor plan, and location outside of the special flood hazard area. The current state EOC is in the basement of the Capitol Complex Building One, approximately 3.5 miles from the proposed safe room site. Although the current EOC does not appear to be in a special flood hazard area per the current FEMA FIRM map, its proximity to the Kanawha River renders it vulnerable to flooding. The subapplicant also indicates the current EOC is susceptible to terror incidents, access impediments, and cannot support operations due to limitations in spacing. The new safe room will strengthen the community's assets and protect inhabitants during and after a catastrophic event.

Feasibility and Effectiveness

The proposed safe room will be designed to meet or exceed the standards set forth in FEMA P-361 (*Safe Rooms for Tornadoes and Hurricanes*), as required for HMGP funding. While detailed structural designs have not been prepared yet, the subapplicant expects to upgrade the envelop of the structure by reinforcing the roof, hardening walls, upgrading and retrofitting the windows to protect against winds, ensuring fire resistant and water tight doors, and upgrading utilities and backup generator equipment. Provided the design will meet FEMA P-361 standards, the proposed safe room is expected to achieve near absolute protection.

As a hardened EOC safe room, the proposed project is expected to provide at least 2 hours of protection in tornado events, as per FEMA P-361 requirements. While the subapplicant has not indicated the period of protection, it should be noted that this timeframe should be verified. In addition, any ancillary equipment required to operate during an event for the safe room must also be properly sized and protected to the same level as the safe room. Doors and windows should be designed to withstand windborne debris missile impacts.

A preliminary conceptual layout of the proposed safe room has been provided by the subapplicant. The layout shows the existing space within the Drill Hall being converted to a two-floor multi-use safe room consisting of partitioned storage rooms, conference rooms, offices, and a large classroom or auditorium. Specific dimensions are not provided, but it appears the first-floor footprint is the same as that of the existing Drill Hall (100 ft x 70 ft), while the second floor footprint is slightly smaller than this. The subapplicant should provide detailed dimensions for both floors, as this information is relevant to complete the benefit-cost analysis.

An estimated budget was provided by the subapplicant but appears to include lump sum costs for various phases of the project and does not include all aspects of the project, including but not limited to project management fees, project scoping, and construction costs.

The subapplicant provided new documentation pertaining to occupants of the EOC safe room that would be protected in the event of a tornado. The documentation indicates a total service population of 2,014 persons. This occupancy includes WV Army Guard personnel, WV Air Guard personnel, WVMA Civ personnel, DHSEM personnel, Airport personnel, Airport customers, and local residents within a 0.5-mile radius of the proposed EOC safe room.

Review

A Benefit-Cost Analysis (BCA) has not been performed by the subapplicant yet, but several initial observations were made with respect to the information provided to date. The below parameters are necessary inputs to evaluate the benefits and costs using the Tornado Safe Room module. The benefits in this module are based solely on providing life safety benefits for the safe room occupants. The benefits (avoided losses) represent the difference between injuries that would occur without the safe room and the reduced injuries after the safe room is constructed. The injuries before mitigation (safe room construction) are determined based on potential damage to the building types that potential occupants would be taking refuge during the storm.

- **Project useful life**: The subapplicant did not provide a project useful life, but the FEMA standard value of 30 years can be used for a community safe room project. If a value other than the standard value is used, documentation and justification are required.

- **Project cost**: The subapplicant indicates an estimated project cost of $5,000,000. However, this cost is based on lump sum costs for various phases of the project. A detailed cost-estimate with line items, quantities, and unit costs is necessary to substantiate the project cost. The subapplicant should aim to develop a well-documented project cost estimate with

detailed, line-item costs. It should contain quantities, unit costs, and a source for each unit cost to accurately reflect the total project cost. The subapplicant should also be aware of eligible and ineligible costs for safe room projects. Eligible costs should include only the project components related directly to and necessary for providing immediate life-safety protection. Additional information on eligible costs can be referenced in Section C.4.3 of the Addendum to the Hazard Mitigation Assistance Guidance.

- **Annual maintenance costs**: Annual maintenance costs were not specified.

- **Safe room maximum occupancy**: The subapplicant does not provide the safe room maximum occupancy. The maximum occupancy for a community tornado safe room is based on the type of occupant and usable floor area.

  The maximum occupancy is identified as the population expected to seek refuge in the proposed safe room. This is indicated as 2,014 persons and represents the population within a 0.5-mile radius of the proposed safe room. While the subapplicant provides a list of population sources, it is unclear where the occupancy numbers were obtained from. No records were provided to validate the number of persons coming from each source.

  In addition, it should be noted that per FEMA P-361 requirements, there are limitations to the travel time needed for all protected occupants to reach the safe room. In particular, occupants must have a maximum walking travel time of 5 minutes or a maximum driving travel distance of approximately 0.5 miles to reach the safe room. With the large number of protected occupants, it may be difficult for all occupants to safely enter the safe roof in this short timeframe.

- **Gross area (sqft) of the safe room**: The gross area of the safe room is the total area from wall to wall for the portion of the building used as a safe room. The footprint of the Drill Hall, or the first floor of the proposed multi-use safe room, is 7,000 sqft. This square footage was confirmed by the as-built drawings provided by the subapplicant. However, the square footage of the second floor of the proposed safe room should be provided by the subapplicant. The total gross area of the safe room will be 7,000 sqft plus the square footage of the second floor.

- **Usable area (sqft) of the safe room**: The usable area (sqft) of the safe room was not provided by the subapplicant. The total gross area of the safe room should be reduced accordingly to account for the usable area.

  The identified service population of 2,014 occupants directly affects the proposed safe room design size. The anticipated population that will use the safe room must be carefully considered, so sufficient space is afforded to the occupants. Funding is not provided for safe rooms that are larger than the size required to accommodate the

identified population. From a design and construction standpoint, there is no limitation on the maximum population that a safe room may be designed to protect.

The usable floor area should allow for appropriate space requirements for various safe room occupants, such as standing or seated occupants (5 sqft required), wheelchair-bound occupants (10 sqft required), and bedridden occupants (30 sqft required). In addition, per FEMA P-361 guidelines, a community safe room should have space for one wheelchair-bound occupant for every 200 occupants.

While the usable area of the safe room has not been provided by the subapplicant, a preliminary value can be calculated and used for guidance based on the maximum occupancy of 2,014 persons.

For 2,014 occupants, the safe room should accommodate at least 10 wheelchair-bound occupants, per FEMA P-361 requirements.

- ***10 wheelchair-bound occupants x 10 sqft = 100 sqft.***

There should also be at least 5 sqft of minimum usable space for the remaining standing or seating occupants.

- ***Remaining occupants = 2,014 – 10 = 2,004 occupants.***
- ***2,004 occupants x 5 sqft = 10,020 usable sqft .***

Therefore, the minimum usable area of the safe room should be at least 100 sqft + 10,020 sqft = 10,120 sqft. Given that the safe room will have two floors, it is likely there will be sufficient usable area, as the second floor appears to consist of a significant amount of space. However, this value of 10,020 sqft should be confirmed with usable area provided by the subapplicant (when available) to determine if the safe room is sufficiently sized to support the required space for the service population.

- **Design wind speed**: The subapplicant indicates the safe room will be designed to withstand winds of 250 mph, as per the "Safe Room Design Wind Speeds for Tornados" map in Figure B3-1 of FEMA P-361. Based on the location of the proposed safe room and reference to this map, the appropriate design wind speed is 200 mph.

- **Safe room service radius**: The subapplicant does not specify the size of the community that will use the safe room. The FEMA standard value of 0.5 miles can be used if additional justification is not provided.

  The safe room service radius is identified as 0.5 miles. This radius represents a maximum 0.5-mile travel distance or maximum walking travel time of 5 minutes for safe room occupants to reach the safe room.

- **Predominant structure types that people will leave to go to the safe room**: The subapplicant does not indicate the predominant structure types, but a preliminary assessment of buildings within a 0.5-mile radius of the Drill Hall indicates that institutional buildings (government facilities) and one- or two- family residences are the predominant structure types.

  The predominant structure type that people will leave to go to the safe room appears to be institutional buildings. Personnel using the safe room are expected to leave from the WV Army Guard (360 people), WV Air Guard (1,128 people), WVMA Civ (216 people), DHSEM (75 people), and the Airport (35 people). In addition, 75 Airport customers are expected to use the safe room. A small number of local residents (125 people) are also expected to utilize the safe room. Although the subapplicant's documentation does not explicitly identify the residential structure type for these local residents, an assessment using publicly-available online mapping services indicates these residents appear to come from one- or two- family residences.

- **Percent of total occupancy coming from each structure type**: The subapplicant does not specify occupancy percentages coming from each structure type during the day (6:00am-6:00pm), night (midnight-6:00am), and evening (6:00pm-midnight).

  Although the population that would seek refuge in the safe room has been identified, the documentation does not indicate what percent of total occupancy is expected to come from each structure type (institutional buildings and one- or two- family residences) during the three-time segments (day, night, and evening). Knowing the percentage of occupants who will be coming from each structure type is important because each structure type has a different wind performance. This data input helps determine the number of casualties prevented.

Summary and Concerns with Documentation

While the project appears to be necessary, additional information is required to confirm technical feasibility and cost-effectiveness. The following issues were identified when reviewing the application:

- An Operations and Maintenance (O&M) Plan is required. The subapplicant should describe the approach use to prepare the O&M Plan and include a written statement acknowledging the requested community safe room will be operated and maintained in a manner that supports the mitigation project. The plan should be consistent with guidance provided in FEMA P-361.
- Certification from a licensed Professional Engineer or Registered Architect that the project meets or exceeds FEMA P-361 standards. At a minimum, the subapplicant should include an affirmative statement that the project will be designed and constructed to meet or exceed these standards.

- Given that the EOC safe room will likely be designed for more than 50 occupants, peer review by an independent registered design professional will be required to verify conformance with the design criteria set forth in FEMA P-361.
- In order to complete the BCA, the subapplicant should provide documentation for the project cost (via a detailed project cost estimate), annual maintenance costs, safe room maximum occupancy, gross area of the safe room, usable area of the safe room, safe room service radius (if different from 0.5 miles), predominant structure types from which safe room occupants will be coming from (within the service radius), and occupancy percentages throughout the day for each predominant structure type.

  The safe room maximum occupancy, safe room service radius, and predominant structure types have been provided with the additional information received from the subapplicant.

Conclusions and Recommendations

Based on the provided information, additional clarifications are needed to verify the technical feasibility and to evaluate the cost effectiveness of the project. We recommend requesting the following information:

- If the subapplicant intends to use a project useful life other than the FEMA standard value of 30 years, documentation and justification should be provided to support the value used.
- A detailed project cost-estimate with line items, quantities, unit costs, and sources for the unit costs is necessary to substantiate the estimated project cost of $5,000.000. The current cost estimate appears to be based on lump sum costs for various phases of the project.
- Documentation for annual maintenance costs necessary for the upkeep or repair of safe room and associated components is necessary.
- The subapplicant should provide documentation for the safe room maximum occupancy. The maximum occupancy for a community tornado safe room is based on the type of occupant and usable floor area. For example, each standing or seated occupant requires a minimum of 5 sqft of usable floor area. Wheelchair-bound occupants require a minimum of 10 sqft each, and bedridden occupants require a minimum of 30 sqft each. In addition, the safe room must have space for at least one wheelchair-bound occupant for every 200 occupants. The occupancy data will also depend on the expected safe room occupants within the response distance (i.e., the radius surrounding the safe room for which the safe room is expected to service).

  The safe room maximum occupancy has been identified as 2,014. The subapplicant should also provide documentation to verify that the protected population of 2,014

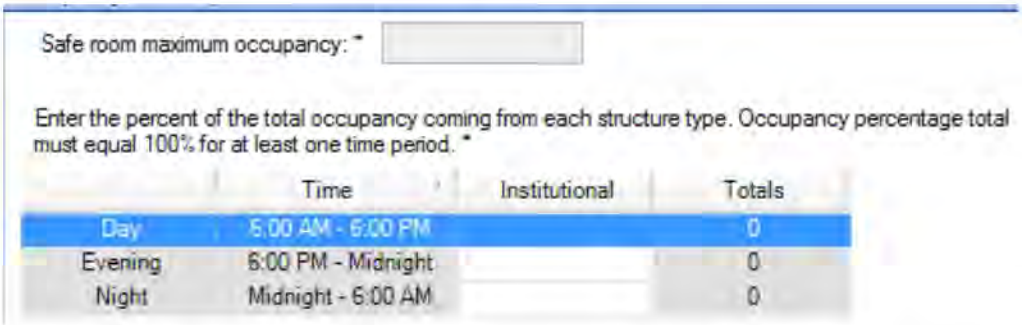
persons can meet the 5-minute time travel frame, as it may be difficult for this large number of people to safely enter the safe room in this short period and access considerations for the WV Guard facility may significantly impact the ability of local residents or airport customers to access the safe room.

- The subapplicant should provide detailed overall dimensions for the first and second floors of the proposed safe room. This information is necessary to determine the gross floor area.

- The subapplicant should provide detailed dimensions for all partitioned spaces on the first and second floors of the proposed safe room. This information is necessary to determine the usable floor area. The usable floor area should be determined by subtracting from the gross floor area of excluded spaces, partitions and walls, columns, fixed or movable objects, furniture, equipment, and other items that cannot be removed or stored during use as a safe room. The usable area should not include unused spaces or areas that are normally locked, such as mechanical rooms, storage closets, or offices. Additional guidance for calculating the usable area can be referenced in FEMA P-361.

- The subapplicant should confirm the safe room design wind speed to be used. While the subapplicant indicates the safe room will be designed to withstand 250 mph winds, the subapplicant should be aware that the minimum requirement is 200 mph based on the project location. It is important to note that designing the safe room to withstand 250 mph winds will likely result in increased costs and therefore, a reduction in the benefit-cost ratio.

- The subapplicant should specify the percent of total occupancy coming from each predominant structure type. Occupancy percentages coming from each structure type during the day (6:00am-6:00pm), night (midnight-6:00am), and evening (6:00pm-midnight) should be documented. The percentage of occupancy during at least one of these three time periods should equal 100 percent.


Safe room maximum occupancy: *

Enter the percent of the total occupancy coming from each structure type. Occupancy percentage total must equal 100% for at least one time period. *

	Time	Institutional	Totals
Day	6:00 AM - 6:00 PM		0
Evening	6:00 PM - Midnight		0
Night	Midnight - 6:00 AM		0

It should be noted that a follow-up RFI letter was issued from FEMA to WVDHSEM on August 10, 2018. The letter reiterated the need for the following information, which was initially requested from the subapplicant on May 23, 2018:

- Value of structure

- Historical damages (specifically wind damages from past years)
- Annual expenditures
- Displacement costs
- Property packet (including VPA, acknowledgement of conditions, and hazardous materials survey)
- CD with photos of the structure interior
- Footprint of the structure, identifying area to be retrofitted

While the BCA analysis focuses primarily on life-safety benefits, some of this information may be helpful toward investigating additional benefits for the BCA, should the project not achieve a passing benefit-cost ratio of 1.0 or greater.

FEMA – 053 /71 ID # - STATE EOC Hardening Shelter Retrofit 05/08/2018

05/08/2018 – Brian is working on it

- BCA needed
- Property packet
- Building Value
- Building Content - NONE
- Relocation cost- NONE
- Historical damages – Wind Roof damages over the years
- CD