Purchasing Office
191 South East St
Frederick, Maryland 21701
301-644-5208 phone
301-644-5213 fax

Frederick County Public Schools
Reach. Challenge. Prepare.

Kerrie Koopman CPPB, CPPO,
Purchasing Manager
Kim Miskell, CSBO, Assistant Purchasing Manager
Bill Meekins CPPB, CSBO, CPCP,
Purchasing Agent
Shane Ryberg, Purchasing Agent

RFQ NUMBER/NAME:	20C2, Security Vestibules for Middletown Elementary, Middletown Middle and Thurmont Middle Schools
ISSUE DATE:	October 15, 2019
CONTRACT MANAGER:	Kim Miskell, CSBO, Assistant Purchasing Manager, kim.miskell@fcps.org
CONTRACT ADMINISTRATOR:	Brad Ahalt, Senior Project Manager, Construction Management, bradley.ahalt@fcps.org
PRE-QUOTE TIME/DATE:	11:00 A.M., local time, on October 25, 2019 (Attendance is encouraged, but not mandatory.)
PRE-QUOTE LOCATION:	Begins at 11:00 A.M., local time at to Thurmont Middle School, 408 East Main Street, Thurmont, MD 21788; proceed to Middletown Elementary School, 201 East Green Street, Middletown, MD 21769; and ending at Middletown Middle School, 100 Martha Mason Street, Middletown, MD 21769.
OBTAINING RFQ DOCUMENTS:	To view and/or download this solicitation package please visit our webpage at: www.fcps.org/bidlist. If you have problems downloading this bid or applicable addenda, contact: amy.beall@fcps.org
BONDS REQUIRED:	NO
MBE REQUIREMENTS:	YES
RFQ DUE:	3:00 P.M., local time, on November 14, 2019. Faxed or emailed bids are not acceptable.
SEALED RFQ DELIVERED TO:	Frederick County Public Schools Attn: Purchasing Department 191 South East Street Frederick, MD 21701 (Parking is available at Deck #5 on All Saints Street. Recent security upgrades at the FCPS Central Office Building will require visitors to request entry utilizing the phone buzzer/button system. Please allow enough time to ensure access to the building prior to the bid due time.) Bid proposal must be properly marked with vendor's business name, address, bid name and number on the envelope or package. Do not return the following pages: cover page, table of contents, map, calendar, directory or terms and conditions.
TENTATIVE AWARD DATE:	BOE Work Session, scheduled on: December 11, 2019
ELIGIBILITY TO BID:	All Frederick County Public School vendors and or contractors interested in bidding on FCPS projects must register at www.emarylandmarketplace.com. FCPS will no longer accept bidder's applications.

OPERATIONS DIVISION
CAPITAL PROGRAMS DEPARTMENT
191 South East Street
Frederick, Maryland 21701
301-644-5176 Phone
301-644-5027 Fax
www.fcps.org

Frederick County Public Schools
Reach. Challenge. Prepare.

Adnan Mamoon, Director
Adnan.mamoon@fcps.org
Brad Ahalt, Senior Project Manager
Brian Staiger, Senior Project Manager
Tony Ray, Project Manager III
Vernon Beals, Project Manager III
Thomas Mulligan, Project Manager III

Request for Proposal

Date: October 14, 2019

To: Callas Contractors, Inc. – Attn. Tina Rhodes – trhodes@callascontractors.com
Keller Brothers, Inc. – Attn. Tom Hamilton – tom@kellerbrothers.com
Waynesboro Construction Co, Inc. - Attn. Danny VanGosen – danny@waynesboroconstruction.com

Project: Middletown Elementary School – Security Vestibule
Middletown Middle School – Security Vestibule
Thurmont Middle School – Security Vestibule

Proposal Due Date: November 14, 2019 by 3:00 pm

Project Summary / Description:
FCPS Construction Management is requesting individual Lump Sum Proposals for each of the three (3) Security Vestibule Projects from the awarded RFP Bid #17MISC1 General Contractors listed above to provide all labor, materials, equipment, services and incidentals as necessary to provide the new Security Vestibule at Middletown Elementary School (MES), Middletown Middle School (MMS) and Thurmont Middle School (ThMS) in strict accordance with the Permit Set of drawings and specifications as prepared by Profitt and Associates Architects and dated August 20 and 26, 2019 and as per the direction contained in the RFQ dated October 14, 2019 and in accordance with FCPS RFP 17MISC1, Qualifications of General Construction Contractors for Minor Construction Projects.

Project Scope of Work:

1. Provide all labor, materials, equipment, services and incidentals as necessary to provide the new Security Vestibule at MES, MMS and ThMS to include the following activities as they pertain to the Base Bid:
    a. General Conditions
    b. Site Work / Demolition
    c. Doors and Windows including the FCPS specified Hardware and Aluminum Storefront Manufacturer
    d. Finishes
    e. Specialties
    f. Mechanical
    g. Electrical
2. Drawings and Specifications - FCPS MES, MMS and ThMS Security Vestibule dated August 20 and 26, 2019.
3. Pre-Bid Site Visit – Friday October 25, 2019 at 11:00 am starting at ThMS then MES and MMS.
4. The Building Permits have been obtained from Frederick County.
5. These Security Vestibule Projects will be locally and state funded via the FY 2019 School Safety Grant Program and there will be a 5% MBE requirement for each individual Project. The anticipated value of each individual Project is not expected to require the Prevailing Wage requirements and the Bid Bond requirement is being waived.

Project RFP Calendar:

- October 9, 2019 — Bid documents to FCPS Purchasing
- October 14, 2019 — Bid documents available to Bidders
- October 25, 2019 — Pre-Bid Meeting on Site @ 11:00 AM – ThMS, MES and MMS
- November 14, 2019 — Bids due @ FCPS Construction Management by 3:00 PM
- December 11, 2019 — BOE Meeting to award contract

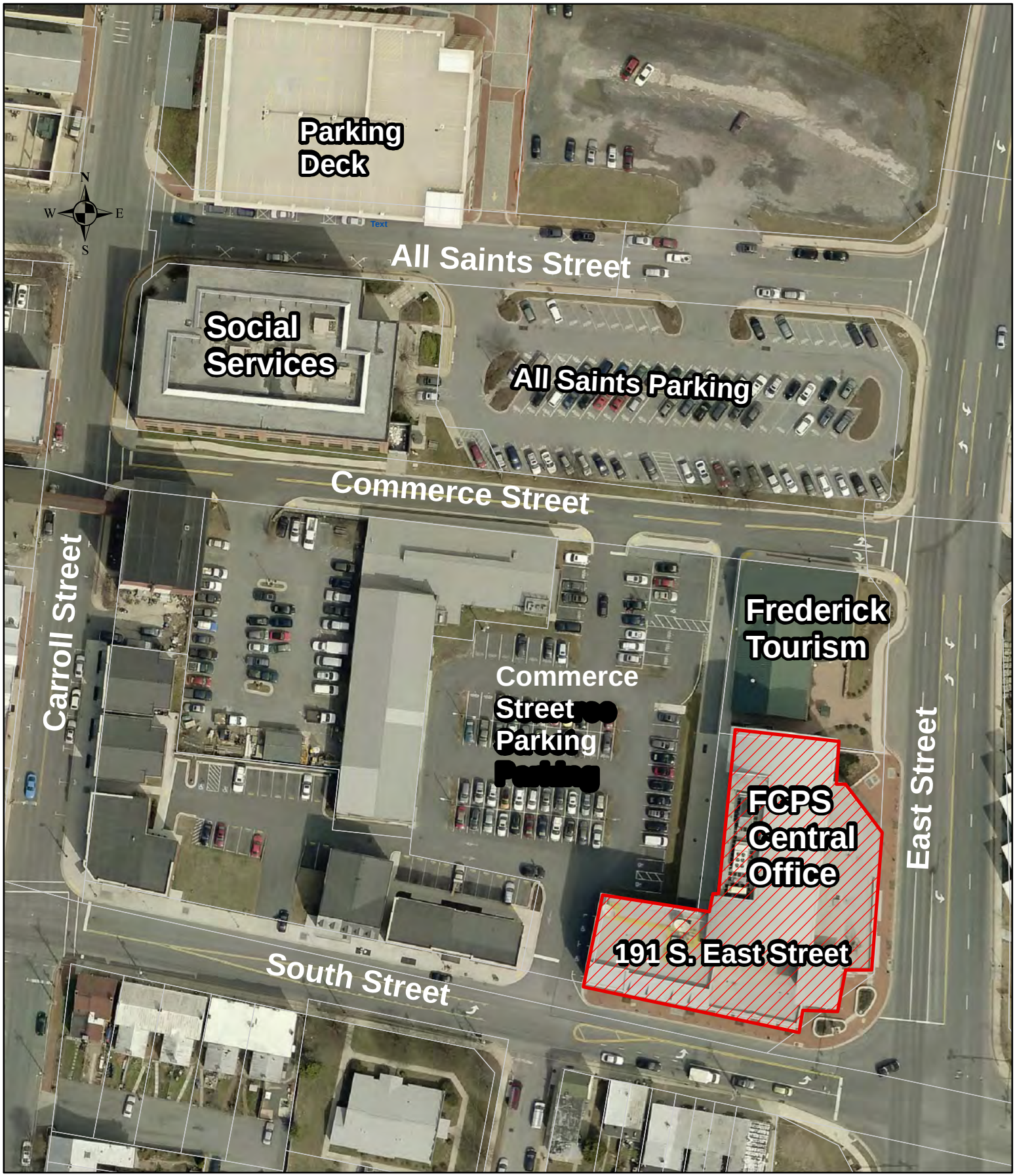
Project Construction Schedule:

- Spring - Summer 2020 – Begin April 9-13 and June 23 – Substantial Completion August 14, 2020

Please address all questions to Bradley Ahalt at 301-644-5164 or Bradley.Ahalt@fcps.org with a copy to Kim Miskell, kim.miskell@fcps.org

RFQ Due Date/Time: 3:00 p.m., local time, on November 14, 2019
Sealed RFQ Delivered to: FCPS - Purchasing Department
191 South East Street
Frederick, MD 21701

Thanks for your interest, cooperation and assistance.
Bradley W. Ahalt
Senior Project Manager
FCPS Construction Management



Frederick County Public Schools
191 S. East Street

Frederick County Public Schools, MD, School Year 2019-2020 Calendar

August 2019
23, 26-30 Fri, Mon-Fri Teacher Work Days

September 2019
02 Mon FCPS Closed: Labor Day
03 Tue First Day of School for Students
20 Fri Schools Closed: Fair Day

October 2019
08 Tue 2-Hour Early Dismissal for Students: Teacher Mid-Term Work Session
09 Wed Schools Closed. Yom Kippur.
23 Wed Elementary and Middle Schools Open 4 Hours Late for Evening Parent-Teacher Conferences; High Schools Are Full Day
24 Thu Elementary and Middle Schools Open 4 Hours Late for Evening Parent-Teacher Conferences; High Schools Are Full Day
25 Fri Elementary and Middle Students Dismissed 3.5 Hours Early for Afternoon Parent-Teacher Conferences; High Schools Are Full Day

November 2019
07 Thu End of Term 1
08 Fri Schools Closed for Students: Teacher Work Day
11 Mon Term 2 Begins
27, 28*, 29* Wed-Fri Schools Closed: Thanksgiving Break

December 2019
20 Fri 2-Hour Early Dismissal for Students: Teacher Mid-Term Work Session
23, 24*-31* Mon-Tue Schools Closed: Winter Break

January 2020
01* Wed Schools Closed: New Year's Day
20* Mon Schools Closed: Dr. Martin Luther King Jr. Day
28 Tue End of Term 2
29 Wed Schools Closed for Students: Teacher Work Day
30 Thu Second Semester and Term 3 Begin

February 2020
14 Fri 2-Hour Early Dismissal for Students: Teacher Work Session
17* Mon Schools Closed: Presidents' Day

March 2020
04 Wed 2-Hour Early Dismissal for Students: Teacher Mid-Term Work Session

April 2020
08 Wed 2-Hour Early Dismissal for Students: Teacher Work Session; End of Term 3
09 Thu Schools Closed for Students: Teacher Work Day
10*, 13* Fri-Mon Schools Closed: Spring Break
14 Tue Term 4 Begins
28* Tue Schools Closed: Primary Election Day

May 2020
25* Mon Schools Closed: Memorial Day

June 2020
22**Mon Last Day of School for Students /2-Hour Early Dismissal: Teacher Work Session. End of Term 4
23** Tue Last Day of School for Teachers

*State-Mandated Public Schools Holiday

**This calendar includes 8 days for snow or other emergency closings. If there are no days needed for emergency closings, the last day for students will be June 10. Subject to BOE revision, FCPS will make up emergency-closing days in the following sequence: June 11, 12, 15, 16, 17, 18, 19 and 22. The June two-hour early dismissal will occur on the last day of school for students.

DIRECTORY OF SCHOOLS

ELEMENTARY

1. **Ballenger Creek** ◗ 240-236-2500
Ms. Kristen Canning, Principal
5250 Kingsbrook Drive
Frederick, MD 21703
Fax 240-236-2501

2. **Brunswick** ◗◆ 240-236-2900
Mr. Justin McConnaughey, Principal
400 Central Avenue
Brunswick, MD 21716
Fax 240-236-2901

3. **Butterfly Ridge** ◗●◆★ 240-566-0300
Dr. Patricia Hosfelt, Principal
601 Contender Way
Frederick, MD 21703
Fax 240-566-0301

4. **Carroll Manor** ◗◆ 240-236-3800
Ms. Kimberly Robertson, Principal
5624 Adamstown Road
Adamstown, MD 21710
Fax 240-236-3801

5. **Centerville** 240-566-0100
Ms. Karen Hopson, Principal
3601 Carriage Hill Drive
Frederick, MD 21704
Fax 240-566-0101

6. **Deer Crossing** 240-236-5900
Ms. Amy Routzahn, Principal
10601 Finn Drive
New Market, MD 21774
Fax 240-236-5901

7. **Emmitsburg** ● 240-236-1750
Ms. Mary Ann Wiles, Principal
300 South Seton Avenue
Emmitsburg, MD 21727
Fax 240-236-1751

8. **Glade** ◗◆ 240-236-2100
Mr. Lorcán ÓhEithir, Principal
9525 Glade Road
Walkersville, MD 21793
Fax 240-236-2101

9. **Green Valley** 240-236-3400
Dr. Giuseppe Di Monte, Principal
11501 Fingerboard Road
Monrovia, MD 21770
Fax 240-236-3401

10. **Hillcrest** ◗●◆★ 240-236-3200
Mr. Karl Williams, Principal
1285 Hillcrest Drive
Frederick, MD 21703
Fax 240-236-3201

11. **Kemptown** 240-236-3500
Ms. Kathryn Golightly, Principal
3456 Kemptown Church Road
Monrovia, MD 21770
Fax 240-236-3501

12. **Lewistown** ◆ 240-236-3750
Ms. Dana Austin, Principal
11119 Hessong Bridge Road
Thurmont, MD 21788
Fax 240-236-3751

13. **Liberty** 240-236-1800
Ms. Jana Strohmeyer, Principal
11820 Liberty Road
Frederick, MD 21701
Fax 240-236-1801

14. **Lincoln** ◗●◆★ 240-236-2650
Mr. Eric Rhodes, Principal
200 Madison Street
Frederick, MD 21701
Fax 240-236-2651

15. **Middletown** 240-236-1100
Grades 3-5
Ms. Jan Hollenbeck, Principal
201 East Green Street
Middletown, MD 21769
Fax 240-236-1150

16. **Middletown Primary** ◗◆ 240-566-0200
Grades Pre-K–2
Ms. Sandra Fox, Principal
403 Franklin Street
Middletown, MD 21769
Fax 240-566-0201

17. **Monocacy** ◗●★ 240-236-1400
Mr. Troy Barnes, Principal
7421 Hayward Road
Frederick, MD 21702
Fax 240-236-1401

18. **Myersville** 240-236-1900
Ms. Kathy Swire, Principal
429 Main Street
Myersville, MD 21773
Fax 240-236-1901

19. **New Market** ◗ 240-236-1300
Mr. Jason Bowser, Principal
93 West Main Street
New Market, MD 21774
Fax 240-236-1301

20. **New Midway-Woodsboro**
Ms. Kimberly Clifford, Principal
A) New Midway 240-236-1500
Grades 3-5
12226 Woodsboro Pike
Keymar, MD 21757
Fax 240-236-1501
B) Woodsboro ◗ 240-236-3700
Grades Pre-K–2
101 Liberty Road
Woodsboro, MD 21798
Fax 240-236-3701

21. **North Frederick** ◗●◆★ 240-236-2000
Ms. Kimberly Seiss, Principal
1010 Fairview Avenue
Frederick, MD 21701
Fax 240-236-2001

22. **Oakdale** 240-236-3300
Ms. Leigh Warren, Principal
5830 Oakdale School Road
Ijamsville, MD 21754
Fax 240-236-3301

23. **Orchard Grove** ◗◆ 240-236-2400
Mr. Jay Corrigan, Principal
5898 Hannover Drive
Frederick, MD 21703
Fax 240-236-2401

24. **Parkway** 240-236-2600
Ms. Stephanie Brown, Principal
300 Carroll Parkway
Frederick, MD 21701
Fax 240-236-2601

25. **Sabillasville** 240-236-6000
Ms. Kate Krietz, Principal
16210-B Sabillasville Road
Sabillasville, MD 21780
Fax 240-236-6001

26. **Spring Ridge** ◗◆ 240-236-1600
Ms. DeVeda Coley, Principal
9051 Ridgefield Drive
Frederick, MD 21701
Fax 240-236-1601

27. **Thurmont** 240-236-0900
Grades 3-5
Ms. Debra O'Donnell, Principal
805 East Main Street
Thurmont, MD 21788
Fax 240-236-0901

28. **Thurmont Primary** ◗ 240-236-2800
Grades Pre-K–2
Dr. Michele Baisey, Principal
7989 Rocky Ridge Road
Thurmont, MD 21788
Fax 240-236-2801

29. **Tuscarora** ● 240-566-0000
Dr. Kimberly Mazaleski, Principal
6321 Lambert Drive
Frederick, MD 21703
Fax 240-566-0001

30. **Twin Ridge** ◆ 240-236-2300
Ms. Heather Hobbs Michael, Principal
1106 Leafy Hollow Circle
Mt. Airy, MD 21771
Fax 240-236-2301

31. **Urbana at Sugarloaf** ◆ 240-566-0500
Ms. Tess Blumenthal, Principal
3400 Stone Barn Drive
Frederick, MD 21704
Fax 240-566-0501

32. **Valley** ◗ 240-236-3000
Ms. Tracy Poquette, Principal
3519 Jefferson Pike
Jefferson, MD 21755
Fax 240-236-3001

33. **Walkersville** ◗ 240-236-1000
Ms. Christina McKeever, Principal
83 West Frederick Street
Walkersville, MD 21793
Fax 240-236-1050

34. **Waverley** ◗●◆★ 240-236-3900
Dr. Allie Watkins, Principal
201 Waverley Drive
Frederick, MD 21702
Fax 240-236-3901

35. **Whittier** ◗◆ 240-236-3100
Ms. Amy Schwiegerath, Principal
2400 Whittier Drive
Frederick, MD 21702
Fax 240-236-3101

36. **Wolfsville** 240-236-2250
Ms. Megan Stein, Principal
12520 Wolfsville Road
Myersville, MD 21773
Fax 240-236-2251

37. **Yellow Springs** 240-236-1700
Ms. Sue Gullo, Principal
8717 Yellow Springs Road
Frederick, MD 21702
Fax 240-236-1701

MIDDLE

38. **Ballenger Creek** 240-236-5700
Mr. Jay Schill, Principal
5525 Ballenger Creek Pike
Frederick, MD 21703
Fax 240-236-5701

39. **Brunswick** 240-236-5400
Mr. Everett Warren, Principal
301 Cummings Drive
Brunswick, MD 21716
Fax 240-236-5401

HIGH

51. **Brunswick** 240-236-8600
Mr. Michael Dillman, Principal
101 Cummings Drive
Brunswick, MD 21716
Fax 240-236-8601

52. **Catoctin** 240-236-8100
Ms. Jennifer Clements, Principal
14745 Sabillasville Road
Thurmont, MD 21788
Fax 240-236-8101

53. **Frederick** 240-236-7000
Dr. David Franceschina, Principal
650 Carroll Parkway
Frederick, MD 21701
Fax 240-236-7015

54. **Governor Thomas Johnson** 240-236-8200
Dr. Dan Lippy, Principal
1501 North Market Street
Frederick, MD 21701
Fax 240-236-8201

55. **Linganore** 240-566-9700
Ms. Nancy Doll, Principal
12013 Old Annapolis Road
Frederick, MD 21701
Fax 240-566-9701

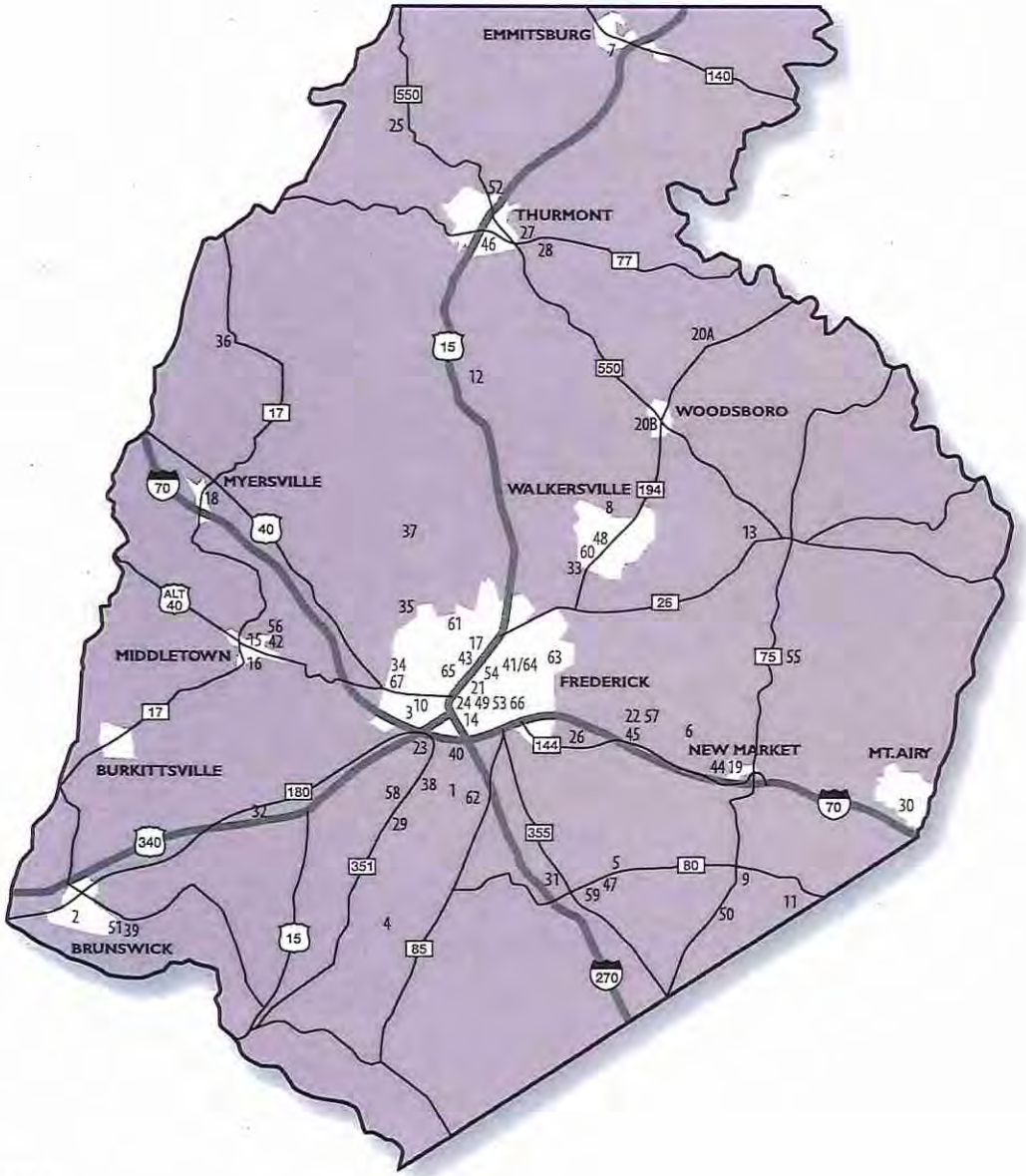
56. **Middletown** 240-236-7400
Mr. Bernard Quesada, Principal
200 Schoolhouse Drive
Middletown, MD 21769
Fax 240-236-7450

57. **Oakdale** 240-566-9400
Ms. Lisa Smith, Principal
5850 Eaglehead Drive
Ijamsville, MD 21754
Fax 240-566-9401

58. **Tuscarora** 240-236-6400
Mr. Christopher Berry, Principal
5312 Ballenger Creek Pike
Frederick, MD 21703
Fax 240-236-6401

59. **Urbana** 240-236-7600
Mr. David Kehne, Principal
3471 Campus Drive
Ijamsville, MD 21754
Fax 240-236-7601

60. **Walkersville** 240-236-7200
Ms. Tracey K. Kibler, Principal
81 West Frederick Street
Walkersville, MD 21793
Fax 240-236-7250



KEY

- ◗ Half-day pre-kindergarten program available
- ● Full-day pre-kindergarten program available
- ◆ Special education pre-kindergarten available
- ★ STAR (Title I) Schools

FINDOUTFIRST EMAIL AND TEXTING: WWW.FCPS.ORG/FOF

Middle (continued)

40. **Crestwood** 240-566-9000
Mr. Neal Case, Principal
7100 Foxcroft Drive
Frederick, MD 21703
Fax 240-566-9001

41. **Governor Thomas Johnson** 240-236-4900
Ms. Maggie Gilgallon, Principal
1799 Schifferstadt Boulevard
Frederick, MD 21701
Fax 240-236-4901

42. **Middletown** 240-236-4200
Mr. Paul Fer, Principal
100 Martha Mason Street
Middletown, MD 21769
Fax 240-236-4250

43. **Monocacy** 240-236-4700
Dr. Stephanie Ware, Principal
8009 Opossumtown Pike
Frederick, MD 21702
Fax 240-236-4701

44. **New Market** 240-236-4600
Ms. T.C. Suter, Principal
125 West Main Street
New Market, MD 21774
Fax 240-236-4650

45. **Oakdale** 240-236-5500
Ms. Mita Badshah, Principal
5810 Oakdale School Road
Ijamsville, MD 21754
Fax 240-236-5501

46. **Thurmont** 240-236-5100
Mr. Daniel Enck, Principal
408 East Main Street
Thurmont, MD 21788
Fax 240-236-5101

47. **Urbana** 240-566-9200
Ms. Stacey Hiltner, Principal
3511 Pontius Court
Ijamsville, MD 21754
Fax 240-566-9201

48. **Walkersville** 240-236-4400
Mr. Frank Vetter, Principal
55 West Frederick Street
Walkersville, MD 21793
Fax 240-236-4401

49. **West Frederick** 240-236-4000
Ms. Pattie Barnes, Principal
515 West Patrick Street
Frederick, MD 21701
Fax 240-236-4050

50. **Windsor Knolls** 240-236-5000
Mr. Brian Vasquenza, Principal
11150 Windsor Road
Ijamsville, MD 21754
Fax 240-236-5001

OTHER

61. **Career and Technology Center** 240-236-8500
Mr. Michael Concepcion, Principal
7922 Opossumtown Pike
Frederick, MD 21702
Fax 240-236-8501

62. **Carroll Creek Montessori Public Charter School** * 240-566-0600
Ms. Marilyn Horan, Principal
7215 Corporate Court
Frederick, MD 21703
Fax 240-566-0601

63. **Frederick Classical Charter School** 240-236-1200
Dr. Camille S. Bell, Principal
8445 Spires Way, Suite CC
Frederick, MD 21701
Fax 240-236-1201

64. **Frederick County Virtual School (includes Flexible Evening High School)** 240-236-8450
Dr. Stacey Adamiak, Principal
c/o GTJMS
1799 Schifferstadt Boulevard
Room 116
Frederick, MD 21701
Fax 240-236-8451

65. **Heather Ridge** 240-236-8000
Ms. Elizabeth Stiffler, Principal
1445 Taney Avenue
Frederick, MD 21702
Fax 240-236-8001

66. **Monocacy Valley Montessori Public Charter School** * 240-236-6100
TBD, Principal
217 Dill Avenue
Frederick, MD 21701
Fax 240-236-6101

67. **Rock Creek School** 240-236-8700
Ms. Katie Buckley, Principal
191 Waverley Drive
Frederick, MD 21702
Fax 240-236-8701

For other useful numbers, see next page

FREDERICK COUNTY PUBLIC SCHOOLS
PURCHASING DEPT.
191 SOUTH EAST STREET
FREDERICK, MD 21701
PHONE: 301-644-5208
FAX: 301-644-5213

RFQ 20C2, MIDDLETOWN ELEMENTARY SCHOOL SECURITY VESTIBULE
FORM OF PROPOSAL

We offer to perform the following Security Vestibule Project in strict accordance with the drawings and specifications as prepared by Proffitt and Associates Architects and dated August 20, 2019 and as per the direction contained in the RFP dated October 10, 2019 and in accordance with FCPS RFP 17MISC1, Qualifications of General Construction Contractors for Minor Construction Projects.

Total Base Bid:

$_____ _____
Total Lump Sum Amount in Words

Subcontractor Selection:
Aluminum Storefront Contractor: _____

Material Selection: _____

Aluminum Storefront Manufacturer: _____

Qualifications: Please complete the Form of Proposal and provide the cost information and the MBE information as requested in its entirety.

I/We certify that this bid/proposal is made without previous understanding, agreement, or connection with any person, firm, or corporation submitting a bid/proposal for the same goods/services and is, in all respects fair and without collusion or fraud; that none of this company's officers, directors, partners or its employees have been convicted of bribery, attempted bribery, or conspiracy to bribe under the laws of any state or federal government; and that no member of the Board of Education of Frederick County, Administrative or Supervisory Personnel or other employees of the Frederick County Public Schools, has any interest in the bidding company except as follows:

COMPANY: _____

dba: _____

REGISTERED MARYLAND CONTRACTOR NUMBER: _____

FEDERAL IDENTIFICATION: _____ DATE: _____

The undersigned has familiarized themselves with the conditions affecting the work, the specifications, and is legally authorized to make this proposal on behalf of the Contractor listed above.

NAME (please print): _____

SIGNATURE OF ABOVE: _____

TITLE: _____

ADDRESS: _____

_____

TELEPHONE # _____ FAX # _____

E-MAIL ADDRESS (for correspondence): _____

E-MAIL ADDRESS (for receiving Purchase Orders): _____

(DO NOT COMPLETE THIS AREA IF YOUR COMPANY IS UNABLE TO RECEIVE PURCHASE ORDERS ELECTRONICALLY)

…….....

ACKNOWLEDGMENT OF ADDENDA (if applicable)

The above-signed company/firm acknowledges the receipt of the following addenda for the above-referenced solicitation.

Date Received by Proposer/Bidder:

Addendum #1	_____	Addendum #2	_____
Addendum #3	_____	Addendum #4	_____
Addendum #5	_____	Addendum #6	_____
Addendum #7	_____	Addendum #8	_____

FREDERICK COUNTY PUBLIC SCHOOLS
PURCHASING DEPT.
191 SOUTH EAST STREET
FREDERICK, MD 21701
PHONE: 301-644-5208
FAX: 301-644-5213

RFQ 20C2, MIDDLETOWN MIDDLE SCHOOL SECURITY VESTIBULE
FORM OF PROPOSAL

We offer to perform the following Security Vestibule Project in strict accordance with the drawings and specifications as prepared by Proffitt and Associates Architects and dated August 26, 2019 and as per the direction contained in the RFP dated October 10, 2019 and in accordance with FCPS RFP 17MISC1, Qualifications of General Construction Contractors for Minor Construction Projects.

Total Base Bid:

$_____ _____
Total Lump Sum Amount in Words

Subcontractor Selection:
Aluminum Storefront Contractor: _____

Material Selection: _____

Aluminum Storefront Manufacturer: _____

Qualifications: Please complete the Form of Proposal and provide the cost information and the MBE information as requested in its entirety.

I/We certify that this bid/proposal is made without previous understanding, agreement, or connection with any person, firm, or corporation submitting a bid/proposal for the same goods/services and is, in all respects fair and without collusion or fraud; that none of this company's officers, directors, partners or its employees have been convicted of bribery, attempted bribery, or conspiracy to bribe under the laws of any state or federal government; and that no member of the Board of Education of Frederick County, Administrative or Supervisory Personnel or other employees of the Frederick County Public Schools, has any interest in the bidding company except as follows:

COMPANY: _____

dba: _____

REGISTERED MARYLAND CONTRACTOR NUMBER: _____

FEDERAL IDENTIFICATION: _____ DATE: _____

The undersigned has familiarized themselves with the conditions affecting the work, the specifications, and is legally authorized to make this proposal on behalf of the Contractor listed above.

NAME (please print): _____

SIGNATURE OF ABOVE: _____

TITLE: _____

ADDRESS: _____

_____

TELEPHONE # _____ FAX # _____

E-MAIL ADDRESS (for correspondence): _____

E-MAIL ADDRESS (for receiving Purchase Orders): _____

(DO NOT COMPLETE THIS AREA IF YOUR COMPANY IS UNABLE TO RECEIVE PURCHASE ORDERS ELECTRONICALLY)

…….....

ACKNOWLEDGMENT OF ADDENDA (if applicable)

The above-signed company/firm acknowledges the receipt of the following addenda for the above-referenced solicitation.

Date Received by Proposer/Bidder:

Addendum #1	_____	Addendum #2	_____
Addendum #3	_____	Addendum #4	_____
Addendum #5	_____	Addendum #6	_____
Addendum #7	_____	Addendum #8	_____

FREDERICK COUNTY PUBLIC SCHOOLS
PURCHASING DEPT.
191 SOUTH EAST STREET
FREDERICK, MD 21701
PHONE: 301-644-5208
FAX: 301-644-5213

RFQ 20C2, THURMONT MIDDLE SCHOOL SECURITY VESTIBULE
FORM OF PROPOSAL

We offer to perform the following Security Vestibule Project in strict accordance with the drawings and specifications as prepared by Proffitt and Associates Architects and dated August 20, 2019 and as per the direction contained in the RFP dated October 10, 2019 and in accordance with FCPS RFP 17MISC1, Qualifications of General Construction Contractors for Minor Construction Projects.

Total Base Bid:

$_____ _____
Total Lump Sum Amount in Words

Subcontractor Selection:
Aluminum Storefront Contractor: _____

Material Selection: _____

Aluminum Storefront Manufacturer: _____

Qualifications: Please complete the Form of Proposal and provide the cost information and the MBE information as requested in its entirety.

I/We certify that this bid/proposal is made without previous understanding, agreement, or connection with any person, firm, or corporation submitting a bid/proposal for the same goods/services and is, in all respects fair and without collusion or fraud; that none of this company's officers, directors, partners or its employees have been convicted of bribery, attempted bribery, or conspiracy to bribe under the laws of any state or federal government; and that no member of the Board of Education of Frederick County, Administrative or Supervisory Personnel or other employees of the Frederick County Public Schools, has any interest in the bidding company except as follows:

COMPANY: _____

dba: _____

REGISTERED MARYLAND CONTRACTOR NUMBER: _____

FEDERAL IDENTIFICATION: _____ DATE: _____

The undersigned has familiarized themselves with the conditions affecting the work, the specifications, and is legally authorized to make this proposal on behalf of the Contractor listed above.

NAME (please print): _____

SIGNATURE OF ABOVE: _____

TITLE: _____

ADDRESS: _____

_____

TELEPHONE # _____ FAX # _____

E-MAIL ADDRESS (for correspondence): _____

E-MAIL ADDRESS (for receiving Purchase Orders): _____

(DO NOT COMPLETE THIS AREA IF YOUR COMPANY IS UNABLE TO RECEIVE PURCHASE ORDERS ELECTRONICALLY)

…….....

ACKNOWLEDGMENT OF ADDENDA (if applicable)

The above-signed company/firm acknowledges the receipt of the following addenda for the above-referenced solicitation.

Date Received by Proposer/Bidder:

Addendum #1	_____	Addendum #2	_____
Addendum #3	_____	Addendum #4	_____
Addendum #5	_____	Addendum #6	_____
Addendum #7	_____	Addendum #8	_____

RFQ 20C2, SECURITY VESTIBULES FOR MIDDLETOWN ELEMENTARY, MIDDLETOWN MIDDLE AND THURMONT MIDDLE SCHOOLS
FREDERICK COUNTY PUBLIC SCHOOLS
STATUTORY AFFIDAVIT AND NON-COLLUSION CERTIFICATION

Special Instructions: An authorized representative of the bidder needs to complete the following affidavit and insert an answer to paragraphs 1 and 3.

BIDDERS: The submission of the following Affidavit at the time of the bid opening is:

[X] requested to be completed but not required to be notarized.

[ ] required to be completed and notarized.

I, _____, being duly sworn, depose and state:

1. I am the _____ (officer) and duly authorized representative of the firm of

   the organization named _____ whose address is
   (Name of Corporation)
   _____ and that I

   possess the authority to make this affidavit and certification on behalf of myself and the firm for which I am acting.

2. Except as described in paragraph 3 below, neither I, nor to the best of my knowledge, the above firm, nor any of its officers, directors, or partners, or any of its employees who are directly involved in obtaining or performing contracts with any public bodies has:

   a. been convicted of bribery, attempted bribery, or conspiracy to bribe, under the laws of any state or of the federal government;

   b. been convicted under the laws of the state, another state, or the United States of: a criminal offense incident to obtaining, attempting to obtain, or performing a public or private contract; or fraud, embezzlement, theft, forgery, falsification or destruction of records, or receiving stolen property;

   c. been convicted of criminal violation of an antitrust statute of the State of Maryland, another state, or the United States;

   d. been convicted of a violation of the Racketeer influenced and Corrupt Organization Act, or the Mail Fraud Act, for acts in connection with the submission of bids or proposals for a public or private contract;

   e. been convicted of any felony offenses connected with obtaining, holding, or maintaining a minority business enterprise certification, as prohibited by Section 14-308 of the State Finance & Procurement Article;

   f. been convicted of conspiracy to commit any act or omission that would constitute grounds for conviction under any of the laws or statutes described in Paragraph (a) through (e) above; or

   g. been found civilly liable under an antitrust statute of this State, another state, or the United States for acts or omissions in connection with the submission of bids or proposals for a public or private contract.

3. The only conviction, plea, or admission by any officer, director, partner, or employee of this firm to involvement in any of the conduct described in Paragraph 2 above is as follows:

   If none, write “None” below. If involvement, list the date, count, or charge, official or administrative body,

the individuals involved, their position with the firm, and the sentence or disposition of the charge.

_____

_____

(you may attach an explanation if necessary)

4. I affirm that this firm will not knowingly enter into a contract with a public body under which a person or business debarred or suspended under Maryland State Finance and Procurement Title 16, subtitle 3, Annotated Code of Maryland, as amended, will provide, directly or indirectly, supplies, services, architectural services, construction-related services, leases of real property, or construction.

5. I affirm that this proposal or bid to the Board of Education of Frederick County is genuine and not collusive or a sham; that said bidder has not colluded, conspired, connived and agreed, directly or indirectly, with any bidder or person to put in a sham bid or to refrain from bidding and is not in any manner, directly or indirectly, sought by agreement of collusion or communication or conference, with any person to fix the bid prices of the affidavit or any other bidder, or to fix any overhead, profit or cost element of said bid price, or that if any bidder, or to secure an advantage against the Board of Education of Frederick County or any other person interested in the proposed contract; and that all statements in the proposal or bid are true. I acknowledge that, if the representations set forth in this affidavit are not true and correct, the Board of Education of Frederick County may terminate any contract awarded and take any other appropriate action.

I DO SOLEMNLY DECLARE AND AFFIRM under the penalties of perjury that the contents of this affidavit are true and correct, that I am executing this Affidavit in compliance with Section 16-311 of the State Finance and Procurement Article, Annotated Code of Maryland, and in compliance with requirements of the Board of Education of Frederick County, and that I am executing and submitting this Proposal on behalf of and as authorized by the bidder named below.

_____
(Legal Name of Company)

_____
(dba)

_____
(Address)

_____
(City) (State) (Zip)

_____
(Telephone) (Fax)

_____
(Print Name) (Title) (Date)

_____
(Signature) (Title) (Date)

We are/I am licensed to do business in the State of Maryland as a:
( ) Corporation ( ) Partnership ( ) Individual ( ) Other

If required to be notarized:

_____ _____
(Witness) (Title)

SUBSCRIBED AND SWORN to before me on this _____day of _____, 20____.

_____
NOTARY PUBLIC

My Commission Expires: _____

Revised 01.20.2016

RFQ 20C2, SECURITY VESTIBULES FOR MIDDLETOWN ELEMENTARY, MIDDLETOWN MIDDLE AND THURMONT MIDDLE SCHOOLS
FREDERICK COUNTY PUBLIC SCHOOLS

CERTIFICATION OF COMPLIANCE

1. All Contractors, subcontractors or vendors must abide by FCPS Board policies and regulations while working on FCPS property.

2. Maryland Law requires that any person who enters into a contract with a county board of education may not knowingly employ an individual to work at a school (or FCPS facility) if the individual is a registered sex offender. Please reference §11-113 of the Criminal Procedure Article of Maryland Code for penalty.

3. Be advised that individuals who are registered sex offenders are not eligible to work on any FCPS project. The Contractor must initially check the Maryland Department of Public Safety & Correctional Services' MARYLAND SEX OFFENDER REGISTRY and search for the name of any employee to be assigned to work on this project. This applies to subcontractors and material/equipment suppliers as well.

4. In the event that a registered sex offender is discovered to be working on a FCPS project, whether through employment by the prime Contractor, subcontractor or vendor, the site superintendent will immediately remove the individual from the premises and permanently terminate his work assignment. FCPS may terminate this contract as a result if the Contractor is unable to demonstrate he has exercised care and diligence in the past in checking the Maryland registry.

5. Effective July 1, 2015, amendments to §6-113 of the Education Article of the Maryland Code further require that a contractor or subcontractor or vendor for a local school system may not knowingly assign an employee to work on school premises with direct, unsupervised, and uncontrolled access to children, if the employee has been convicted of, or pled guilty or nolo contendere to, a crime involving:

    a. A sexual offense in the third or fourth degree under §3-307 or §3-308 of the Criminal Law Article of the Maryland Code.

    b. Child sexual abuse under §3-602 of the Criminal Law Article of the Maryland Code or any other State; or

    c. A crime of violence as defined in §14-101 of the Criminal Law Article of the Maryland Code or any other State

6. With the passing of Maryland Law MD. Code, Educ. 6-113.2, employers of all contracted staff must obtain background information relating to child sexual abuse or sexual misconduct. This means that all contracted staff having direct contact with students must meet all of the FCPS and Maryland State Department of Education (MSDE) requirements before doing business with FCPS. See: Maryland State Department of Education Website; House Bill 486 Child Sexual Abuse and Sexual Misconduct Prevention; MSDE Guidelines For MD. Code, Educ. 6113.2; and Employment History Review Form for Child Abuse and Sexual Misconduct for additional information.

    In addition, there has been no change to the current FCPS requirement, that all contracted staff who have contact with students are required to be fingerprinted in order to obtain a criminal background check. Fingerprints and background check are still an enforced FCPS requirement.

7. Under recent amendments to §5-561 of the Family Law Article of the Maryland Code, each contractor, subcontractor, or vendor shall certify by signing this affidavit that any individuals in its work-force including sub-contractors, have undergone a criminal background check, including fingerprinting, if the individuals will work in a FCPS school facility in circumstances where they have direct, unsupervised, and uncontrolled access to children.

By my signature below, I affirm under penalties of perjury that the contents of this Certification of Compliance are true to the best of my knowledge, information and belief.

Signature_____Date_____

Print name and title of signatory_____

Print name of company_____

Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with Frederick County Public Schools (FCPS) must complete and return the Vendor Conflict of Interest Disclosure Form, in order to be eligible to be awarded a contract with FCPS.

Please note that all vendors must comply with FCPS's conflict of interest certification, as stated below.

If a vendor has a relationship with a FCPS employee or an immediate family member (spouse, child (stepchild or adopted), parent, or sibling) of a FCPS employee, the vendor shall disclose the information required below.

Certification: I hereby certify, that to the best of my knowledge, there is no conflict of interest involving the vendor named below:

1. No FCPS employee or the employee's immediate family member has an ownership interest in the vendor's company, or is deriving personal financial gain from this contract.
2. No retired or separated FCPS employee who has been retired or separated from the organization for less then one (1) year has an ownership interest in the vendor's company.
3. No FCPS employee is contemporaneously employed or prospectively to be employed with the vendor.
4. The vendor did not provide any information or criteria in the drafting of the solicitation prior to it being advertised for competitive pricing.
5. Vendor hereby declares it has not, and will not provide gifts or hospitality of any dollar value, or any other gratuities to FCPS employee to maintain a contract.
6. Vendor hereby declares that in the process of preparing a quote/bid/proposal for FCPS, there have been no acts of bribery, extortion, trading, laundering of corrupt practices, and/or nepotism have transpired between FCPS employee and the vendor.
7. Please note any other exceptions below.

Vendor Name & Email	**Vendor Address & Phone Number**
Conflict of Interest Disclosure	
Name of FCPS employee or immediate family member with whom there may be a potential conflict of interest. *If no conflict of interest, write "N/A" and initial.*	Disclose the relationship to the employee or the immediate family member, their interest in the vendor's company, and any additional information

I certify that the information provided is true and correct by my signature below:

_____ _____

Signature of Vendor Authorized Representative/Date

Printed Name of Vendor Authorized Representative

Attachment A

CERTIFIED MINORITY BUSINESS ENTERPRISE UTILIZATION AND FAIR SOLICITATION AFFIDAVIT

***NOTE: You must include this document with your bid or offer*. If you do not submit the form with your bid or offer, the procurement officer shall deem your bid non-responsive or your offer not reasonably susceptible of being selected for award.**

* * * * * * * * * * * * * * *

Part I.

I acknowledge the:

- Overall certified MBE subcontract participation goal of __5__ %. and
- The subgoals, if applicable, of:
  - __0__ % for certified African American-owned businesses and
  - 0____ % for certified Asian American-owned businesses.

I have made a good-faith effort to achieve this goal. If awarded the contract, I will continue to attempt to increase MBE participation during the project.

Part II.

Check ONE Box

NOTE: FAILURE TO CHECK ONE OF BOXES 1, 2, or 3 BELOW WILL RENDER A BID NON-RESPONSIVE OR AN OFFER NOT REASONABLY SUSCEPTIBLE OF BEING SELECTED FOR AWARD

NOTE: INCONSISTENCY BETWEEN THE ASSERTIONS ON THIS FORM AND THE INFORMATION PROVIDED ON THE *MBE PARTICIPATION SCHEDULE* (ATTACHMENT B) MAY RENDER A BID NON-RESPONSIVE OR AN OFFER NOT REASONABLY SUSCEPTIBLE OF BEING SELECTED FOR AWARD

1 ☐ I have met the overall MBE goal and MBE subgoals for this project. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B], which details how I will reach that goal.

or

2 ☐ After having made a good-faith effort to achieve the overall MBE goal and MBE subgoals for this project, I can achieve partial success only. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B], which details the MBE participation I have achieved.

I request a partial waiver as follows:

- Waiver of overall MBE subcontract participation goal: ____ %
- Waiver of MBE subcontract participation subgoals, if applicable:
  - ____ % for certified African American-owned businesses and
  - ____ % for certified Asian American-owned businesses.

Within 10 days of being informed that I am the apparent awardee, I will submit *MBE Waiver Documentation* [Attachment F] (with supporting documentation).

or

3 ☐ After having made a good faith effort to achieve the overall MBE goal and MBE subgoals for this project, I am unable to achieve any portion of the goal or subgoals. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B].

I request a full waiver.

Within 10 days of being informed that I am the apparent awardee, I will submit *MBE Waiver Documentation* [Attachment F] (with supporting documentation).

Part III.

I understand that if I am the apparent awardee or conditional awardee, I must submit **within 10 working days** after receiving notice of the potential award or within 10 days after the date of conditional award – whichever is earlier – the:

- *Outreach Efforts Compliance Statement* (Attachment C)
- *Subcontractor Project Participation Statement* (Attachment D)
- *Minority Subcontractors Unavailability Certificate* (Attachment E) (if applicable)
- Any other documentation the Procurement Officer requires to ascertain my responsibility in connection with the MBE participation goal and subgoals

I acknowledge that if I fail to timely return complete documents, the Procurement Officer may determine that I am not responsible and therefore not eligible for contract award. If the contract has been awarded, the award is voidable.

I acknowledge that the MBE subcontractors/suppliers listed in the *MBE Participation Schedule* and any additional MBE subcontractor/suppliers identified in the *Subcontractor Project Participation Statement* will be used to accomplish the percentage of MBE participation that I intend to achieve.

In the solicitation of subcontract quotations or offers, MBE subcontractors were provided the same information and amount of time to respond as were non-MBE subcontractors.

The solicitation process was conducted in such a manner so as to not place MBE subcontractors at a competitive disadvantage to non-MBE subcontractors.

I solemnly affirm under the penalties of perjury that this Affidavit is true to the best of my knowledge, information, and belief.

_____	_____
Bidder/Offeror Name	Affiant Signature
_____	_____
Address	Printed Name & Title
_____	_____
Address (continued)	Date

October 2017

PROJECT: Middletown Middle School
PSC#: _____

Attachment A

CERTIFIED MINORITY BUSINESS ENTERPRISE UTILIZATION AND FAIR SOLICITATION AFFIDAVIT

***NOTE: You must include this document with your bid or offer*. If you do not submit the form with your bid or offer, the procurement officer shall deem your bid non-responsive or your offer not reasonably susceptible of being selected for award.**

* * * * * * * * * * * * * * *

Part I.

I acknowledge the:

- Overall certified MBE subcontract participation goal of _5_ %. and
- The subgoals, if applicable, of:
  - _0_ % for certified African American-owned businesses and
  - 0____ % for certified Asian American-owned businesses.

I have made a good-faith effort to achieve this goal. If awarded the contract, I will continue to attempt to increase MBE participation during the project.

Part II.

Check ONE Box

NOTE: FAILURE TO CHECK ONE OF BOXES 1, 2, or 3 BELOW WILL RENDER A BID NON-RESPONSIVE OR AN OFFER NOT REASONABLY SUSCEPTIBLE OF BEING SELECTED FOR AWARD

NOTE: INCONSISTENCY BETWEEN THE ASSERTIONS ON THIS FORM AND THE INFORMATION PROVIDED ON THE *MBE PARTICIPATION SCHEDULE* (ATTACHMENT B) MAY RENDER A BID NON-RESPONSIVE OR AN OFFER NOT REASONABLY SUSCEPTIBLE OF BEING SELECTED FOR AWARD

1 ☐ I have met the overall MBE goal and MBE subgoals for this project. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B], which details how I will reach that goal.

or

2 ☐ After having made a good-faith effort to achieve the overall MBE goal and MBE subgoals for this project, I can achieve partial success only. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B], which details the MBE participation I have achieved.

I request a partial waiver as follows:

- Waiver of overall MBE subcontract participation goal: ____ %
- Waiver of MBE subcontract participation subgoals, if applicable:
  - ____ % for certified African American-owned businesses and
  - ____ % for certified Asian American-owned businesses.

Within 10 days of being informed that I am the apparent awardee, I will submit *MBE Waiver Documentation* [Attachment F] (with supporting documentation).

or

3 ☐ After having made a good faith effort to achieve the overall MBE goal and MBE subgoals for this project, I am unable to achieve any portion of the goal or subgoals. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B].

I request a full waiver.

Within 10 days of being informed that I am the apparent awardee, I will submit *MBE Waiver Documentation* [Attachment F] (with supporting documentation).

Part III.

I understand that if I am the apparent awardee or conditional awardee, I must submit **within 10 working days** after receiving notice of the potential award or within 10 days after the date of conditional award – whichever is earlier – the:

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- *Subcontractor Project Participation Statement* (Attachment D)
- *Minority Subcontractors Unavailability Certificate* (Attachment E) (if applicable)
- Any other documentation the Procurement Officer requires to ascertain my responsibility in connection with the MBE participation goal and subgoals

I acknowledge that if I fail to timely return complete documents, the Procurement Officer may determine that I am not responsible and therefore not eligible for contract award. If the contract has been awarded, the award is voidable.

I acknowledge that the MBE subcontractors/suppliers listed in the *MBE Participation Schedule* and any additional MBE subcontractor/suppliers identified in the *Subcontractor Project Participation Statement* will be used to accomplish the percentage of MBE participation that I intend to achieve.

In the solicitation of subcontract quotations or offers, MBE subcontractors were provided the same information and amount of time to respond as were non-MBE subcontractors.

The solicitation process was conducted in such a manner so as to not place MBE subcontractors at a competitive disadvantage to non-MBE subcontractors.

I solemnly affirm under the penalties of perjury that this Affidavit is true to the best of my knowledge, information, and belief.

_____	_____
Bidder/Offeror Name	Affiant Signature
_____	_____
Address	Printed Name & Title
_____	_____
Address (continued)	Date

October 2017

PROJECT: Thurmont Middle School
PSC#: _____

Attachment A

CERTIFIED MINORITY BUSINESS ENTERPRISE UTILIZATION AND FAIR SOLICITATION AFFIDAVIT

***NOTE: You must include this document with your bid or offer*. If you do not submit the form with your bid or offer, the procurement officer shall deem your bid non-responsive or your offer not reasonably susceptible of being selected for award.**

* * * * * * * * * * * * * * *

Part I.

I acknowledge the:

- Overall certified MBE subcontract participation goal of 5 %. and
- The subgoals, if applicable, of:
  - 0 % for certified African American-owned businesses and
  - 0 % for certified Asian American-owned businesses.

I have made a good-faith effort to achieve this goal. If awarded the contract, I will continue to attempt to increase MBE participation during the project.

Part II.

Check ONE Box

NOTE: FAILURE TO CHECK ONE OF BOXES 1, 2, or 3 BELOW WILL RENDER A BID NON-RESPONSIVE OR AN OFFER NOT REASONABLY SUSCEPTIBLE OF BEING SELECTED FOR AWARD

NOTE: INCONSISTENCY BETWEEN THE ASSERTIONS ON THIS FORM AND THE INFORMATION PROVIDED ON THE *MBE PARTICIPATION SCHEDULE* (ATTACHMENT B) MAY RENDER A BID NON-RESPONSIVE OR AN OFFER NOT REASONABLY SUSCEPTIBLE OF BEING SELECTED FOR AWARD

1 ☐ I have met the overall MBE goal and MBE subgoals for this project. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B], which details how I will reach that goal.

or

2 ☐ After having made a good-faith effort to achieve the overall MBE goal and MBE subgoals for this project, I can achieve partial success only. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B], which details the MBE participation I have achieved.

I request a partial waiver as follows:

- Waiver of overall MBE subcontract participation goal: ____ %
- Waiver of MBE subcontract participation subgoals, if applicable:
  - ____ % for certified African American-owned businesses and
  - ____ % for certified Asian American-owned businesses.

Within 10 days of being informed that I am the apparent awardee, I will submit *MBE Waiver Documentation* [Attachment F] (with supporting documentation).

or

3 ☐ After having made a good faith effort to achieve the overall MBE goal and MBE subgoals for this project, I am unable to achieve any portion of the goal or subgoals. I submit with this Affidavit [Attachment A] the *MBE Participation Schedule* [Attachment B].

I request a full waiver.

Within 10 days of being informed that I am the apparent awardee, I will submit *MBE Waiver Documentation* [Attachment F] (with supporting documentation).

Part III.

I understand that if I am the apparent awardee or conditional awardee, I must submit **within 10 working days** after receiving notice of the potential award or within 10 days after the date of conditional award – whichever is earlier – the:

- *Outreach Efforts Compliance Statement* (Attachment C)
- *Subcontractor Project Participation Statement* (Attachment D)
- *Minority Subcontractors Unavailability Certificate* (Attachment E) (if applicable)
- Any other documentation the Procurement Officer requires to ascertain my responsibility in connection with the MBE participation goal and subgoals

I acknowledge that if I fail to timely return complete documents, the Procurement Officer may determine that I am not responsible and therefore not eligible for contract award. If the contract has been awarded, the award is voidable.

I acknowledge that the MBE subcontractors/suppliers listed in the *MBE Participation Schedule* and any additional MBE subcontractor/suppliers identified in the *Subcontractor Project Participation Statement* will be used to accomplish the percentage of MBE participation that I intend to achieve.

In the solicitation of subcontract quotations or offers, MBE subcontractors were provided the same information and amount of time to respond as were non-MBE subcontractors.

The solicitation process was conducted in such a manner so as to not place MBE subcontractors at a competitive disadvantage to non-MBE subcontractors.

I solemnly affirm under the penalties of perjury that this Affidavit is true to the best of my knowledge, information, and belief.

_____	_____
Bidder/Offeror Name	Affiant Signature
_____	_____
Address	Printed Name & Title
_____	_____
Address (continued)	Date

October 2017

ATTACHMENT B
MBE PARTICIPATION SCHEDULE REVISED

This document must be included with the bid or offer. If the bidder or offeror fails to submit this form with the bid or offer as required, the procurement officer shall deem the bid non- responsive or shall determine that the offer is not reasonably susceptible of being selected for award.

1. Prime Contractor's Name	**2. Prime Contractor's Address/Telephone Number**
3. Project/School Name Middletown Elementary School	**4. Project/School Location** 201 East Green St., Middletown, MD 21769
5. LEA Name: FCPS **PSC Number:**	**6. Base Bid Amount** $ _____ **Acceptance Alternates** $ _____ **Total** $ _____

7a.
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

7b
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

7c
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

8. MBE Total Amount	**9. Total MBE Percent of Entire Contract**
10. Form Prepared by: **Name:** _____ **Title:** _____ **Date:** _____	**11. Reviewed and Accepted by Board of Edu. MBE Liaison** **Name:** _____ **Title:** _____ **Date** _____

Total MBE Participation: $ _____ _____%
Total African-American Participation: $ _____ _____%
Total Asian-American MBE Participation: $ _____ _____%
Total Other Participation: $_____ _____%

ATTACHMENT B
MBE PARTICIPATION SCHEDULE REVISED

This document must be included with the bid or offer. If the bidder or offeror fails to submit this form with the bid or offer as required, the procurement officer shall deem the bid non- responsive or shall determine that the offer is not reasonably susceptible of being selected for award.

1. Prime Contractor's Name	**2. Prime Contractor's Address/Telephone Number**
3. Project/School Name Middletown Middle School	**4. Project/School Location** 100 Martha Mason St., Middletown, MD 21769
5. LEA Name:. FCPS **PSC Number:**	**6. Base Bid Amount** $ _____ **Acceptance Alternates** $ _____ **Total** $ _____

7a.
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

7b
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

7c
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

8. MBE Total Amount	**9. Total MBE Percent of Entire Contract**
10. Form Prepared by: Name: _____ Title: _____ Date: _____	**11. Reviewed and Accepted by Board of Edu. MBE Liaison** Name: _____ Title: _____ Date _____

Total MBE Participation: $ _____ _____%
Total African-American Participation: $ _____ _____%
Total Asian-American MBE Participation: $ _____ _____%
Total Other Participation: $_____ _____%

ATTACHMENT B
MBE PARTICIPATION SCHEDULE REVISED

This document must be included with the bid or offer. If the bidder or offeror fails to submit this form with the bid or offer as required, the procurement officer shall deem the bid non- responsive or shall determine that the offer is not reasonably susceptible of being selected for award.

1. Prime Contractor's Name	**2. Prime Contractor's Address/Telephone Number**
3. Project/School Name Thurmont Middle School	**4. Project/School Location** 408 East Main St., Thurmont, MD 21788
5. LEA Name:. FCPS **PSC Number:**	**6. Base Bid Amount** $ _____ **Acceptance Alternates** $ _____ **Total** $ _____

7a.
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

7b
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

7c
Minority Firm Name: _____
Minority Firm Address: _____ **Telephone Number:** _____
MDOT Firm Certification Number: _____ **NAICS Code:** _____
□African American □ Asian American □ Native American □ Women □ Hispanic □ Disabled

Subcontractor Firm (Select One)	Allowable Percentage	Percentage of Total Contract	Subcontractor Dollar Amount	Participation Amount
MDOT Certified Firm	100%		$	$
MDOT Certified Prime Contractor	50% of established goal OR 100% of one subgroup contract subgoal		$	$
MDOT Certified Supplier, Wholesaler and Regular Dealer	60%		$	$

8. MBE Total Amount	**9. Total MBE Percent of Entire Contract**
10. Form Prepared by: **Name:** _____ **Title:** _____ **Date:** _____	**11. Reviewed and Accepted by Board of Edu. MBE Liaison** **Name:** _____ **Title:** _____ **Date** _____

Total MBE Participation: $ _____ _____%
Total African-American Participation: $ _____ _____%
Total Asian-American MBE Participation: $ _____ _____%
Total Other Participation: $_____ _____%

FREDERICK COUNTY PUBLIC SCHOOLS	Reg. No. 200-08
Subject: MINORITY BUSINESS ENTERPRISE PROCEDURES	**Issued:** 6/7/85
Preparing Office: Office of the Superintendent	**Amended:** 12/22/17

I. Policy 202.5

II. Procedures
MBE PROCEDURES FOR STATE-FUNDED PUBLIC SCHOOL CONSTRUCTION PROJECTS

BACKGROUND

In 1978, the Maryland General Assembly passed legislation, which was signed into law to establish the State's Minority Business Enterprise Program. This new law set as a goal that at least 10 percent of each unit of State government's total dollar value of procurement contracts for purchases and/or contracts is awarded to minority business enterprises. This law was subsequently modified and the goal was increased to 14 percent. More recently, in 2001, the goal was increased to 25 percent with subcontracting sub-goals of 7 percent for certified African American-owned businesses and 10 percent for certified women-owned businesses.

In 1979, the Rules, Regulations, and Procedures for the Administration of the School Construction Program were revised by the Board of Public Works to require each local board of education to adopt procedures to attempt to include minority business enterprises in State funded school construction projects. The State law was revised and now states: "The Interagency Committee on School Construction (IAC) shall require each local board of education to adopt procedures consistent with this chapter before obtaining funds for public school construction projects".

In May 2007, the Rules, Regulations, and Procedures were replaced by formal state regulations. The regulations concerning project procurement (COMAR 23.03.03) indicate that the State's minority business enterprise goals and procedures apply to all State funded projects, irrespective of procurement method.

In July 2011, a Sub-Goal Directive was issued by the Governor's Office of Minority Affairs (GOMA). This Directive established the process for setting contract by contract sub-goals. Sub-goals consistent with demonstrated underrepresentation were pre-established within the Directive.

OVERVIEW

This Minority Business Enterprise (MBE) procedure document was originally developed in response to a requirement set forth in the Rules, Regulations, and Procedures for the Administration of the School Construction Program. The MBE requirement was initially established under House Bill (HB) 64, which was passed in the 1978 session of the Maryland General Assembly and signed into law as Chapter 575 of the Acts of 1978.

Since the Board adopted its original Minority Business Enterprise Procedures, there have been changes in State statutes, regulations adopted by the Board of Public Works, procedural requirements, project eligibility requirements and the sub-goals to be set for school construction projects. This revised procedure is consistent with current legislation and the changes to the Code of Maryland Regulations (COMAR) requirements.

The revised procedures issued by GOMA in July 2011 provide guidance for establishing overall goals that are contract-specific and reasonable, and for setting sub-goals only on contracts that actually have subcontracting opportunities. The procedures for setting overall MBE goals have not changed, however once the overall goal is decided by the Procurement Review Group (PRG), the sub-goal analysis must be completed for contracts that have a total potential MBE participation over a minimum threshold amount, as defined for specific Major Industry Categories.

All activities funded through the Public School Construction Program (PSCP) fall within Construction in the Major Industry Categories. In place of the original goals of 7 percent for African American-owned businesses and 10 percent for certified women-owned businesses, the sub-goals for construction are now 7 percent for African American-owned businesses and 4 percent for Asian American-owned businesses. Sub-goals are not to be set for other minority groups which may be represented in the overall contract goal.

1.0 PURPOSE

The purpose of these procedures is to fulfill the intent of the law and the guidelines issued by GOMA by setting appropriate goals for minority business enterprise participation in every contract that includes State funding through the PSCP. Local Educational Agencies (LEAs) shall attempt to achieve the result that a minimum of 25 percent of the total dollar value of all construction contracts is made directly or indirectly with certified minority business enterprises when State PSCP funds are utilized, with a minimum of 7 percent from certified African American-owned businesses, a minimum of 4 percent from certified Asian American-owned businesses, and the balance from any certified minority business enterprises. All general contractors, including certified MBE firms, when bidding as general or prime contractors are required to attempt to achieve the MBE subcontracting goals from certified MBE firms.

2.0 EFFECTIVE DATE

These procedures have been adopted for use in Frederick County and supersede previously utilized MBE procedures, in accordance with Title 14, §3, State Finance and Procurement Article.

Note: All current attachments required for MBE participation can be found on the Public School Construction website: http://www.pscp.state.md.us/programs/mbe/mbeindex.cfm

3.0 DEFINITIONS

1. **Certification** means the determination that a legal entity is a minority business enterprise consistent with the intent of Subtitle 3 of the State Finance and Procurement Article.

2. **Certified Minority Business Enterprise** means a minority business that holds a certification issued by the Maryland State Department of Transportation (MDOT).

3. **Corporation**, as defined by MDOT, is an artificial person or legal entity created by or under the authority of the laws of any state of the United States, the District of Columbia or a territory or commonwealth of the United States and formed for the purpose of transacting business in the widest sense of that term, including not only trade and commerce, but also manufacturing, mining, banking, insurance, transportation and other forms of commercial or industry activity where the purpose of the organization is profit. For eligibility for certification, disadvantaged and/or minority individuals must own at least 51 percent of the voting stock and at least 51 percent of the aggregate of all classes of stock that have been issued by the corporation. (Note: stock held in trust is not considered as stock held by the disadvantaged businesspersons when computing the business person(s) ownership.)

4. **Managerial Control**, as defined by MDOT, means that a disadvantaged or minority owner(s) has the demonstrable ability to make independent and unilateral business decisions needed to guide the future and destiny of a business. Control may be demonstrated in many ways. For a minority owner to demonstrate control, the following examples are put forth, but are not intended to be all inclusive:

   a. Articles of Incorporation, Corporate Bylaws, Partnership Agreements and other agreements shall be free of restrictive language which would dilute the minority owner's control thereby preventing the minority owner from making those decisions which affect the destiny of a business;

   b. The minority owner shall be able to show clearly through production of documents the areas of the disadvantaged business owner's control, such as, but not limited to:

      1) Authority to sign payroll checks and letters of credit;
      2) Authority to negotiate and sign for insurance and/or bonds;
      3) Authority to negotiate for banking services, such as establishing lines of credit; and

4) Authority to negotiate and sign for contracts.

c. Agreements for support services that do not lessen the minority owner's control of the company are permitted as long as the disadvantaged or minority business owner's authority to manage the company is not restricted or impaired.

5. **Minority Business Enterprise** (MBE) means any legal entity, except a joint venture, that is (a) organized to engage in commercial transactions, and (b) at least 51 percent owned and controlled by one or more individuals who are socially and economically disadvantaged including: African Americans; American Indian/Native Americans; Asians; Hispanics; Physically or mentally disabled individuals; or, Women.

6. **Minority Business Enterprise Liaison** means the employee of the LEA designated to administer the Minority Business Enterprise Procedures for State funded public school construction projects.

7. **Operational Control, as defined by MDOT**, means that the disadvantaged or minority owner(s) must possess knowledge necessary to evaluate technical aspects of the business entity. The primary consideration in determining operational control and the extent to which the disadvantaged or minority owner(s) actually operates a business will rest upon the specialties of the industry of which the business is a part. The minority owner should have a working knowledge of the technical requirements needed to operate in his/her industry. Specifically, in the construction industry and especially among small (one to five person firms) contractors, it is reasonable to expect the disadvantaged or minority owner(s) to be knowledgeable of all aspects of the business. Accordingly, in order to clarify the level of operational involvement which a minority owner must have in a business for it to be considered eligible, the following examples are put forth, but are not intended to be all inclusive:

   a. The minority owner should have experience in the industry for which certification is being sought; and

   b. The minority owner should demonstrate that basic decisions pertaining to the daily operations of the business are independently made. This does not necessarily preclude the disadvantaged or minority owner(s) from seeking paid or unpaid advice and assistance. It does mean that the minority owner currently must possess the knowledge to weigh all advice given and to make an independent determination.

8. **Ownership**, as defined by MDOT, means that:

   a. The minority owner(s) of the firm shall not be subject to any formal or informal restrictions, which limit the customary discretion of the owner(s). There shall be no restrictions through, for example, charter requirements, by-law provisions, partnership agreements, franchise or distributor agreements or any other agreements that prevent the minority owner(s), without the cooperation or vote of any non-minority, from making a business decision of the firm.

   b. This means that the disadvantaged or minority persons, in order to acquire their ownership interests in the firm, have made real and substantial contributions of capital, expertise or other tangible personal assets derived from independently owned holdings without benefit of a transfer of assets, gift or inheritance from non-minority persons. Examples of insufficient contributions include a promise to contribute capital, a note payable to the firm or its owners who are not minority persons or the mere participation as an employee rather than as a manager. If the ownership interest held by a disadvantaged or minority person is subject to formal or informal restrictions, such as options, security interests, agreements, etc., held by a non-minority person or business entity, the options, security interests, agreements, etc., held by the non-minority person or business entity must not significantly impair the disadvantaged or minority person's ownership interest.

9. **Partnership** means an unincorporated association of two or more persons to carry on as co-owners of a business for profit. For a partnership to be deemed eligible for certification under the MDOT Program, the disadvantaged or minority person's interest must be at least 51 percent of the partnership capital.

10. **Disadvantaged Business Enterprise (DBE)** means a citizen or lawfully admitted permanent resident of the United States who is socially disadvantaged and economically disadvantaged. The law establishes the level of personal net worth at $1,500,000, adjusted annually for inflation according to the Consumer Price Index (CPI); above this net personal worth figure, an individual may not be found to be socially and economically disadvantaged. The current personal net worth (PNW) figure can be found on the MDOT website at: http://www.mdot.maryland.gov/Office%20of%20Minority%20Business%20Enterprise/Resources%20Information.

11. **Sole Proprietorship**, as defined by MDOT, is a for-profit business owned and operated by a disadvantaged or minority person in his or her individual capacity. For a sole proprietorship to be deemed eligible for certification under the DBE/MBE Program, the disadvantaged or minority person must be the sole proprietor.

12. **Days** mean business days unless otherwise specified. Business days are defined as Monday through and including Friday, with the exception of Nationally or State recognized holidays.

13. **Regular Dealer** is defined to be a firm that owns, operates, or maintains a store, warehouse, or any other establishment in which materials, supplies, articles, or equipment are of the general character described by the specifications required under the contract and are bought, kept in stock, or regularly sold or leased to the public in the usual course of business. A "regular dealer" does not include a packager, broker, manufacturer's representative, or any other person that arranges or expedites transactions.

4.0 MBE GOAL SETTING PROCEDURES

1. General

   a. The overall MBE goal and the sub-goals, if appropriate, are established on a per-contract basis for the purposes of solicitation.

      1) Where a project consists of more than one contract, the individual contract goals and sub-goals, if appropriate, should reflect the overall project goal and sub-goals.

      2) The words "if appropriate" and "if applicable" throughout this document reflect the understanding that for some solicitations, no African American or Asian American sub-goals should be established.

   b. The MBE program requires that all race-neutral measures be considered before making use of race-based measures. Using a combination of race-neutral and race-based measures for each specific school construction project will help ensure that certified MBE firms are afforded the opportunity to submit bids and be utilized to the greatest extent possible.

      1) *Race-neutral measures* include any action taken by the LEA to make it easier for all contractors, including MBEs, to compete successfully for public school construction project contracts. These might include widespread advertising of bidding opportunities, job fairs, and similar publicity events.

      2) *Race-based measures* include setting an overall MBE goal and MBE sub-goals, if appropriate, based upon race, gender, ethnicity, etc., for a specific contract.

2. General Considerations for Setting MBE Goal and Sub-goal. The overall MBE goal and the sub-goals, if appropriate, should be set for each specific project contract, considering but not limited to, the following factors:

   a. The extent to which the work to be performed can reasonably be segmented to allow for MBEs to participate in the project contract;

   b. A determination of the number of certified MBEs that potentially could perform the identified work;

c. The geographic location of the project in relationship to the identified certified MBEs;

d. Information obtained from other state and local departments/agencies related to establishing a MBE goal and/or sub-goals for similar construction projects or work in the jurisdiction;

e. A State agency may apply only 60% of the cost of materials and supplies provided by a regular dealer that is a certified MBE toward achieving an MBE contract goal. For materials or supplies purchased from a certified MBE that is neither a manufacturer nor a regular dealer, only the fees, commissions, or transportation charges related to the purchase can be counted toward achieving the MBE contract goal, if the agency determines that they are reasonable and not excessive; the actual cost of materials and supplies cannot be counted toward the MBE contract goals.

f. Information obtained from other state and local departments/agencies related to MBE participation in similar construction projects or work in the jurisdiction; and

g. Any other activities or information that may be identified as useful and productive.

h. Procurement agencies may not use quotas.

i. Procurement agencies may not use any project goal-setting process that:

1) Solely relies on the State's overall percentage goal, or any other jurisdiction's overall percentage goal; or

2) Fails to incorporate an analysis of:

- The potential subcontract opportunities available in the prime procurement contract;
- The availability of certified MBEs to respond competitively to the potential subcontract opportunities;
- Guidelines established by GOMA; and
- Other factors that contribute to constitutional goal setting.

3. MBE Sub-goal Setting Procedure:

a. Once an overall MBE participation goal is set for a project contract, each unit shall determine the appropriate contract sub-goals.

b. If the expected value of the procurement is not equal to or in excess of $200,000, the Sub-goal process is discretionary.

c. All State funded public school construction is classified as Construction in the Major Industry Category schedule established by regulation.

1) Accordingly, sub-goals for school construction projects receiving State funding participation apply to the following Subgroups:

- African American: 7%
- Asian American: 4%

2) Dually certified firms are to be counted as being owned by a member of the relevant ethnic Subgroup, not as a woman-owned business.

d. Sub-goals shall only be set when the overall goal is greater than or equal to the sum of the sub-goals listed in subsection 3.c.1 of this section, plus two percent (2%), i.e., the overall goal must be at least 13%; otherwise, no sub-goals may be established for the contract.

e. A sub-goal may not be set if the number of certified firms in the Subgroup is less than three (3).

f. If the Subgroup has three (3) or more certified firms available to perform the work, the Recommended Sub-goal should be set at the number specified above, unless a basis is provided in the Procurement Review Group documentation for not applying the specified sub-goal.

g. For each procurement that has an overall goal, the MBE Program Sub-goal Worksheet (Appendix I) shall be completed and signed by the LEA Procurement Officer and MBE Liaison.

4. The Superintendent or designee shall establish one or more procurement review groups (PRG). The PRG must include at a minimum the MBE liaison and the Procurement Officer (PO) or a representative from the procurement office. The PRG could also include a capital improvement project manager, the project architect, the cost estimator, the Construction Manager, and/or other individuals selected by the Superintendent or designee.

   a. The PRG should communicate and/or meet as needed to consider the subcontracting goal and sub-goals, if applicable, for individual projects or groups of projects.

   b. The PRG should consider the factors cited in 4.0, subsection 2, when establishing the MBE goal and sub-goals, if applicable, for each project or segmented piece of a project that are reasonable and attainable.

   c. The PRG must complete and submit a written analysis for each state funded school construction project with an estimated cost that is expected to exceed $200,000.

      1) For state-funded projects that required review of construction documents, the written analysis and the MBE Program Worksheet (Appendix I) shall be submitted with the construction documents to the Department of General Services (DGS), and will be reviewed by the DGS for submission, appropriate signatures and correspondence between the goal and sub-goals, if applicable, indicated in the analysis and those of the procurement documents.

      2) For state-funded projects that do not require review of construction documents, the written analysis and the MBE Program Worksheet shall be submitted to the PSCP, and will be reviewed for submission and appropriate signatures.

      3) For locally funded projects that are anticipating to be requested for state approval of planning and funding, the written analysis and the MBE Program Worksheet shall be submitted with construction documents to the Maryland State Department of Education (MSDE), and will be reviewed for submission, appropriate signatures, and correspondence between the goal and sub-goals, if applicable, indicated in the analysis and those of the procurement documents. Submission of the documents is a pre-condition for recommendation for state approval of planning and funding when submitted in an annual CIP.

      4) If the project cost is estimated to exceed $200,000 then a copy of the written analysis shall also be sent to GOMA at the same time that the written analysis is submitted to the DGS or the PSCP

   d. For projects estimated to cost between $50,000 and $200,000 the same analysis form is to be completed and submitted. This could be a responsibility of the PRG, but could be performed by others as well.

      1) For state-funded projects that require review of construction documents, the written analysis and the MBE Program Worksheet shall be submitted with the construction documents to the DGS, and will be reviewed for submission, appropriate signatures, and correspondence between the goal and sub-goals, if applicable, indicated in the analysis and those of the procurement documents.

      2) For state-funded projects that do not require review of construction documents, the written analysis and the MBE Program Worksheet shall be submitted to the PSCP and will be reviewed for submission and appropriate signatures.

   e. The PRG should consult with local counsel for the Board of Education as needed.

5. It is recognized that by utilizing the factors cited in Section 4.0, subsection 2, the MBE goal and/or sub-goals, if applicable, for a specific project or portion thereof may be significantly higher than the overall goals of the program (25% overall, with 7% from African American-owned businesses and 4% from Asian American-owned businesses). It is also recognized and possible that there will be MBE goals set that are lower than those stated above or even that no MBE goal and/or sub-goals will be set for a specific project or the segmented piece of the project.

6. Assistance in reviewing the factors cited above and setting a goal and/or sub-goals, if applicable, for specific projects or a segmented piece of a project can be obtained by contacting the PSCP and/or GOMA.

5.0 IMPLEMENTING PROCEDURES - $50,000 OR LESS

For construction projects estimated to cost $50,000 or less, the following procedures will be utilized:

1. A MBE goal and/or MBE sub-goals are not required to be set for contracts that are anticipated to be for $50,000 or less.

2. All advertisements, solicitations, and solicitation documents shall include the following statement:

   a. "Certified Minority Business Enterprises are encouraged to respond to this solicitation."

3. To encourage greater MBE participation, the staff of the LEA should send out notices of potential projects and a specific project to MBEs to solicit bids or proposals directly from minority business enterprise contractors that are certified.

4. A copy of the solicitation notice, preferably electronically, shall be sent to GOMA at the same time the advertisement for the solicitation is released.

5. When a pre-bid or pre-proposal conference or meeting is held, the MBE liaison or designated representative shall explain that all bidders or offerors are encouraged to utilize certified MBEs for this project or segments of the project.

6. FCPS provides current solicitation packages on the FCPS website: http://www.fcps.org/bidlist. Large solicitation packages that contain drawings are available thru a third party electronic plan room.

7. Minority Business Enterprise forms identified in Section 6.0 of this procedure for projects over $50,000, are not required to be submitted for these projects ($50,000 or less).

8. The names of prime contractors obtaining drawings and specifications will be shared with certified MBEs and MBE associations, upon request.

9. At the time of the contract award, the MBE Liaison or a designated person will record any anticipated certified minority business enterprise participation data made available from the successful contractor.

10. A business that presents itself as a minority business may participate in a project but may not be counted toward MBE participation until it is a certified minority business enterprise. If the MBE is not certified at the time of contract award, it may not be counted at that time. Only the funds paid after MDOT certification can be counted as MBE participation in the project. If a certified MBE fails to meet the standards specified in State Finance and Procurement Article14-301 (F) and (J), Annotated Code of Maryland, the payments made to the MBE can be recorded and counted under a contract entered into when the MBE was eligible and certified. Ineligibility of an MBE to participate in the MBE program may not be the sole cause of the termination of the MBE contractual relationship for the remainder of the term of the contract.

11. The contractor will complete the Standard Monthly Contractor's Requisition for Payment (IAC/PSCP Form 306.4), specifically page 3 of 16, Minority Business Enterprise Participation, with each requisition submitted for payment. If certified MBE firms are known at the time of contract award, their names and other appropriate information should be entered on page 3 of the first and all subsequent requisitions for payment. Any MBEs identified during the life of the project should be added as soon as the contractor engages them after approval by the LEA.

12. Upon completion of the project, the contractor will provide a summary of the total of all funds paid to certified MBE firms. This should be within the contractor's final requisition for payment. The summary shall be forwarded to the PSCP with the close-out paperwork.

6.0 IMPLEMENTING PROCEDURES - Over $50,000

For construction projects estimated to cost in excess of $50,000, the following procedures will be utilized:

1. All advertisements, solicitations, and solicitation documents shall include the following statements:

   a. "Certified Minority Business Enterprises are encouraged to respond to this solicitation notice."

   b. "The contractor or supplier who provides materials, supplies, equipment and/or services for this construction project shall attempt to achieve the specific overall MBE goal of __ percent established for this project. All prime contractors, including certified MBE firms, when submitting bids or proposals as general or prime contractors, are required to attempt to achieve this goal from certified MBE firms."

   c. If sub-goals have been established for this project then one of the following should be included:

      1) "The sub-goals established for this project are __ percent from African American-owned businesses and __ percent from Asian American-owned businesses."

      2) "The sub-goal established for this project is __ percent from African American-owned businesses."

      3) "The sub-goal established for this project is __ percent from Asian American-owned businesses."

   d. "The bidder or offeror is required to submit with its bid or proposal a completed form "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" as described in the solicitation documents.

   e. If there are no overall MBE goal or MBE sub-goals established for the project, then only 1.A. above is to be included.

2. Other Advertisement and Outreach Requirements:

   a. To encourage greater MBE participation the staff of the LEA should send out notices of potential projects to MBEs or solicit bids or proposals directly from minority business enterprise contractors that are certified.

   b. A copy of the solicitation notice, preferably electronically, shall be sent to GOMA at the same time the advertisement for the solicitation is released.

   c. FCPS provides solicitation packages on the FCPS website: http://www.fcps.org/bidlist. Large solicitation packages that contain drawings are available thru a third party plan room.

   d. When a pre-bid or pre-proposal conference is held, the MBE Liaison or designated representative shall explain the MBE goal and sub-goals, if applicable; the MBE provisions of the solicitation; the documentation required at the time of submission; its relationship to the responsiveness of the bidder or offeror; how to complete the required schedules, and additional information and supporting documentation that may be required after the bid or proposal opening. All contractors who attend the pre-bid or pre-proposal conference should receive a list or information explaining how to obtain a listing of certified MBE firms who could perform the work or have expressed an interest in performing the school construction work required for the specific project in the jurisdiction.

   e. The names of prime contractors obtaining drawings and specifications will be shared with certified MBEs and MBE associations, upon request.

f. The MBE liaison, in conjunction with the procurement officer or project staff, should respond to all applicable questions and concerns relating to the project's MBE requirements, completely and in a timely fashion, to ensure that all potential contractors and subcontractors can compete effectively.

3. All Solicitation Documents Shall Include the Following:

a. "Certified Minority Business Enterprises are encouraged to respond to this solicitation notice". "All contractors, including certified MBE firms, when submitting bids or proposals as prime contractors are required to attempt to achieve the MBE goal and sub-goals, if applicable, established for the project from certified MBEs".

b. "The contractor or supplier who provides materials, supplies, equipment and/or services for this construction project shall attempt to achieve the result that a minimum of __ percent of the total contract value is with certified Minority Business Enterprises, with a minimum of __ percent from certified African American-owned businesses, a minimum of __ percent from certified Asian American-owned businesses, and the balance from any certified Minority Business Enterprises. All contractors, including certified MBE firms, when submitting bids or proposals as prime contractors, are required to attempt to achieve the MBE goal and sub-goals, if applicable, from certified MBEs". Note: see 6.1.C. above for variations that may be required.

c. Each bid or offer submitted, including a submittal from a certified minority business enterprise in response to this solicitation, shall be accompanied by a completed "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" and a completed "MBE Participation Schedule". These two forms must be accurate and consistent with each other.

1) The forms shall be submitted with the sealed bid price or proposal at a place, date, and time specified in the solicitation document.

2) As an alternative, and at the discretion of the school system, the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" could be submitted with the sealed bid price or proposal at a place, date, and time specified in the solicitation document. The sealed bids or proposals received by the time specified could be held, unopened for a maximum of 30 minutes. Within that time (30 minutes) each bidder or offeror must submit the "MBE Participation Schedule" in a separate sealed envelope. The sealed price envelopes from each bidder or offeror who submits both the sealed bid or proposal and the envelope with "MBE Participation Schedule" will then be opened and reviewed and recorded as a viable submission. Any contractor that fails to submit the second envelope, with the "MBE Participation Schedule", prior to the specified time allowed (30 minutes) after the submittal of the sealed bid or proposal will be deemed non-responsive and the sealed bid or proposal will not be opened or considered.

d. The submittal of a completed and signed "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" and a completed and signed "MBE Participation Schedule" indicates the bidder's or offeror's recognition and commitment to attempt to achieve the MBE goal and/or MBE sub-goals, if applicable, for the specific project.

1) The bidder or offeror recognizes that their efforts made to initiate contact, to solicit, and to include MBE firms in this project will be reviewed carefully and evaluated based upon the actions taken by them prior to and up to 10 business days before the bid or proposal opening. Follow-up actions taken by the bidder or offeror within the 10 business days prior to the bid opening will also be considered.

2) Based upon this review and evaluation it will be determined, by the MBE liaison, procurement officer, or a designated person, if a good faith effort was made by the apparent low bidder or apparent successful offeror.

e. The bidder or offeror must check one of the three boxes on the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" which relates to the level of MBE participation achieved for the project. The bidder's or offeror's signature indicates that in the event that they did not meet the MBE goal or sub-goals, if applicable, that:

1) They are therefore requesting a waiver, and

2) Documentation of their good faith efforts will be provided to the school system staff within 10 business days of being notified that they are the apparent low bidder or apparent successful offeror.

f. The bidder or offeror must submit the "MBE Participation Schedule" (as and when described above), which lists and provides information related to each certified MBE firm that the bidder or offeror will utilize on this project. A completed and accurate "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" is required. All of the work specified to be performed by each MBE firm, MDOT certification number, minority type, and percentages must be correct.

g. The "MBE Participation Schedule" should be completed and submitted with all calculations utilizing the base bid or offer only. A revised "MBE Participation Schedule" should be submitted by the successful bidder or offeror once a determination is made as to the acceptance and/or rejection of any alternates.

h. If a request for a waiver has been made, the appropriate box on the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" has been checked and the form signed, then the LEA should obtain and review the apparent low bidder's or successful offeror's supporting documentation of the good faith efforts to justify the granting of the waiver, prior to submitting the contract award for approval to the board of education.

i. The following documentation shall be considered as part of the contract, and shall be furnished by the apparent low bidder or successful offeror to the MBE Liaison or designated person, within ten (10) business days from notification that the firm is the apparent low bidder or successful offeror:

1) A completed and signed "Outreach Efforts Compliance Statement" and "Minority Business Enterprise Subcontractor Project Participation Statement". One "Minority Business Enterprise Subcontractor Project Participation Statement" shall be completed and signed by the prime contractor and each MBE firm listed on the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit".

2) Notification for purposes of this procedure means the earliest of the following methods of communication: orally in person, orally by telephone, orally by a telephone message, a faxed communication, a letter by date received or an electronic communication.

3) The ten (10) business days do not include the day the notification is received, weekends or holidays (State or Federal), but the material submitted must be received by the close of business on the tenth day.

4) The requirement to submit the above-listed documentation within the time frame specified will be considered by the IAC in its review of the request for contract award for the project. Failure to submit the required documentation within the time frame specified may result in a delay of the approval of the award of the contract, or the materials being returned without the approval of the award of the contract.

4. Waiver Procedures:

a. If the apparent low bidder or successful offeror has determined that they are unable to meet the overall MBE goal or sub-goals, if applicable, for the project at the time of submission of a bid or offer, they must check either of the three boxes on the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit". The signature recognizes and acknowledges that a request for a waiver is being made. The apparent low bidder or successful offeror will therefore be required

to submit information and substantiating documentation that will be reviewed to justify the granting of a waiver.

b. If the apparent low bidder or successful offeror is unable to achieve the overall MBE contract goal and/or the MBE sub-goals, if applicable, from certified African American-owned businesses and/or from certified Asian American-owned businesses, the apparent low bidder or successful offeror shall submit, within 10 working days from notification that the firm is the apparent low bidder or successful offeror, a completed "Outreach Efforts Compliance Statement", "Minority Subcontractors Unavailability Certificate" and "MBE Waiver Documentation" which shall include the following:

1) A detailed statement of the efforts made by the bidder or offeror to identify and select portions of the work proposed to be performed by subcontractors in order to increase the likelihood of achieving the stated goal;

2) A detailed statement of the efforts made by the bidder or offeror prior to and <u>at least ten (10) days before the bid or proposal opening</u> to solicit minority business enterprises through written notices that describe the categories of work for which subcontracting is being solicited, the type of work to be performed and specific instructions on how to submit a bid or proposal;

3) Follow-up actions taken by the bidder or offeror within the 10 days prior to the bid or proposal opening will also be considered;

4) A detailed statement of the contractor's efforts to make personal contact with MBE firms identified for item (2) above;

5) A record of the name, address, telephone number and dates contacted for each MBE identified under items (2) and (3) above;

6) A description of the information provided to MBEs regarding the drawings, specifications and the anticipated time schedule for portions of the work to be performed;

7) Information on activities to assist minority business enterprises to fulfill bonding requirements or to obtain a waiver of these requirements;

8) Information on activities to publicize contracting opportunities to minority business enterprises, attendance at pre-bid meetings or other meetings scheduled by the MBE Liaison or designated representative; and

9) As to each MBE that placed a subcontract quotation or offer which the apparent low bidder or successful offeror considers not to be acceptable, a detailed statement of reasons for this conclusion.

c. In addition, to any waiver documentation, the apparent low bidder or successful offeror shall submit one completed "Minority Business Enterprises Subcontractor Project Participation Statement" for each MBE firm that will participate in the project consistent with the information previously provided at the time of the submission of the "MBE Participation Schedule" or the revised "MBE Participation Schedule".

d. A waiver of an MBE contract goal or sub-goal, if applicable, may be granted by the LEA only upon receipt of "Outreach Efforts Compliance Statement", "Minority Subcontractor Unavailability Certificate" and "MBE Waiver Documentation" as described above in 4. b. items 1 through 9.

1) The MBE Liaison will review and accept or reject the minority business enterprise material that is submitted, and could obtain legal advice or assistance from their attorney.

2) The MBE waiver request may not be considered unless all of the documentation specified above has been submitted in a timely fashion by the apparent low bidder or successful offeror.

3) Assistance in the review of a request for a waiver (the documentation and justifications) may be requested from the Public School Construction Program and/or the Governor's Office of Minority Affairs.

4) If a determination is made that the apparent low bidder or successful offeror did make a good faith effort, based upon a review of the documentation submitted, then the waiver must be granted. The award of contract shall then be made. The material and information submitted including the LEA's review and analysis notes and conclusion shall be retained in the project file.

5) If a determination is made that the apparent low bidder or successful offeror did not make a good faith effort, based upon a review of the documentation submitted, then the waiver should not be granted. The material and information submitted including the LEA's review and analysis notes and conclusion shall be retained in the project file. The award of contract shall then be made to the next lowest bidder or offeror, who meets the contractual requirements, including the MBE requirements.

6) When a waiver is granted, a copy of "MBE Waiver Documentation" accepted and signed by a LEA representative and with the reasons for the determination, shall be forwarded to the Governor's Office of Minority Affairs and the Public School Construction Program within 10 days after approval of the contract award by the Board of Education. Failure to submit the required documentation within the time frame specified may result in delayed approval of the award of contract by the IAC.

5. All Contracts Shall Include The Following:

a. *The contractor shall perform the contract in accordance with the representations made in the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" and the "MBE Participation Schedule" submitted as part of the bid or proposal.*

b. *Failure to perform the contract as specified and presented in the bid or proposal submission without prior written consent of the owner shall constitute a violation of a material term of the contract.*

1) The contractor shall structure his/her operations for the performance of the contract to attempt to achieve the MBE goals as stated in the solicitation document.

2) The contractor agrees to use his/her best efforts to carry out these requirements consistent with the efficient and effective performance of the contract.

3) The contractor must ensure that all certified MBEs shall have the maximum practical opportunity to compete for additional subcontract work under the contract, even after the award of the contract.

4) The contractor shall submit monthly to the MBE Liaison or the s LEA's designated representative a report listing any unpaid invoices, over 30 days old, received from any certified MBE subcontractor, the amount of each invoice and the reason payment has not been made.

5) The contractor shall include in its agreements with its certified MBE subcontractors, a requirement that those subcontractors submit monthly to the MBE Liaison or appropriate representative a report that identifies the prime contract and lists all payments received from the contractor in the preceding 30 days, as well as any outstanding invoices, and the amount of those invoices.

6) The contractor shall cooperate in any reviews of the contractor's procedures and practices with respect to minority business enterprises, which the MBE Liaison, the PSCP, and/or GOMA may, from time to time, conduct.

7) The contractor shall maintain such records as are necessary to confirm compliance with its MBE participation obligations. These records must indicate the identity of certified minority and non-minority subcontractors employed on the contract, the type of work performed by each, and the actual dollar value of work performed. Subcontract agreements documenting the work performed by all MBE participants must be retained by the contractor and furnished to the MBE Liaison and or appropriate representative on request.

8) All records concerning MBE participation must be retained by the contractor for a period of five years after final completion of the contract, and will be available for inspection by the MBE Liaison, representatives from the PSCP and/or other designated official entities.

9) At the option of the MBE Liaison, or appropriate agency representative, upon completion of the contract and before final payment and/or release of retainage, the contractor shall submit a final report in affidavit form and under penalty of perjury, of all payments made to, or withheld from MBE subcontractors.

10) If at any time after submission of a bid or proposal and before execution of a contract, the apparent successful bidder or offeror determines that a certified MBE listed on its "MBE Participation Schedule" has become or will become unavailable, then the apparent successful bidder or offeror shall immediately notify the procurement officer and provide such officer with a reason(s) why the change has occurred. Any desired change in the "MBE Participation Schedule" shall be approved in advance by the procurement officer and shall indicate the contractor's efforts to substitute another certified MBE subcontractor to perform the work. Desired changes occurring after the date of contract execution may occur only upon written approval by the agency head and subsequently by contract amendment.

11) A business that presents itself as a minority business may participate in a project but the contract value may not be counted toward the MBE goal or sub-goals, if applicable, until the business is certified by MDOT. If it is not certified at the time of contract award it may not be counted toward the goal or sub-goals, if applicable, at that time. Only the funds paid after MDOT certification can be counted toward meeting the MBE goal or sub-goals, if applicable. If a certified MBE fails to meet the standards specified in State Finance and Procurement Article.14-301.1, Annotated Code of Maryland, the payments made to the MBE can be recorded and counted under a contract entered into when the MBE was eligible and certified. Ineligibility of an MBE to participate in the MBE program may not be the sole cause of the termination of the MBE contractual relationship for the remainder of the term of the contract.

12) Contractors are encouraged to seek additional MBE participation in their contracts during the life of the project. Any additional MBE participation from certified MBEs should be reported to the MBE liaison prior to initiation and should be included in subsequent monthly requisitions for payment.

13) The contractor shall complete the Certified Minority Business Participation Standard Monthly Contractor's Requisition for Payment (IAC/PSCP Form 306.4), specifically page 3 of 16, Minority Business Enterprise Participation, with each requisition submitted for payment this submittal should accurately reflect the payments to be made that month to MBEs and the cumulative total for the period specified. Any and all MBE firms that are identified on the "MBE Participation Schedule" should be included on page 3 of the first and all subsequent requisitions for payment. Any MBEs identified during the life of the project should be added as soon as the contractor engages them.

14) At the completion of the project the contractor shall prepare a written summary of the final certified MBE participation in the contract as compared to the proposed participation at the time of contract award. This should include the name of each certified MBE, the percentage and amount that was anticipated to be paid at the time of contract award, the percentage and amount actually paid, and an explanation of any differences that have occurred. Special attention should be given to any situations where the final payments to any MBE were below the level of commitment at the time of contract award. The summary shall be forwarded to the LEA with the final requisition. The LEA shall include this documentation with the submittal of the close-out paperwork to the PSCP.

6. Projects Utilizing a Construction Manager Delivery Method

This section of the procedure has been prepared based upon the utilization of Construction Manager Agency method of delivery. If another alternative method of project delivery is being considered, then these procedures would need to be adapted in consultation with the PSCP before proceeding.

a. For projects that are being designed and solicited utilizing a Construction Manager Agency delivery method with multiple prime contracts, the LEA can structure its procedures to attain the overall MBE goal and sub-goals, if applicable, for the project as presented below:

b. The MBE liaison and other LEA staff should work with the project's construction manager, cost estimator, and architect, along with any other individuals who could provide assistance, to determine the overall MBE utilization strategy for the work required, appropriate bid packages, and an appropriate overall MBE goal and sub-goals, if applicable, for each specific bid or proposal package.

c. The overall MBE goal and sub-goals, if applicable, for the project shall represent the aggregate of the individual goals and sub-goals, if applicable, set for each bid or proposal package.

d. In setting the specific goals and sub-goals, if applicable, for each solicitation package consideration should be given to the potential for MBE participation to the maximum extent possible. The information and procedures provided in section 4.0 MBE Goal Setting Procedures should be consulted and followed for these types of projects.

e. Prior to submitting the construction documents for State review and authorization to solicit bids or proposals, the LEA's representative will prepare a complete list of the individual solicitation packages and indicate the MBE goal and sub-goals, if applicable, for each solicitation package. This would include the overall MBE goal and sub-goals, if applicable, established in the solicitation documents, the estimated cost for each solicitation package, and the estimated MBE dollar amounts for each solicitation package. A copy of this list should be submitted with the construction documents. The list should be retained as a record by the LEA for comparison to the actual contracts awarded with MBE participation, and the final actual MBE participation at the completion of the project.

f. Contractors submitting bids or proposals for solicitation packages that do not include a MBE goal and sub-goals, if applicable, would not be required to submit any of the MBE schedules that are otherwise required nor would they be required to indicate that they are requesting a waiver. The LEA representative would, however, request information from the contractor at the completion of the project to determine if any certified MBE firms had participated in the contract.

g. All other submittals of MBE materials and reporting requirements are applicable for the project, including the submittal of the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" and "MBE Participation Schedule" as described above in section 6.0. This includes the documentation for a request for a waiver, if applicable and appropriate.

7. Projects Utilizing an Indefinite Delivery/Indefinite Quantity (IDIQ) or Job Order Contracting (JOC) Method of Delivery:

a. The solicitation should be prepared and the overall MBE goal and sub-goals, if applicable, established based upon the type of work that is anticipated to be specified or performed under the contract and the availability of certified MBEs. This could include an analysis of the percentages of the different types of work, the estimated dollar value in the entire contract, and the availability of MBEs.

b. If an overall goal and sub-goals, if applicable, are set the bidders or offerors would be required to submit "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" in which they could indicate their anticipated MBE participation based upon the entire contract amount and the types of work specified. The award of contract can be made based upon their estimate of MBE participation since there is no specific task order or description of work to be performed and subcontractors have not been identified or engaged through any type of commitment or subcontract.

c. Since MBE participation is only anticipated in a general sense as an objective and specific contracts to MBEs have not been signed, then the contract award would not be included in any reporting to the PSCP or subsequent reporting to GOMA.

d. However, as the contract proceeds and individual task orders and/or purchase orders are issued, the contractor should submit the "MBE Participation Schedule" for any and all projects or work where MBE subcontractors and/or suppliers might reasonably be utilized. Discussions between the contractor or offeror and the LEA as the task orders and/or purchase orders are being developed should address this aspect of the contract requirements.

e. Any MBE participation should be recorded by the MBE liaison and reported to the PSCP as the task orders and/or purchase orders are approved.

f. The contractor shall complete the Certified Minority Business Participation Standard Monthly Contractor's Requisition for Payment (IAC/PSCP FORM 306.4), specifically page 3 of 16, Minority Business Enterprise Participation, with each requisition submitted for payment. This submittal should accurately reflect the payments to be made that month to MBEs, and the cumulative total for the period specified. Any and all MBE firms that are identified on the "MBE Participation Schedule" should be included on page 3 of the first and all subsequent requisitions for payment. Any MBEs identified during the life of the project should be added as soon as the contractor engages them.

g. At the completion of the contract period or the full utilization of the contract's value a report should be prepared by the LEA MBE Liaison and submitted to the PSCP summarizing the MBE participation in each and all of the task orders or purchase orders issued under the contract. This should include the anticipated MBE participation prior to the issuance of the solicitation, the MBE participation anticipated at the time of contract award and the actual MBE participation at the completion of the contract. The summary shall be forwarded to the LEA with the final requisition. The LEA shall include this documentation with the submittal of the close-out paperwork to the PSCP.

8. Projects Utilizing the Design/Build Delivery Method:

a. The solicitation is for both A/E services and the actual construction of a public school project. The solicitation should be prepared and the MBE goal and sub-goals, if applicable, established for the construction work that is anticipated for the project. The goal setting procedures described in Section 4.0 above should be utilized for these types of projects.

b. The bidders or offerors should be required to submit "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" on which they would indicate their anticipated MBE participation based upon the construction work anticipated and their understanding of the MBE goal and sub-goals, if applicable, the types of work involved, and the availability of certified MBEs for the project. Since there are no detailed plans or designs for the project and there are no contracts or subcontracts for the actual construction work there is no need to submit any other MBE schedules, at this time.

c. If the bidder, or offeror, who is to be awarded this contract has indicated that they do not anticipate achieving the overall MBE participation goal and sub-goals, if applicable, for this project on the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" then they are in effect requesting a waiver. They will be required to submit documentation at a later date to justify this request.

d. As the project proceeds through the design phase and the project is nearing the completion of the construction documents for submission to the State to review, the Design/Build Team (team) in consultation with LEA representatives should discuss the opportunities and potential for certified MBEs to participate in the project.

e. The team should begin to identify potential contractors and subcontractors, opportunities to segment the project, and MBEs that could participate in the project.

f. At a point in time that is approximately 30 days prior to the anticipated construction document submission to the State; the team should complete and submit a revised "MBE Participation Schedule" to the LEA for their review and approval.

g. If the team had indicated on the original "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" that they would meet the goals and the information on the "MBE Participation Schedule" indicates that they did meet the goals then the team should proceed with the construction of the project.

h. If the team had indicated on the "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit" that they did not anticipate meeting the overall MBE goal and sub-goals, if applicable, or only a portion of the goal and sub-goals, if applicable, then the "MBE Participation Schedule" should be reviewed by the LEA. The team should, at this time, submit their documentation in support of the waiver requested.

i. The proposed MBE participation should be reviewed and a determination made as to whether the team has made a good faith effort to meet the MBE goals and sub-goals, if applicable, established for the project and as stated on the revised "Certified Minority Business Enterprise Utilization and Fair Solicitation Affidavit".

j. If a request for a waiver is made and approved, "MBE Waiver Documentation" should be signed by a LEA representative and submitted to the PSCP and GOMA.

k. Since there was no MBE participation reported at the time of the award of the Design/Build contract, the LEA would submit the entire package of information, including all of the MBE related schedules to the PSCP within ten (10) days of the team being directed to proceed with the actual construction work.

l. All other submittals of MBE materials and reporting requirements are applicable for the project, as described above in Section 5.0.

7.0 RECORDS AND REPORTS

1. The MBE Liaison shall maintain such records as are necessary to confirm compliance with its Minority Business Enterprise Procedures and activities. The records shall be maintained until the project is audited by the PSCP. These records shall include by project:

   a. The contractor report submitted at the completion of the project;

   b. The identity of the minority contractors employed on the project;

   c. The type of work performed;

   d. The actual dollar value of the work, services, supplies or equipment; and

e. The MBE percentage of the total contract.

2. The MBE Liaison will maintain a record of all waivers approved for each project or solicitation package where the prime contractor was unable to achieve the established overall goal or sub-goals, if applicable. The MBE Liaison will, however, report to the PSCP all MBE participation by MDOT certified firms who are prime contractors, subcontractors, suppliers, or otherwise making an economically viable contribution to each project. This information shall be reported to PSCP within ten (10) days after approval of the award of the contract by the board of education.

3. The LEA shall submit the "Certified Minority Business Enterprise Participation Standard Monthly Contractor's Requisition for Payment" (IAC/PSCP Form 306.4 page 3 of 16, located in the Administrative Procedures Guide), to the PSCP Director of Fiscal Services as part of the regular monthly request for payment for the project.

4. The LEA shall submit the "Close-Out Cost Summary" (IAC/PSCP Form 306.6 located in the Administrative Procedures Guide), along with the "Certified Minority Business Enterprise Participation Standard Monthly Contractor's Requisition for Payment" (IAC/PSCP Form 306.4) to the PSCP Director of Fiscal Services within 180 days of completion of the project.

   a. All final MBE payments should be verified by the LEA MBE Liaison before submission to the PSCP.

5. Each quarter and at the end of each fiscal year end, the LEA will submit to the, PSCP Fiscal Services a report "Payments Made to Contractors during The Fiscal Year" and maintain such records as are necessary to confirm compliance with its minority business enterprise procedures and activities.

6. Each fiscal year end, PSCP Fiscal Services will create a report "Projects Completed during the Fiscal Year" and maintain such records as are necessary to confirm compliance with its Minority Business Enterprise Procedures and activities. This report will compare the overall MBE goal and sub-goals, if applicable, for each specific project with the MBE participation anticipated at the time of contract award and the actual MBE participation at the completion of the project.

8.0 MONITORING

1. The LEA's procurement personnel or project staff shall verify that the certified MBE's listed in the MBE participation schedule are actually performing the work.

2. The LEA's procurement personnel or project staff shall ensure that MBE subcontractors are receiving compensation as set forth in the "MBE Participation Schedule" by ensuring that the contractor submits monthly reports, listing any unpaid invoices over 30 days old received from any certified MBE subcontractor, the amount of each invoice, and the reason payment has not been made.

3. PSCP Fiscal Services will:

   a. Compile data on projects completed during the fiscal year;

   b. Confirm that all MBE subcontractors listed in the "MBE Participation Schedule" have received payment; and

   c. Maintain such records as are necessary to confirm compliance with its Minority Business Enterprise Procedures and activities.

4. The MBE Liaison and/or the PSCP will conduct reviews as deemed necessary to confirm compliance with the minority business enterprise participation requirements.

5. The MBE Liaison will maintain appropriate records, and shall assist the PSCP in on-site or post-audit reviews upon request.

6. Auditors from the PSCP will have access to and the ability to audit MBE participation for specific projects, information retained by the LEA, and/or submitted to the IAC in reports/forms filed by the LEA as referenced above.

9.0 MINORITY BUSINESS ENTERPRISE LIAISON

1. The Superintendent shall designate an individual to be identified as the MBE Liaison for the school system.

2. The MBE Liaison will be the contact person who will work with the PSCP and GOMA to implement the Minority Business Enterprise Program for the school system and the State of Maryland.

3. The Superintendent will immediately notify the PSCP if there is a change in the MBE Liaison for the school system.

10.0 PAYMENT/REIMBURSEMENT FOR ALL PSCP FUNDED PROGRAMS

1. Use IAC/PSCP Form 306.4 Page 3. ("Certified Minority Business Enterprise Participation Standard Monthly Contractor's Requisition for Payment")

2. The Prime Contractor must complete this Form and submit it with each Monthly Requisition/Invoice for Payment for each project in which they are seeking payment from either the Local Education Agency (LEA) or State of Maryland Public School Construction Program. If no MBE Sub-Contractors were utilized on a project (i.e., no MBE goals were set for the project and/or full waiver was granted), this Form must still be submitted by the Prime Contractor.

   a. IAC/PSCP Form 306.4 Page 3 must be PROJECT specific – If one bid/contract covers multiple projects (either different schools or scopes of work), this Form must be calculated and submitted by the Prime Contractor on an individual project basis.

   b. IAC/PSCP Form 306.4 Page 3 must be Prime Contractor/Trade Package specific – If the IAC recognized multiple Prime Contractors and/or Trade Packages, this Form must be completed by each Prime/Trade Contractor recognized by the IAC and submitted.

3. All ORIGINAL MBE Sub-Contractors must be listed on this Form with their full company name, MDOT Certification Number, MDOT Classification and ORIGINAL Contract Amount as stated on the "MBE Participation Schedule" and "Minority Business Enterprises Subcontractor Project Participation Statement". (ONLY MDOT Certified companies should be listed on this Form.)

4. Any additional MBE Sub-Contractors utilized on a project must be listed on this Form with their full company name, MDOT Certification Number, MDOT Classification and total contract amount. (ONLY MDOT Certified companies should be listed on this Form.)

5. The Prime Contractor should fill in the amount they intend to pay each MBE Sub-Contractor for the current requisition as well as all money paid to date. By signing this Form, the Prime Contractor is certifying their intent to pay the "Amount to be Paid This Requisition". They are also certifying the distribution of money listed under the "Total Paid to Date" column.

6. The LEA MBE Liaison shall verify each month with the MBE Sub-Contractors that all money listed under the "Total Paid to Date" column has been received from the Prime Contractor. By signing this Form, the LEA MBE Liaison is certifying all MBE Sub-Contractors have been paid all money due to them by the Prime Contractor.

7. The MBE Liaison should also be comparing the current Form with the prior month(s) to make sure information is not being duplicated and/or repeated. Payments to MBE Sub-Contractors should be progressive and recorded.

8. If for any reason, an amount the Prime Contractor listed on the Form as intending to pay the MBE Sub-Contractor was not made, or if the payment amount changed, the LEA MBE Liaison should be inquiring about the change in payment or non-payment to the MBE Sub-Contractor.

9. NO REQUESTS FOR PAYMENT/REIMBURSEMENT SHOULD BE SUBMITTED TO PSCP UNTIL THE PROCEDURES ABOVE HAVE BEEN COMPLETED.

11.0 CLOSE-OUT SUMMARY SUBMISSION

1. Use IAC/PSCP Form 306.6 ("Close Out Cost Summary").

2. The Prime Contractor must complete this Form and submit it with the FINAL Requisition (IAC/PSCP Form 306.4) to the LEA or upon LEA request. If no MBE Sub-Contractors were utilized on a project (i.e. no MBE goals were set for the project and/or a full waiver was granted), this Form must still be submitted by the Prime Contractor.

   a. IAC/PSCP Form 306.4 Page 3 must be PROJECT specific – If one bid/contract covers multiple projects (either different schools or scopes of work), this Form must be calculated and submitted by the Prime Contractor on an individual project basis.

   b. IAC/PSCP Form 306.4 Page 3 must be Prime Contractor/Trade Package specific – If the IAC recognized multiple Prime Contractors and/or Trade Packages, this Form must be completed by each Prime/Trade Contractor recognized by the IAC and submitted.

3. All ORIGINAL MBE Sub-Contractors must be listed on this Form with their full company name, MDOT Certification Number, MDOT Classification and ORIGINAL Contract Amount as stated on the "MBE Participation Schedule" and "Minority Business Enterprises Subcontractor Project Participation Statement" (ONLY MDOT Certified companies should be listed on this Form.)

4. Any additional MBE Sub-Contractors utilized on a project must be listed on this Form with their full company name, MDOT Certification Number, MDOT Classification and total contract amount. (ONLY MDOT Certified companies should be listed on this Form.)

5. The Final Form 306.4 should reflect ALL money paid to each MBE Sub-Contractor. There is a column on the Form to answer "Yes" or "No" for the MBE Sub-Contractor being paid in full. There is also a column on the Form for the Prime Contractor to state a brief reason if a MBE Sub-Contractor was paid less than the original contract amount stated on the "MBE Participation Schedule" and "Minority Business Enterprises Subcontractor Project Participation Statement". By signing this Form, the Prime Contractor is certifying the MBE Sub-Contractors have been paid in full for this project.

6. The LEA MBE Liaison shall verify with the MBE Sub-Contractors that all money listed under the "Total Paid to Date" column has been received and no additional money is owed to them by the Contractors have been paid in full by the Prime Contractor for this project.

7. NO CLOSE-OUT COST SUMMARY SHOULD BE SUBMITTED TO PSCP UNTILTHE ABOVE PROCEDURES HAVE BEEN COMPLETED.

<u>Additional Submission Requirements Applicable to All State Funded Projects</u>

1. If an ORIGINAL MBE Sub-Contractor listed on the "MBE Participation Schedule" and "Minority Business Enterprises Subcontractor Project Participation Statement" is not paid in full and/or not utilized on a project, the Prime Contractor shall submit in writing an explanation for either the reduction in contract amount/payment or why the MBE Sub-Contractor was not utilized.

2. It is the responsibility of the LEA MBE Liaison to contact the MBE Sub-Contractor to verify the explanation provided by the Prime Contractor. Any correspondence between the LEA MBE Liaison and both the Prime Contractor and MBE Sub-Contractors should be kept by the LEA and be made available to PSCP upon request or audit.

3. If an MBE Sub-Contractor originally listed on the "MBE Participation Schedule" and "Minority Business Enterprises Subcontractor Project Participation Statement" becomes unavailable and/or is not going to be utilized. This information should be communicated to the PSCP MBE Program Manager and the PSCP Finance Department by the LEA immediately.

4. If additional MBE Sub-Contractors are hired after the "MBE Participation Schedule" and "Minority Business Enterprises Subcontractor Project Participation Statement" have been submitted to PSCP, the LEA MBE Liaison must submit this information to the PSCP MBE Program Manager and the PSCP Finance Department immediately.

12.0 LIQUIDATED DAMAGES PROVISION FOR CONTRACTS CONTAINING MINORITY BUSINESS ENTERPRISE PARTICIPATION GOALS

Chapter 154, Laws of Maryland 2012 required the Board of Public Works (BPW) to promulgate a regulation that included a requirement that all contracts containing minority business enterprise participation goals contain a liquidated damages provision that applies in the event that the contractor fails to comply in good faith with the provisions of the Subtitle 11 of Title 21 or the pertinent terms of the applicable contract. See § 14-303(b) (5), State Finance and Procurement Article, Maryland Annotated Code (SFP).

The regulation promulgated by the BPW, effective May 13, 2013, states that: "All contracts containing certified MBE participation goals shall contain a liquidated damages provision that applies if the contractor fails to comply in good faith with the provisions of State MBE laws or the pertinent terms of the procurement contract." Code of Maryland Regulations (COMAR) 21.11.03.10(E).

Approved:

Original signed by

_____
Theresa R. Alban
Superintendent of Schools

Attachment C

Outreach Efforts Compliance Statement

****Complete and submit this form within 10 business days of notification of apparent award ****

In conjunction with the bid or offer submitted in response to Frederick County Public Schools for the solicitation for _____ project, PSC# _____, I affirm the following:

1. Bidder/Offeror identified opportunities to subcontract in these specific work categories (extend list as needed):
   a. _____ d. _____
   b. _____ e. _____
   c. _____ f. _____

2. Attached to this form are copies of written solicitations (with bidding instructions) used to solicit certified MBEs for these subcontract opportunities.

3. Bidder/Offeror made the following attempts to contact personally the solicited certified MBEs (extend list as needed):
   a. _____
   b. _____
   c. _____
   _____

4. Select ONE of the following:

   a. ☐ This contract does not involve bonding requirements.
   OR
   b. ☐ Bidder/Offeror assisted certified MBEs to fulfill or seek waiver of bonding requirements (*describe efforts*).

5. Select ONE of the following:

   a. ☐ Bidder/Offeror did/did not attend the pre-bid/proposal conference.
   OR
   b. ☐ No pre-bid/proposal conference was held.

_____ By: _____
Bidder/Offeror Printed Name Signature: _____
Title: _____
Date: _____
Address: _____
_____
_____

October 2017

Attachment D

MINORITY BUSINESS ENTERPRISES SUBCONTRACTOR PROJECT PARTICIPATION STATEMENT

PROJECT/ SCHOOL NAME: _____

PROJECT/ SCHOOL LOCATION: _____

LEA: _____

NAME OF PRIME CONTRACTOR: _____

NAME OF MBE SUBCONTRACTOR: _____

_____ _____
MDOT Certification Number NAICS Code

1. Work/Services to be performed by MBE Subcontractor: _____

_____

2. Subcontract Amount: $ _____ Participation Amount $_____
3. Bonds - Amount and type required of Subcontractor if any: _____
4. MBE Anticipated or Actual Commencement Date: _____ Completion Date: _____
5. This MBE subcontract represents the following percentage of the total contract cost: _____
6. This is an African American Firm: Yes _____ No _____
7. This is an Asian American Firm: Yes _____ No _____
8. This is a Native American, Hispanic or Disabled Firm: Yes _____ No _____
(Circle One)

****

The undersigned subcontractor and prime contractor will enter into a contract for the work/service indicated above upon the prime contractor's execution of a contract for the above referenced project with the Board of Education. The undersigned subcontractor is a MDOT certified Minority Business Enterprise. The terms and conditions stated above are consistent with our agreements.

Signature of Subcontractor: _____

Date: _____

The term and conditions stated above are consistent with our agreements.

Signature of Prime Contractor:_____

Date: _____

Attachment E

MINORITY SUBCONTRACTOR UNAVAILABILITY CERTIFICATE

1. It is hereby certified that the firm of _____
(Name of Minority firm)

located at _____
(Number) (Street)

_____
(City) (State) (Zip)

was offered an opportunity to bid on the _____ school project

in _____ County by _____
(Name of Prime Contractor's Firm)

****

2. _____ (Minority Firm), is either unavailable for the

work/service or unable to prepare a bid for this project for the following reason(s):

_____

_____

_____

_____ _____ _____
Signature of Minority Firm's MBE Representative **Title** **Date**

_____ _____
MDOT Certification # Telephone #

3. To be completed by the prime contractor if Section 2 of this form is <u>not</u> completed by the minority firm.

To the best of my knowledge and belief, said Certified Minority Business Enterprise is either unavailable for the work/service for this project, is unable to prepare a bid, or did not respond to a request for a price proposal and has not completed the above portion of this submittal.

_____ _____ _____
Signature of Prime Contractor Title Date

October 2017

Attachment F

MBE WAIVER DOCUMENTATION

Project Name: _____ **PSC No.**_____

Base Contract Amount $ _____

Plus Accepted Alternates $ _____

Equals Total Contract Amount $ _____

I have previously requested that a waiver be granted to the overall MBE goal for this project of _____ percent, with a minimum of ____ percent from certified African American-owned businesses, a minimum of ____ percent from certified Asian American-owned businesses, and the balance from all certified minority business enterprises, if applicable. This would include the total dollar value of all materials, supplies, equipment, and services, including construction services directly or indirectly, from Minority Business Enterprises (MBE) which are currently certified by the Maryland Department of Transportation (MDOT).

I _____ **, hereby certify that my position is**
(Name of Company Representative)

_____ **, and I am the duly authorized representative of**
(Position Title)

_____ **.**
(Company Name)

I further certify that I have submitted a *Schedule for Participation of Certified Minority Business Enterprises* which reflects the percentage and dollar value of certified Minority Business Enterprise participation which my company expects to achieve for this contract. Therefore, the request for the waiver is as follows:

Summary MBE Participation Schedule from Attachment B

Minority Group	MBE GOAL		Actual MBE Participation		Request For Waiver	
	Dollar Value of Total Contract*	Percent of Total Contract	Dollar Value	Percent of Total Contract	Dollar Value	Percent of Total Contract
a. Sub Goal African American						
b. Sub Goal Asian American						
c. Other * in Sub Goal group a/b above						
TOTALS						

*** with accepted/rejected alternates**

To support this request for a waiver, I include the following information as attachments which I certify to be true to the best of my knowledge.

1. **A detailed statement of the efforts made by the contractor to identify and select portions of the work proposed to be performed by subcontractors in order to increase the likelihood of achieving the stated goal;**

2. **A detailed statement of the efforts made by the contractor *prior to and up to 10 days before the bid opening* to solicit minority business enterprises through written notices that describe the categories of work for which subcontracting is being solicited, the type of work to be performed, and specific instructions on how to submit a bid;**

3. **A detailed statement of the contractor's efforts to make personal contact with MBE firms identified for Item 2. above;**

4. **A record of the name, address, telephone number, and dates contacted for each MBE identified under items 2. and 3. above;**

5. **A description of the information provided to MBE's regarding the plans, specifications and the anticipated time schedule for portions of the work to be performed;**

6. **Information on activities to assist minority business enterprises to fulfill bonding requirements, or to obtain a waiver of these requirements;**

7. **Information on activities to publicize contracting opportunities to minority business enterprises, attendance at pre-bid meetings, or other meetings scheduled by the MBE Liaison or designated representative;**

8. **As to each MBE that placed a subcontract quotation or offer which the apparent low bidder or successful offeror considers not to be acceptable, a detailed statement of reasons for this conclusion; and**

9. **A list of minority subcontractors found to be unavailable. This shall be accompanied by a *Minority Subcontractor Unavailability Certificate* signed by the minority business enterprise or from the apparent low bidder or successful offeror indicating that the minority business did not provide the written certification.**

Signature _____ **Date** _____
(Company Representative Name)

Sworn and subscribed before me this _____ **day.**

of _____ **in the year** _____ **Notary Public** _____

Reviewed and accepted by the _____ **County Board of Education MBE Liaison.**
(County Name)

Signature _____ **Date** _____

(County Representative Name)

Page 2 of 2

IAC/PSCP FORM 306.4

Attachment G

CERTIFIED MINORITY BUSINESS ENTERPRISE PARTICIPATION

STANDARD MONTHLY CONTRACTOR'S REQUISITION FOR PAYMENT

LEA: _____ **DATE:** _____

FACILITY NAME: _____ **PSC NO:** _____

SCOPE OF WORK: _____ **REQ NO:** _____

Name of MBE Sub-Contractor	MDOT Certification Number and Classification	TOTAL MBE Contract Amount	Amount to be Paid THIS Requisition	TOTAL Paid to Date	MBE has Received FINAL Payment?	If amount paid is LESS than TOTAL MBE Contract Amount, EXPLAIN VARIANCE
	TOTAL:	**$**	**$**	**$**		

MDOT Certification Number and Classification can be located at http://mbe.state.mdot.state.md.us/diretory/

MBE Classification :

African American = AA
Hispanic American = H
Native American = N
Asian American = A
Women = W

African American/Women = AAW
Hispanic American/Women = HW
Native American/Women = NW
Asian American/Women = AW

I certify that the figures and information presented above represent accurate and true statements that timely payments have been and will be, made to suppliers and subcontractors on the project, as requisitioned payments are received, and in accordance with our contracts.

_____ _____

Name of Contractor Firm — Authorized Contractor Signature/Date

_____ _____

Contractor Federal Tax ID# — Contractor MBE Classification # (if applicable)

_____ _____

Name of LEA MBE Liaison (Printed) — Signature of LEA MBE Liaison/Date

Attachment H

IAC/PSCP FORM 306.6

CLOSE-OUT COST SUMMARY

LEA: _____ DATE: _____

SCHOOL NAME: _____ PSC # : _____

	Public School Construction	Local and Other
Allocation:		
Cash Disbursements:		

	Approved Contracts	Expenditures	Balance	Approved Contracts	Expenditures	Total Expenditures
Construction			$0			.
A/E			$0			$0
Related Costs			$0			$0
Total	$0	$0	$0	$0	$0	$0

I hereby certify that the data shown hereon is correct and request this project be closed.

_____
Signature of LEA Representative

FOR STATE USE ONLY

ADJUSTMENTS:

Allocation: _____

Cash: _____

Initials	
Date	

AUDIT COMMENTS:

Initials	
Date	

Revised 7/1/00

New Security Vestibules at

Thurmont Middle School
Middletown Elementary School
Middletown Middle School

Frederick County, Maryland

October 9, 2019

PAA Proj. #'s 15-30.05 - .07

Bidding Documents
FCPS RFQ #20C2

TABLE OF CONTENTS

New Security Vestibules for
Thurmont Middle School, Middletown Elementary School, and Middletown Middle School
Frederick County, Maryland

Proj. #'s
15-30.05/.06/.07 Bidding Documents

GENERAL REQUIREMENTS

DIVISION 1	**GENERAL REQUIREMENTS**
011000	General Requirements
014500	Cutting and Patching

TECHNICAL SECTIONS

DIVISION 2	**SITEWORK**
021100	Selective Demolition
DIVISION 3	**CONCRETE**
033000	Poured In Place Concrete
DIVISION 4	**MASONRY**
	Not Used
DIVISION 5	**METALS**
054000	Cold Formed Metal Framing
055000	Miscellaneous Metal Fabrications
DIVISION 6	**WOOD AND PLASTIC**
	Not Used
DIVISION 7	**THERMAL & MOISTURE PROTECTION**
079000	Joint Sealers
DIVISION 8	**DOORS & WINDOWS**
081200	Aluminum Entrances and Storefronts
081213	Standard Steel Frames
081429	Flush Wood Doors
087100	Finish Hardware
088000	Glazing
DIVISION 9	**FINISHES**
092500	Gypsum Wall Board
095110	Suspended Acoustical Ceilings
096519	Resilient Flooring
096816	Carpet Tile
099000	Coatings
DIVISION 10	**SPECIALTIES**
	Not Used
DIVISION 11	**EQUIPMENT**
	Not Used
DIVISION 12	**FURNISHINGS**
	Not Used
DIVISION 13	**SPECIAL CONSTRUCTION**
	Not Used
DIVISION 14	**CONVEYING SYSTEMS**
	Not Used

MECHANICAL/ELECTRICAL/PLUMBING SECTIONS

DIVISION 22	**PLUMBING** (Applicable to All 3 Schools)
221420	Wet - Pipe Fire Suppression Sprinkler Systems
DIVISION 23	**MECHANICAL** (Applicable to All 3 Schools)
230505	HVAC Scope
230506	Basic HVAC Materials and Methods
230529	Hangers and Supports for HVAC Piping and Equipment
230593	Testing, Adjusting, and Balancing for HVAC
233113	Metal Ducts
238239	Unit Heaters
DIVISION 26	**ELECTRICAL** (Applicable to All 3 Schools)
260500	Common Work Results for Electrical
260519	Low Voltage Electrical Power Conductors and Cables
260526	Grounding and Bonding for Electrical Systems
260529	Hangers and Supports for Electrical Systems
260533	Raceways and Boxes for Electrical Systems
262726	Wiring Devices
262816	Enclosed Switches and Circuit Breakers
DIVISION 28	**ELECTRONIC ACCESS CONTROL** (Applicable to All 3 Schools)
281300	Access Control
282300	Video Surveillance

SECTION 01 10 00

GENERAL REQUIREMENTS

SECTION 010100 - GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY OF WORK

A. Furnish all labor, materials, equipment, and services necessary for, incidental to, the construction of a Security Vestibules at the interior of Thurmont Middle School, Middletown Elementary School, and Middletown Middle School. All work shall be bid as lump sum as indicated on the drawings and specifications as prepared by Proffitt and Associates. Work shall be coordinated with the Owner. Work is to be completed at a time frame dictated by the Owner's Representative when the area will be available for work. Work is further described as follows:

Thurmont Middle School

The existing school building consists of a multi-story structure with steel frame and load bearing masonry construction.

Work includes removal of interior hollow metal doors/frames and windows and partial removal of load bearing masonry walls with installation of steel lintels as shown on the drawings. The new vestibule compartment will be primarily established with an aluminum storefront system with entrance doors and side lights. Work associated with secondary finishes systems such as gypsum board on metal studs, flooring, painting, and acoustical ceilings will also be included.

Work also includes installation of access control door hardware and associated security devices.

Minor modifications to Mechanical/Electrical and Sprinkler systems to support the vestibule construction and associated upgrades to the existing Admin. Office is required.

Additional Structural and Masonry work is required.

Middletown Elementary School

The existing school building consists of a single-story structure with steel frame and non-load bearing masonry construction.

Work includes removal of interior hollow metal doors/frames, modular wall panels, and partial removal of non-load bearing masonry wall with installation of CMU lintel as shown on the drawings. The new vestibule compartment will be primarily established with an aluminum storefront system with entrance doors and side lights. Work associated with secondary finishes systems such as gypsum board on metal studs, flooring, painting, and acoustical ceilings will also be included.

Work also includes installation of access control door hardware and associated security devices.

Minor modifications to Mechanical/Electrical and Sprinkler systems to support the vestibule construction and associated upgrades to the existing Admin. Office is required.

Additional Structural and Masonry work is required.

Middletown Middle School

The existing school building consists of a multi-story structure with steel frame and load bearing masonry construction.

Work includes removal of interior hollow metal doors/frames, modular wall panels, and partial removal of non-load bearing masonry infill. The new vestibule compartment will be primarily established with an aluminum storefront system with entrance doors and side lights. Work associated with secondary finishes systems such as gypsum board on metal studs, flooring, painting, and acoustical ceilings will also be included.

Work also includes installation of access control door hardware and associated security devices.

Minor modifications to Mechanical/Electrical and Sprinkler systems to support the vestibule construction and associated upgrades to the existing Admin. Office is required.

Additional Structural and Masonry work is not required.

B. All work is indicated on the contract documents and is limited to Architectural work with some minor Mechanical and Electrical work**.**

1. Contractor shall provide a detailed schedule of values for all work included in the project broken down by trade.

C. The Owner will continue to conduct limited operations in this facility during construction and renovation. The General Contractor shall coordinate all phasing aspects with the owner to ensure that existing public areas and egress components can be used to the greatest extent possible during construction operations, and to maintain building security.

1.2 LOCAL CONDITIONS

A. The contractor shall check, measure and verify all site conditions and be responsible for familiarizing themselves with the nature, extent and quantity of the work. Where drawings or specifications conflict with existing field conditions, Contractor shall notify the Owner's Representative. The Owner will then give written directions and or clarifications on how to proceed.

B. The Contractor is responsible for verification of all utility locations and the repair of same if damaged during construction. The Contractor shall restore to the original condition all damages due to construction.

1.3 APPLICABLE CODES AND STANDARDS

A. All work shall conform to all applicable local, state or federal building codes, regulations and 2010 A.D.A. regulatory requirements.

1.4 INQUIRIES

A. All inquiries pertaining to this project shall be made to Mr. Brad Ahalt, Project Manager for FCPS Construct Management Dept, Frederick County Public Schools, phone 301-644-5164. Email: bradley.ahalt@fcps.org.

1. Mr. Brad Ahalt will serve as the Owner's Representative.

B. The site is available for inspection prior to bid by calling the Project Manager to make arrangements to coordinate a site visit that doesn't interfere with business activities.

1.5 OPENING

A. Proposals will be opened as announced in the "Invitation to Bid."

1.6 AWARD OF BID

A. The Contract will be awarded as stated in the "Instructions to Bidders."
In addition, Frederick County Public Schools reserves the right to accept or reject any or all proposals for any reason whatsoever and will not be responsible for any charges incurred by contractors.

1.7 SCHEDULE OF WORK

A. Demolition/construction work to begin on or about June 23, 2020 with substantial completion of base bid work by August 14, 2020. Final completion date of base bid work is September 14, 2020.

B. The contractor has full access to the building as necessary during the above timeline 7 days a week and as allowed by local ordinances. Once staff return for the fall term access will be restricted to comply with the instructional schedule.

C. FCPS is on 4 day 10 hour work week over the summer recess; there will be no staff on site Friday, Saturday or Sunday from mid-June to Mid-August however FCPS will make accommodations for access during those days as necessary.

1.8 LIQUIDATED DAMAGES

A. Liquidated damages in the amount of $475.00 per day for each calendar day beyond completion date of August 14, 2020 will be assessed by the Owner.

1.9 SPECIAL CONDITIONS

A. Asbestos- Containing Buildings:
Although, most Frederick County Public School buildings contain asbestos, it is not anticipated that any ACM's (Asbestos Containing Materials) will be encountered as part of this work. At the pre-construction meeting a detailed procedure of asbestos removal (should any be encountered in the building) will be given to the contractor.

B. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed. Use adequate but reasonable precautions to prevent the spread of dust, dirt and noise to adjacent areas.

1.10 PERMITS AND INSPECTIONS

A. If applicable, the Owner shall obtain and pay for the primary building permit for this project. However, the Contractor shall obtain and pay for all secondary trade permits and inspection fees required for all local, state or federal applicable codes.

B. The Contractor shall supply the Owner with a copy of all permits and inspection reports.

1.11 CUTTING AND PATCHING

A. Saw-Cut to fit, patch to match all existing surfaces which are cut for installation of new materials and equipment or the demolition of existing materials. No cutting or patching of utilities or other structures shall be done without the specific permission of the Owner.

1.12 PROJECT COORDINATION AND MEETINGS

A. Coordination: Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation.

B. Meetings:

1. A pre-bid meeting and site visit will be held at each school as described in the invitation for bids.

2. A pre-construction meeting will be held after the project is awarded and before construction begins.

3. Progress meetings will be held as deemed necessary by the Owner but not less than one meeting every two weeks.

1.13 SUBMITTALS

A. General: Coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities and as noted in other sections of these specifications. Transmit in advance of performance of related activities to avoid delay. No extension of time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

1. All submittals shall include, but not be limited to, name and address or contractor, name and address of subcontractor, name and address of supplier and name of manufacturer. If applicable all submittals shall show compliance with recognized trade association standards and recognized testing agency standards with appropriate labels and seals.

B. Shop Drawings: The Contractor shall submit for approval three (3) copies of shop drawings or submittals for all phases of construction and materials to be used.

C. Product Data: Collect Product Data into a single submittal for each element or system. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information.

D. Samples: Submit two (2) samples of each system component.

1.14 QUALITY CONTROL

A. Responsibilities: The Contractor is to provide inspections and tests specified or required by governing authorities, and as indicated in other sections of these specifications. Costs are included in the Contract.

B. Retesting: The Contractor is responsible for retesting where results prove unsatisfactory and do not indicate compliance with Contract Documents.

C. Coordination: The Contractor is responsible for scheduling inspections, tests, and similar activities.

D. Submittals: The Contractor shall submit a certified written report of each inspection and test in duplicate.

1.15 CONTRACTOR USE OF PREMISES

A. Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public.

B. Confine operations to areas within contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

C. Keep driveways and entrances clear at all times. Do not use these areas for parking or storage of materials. After completion date of August 14, 2020 no materials will be stored at the site.

D. Use of the Existing Building: Maintain the existing building in an operational condition throughout construction. Repair damage caused by construction operations. Take precautions necessary to protect the building and occupants during the construction period.

E. Full Owner Occupancy: The Owner will occupy the site and existing building during construction. Cooperate with the Owner to minimize conflicts and facilitate Owner usage. Perform the work so as not to interfere with the Owner's operations.

1.16 RECORD AND OPERATIONS & MAINTENANCE DATA

A. If not indicated in other parts of these specifications provide the following as indicated. Record Document Submittals, Record Drawings, Record Specifications, Maintenance Manuals, Operating and Maintenance Instructions and As-Built Drawings.

1. Record Document Submittals: Do not use Record Documents for construction purposes; protect from loss in a secure location; provide access to Record Documents for the Owner's reference.

2. Record Drawings: ("As-Builts") Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark-up these drawings to show the actual installation. Mark whichever drawing is most capable of showing conditions accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

a. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover.

3. Additional Record Drawings:
At the completion of the project, the Contractor shall obtain an AutoCAD drawing file (i.e. floor plan, site plan) from the Engineer and update the file from the "as-built" drawings. The updated AutoCAD file shall be returned to the Engineer for his review, then released to the Owner at the completion of the project.

4. Record Specifications: Maintain one copy of the Project Manual, including addenda. Mark to show variations in actual Work performed in comparison with the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot be readily discerned later by direct observation. Note related record drawing information and Product Data.

5. Maintenance Manuals: Organize maintenance data into three (3) sets of manageable size. Bind in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark identification

on front and spine of each binder. This shall include but is not limited to the following information:

Emergency instructions.
Spare parts list.
Copies of warranties.
Wiring diagrams.
Inspection procedures.
Shop Drawings and Product Data.

6. Operating and Maintenance Instructions: Arrange for the Manufacturer's Representative and Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. This shall include but is not limited to a detailed review of the following:

Maintenance manuals.
Spare parts and materials.
Control sequences.
Hazards.
Warranties and bonds.
Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

Start-up and shutdown.
Emergency operations.
Safety procedures.

1.17 WARRANTY

A. In submitting a proposal, each bidder thereby represents that he will, upon award of the contract, guarantee in writing all materials and workmanship for a period of Two (2) years from date of substantial completion. During the guarantee period the Contractor will be required, within a reasonable length of time after receipt of written notice by the Owner, to make good any defects in materials or workmanship which may have developed and to make good any damage to other work caused by such defects or the repairing of the same, at his own expense and without cost to the Owner.

b. If a bidder cannot guarantee any material, construction and equipment that is shown or specified, or if he cannot furnish any surety bond that may be required, then it shall be so stated in his proposal, and unless this is done, it shall be understood that the bidder accepts all of the guarantee conditions called for, and he shall be bound thereto upon award of the contract. If the Owner should consent to waive any requirements in this respect, then it shall have effect only if such waiver is expressly set forth in the signed contract agreement.

PART 2 – PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock.

B. "Materials" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

C. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

D. Product Delivery, Storage, and Handling: Deliver, store and handle products in accordance with manufacturer's recommendations, using methods that will prevent damage, deterioration and loss.

E. Materials Storage and On-Site-Work: The Contractor shall maintain the site in a clean, neat and orderly manner at all times. Materials may be stored at the school in a designated site agreed to by both the Contractor and the Owner's project manager.

F. Installation of Products: Comply with manufacturer's instructions and recommendations for installation of products. Anchor each product securely in place, accurately located and aligned with other Work. Clean exposed surfaces and protect to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Removal of Existing Products, Materials or Equipment: The Contractor shall "Remove" all existing products, materials or equipment as designated in the summary of work and as indicated in other sections of these specifications. The contractor shall be responsible for the disposal of these items at no cost to the owner.

PART 3 – EXECUTION

3.1 PROJECT CLOSEOUT

A. Substantial Completion: Before requesting inspection for certification of Substantial Completion, complete the following:

1. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

2. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar record information.

3. Change-over permanent locks and transmit keys to the Owner.

4. Complete start-up testing of systems, and instruction of the Owner's personnel. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

5. Complete final clean up. Touch-up and repair and restore marred exposed finishes.

6. Upon completion of the Work, submit record Specifications to the Engineer for the Owner's records.

B. Site Restoration:

1. The Contractor shall be responsible for repairs to the grounds, building and/or blacktop due to traffic and/or the storage of materials. Repairs shall be made to the satisfaction of the Owner's representative and shall equal the original conditions.

C. Final Cleaning: Employ experienced workers for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following before requesting inspection for certification of Substantial Completion:

1. Remove labels that are not permanent labels.

2. Clean transparent materials.

3. Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

D. Removal of Protection: Remove temporary protection and facilities.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of in a lawful manner.

(END OF SECTION)

SECTION 014500

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 Scope:

1. This Section establishes general requirements pertaining to cutting, fitting and patching of the Work required to:

    1. Make the several parts fit properly;

    2. Uncover work to provide for installing, inspecting, or both, of ill-timed work;

    3. Remove and replace work not conforming to requirements of the Contract Documents; and

    4. Remove and replace defective work.

    5. Remove and patch existing construction for the completion of contract work.

1.2 Related work:

1. Documents affecting work of this Section include, but are not necessarily limited to, the General Conditions and Sections in Division 1 of these Specifications.

2. In addition to other requirements specified, upon the Architect's request uncover work to provide for inspection by the Architect of covered work, and remove samples of installed materials for testing, to verify conformance with the Contract Documents.

3. Do not cut or alter work performed under separate contracts without the Architect's written permission.

1.3 Quality Assurance:

1. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

2. Avoid unnecessary or excessive cutting. Where cutting of a finished surface is required, make cuts neatly along true lines so they will be concealed by finished work and where they will be least conspicuous.

1.4 Submittals:

1. Request for Architect's consent:

    1. Prior to cutting which effects structural safety, submit a written request to the Architect for permission to proceed with cutting. Also obtain written approval from the local building officials, if required by the local building code.

    2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for cutting and patching, so notify the Architect and secure his written permission and the required Change Order prior to proceeding.

Notices to the Architect:

3. Prior to cutting and patching performed pursuant to the Architect's instructions, submit cost estimate to the Architect. Secure the Architect's approval of cost estimates and type of reimbursement before proceeding with cutting and patching.

4. Submit written notice to the Architect designating the time the Work will be uncovered, to provide for the Architect's observation.

PART 2 - PRODUCTS

2.1 For replacement of items removed, use materials complying with pertinent Sections of these Specifications and closely matching the aesthetic value of the existing material.

PART 3 - EXECUTION

3.1 Payment of Costs:

1. The Owner will reimburse the Contractor for cutting and patching performed pursuant to a written Change Order, after claim for such reimbursement is approved by the Owner. The Contractor shall perform other cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

2. Payment of costs for cutting and patching performed due to ill-timed or defective work will be at no additional cost to the Owner.

3.2 Surface Conditions:

1. Inspection:

1. Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching and backfilling.

2. After uncovering the work, inspect conditions affecting installation of new Work.

2. Discrepancies:

1. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions.

2. Do not proceed until unsatisfactory conditions are corrected.

3.3 Preparation Prior to Cutting:

1. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

3.4 Performance:

1. The Contractor shall be responsible for any cutting, fitting and patching that may be required to complete his Work except as otherwise specifically provided in the Contract Documents. The contractor shall not endanger any Work of any other Contractor except with the written consent of the Architect.

2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.

3.5 Cleanup:

1. Remove all debris, rubbish, and materials resulting from cutting and patching operations. Transport materials and legally dispose of off site.

END OF SECTION

SECTION 021100

SELECTIVE DEMOLITION

A. GENERAL

1. DESCRIPTION:

1.1 Requirements of the General Conditions, Supplementary Conditions and Division 1 of these specifications apply to this Section.

1.2. Include all labor, materials, appliances and services necessary to complete all demolition work required by the drawings and/or described in this specification.

1.3 Demolition includes the complete removal of building materials, as indicated on the drawings, and proper disposal, off site, of all demolished materials except where noted. Where noted, some materials may be salvaged for reuse on the project and Owner is entitled to a right of first refusal for all materials identified to be demolished.

1.3.1 See Division 230000 for Mechanical portion, and Division 260000 for Electrical portion of demolition.

2. QUALITY ASSURANCE:

2.1 All work of this Section shall be carefully executed without damage to adjacent construction shown to remain for post construction occupancy.

2.2 All materials scheduled to be relocated or reinstalled shall be removed, cleaned, and stored in such manner that they are not damaged. This includes but is not limited to cabinets and counter tops, interior doors, and interior windows.

2.3 All equipment removed as part of this Contract, and selected by the Owner to be stored for future use by the Owner, shall be delivered to the Owner's storage area.

2.4 Maintain all legal means of egress for adjacent and affected occupied areas during all demolition activities.

3. CONDITION OF STRUCTURES:

3.1 The Owner assumes no responsibility for the actual condition of structures to be demolished.

3.2 Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, variations within the structure may occur due to work completed by the construction of earlier phases of this Project, and/or by Owner's removal and salvage operations prior to the start of the demolition work.

3.3 The Owner will be removing furnishings as required to make the work area accessible for operations.

B. EXECUTION

4. GENERAL:

4.1 Perform demolition in a systematic manner, in accordance with approved submittals.

4.2 Where required to install new finishes. Remove existing materials in a manner to accommodate new finishes including removal of all coatings, grouts, adhesives, and other bonding agents.

4.3 Where existing finishes are to remain and abut adjacent new construction, cut and remove existing materials in a neat fashion with straight edges without chipping or cracking.

5. TRAFFIC:

5.1 Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the Owner. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

6. PROTECTION:

6.1 Provide fenced passageways, as required, to ensure the safe passage of persons around the area of demolition. Conduct operations to prevent damage by falling debris or other cause to adjacent buildings, structures, landscaping and other facilities as well as persons.

6.2 Provide dust-tight barriers as required to separate construction/demolition areas from building areas occupied by the Owner during the construction period.

6.3 Cover and protect furnishings that will remain in place during the course of construction.

6.4 Cover and protect floor finishes that will remain in place during the course of construction.

6.5 Provide a weather tight and secure barrier immediately upon removal of items from exterior walls such as louvers, doors, and windows.

7. DAMAGES:

7.1 Promptly repair damages caused to adjacent facilities by demolition operations, as directed by the Architect and at no cost to the Owner.

8. UTILITY SERVICES:

8.1 Maintain existing utilities, indicated to remain, keep in service, and protect against damage during demolition operations.

8.2 Do not interrupt existing utilities serving occupied or used facilities, except when authorized by the Architect. Provide temporary services during interruptions to existing utilities, as acceptable to the Architect.

9. POLLUTION CONTROLS:

9.1 Use water sprinkling, temporary enclosures, and other suitable methods as necessary to limit the amount of dust and dirt rising and scattering in the air, to the lowest level of air pollution practical for the condition of work. Comply with the governing regulations.

9.2 Clean adjacent structures and improvements of all dust, dirt and debris caused by demolition operations, as directed by the Architect. Return areas to condition existing prior to the start of the work.

10. REMOVAL:

10.1 General: Remove from the site all debris, rubbish and other materials resulting from demolition operations. Storage or sale of materials will not be permitted on the site.

10.2 Burning: Burning of removed materials from demolished structures will not be permitted on the site.

10.3 Removal: Transport all materials, not scheduled to be delivered to the Owner, removed from demolished structures and disposed of off the site.

10.4 Recycling: Ceiling Tile shall be recycled by the original manufacturer (Armstrong) to the greatest extent possible.

- End of Section -

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cast-in-place concrete for footings and column piers.

B. Cast-in-place concrete floors and slabs on deck and on grade.

C. Cast-in-place concrete building frame members, shear walls, and foundation walls.

D. Control, expansion, and construction joints associated with concrete work, including joint sealants.

E. Beneath slab vapor barriers for concrete slabs.

F. Equipment pads, light pole bases, and miscellaneous site structures.

1.2 RELATED SECTIONS

A. Division 5 – Metals: Anchors for Structural Systems.

B. Section 07900 – Sealants.

C. Division 23 – Mechanical: Mechanical items for casting into concrete.

D. Division 26 – Electrical: Electrical items for casting into concrete.

1.3 REFERENCES

A. ACI 301 – Specifications for Structural Concrete

B. ACI 302 - Guide for Concrete Floor and Slab Construction.

C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

D. ACI 305R - Hot Weather Concreting.

E. ACI 306R - Cold Weather Concreting.

F. ACI 308 - Standard Practice for Curing Concrete.

G. ACI 309 - Recommended Practice for Consolidation of Concrete

H. ACI 318 - Building Code Requirements for Structural Concrete.

I. ACI 347 - Recommended Practice for Concrete Formwork

J. ASTM C-31 - Standard Method of Making and Curing Concrete Test Specimens in the Field.

K. ASTM C-94 - Standard Specification for Ready-Mixed Concrete.

L. ASTM C-143 - Standard Method of Test for Slump in Portland Cement Concrete

M. ASTM C-172 - Standard Method of Sampling Concrete

N. Concrete Reinforcing Steel Institute, “Manual of Steel Practice”

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Concrete: Submit evidence of the capability of the ready-mixed concrete supplier to meet the requirements of this specification, including compliance with the recommendations of ACI 301, 304, 305, 306, and ASTM C-94. The supplier shall submit applicable mix designs and certifications that meet this specification based on recent laboratory and field test results for each design mix from the supplier's plant. Recent test results shall be submitted with each mix design.

C. Submit proposed mix design of each class of concrete to Inspection Agency for review prior to commencement of Work.

D. Concrete Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement in accordance with ACI 315 and CRSI showing bar sizes, spacings, locations, quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.

E. Manufacturers Information: Submit manufacturers information for welded wire fabric, all admixtures, curing compound, vapor barrier, joint filler, and type of reinforcing support.

F. Within one week after the performance of the 7 day and 28 day concrete cylinder tests, submit the results of the tests to the Architect for review.

G. Within one week after each concrete pour, submit a legible duplicate delivery ticket for each load of concrete, including: Producer's name, delivery date and times (dispatched, delivered and finished), truck number and driver's name, number of yards, mix design, amount of water mixed at plant, amount of water added at site, number of revolutions to total discharge, concrete temperature, air temperature and pertinent weather information, water/cement ratio, slump(s), test cylinder numbers and location of pour.

1.4 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Division 1.

B. Approved set of concrete reinforcement shop drawings.

C. As-built locations of embedded utilities.

D. Maintain one copy of each document on site.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with this specification and the applicable codes and standards under Section 1.2, including CRSI Manual of Standard Practice, ACI 301, and ACI 318.

B. Inspection Agency: The Contractor will retain and pay for all services required herein for an Inspection Agency. The Inspection Agency shall not be affiliated, in any way, with any of the subcontractors or suppliers for this project, shall be licensed in the State where work is to be performed.

C. The Inspection Agency will perform the inspection and testing services specified in ACI 301.

The requirements of ACI 301, specify that one strength test consisting of a minimum of six concrete cylinders shall be cast for each 100 cubic yards, or fraction thereof, for each class of concrete placed in any one day. A set consists of two cylinders tested at 7 days, two cylinders tested at 28 days, and two cylinders retained for later testing if required. The requirement for the two retained cylinders may be waived by the Engineer if sufficient test data is obtained to establish the strength performance of the concrete. The Contractor shall provide the concrete necessary for all sampling.

1. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

D. The concrete supplier shall acquire the cement and aggregate from same source for all concrete produced for this project.

1. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.

E. The concrete construction shall conform to ACI 305R when concreting during hot weather and shall conform to ACI 306R when concreting during cold weather.

F. The Contractor shall submit the concrete mix designs with quantities of materials to achieve the concrete strength requirements and shall be substantiated by field use and laboratory test data. These concrete mix designs shall be submitted two weeks prior to use and approved for each class of concrete and/or concrete supplier. The Contractor and the Concrete Supplier shall submit manufacturer's data and information for Engineer review for concrete admixtures and curing agents.

G. Concrete slump, air content, and temperature shall be recorded for the first concrete load to be placed in the day, for each load thereafter, and for each set of concrete cylinders.

H. When the total quantity of a given class of concrete is less than 50 cubic yards per day, strength tests may be waived by the Engineer if sufficient test data indicates evidence of satisfactory strength performance.

I. Should the concrete strength by testing fall below the specified strength, the Architect shall have the right to order tests to be made of that portion of structure where questionable concrete has been placed. Tests shall be made at no increase in contract price. In the event tests indicate concrete placed does not conform to contract specifications, measures as provided by the Architect shall be taken to correct deficiencies at no increase in contract price. The Contractor shall also compensate the Owner for Architect/Engineer fees required to correct deficiencies.

J. Perform Work in accordance with this specification and the applicable codes and standards under Section 1.2, including CRSI Manual of Standard Practice, ACI 301, and ACI 318. Concrete slabs in areas to receive wood flooring shall be installed level within 1/8” in 10’ tolerance. High areas out of tolerance must be ground down leaving a smooth surface. Low areas that require fill work must be leveled with Ardex or Thoropatch (minimum 5,000 PSI).

K. Test results to be provided in writing to the Architect, Owner, Structural Engineer, and Contractor.

1.6 QUALIFICATIONS

A. The concrete specified under this specification shall be supplied by a mixing plant that has been in business in the immediate area for at least five (5) years and has the capability to meet all of the requirements herein.

1.7 COORDINATION

A. Coordinate work under provisions of Division 1.

B. Coordinate the placement of formwork, reinforcement, formed openings, control joints, expansion joints, construction joints with the erection of concrete formwork, placement of form and concrete accessories, and placement of concrete.

C. Provisions for Structural Steel

1. Locate anchor bolt patterns on exact column centers, unless otherwise noted, and incorporate bolts in pour.

2. Locate bearing plates and all other structural components as noted and incorporate into the concrete pour.

3. See the structural drawings and notes for required cover at steel reinforcing.

D. Provisions for Pipes and Conduits

1. The Contractor is responsible for the coordination of the placement of all items in a concrete pour.

2. Make provisions for the installation of sleeves, pipes, joint devices, conduits, boxes, inserts, hangers, form accessories, and Work of other trades, which shall be placed so that concrete construction shall not be weakened.

3. Minimum concrete coverage must be provided around reinforcing upon completion of the pour.

4. Each trade shall place any and all of the above inserts, but the concrete installer shall be responsible for following above procedure and maintaining position of all inserts until concrete is placed and cured.

5. When conduits or pipes embedded in slabs are of larger outside diameter than 1 ½" or when they come closer than 1 inch from the upper or lower surface of the slab, 14 gauge expanded metal or wire mesh must be laid and extended beyond such conduit or piping at least 8 inches on all sides.

6. Conduits or pipes must be spaced not closer to each other than three diameters on centers, and they must be placed prior to rebar in order to avoid altering the location of reinforcement.

7. Conduits or pipes cannot be tied parallel or close to rebar; maintain 2 inches minimum coverage around all rebar.

1.8 PRODUCT HANDLING, STORAGE, AND DELIVERY

A. Reinforcing steel, stirrups and welded wire fabric shall be tagged with permanent tags when delivered to the site; tags shall include mill information and shall be coordinated with approved shop drawings.

B. Store all reinforcing steel under cover and off the ground; protect from vehicles and other loading that would bend reinforcing.

C. Store all stirrups, moisture barrier, expansion joint filler and any other similarly damageable

materials inside, and in such a manner to keep these materials in new condition. Do not use moisture barrier for any other purpose.

1.9 JOB CONDITIONS

A. Do not place concrete during precipitation.

B. Protect fresh concrete from damage until curing is complete.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Portland Cement: ASTM C150, Type I and Type IA - Air Entraining. Minimum 5 ½ bags of cement per cubic yard of concrete for all classes of concrete. White for architectural concrete work, gray in all other applications.

B. Fine Aggregates: ASTM C33; Fine aggregate shall consist of clean, sharp, natural sand free from loam, clay lumps or other deleterious materials.

C. Coarse aggregate: ASTM C33; Coarse aggregate shall consist of clean uncoated processed aggregate containing no clay, mud, loam, or deleterious materials. Coarse aggregate shall be crushed stone, processed from natural rock or stone; washed river gravel for Architectural concrete. The coarse aggregate should not be larger than one-fifth of the minimum dimension of the member, one-third of the depth of slabs, or three-fourths of the minimum clear spacing between individual or bundled reinforcing bars. Coarse aggregate for slabs 3" and less in thickness and wall fill shall be pea gravel (1/2" maximum). Provide aggregates from a single source for all exposed surfaces.

D. Light Weight Aggregates: ASTM C330

E. Water: Clean, fresh, potable, and not detrimental to concrete. Maximum 6 gallons of water per bag of cement.

2.2 ADMIXTURES

A. Air Entrainment: ASTM C260.

B. Water Reducer: ASTM C494.

C. Calcium chloride in any form will not be permitted in any admixture or concrete.

D. No other admixtures permitted.

2.3 ACCESSORIES

A. Curing Compound: ASTM C-309, Type 1 and shall be compatible with finishes.

B. Vapor Barrier: 10 mil thick clear polyethylene film, type recommended for below grade application.

C. Expansion Joint Filler: 1/2" thick per ASTM D-1751.

D. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water

reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

E. Sealer: W. R. Meadows, Inc., Vocomp 20 Acrylic Curing and Sealing Compound.

2.4 CONCRETE MIX

A. Concrete: Deliver ready-mix concrete in accordance with ASTM C94, or volumetrically batched concrete in accordance with ASTM C-685.

B. Select proportions for normal weight concrete in accordance with ACI 301.

C. Concrete mixes shall conform to the approved mix designs.

2.5 CONCRETE REINFORCEMENT

A. Reinforcing Steel: ASTM A615, Grade 60; deformed billet steel bars unless noted otherwise.

B. Welded Wire Fabric (WWF): ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement, welded steel wire fabric, WWF 6X6 – W2.9 X W2.9, unless otherwise specified.

C. Steel Wire: ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.

D. Tie Wire: Minimum 16 gage annealed type.

E. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement including bearing pad to prevent vapor barrier puncture.

2.6 FABRICATION

A. All reinforcing shall be shop fabricated according to approved shop drawings. Intent is to field fabricate only where unavoidable, and without using heat to bend reinforcing. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice.

2.7 FORMWORK

A. Forms for Exposed Finish Concrete: Unless otherwise shown or specified, construct all formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

1. Minimum 5/8" thick Douglas Fir, Southern Pine or Western Larch BB exterior plyform, Class 1 plywood complying with PS 1-66 or metal forms.

B. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces requiring bond or adhesion, nor impede wetting of surfaces to be cured with water or curing compound.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing prior to beginning work.

B. Verify that reinforcement, embedded utilities, anchors, plates, and other concrete accessories to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 PLACEMENT OF REINFORCEMENT

A. Place support and secure reinforcement against displacement. Do not deviate from required position.

B. Maintain concrete cover around reinforcing as specified.

C. Do not displace or damage vapor barrier.

D. Accommodate placement of formed openings.

E. Refer to the Structural Drawings for additional notes and requirements.

3.3 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

B. In locations where new concrete is doweled into existing work, drill holes in existing concrete, insert steel dowels, and utilize injection adhesive for anchorage (epoxy grout).

C. Construction joints shall be located as indicated on the drawings, or as approved by the Structural Engineer. All reinforcement shall be continued across joints. The surface of the concrete and the joints shall be cleaned prior to placing adjoining concrete.

D. Expansion joints shall be total separations between adjoining concrete members; unless specified or indicated on the drawings, no reinforcement shall extend continuously through any expansion joint.

1. Provide in slabs on grade at points where slabs abut vertical surfaces such as columns, walls, piers, pedestals and as indicated on drawings.

2. Provide and install materials at expansion joint locations shown on the drawings, to full depth of slab or joint.

E. Moisture Barrier: Use under all slabs on grade, walks and similar work on ground. Place in widest practical widths with all joints lapped a minimum of 6” and sealed watertight by taping edges and ends. Turn up at edges and attach beneath expansion joint filler. All penetrations shall be sealed with collars of vapor barrier material sealed to penetration. Protect from rips.

F. Remove all debris, water or ice from forms. Wet forms thoroughly except in freezing weather. Inspect reinforcing for scale rust, mud, ice or other coatings detrimental to adhesion; clean prior to placement of concrete. Coordinate inserts, sleeves and conduits with all traces. Aluminum inserts or conduit shall not be used.

G. At all slab on grade, once the gravel layer has been placed, a plate tamper or small roller shall be used to tighten up the top of the stone layer for the entire surface of the stone.

3.4 PLACEMENT OF FORMWORK

A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied including impact loads during placement and consolidation until such loads can be supported by the concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Chamfer exposed corners and edges as indicated on the drawings. Coat the contact surfaces of forms with form-coating compound before reinforcing is placed. Extend shoring to ground, unless otherwise permitted.

3.5 PLACEMENT OF CONCRETE

A. General: Comply with ACI 304, and as herein specified. Check slump (ASTM C-143) before placing and after each addition of water. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing. Minimize dropping of concrete while depositing by the use of drop pipes, chute extensions or belt conveyors. Maintain reinforcing in the proper position during concrete placement.

B. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24” and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

   1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suit the type of concrete and project conditions.

C. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within the limits of construction joints, until the placing of a panel or section is completed.

   1. Bring slab surfaces to the correct level with a straightedge and strike off. Use bull floats or darbies to smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the slab surfaces prior to beginning finishing operations.

D. Reinforced Masonry: Provide concrete grout for reinforced masonry walls, lintels and bond beams where indicated on drawings, as scheduled, and as specified herein.

E. Place concrete in accordance with ACI 301, 304, and 318.

F. Notify Architect a minimum of 24 hours prior to placement of concrete.

G. Clean and adjust forms prior to concrete placement. Apply form release or wet forms as required.

H. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

I. Repair vapor barrier damaged during placement of concrete reinforcing. Repair with vapor barrier material; lap over damaged areas minimum 6 inches and seal watertight.

J. Separate slabs on grade from vertical surfaces with 1/2 inch thick joint filler. Place joint filler in floor slabs as specified. Set top to required elevations. Secure to resist movement by wet concrete.

K. Extend joint filler from bottom of slab to within 1/4 inch of finished slab surface. Conform to finish joint sealer requirements.

L. Install construction joint devices in accordance with manufacturer's instructions.

M. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete. Maintain correct position to allow joint cover to be flush with floor and wall finish.

N. Apply sealants in joint devices in accordance with Section 07900.

O. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

P. Place concrete continuously between pre-determined expansion, control, and construction joints.

Q. Do not interrupt successive placement; do not permit cold joints to occur.

R. Place floor slabs in saw cut pattern indicated.

S. Saw cut joints within 24 hours after placing. Use “Soff-Cut” method, cut into 1/4 depth of slab thickness.

T. Screed floors and slabs on grade level, maintaining surface flatness of maximum 1/8 inch in 10 ft.

U. In floors where floor drains are to be installed, slope concrete uniformly towards drains.

3.6 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.

D. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days and in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

E. Curing compound shall be applied in accordance with manufacturer’s instructions to all interior floor surfaces.

F. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

G. Curing Unformed Surfaces: Initially cure unformed surfaces, such as slabs and other flat surfaces by moist curing. Final cure concrete surfaces by use of moisture-retaining cover, unless otherwise directed.

H. Install sealer per manufacturer's written instructions.

I. Cure concrete to requirements of this specification.

3.7 REMOVAL OF FORMS

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts or work, may be removed after cumulatively curing at not less than 50 degrees F. for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

1. Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-curing specimens representative of concrete location or members.

3.8 FINISHING

A. Finish formed concrete surfaces to be left exposed with smooth rubbed finish. Surfaces, obtained with selected from facing material, shall be arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with all fins or other projections completely removed and smoothed.

B. Finish concrete floor surfaces with steel trowel finish. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in 10 when tested with a 10 straightedge. Grind smooth surface defects.

C. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.

D. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Architect/ Engineer upon discovery.

E. Patch imperfections as directed by the Architect with cement mortar immediately after removal of forms.

F. Contraction joints: Install contraction joints as indicated on the drawings, using a water cooled, power driven concrete saw, to cut through the top third of the slab. Locate joints to coordinate with floor covering joints.

3.9 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/8 inch in 10 ft.

B. In areas with floor drains, maintain design floor elevation at walls; slope surfaces uniformly to drains at 1/8 inch per foot in 10 feet.

C. Correct surface defects by grinding or removal and replacement of the defective work. Areas

requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.10 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Architect/Engineer.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

END OF SECTION

SECTION 054000

COLD FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Structural wall and floor framing on interior of building

B. Metal furring strips

1.2 RELATED SECTIONS

A. Section 05120 – Structural Steel

B. Section 05311 – Steel Deck

C. Section 06200 – Finish Carpentry

D. Section 09260 – Gypsum Board Systems

1.3 QUALITY ASSURANCE:

A. All work shall be in compliance with the Standard Specifications for Structural Steel for Building, and the Code of Standard Practice, adopted by the American Institute of Steel Construction. All metal stud work engaging architectural finishes shall be straight, plumb and true, and shall in no way interfere with the installation of such finishes.

1.4 SUBMITTALS:

A. Submit manufacturer's literature for all materials and installations.

B. Submit product information and plans showing member sizes, spacing, bridging, connection details, etc. Shop drawings and calculations, stamped and signed by a registered engineer licensed in the State of Maryland, must be submitted for all structural metal framing systems. The sizes indicated on the drawings should be used as a guide for engineering these systems and any changes in size should be coordinated with related trades.

1.5 WEATHER CONDITIONS

A. Comply with manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Metal Framing:

1. Cold Formed (light gauge) Metal Framing (in structural locations): Materials shall conform to ASTM A1003, dimensions as indicated on the supplier's approved shop drawings, galvanized per ASTM A1003 with a minimum G60 coating. Wall framing is to be a minimum 20 gage at a maximum spacing of 16" on center. Provide bridging, accessories and fasteners as required by job conditions and the supplier's

engineered shop drawings. Gage and strength to be determined by supplier as required for conformance with structural and building code requirements.

2. See structural notes and drawings for additional product requirements.

B. Metal Furring:

1. Roll formed, hat-shaped sections of minimum 20 gauge galvanized steel, size 0.875” x 2.75”

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install metal framing as indicated on the drawings and in compliance with manufacturer’s instructions, securely attaching track to structure as indicated on the drawings, and studs to track at 16” on center, unless otherwise noted. Provide deflection track as required.

B. Finished surfaces shall be smooth, uniform and ready to receive architectural finishes and decoration. Protect finished surfaces, and repair damaged work to the satisfaction of the Architect.

3.2 CLEAN-UP:

A. At the completion of the job, remove all excess materials from the site.

- END OF SECTION 054000 -

SECTION 055000
MISCELLANEOUS METALS AND METAL FABRICATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Shop fabricated ferrous metal items – beam lintels with masonry bearing plates

1.2 RELATED SECTIONS

A. Section 033000 - Cast-In-Place Concrete: Placement of metal fabrications in concrete.

B. Section 04300 - Unit Masonry System: Placement of metal fabrications in masonry.

C. Section 05120 - Structural steel.

D. Section 09900 - Painting: Paint finish.

1.3 REFERENCES

A. ANSI A14.3 - Ladders, Fixed, Safety Requirements.

B. ASTM A36 - Structural Steel.

C. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

D. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

E. ASTM A283 - Carbon Steel Plates, Shapes, and Bars.

F. ASTM A307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

G. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.

H. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

I. ASTM A992 – Structural Steel.

J. AWS D1.1 - Structural Welding Code.

1.4 SUBMITTALS

A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Maryland. Shop drawings shall be signed and sealed by the Professional Engineer.

B. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

C. Welders Certificates: Submit under provisions of Division 1, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.6 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC Code of Standard Practice.

B. Perform Work in accordance with AISC Section 10.

C. Maintain one copy of each document on site.

D. Fabricator: Company specializing in performing the work of this section with minimum five years documented experience.

E. Erector: Company specializing in performing the work of this section with minimum five years documented experience.

F. Design stairs and railings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Maryland.

1.7 PRODUCT DELIVERY AND STORAGE

A. Deliver materials to the site at such intervals to insure uninterrupted progress of the work.

B. Store materials to permit easy access for inspection and identification. Keep steel members off the ground, using pallets, platforms or other supports.

1. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures. Repair or replace damaged materials or structures as directed.

C. Store material under cover in a dry place and protect from mud and deterioration.

PART 2 PRODUCTS

2.1 MATERIALS – STEEL FABRICATIONS

A. Steel Sections: ASTM A36 and ASTM A992.

B. Steel Tubing: ASTM A500, Grade B.

C. Plates: ASTM A36

D. Pipe: ASTM A53, Type E or S, Grade B, Schedule 40.

E. Bolts, Nuts, and Washers: ASTM A325 galvanized to ASTM A153 for galvanized components.

F. Welding Materials: AWS D1.1; type required for materials being welded.

G. Ladders: ANSI A14.3.

H. Shop and Touch-Up Primer: SSPC 15, Type 1, red oxide.

I. Steel Grating: Metal bar type grating NAAMM MBG.

2.2 FABRICATION

A. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the final shop drawings.

B. Fabricate for delivery sequence which will expedite erection and minimize field handling.

C. Fit and shop assemble items in largest practical sections, for delivery to site.

D. Fabricate items with joints tightly fitted and secured.

E. Continuously seal joined members by continuous welds.

F. Fabricate architecturally exposed structural steel with exposed surfaces smooth, square and free of surface blemishes, including pitting, rust and scale seam marks, roller marks, rolled trade names and roughness.

1. Remove blemishes by filling, grinding, or by welding and grinding, prior to cleaning, treating and shop priming.

2. Comply with fabrication requirements, including tolerance limits, of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.

G. Properly mark and match-mark all materials for field assembly.

H. Fabricate for delivery sequence which will expedite erection and minimize field handling.

I. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

J. Conceal bolts and screws whenever possible.

K. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

L. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

M. Dissimilar Materials: Isolate metal coming in contact with other metals or materials incompatible with same, or protect as approved, generally as follows:

1. Paint dissimilar metal with heavy coat of bituminous paint, or fill solidly between metals with best grade caulking material as approved, or isolate the two metals with non-absorptive tape or gasket.

N. Welding: Structural steel per AWS D1.1 and sheet Steel per AWS D1.3. Where possible, locate welds on unexposed side. Grind exposed welds smooth and true to contour of welded member and remove weld splatter.

2.3 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

2.4 FINISHES - STEEL

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Do not prime surfaces in direct contact with concrete or where field welding is required.

C. Prime paint items with one coat.

D. Do not paint contact surfaces which are to be welded or high strength bolted.

E. Apply two coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish from the first.

F. Structural Steel Members: Galvanize after fabrication to ASTM A123. Provide minimum 1.25 oz/sq ft galvanized coating.

G. Non-structural Items: Galvanized after fabrication to ASTM A123. Provide minimum 1.25 oz/sq ft galvanized coating.

H. Where steel is scheduled to be galvanized and painted, omit the quenching process of steel for adequate paint adhesion as recommended by the coating manufacturer.

I. Shop Painting (Non-galvanized Ferrous Metal)

1. Cleaning: After fabrication, clean all items of loose scale, rust, oil, dirt or other foreign matter.

2. Minimum Surface Preparation: SSPC SP-11 or blast clean in accordance with SP-6.

3. Solvent Cleaning (SSPC Spec. No. SP-1): Perform where necessary.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply steel items required to be cast into concrete or embedded in masonry with setting templates to appropriate sections.

3.3 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components indicated on shop drawings.

D. Perform field welding in accordance with AWS D1.1.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.4 ERECTION TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

3.5 SCHEDULE

A. The following Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.

1. Lintels: As detailed; prime paint for interior application and galvanized for exterior exposure.

2. All other miscellaneous angles, channels, plates and tubes as indicated and required.

3.6 FIELD QUALITY CONTROL

A. Division 1 - Quality Assurance: Field inspection, including but not limited to, inspection and testing of bolt torquing, welds, torquing of fasteners, inspection of steel for plumbness and alignment, and painting.

END OF SECTION

SECTION 079000

JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Preparing substrate surfaces.

B. The required applications of sealants include, but are not limited to, the following general locations in new work, or in areas disturbed by the work of this project:

1. Exterior:
   a. Metal Door Frames
   b. Cast-In-Place concrete slabs and walks
   c. Expansion and control joints
   d. Flashing reglets
   e. Roof penetration perimeter joints
   f. Window perimeter joints
   g. Joints between dissimilar materials, including, but not limited to the following: edges of CMU/face masonry and door/window frame units, at sheet metal work, at steel lintels, at control and expansion joints in masonry, at edges of soffit board, at perimeter of roof expansion joint, between different masonry surfaces
   h. Others as indicated and required due to job conditions.

2. Interior:

   a. Control and Expansion joints.
   b. Metal Door and window frames.
   c. Toilet fixtures.
   d. Casework tops and backsplashes.
   e. Tackboard/Markerboard perimeters (fixed units only).
   f. Joints at all surfaces to receive opaque finish.
   g. Joints between steel columns and masonry walls.
   h. Joints between all dissimilar materials unless otherwise noted.
   i. Other as indicated.

1.2 RELATED SECTIONS

A. Sections 02325 and 02511: Sealants required in conjunction with paving.

B. Section 03300: Sealants required in conjunction with cast-in-place concrete.

C. Section 07611: Sealants required in conjunction with roofing.

D. Section 07620: Sealants required in conjunction with metal flashings and roofing.

E. Section 08800: Sealants required in conjunction with glazing methods.

1.3 REFERENCES

A. ASTM C790 - Use of Latex Sealing Compounds.

B. ASTM C804 - Use of Solvent-Release Type Sealants.

C. ASTM C834 - Latex Sealing Compounds.

D. ASTM C920 - Elastomeric Joint Sealants.

E. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers.

F. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and color availability.

C. Samples: Submit two samples illustrating sealant colors for selection.

D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation and perimeter conditions requiring special attention.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Specified work shall be installed by skilled tradesmen, experienced in the application of the types of materials.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Applicator: Company specializing in performing the work of this section with minimum five years documented experience.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation. Apply compound prior to final coat of paint.

1.8 PRODUCT DELIVERY, HANDLING AND STORAGE

A. Deliver all materials to job site in factory sealed and labeled containers; label shall show: Manufacturer, Type, Date of Manufacture, Shelf Life, Curing Time at 70 degrees F, Color and Manufacturer’s Instructions.

1.9 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.10 WARRANTY

A. Provide five year warranty under provisions of Division 1.

B. Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal, water tight seal and exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.0 MANUFACTURERS:

A. Sika Corporation

B. Pecora Corporation

C. Sonneborn – Chemrex

D. Tremco, Inc.

2.1 SEALANTS

A. Back-up Materials: Flexible closed cell, expanded polystyrene or polyethylene round rodding, with diameter 1.333 times width of joint

B. Exterior Sealant: Sikaflex-1A, premium grade, or component, polyurethane sealant, Fed. Spec. TT-S-00230C, Type II, Class A, color as selected by the Architect

C. Interior Sealant: Acrylic Emulsion Latex Type C: ASTM C834, single component; color as selected by the Architect

D. Interior Walls/Floors (Ceramic Tile): Pecora Urexpan NR-201, one part, self-leveling, moisture curing polyurethane sealant, designed for horizontal joints, Fed. Spec. TT-5-00230C, Type I, ASTM C920, color as selected by the Architect

E. Primers, Cleaners and Bond Breaker Tape: Provide as recommended by sealant manufacturer's installation instructions for the conditions and locations indicated on the drawings.

F. All sealants and sealant primers must meet or exceed Bay Area Air Quality Management District Reg. 8, Rule 51.

2.2 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 30 percent larger than joint width; manufactured by Dow Chemical, Sonneborn or approved equivalent.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with ASTM C804 for solvent release and ASTM C790 for latex base sealants.

D. Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

A. Perform installation in accordance with ASTM C804 for solvent release and ASTM C790 for latex base sealants.

B. Measure joint dimensions and size materials to achieve required 2:1 width/depth ratios.

C. Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.

D. Install bond breaker where joint backing is not used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

3.4 CLEANING

A. Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

A. Protect finished installation under provisions of Division 1.

B. Protect sealants until cured.

- END OF SECTION 079000 -

SECTION 081200

ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes aluminum doors and frames associated with new aluminum entrances and storefronts.

B. Work shall be conducted in accordance with General Conditions, Supplementary Conditions, Division 1 and the requirements of this Section.

C. Related Sections:

1. Section 079000 - Joint Sealants: Caulking between aluminum and adjoining building construction.

2. Section 087100 - Finish Hardware: Finish hardware including cylinders.

1.2 SCOPE

A. Thermal Movement: Fabricate exterior components from manufacturer's stock systems, which have been designed to provide for expansion and contraction resulting from ambient temperature range of 120 degrees F.

B. Wind Loading: Fabricate exterior components from manufacturer's stock systems which have been tested in accordance with ASTM E-330 to withstand at least the following loadings:

1. Uniform pressure of 20 pounds per square foot inward and 20 pounds per square foot outward.

C. Deviations: Plans, elevations and details show spacing of members as well as profile and similar dimensional requirements of aluminum entrances and storefront work. Minor deviations will be accepted in order to utilize manufacturer's standard products when, in Architect's sole judgment; such deviations do not materially detract from design concept or intended performances.

1.3 STANDARDS

A. Reference: Comply with applicable provisions of AAMA, Metal Curtain Wall, Window, Storefront and Entrance Guide Specifications Manual.

1.4 ENVIRONMENTAL ATTRIBUTES

A. Manufacture and Content:

1. Recycled Content: Provide aluminum products containing 20 percent minimum postconsumer recycled content aluminum material.

1.5 SITE CONDITIONS

A. Field Measurements: Take field measurements; check elevations and connecting work affecting Work of this Section.

B. The finish hardware supplier shall be responsible for furnishing physical hardware to the entrance manufacturer prior to fabrication. The finish hardware supplier shall also be responsible for coordinating hardware delivery requirements with the hardware manufacturer, the general contractor and the entrance manufacturer to insure the building project is not delayed.

1.6 SUBMITTALS

A. Shop drawings shall be in accordance with the General Conditions, Supplementary Conditions and Division 1.

1. Include elevations, detail sections of typical composite members, anchorages, reinforcement and expansion provisions.

B. Samples: Submit samples of each type and color of aluminum finish on 12 inch long sections of extrusions or formed shapes and on 6 inch square sheets.

C. Product Data: Submit manufacturer's specifications, standard details and installation recommendations for components of aluminum entrances and storefronts required for project, including data that products have been tested and comply with performance requirements.

D. Accurately document (with supporting information) the use of recycled materials, as required by Section 01350 - Special Procedures (LEED Certification), and post to the Schedule of Materials Costs.

1.7 WARRANTIES, GUARANTEES, TESTING

A. Provide written warranty signed by manufacturer, installer and contractor agreeing to replace aluminum entrances and storefront, which fail in materials or workmanship within two years of acceptance. Failure of materials or workmanship includes excessive leakage or air infiltration, excessive deflections, faulty operation of entrances, deterioration of finish or construction in excess of normal weathering and defects in hardware, weather-stripping and other components of the work.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following:

1. Kawneer Company, Inc.

2. Vistawall Architectural Products

3. YKK AP America, Inc.

4. Substitutions: Section 01600 - Product Requirements.

2.2 MATERIALS

A. Aluminum Extrusions: Conform to ASTM B-221, Type 6063-T5 or alloy consistent with desired finish, not less than 0.125 inch thickness for all principal members; other interior members – 0.050 inch thickness; exterior trim members and snap-on covers - 0.050 inch thickness, minimum.

B. Fasteners: Stainless steel or heat-treated aluminum for unexposed fastening of aluminum-to aluminum and aluminum-to-steel; otherwise, exposed fasteners shall be aluminum-finished in the finish matching the aluminum extrusions.

C. Bituminous Coatings: Cold-applied asphalt mastic complying with SSPC-PS 12 compounded for 30-mil thickness per coat.

2.3 STILE AND RAIL-TYPE DOORS

A. Style: Kawneer Wide Stile Model 500 - modified.

B. Construction: Form from extruded sections, assembled with tension rods, top and bottom, or mechanical bolted joints top and bottom and electric arc sigma-welded without creating blemishes on exposed surfaces.

C. Glazing: Doors shall have extruded aluminum snap-in-glass stops with neoprene insets for puttyless glazing.

2.4 FRAMING SYSTEMS

A. Interior Framing (Nonthermal Break):

1. Framing systems shall be Trifab VG 450 as manufactured by Kawneer or equal as approved by the Architect.

2. The framing system shall provide for flush glazing on all sides with no projecting stops. Vertical and horizontal framing members shall have a nominal face dimension of 1-3/4 inches. Overall depth shall be 4-1/2 inches. Entrance framing members shall be compatible with glass framing in appearance. All single acting entrance frames shall include the positive barrier weathering.

B. Construction:

1. Tubular sections shall be extruded aluminum not less than 1/8-inch thickness, type as indicated on the drawings, designed for 1 inch insulating glass.

2. Door stops shall be applied to tubular sections with concealed fastenings and shall be fitted with neoprene or wool pile insert for weatherproofing and silencing.

3. Door frames shall have butts fully mortised with steel tapping backing plates. No slotting of frames will be permitted.

4. Glass Stops: Sash members shall have permanent clips to hold glass in place before face member is installed.

2.5 ALUMINUM CLOSURES

A. Where closures (break metal) are indicated and required, provide angles and covers formed of 0.125-inch minimum thickness aluminum with matching finish herein specified.

2.6 FINISH

A. All exposed surfaces shall be free of die marks, grinding marks, spots, streaks or other blemishes and shall have the following finishes.

1. Provide Anodized finish system - Clear.

PART 3 EXECUTION

3.1 INSPECTION

A. Condition of Surfaces: Installer shall inspect the substrates to which the work of this section adjoins. No work shall be installed until corrections to substrates have been performed by the trades involved.

3.2 INSTALLATION

A. Framing Members: Install in accordance with manufacturer's approved shop drawing in prepared opening. Members shall be level, square, plumb and at proper elevations and in alignment with other work.

B. Cutting and Fitting: All materials shall be accurately cut and fitted and rigidly secured in place. All cut and machined ends and recesses shall be true, accurate and free of burrs or rough edges.

C. Fastenings: For block walls, use only with toggles with finished heads; fastenings in concrete walls may be made with bolts let into expansion sleeves. Provide 1 inch diameter access hole in aluminum tube for installation of anchoring bolts. Access hole shall be located under doorstop.

D. Use care in subsequent operations to prevent distortion or damage and replace any damaged work with new material.

E. Caulking: Provide clearance between storefront metal and opening substrate for caulking with adjoining building construction. All joints in storefront metal shall be sealed during fabrication.

F. Hardware: Properly install and adjust. Final adjustment shall be made for proper and easy operation of the doors after glazing.

3.3 CLEANING AND PROTECTION

A. Cleaning: After installation, framing members shall be cleaned following procedure recommended by the manufacturer.

B. Dissimilar Materials: In addition to the finish specified, aluminum surfaces that will contact masonry, concrete, wood or steel shall be protected from contact by a coat of bituminous paint to prevent galvanic or corrosive action.

C. Masking: Apply waterproof masking tape to aluminum surfaces remaining exposed on the interior of the building, which may be splattered with mortar, plaster, paint or other disfiguring materials.

D. Protection shall be as recommended by the manufacturer and approved by the Architect. The contractor shall protect storefront from damage during subsequent construction activities. Damaged materials shall be replaced at no additional cost to the Owner.

3.4 OWNER'S INSTRUCTIONS

A. Instructions: Owner's representative shall be given written and verbal instructions as to the procedures required for keeping the work herein specified, maintained, cleaned with appropriate products and adjusted.

B. Tools: Adjusting wrenches and small tools furnished with operating hardware shall be turned over to Owner's representative, properly tagged.

C. Control: The foregoing shall not relieve the contractor of any responsibilities under the guarantee specified hereinbefore.

- END OF SECTION 081200 -

SECTION 081213

STANDARD STEEL FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel frames.

B. Specification applies to all steel door frames, and steel frame components such as side lites, borrowed lites, transom frames, and architectural stick assemblies as shown on architect's plans and schedules and as conforming to the latest edition of ANSI SDI-250.8.

C. Refer to drawings, details and schedules for items requiring hollow metal. It is the intent of this section to include all hollow metal required for the project, except for items which are specifically noted as being specified in other sections of the specifications.

1.2 RELATED SECTIONS

A. Section 08 14 29 – Flush Wood Doors.

B. Section 08 71 00 - Finish Hardware.

C. Section 09 90 00 - Coatings: Field painting of frames.

1.3 REFERENCES

A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.

B. ANSI/SDI-250.8, SDI-100 Recommended Specifications for Standard Steel Doors and Frames.

C. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

D. ASTM E152 - Methods of Fire Tests of Door Assemblies.

E. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

F. NFPA 80 - Fire Doors and Windows.

G. NFPA 252 - Fire Tests for Door Assemblies.

H. UL 10B - Fire Tests of Door Assemblies.

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Submit for review, six (6) complete copies of the Hollow Metal shop drawings covering complete identification of all items required for the project. Include manufacturer's names and identification of product. Include six (6) complete copies of catalog cuts and/or technical data sheets and any other data as may be required to show compliance with these specifications.

C. Shop Drawings: Indicate frame elevations, reinforcement, and finish.

D. Product Data: Indicate frame configuration, anchor types and spacings, location of cut-outs for hardware, reinforcement.

E. Manufacturer's Installation Instructions: Indicate special installation instructions.

F. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

G. SAMPLES:

1. Submit an 18” x 24” cut-away sample frame with provisions for lockset, hinge and corner section of door frame. (submit sample with HM door sample).

2. Sample shall show profile, welded corner joint, welded hinge reinforcement, dust cover boxes, floor and wall anchors, and silencers. Include panel and louver sections and glazing stops where applicable.

1.5 QUALITY ASSURANCE

A. Conform to requirements of ANSI/SDI-100- Standard Steel Doors and Frames; ANSI/SDI-105 – Recommended Erection Instructions for Steel Frames and ANSI A117.1. Maintain one copy of each document on site.

B. Hollow metal supplier shall be a qualified direct distributor of products to be furnished. In addition the distributor shall have in their regular employment an Architectural Hardware Consultant (AHC) or Certified Door Consultant (CDC), or person of equivalent experience who will be available to consult with the Architect and contractor regarding any matters affecting the door and frame opening.

C. Conform to requirements of the above referenced standards. Test reports shall be submitted upon request.

D. Acoustical Requirements: All doors shall have a minimum sound transmission classification of 29.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products to site under provisions of Division 1.

B. Accept frames on site in manufacturer's packaging. Inspect for damage.

1.8 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.9 COORDINATION

A. Coordinate the work with frame opening construction, door and hardware installation, including electrified hardware as required.

PART 2 PRODUCTS

2.1 FRAME MANUFACTURERS

A. Steelcraft.

B. Pioneer.

C. Curries.

D. Ceco.

2.2 FRAMES

A. Exterior Frames: 14 gage thick material, base metal thickness. All exterior frames are to be galvanized.

B. Interior Frames: 16 gage thick material, base metal thickness.

2.3 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole.

B. Bituminous Coating: Fibered asphalt emulsion.

C. Primer: Zinc chromate.

2.4 FABRICATION

A. Fabricate all exterior frames, borrowed lite frames, and frames including sidelites and/or transoms as a welded unit. Other frames may be provided as knock-down.

B. Fabricate frames with hardware reinforcement plates welded in place. Provide mortar guard boxes.

C. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.

D. Prepare frame for silencers. Provide three single silencers for single doors and mullions of double doors on strike side. Provide two single silencers on frame head at double doors without mullions.

E. Fabricate selected frames to suit masonry wall or ICF unit coursing with 4 inch head member as shown on architectural drawings.

2.5 FINISH

A. Steel Sheet: Galvanized to ASTM A525 A60.

B. Primer: Baked.

C. Coat inside of exterior frame profile with bituminous coating to a thickness of 1/16 inch.

D. Field painted, as per specifications section 09900, color as selected by Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

A. Install frames in accordance with ANSI/SDI-250.11 and DHI A115.1G.

B. Coordinate with masonry wall construction for anchor placement.

C. Coordinate installation of glass and glazing.

D. Coordinate installation of frames with installation of hardware specified in Section 08710 (including electrified hardware as required) and doors in Section 08111 and Section 08211.

3.3 ERECTION TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

– END OF SECTION 081213 –

SECTION 081429

FLUSH WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration.

B. Factory finishing of flush wood doors.

C. Metal door frames for flush wood doors are specified under section 081213 Standard Steel Frames.

1.2 RELATED SECTIONS

A. Section 08 12 13 - Standard Steel Frames.

B. Section 08 71 00 - Door Hardware.

C. Section 08 81 00 - Glazing.

1.3 REFERENCES

A. NWWDA Industry Standard I.S.1-87 Flush wood doors.

B. ANSI/HPMA HP - Hardwood and Decorative Plywood.

C. ASTM E413 - Classification for Determination of Sound Transmission Class.

D. AWI - Quality Standards of the Architectural Woodwork Institute.

1.3 SUBMITTALS

A. Submit under provisions of Division 1.

B. Shop Drawings: Illustrate door opening criteria, location, elevations, sizes, types, swings, undercuts required, special beveling, special location and blocking for hardware, identify cutouts for glazing and louvers, fire ratings, requirements for factory finishing and other pertinent data.

C. Product Data: Indicate door core materials and construction; edge construction; trim for openings and louvers; veneer species, type and characteristics; factory machining criteria and factory finishing criteria.

D. Samples: Submit two samples of door construction, 12 x 12 inch in size cut from top corner of door.

E. Samples: Submit two samples of door veneer, 12 x 12 inch in size illustrating the following:

1. Doors with transparent finish: Door faces with solid wood edging representing typical range of color and grain for each species of veneer and solid lumber required.

2. Factory-finished doors: Each type of factory finish required.

3. Frames: For light Openings: light frames in 6” lengths; for each material, type, and finish required.

F. Manufacturer's Installation Instructions: Indicate special installation instructions.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with AWI Quality Standard Section 1300, Custom Grade.

B. Finish doors in accordance with AWI Quality Standard Section 1500.

C. NWWDA Quality standard: I.S.I. “Industry Standard for Wood Flush Doors”, of National Wood Window and Door Association. (NWWDA).

D. Obtain all wood doors from single manufacturer. Underwriters’ Laboratories and Intertek Testing Services / Warnock Hersey, Positive Pressure - Category A labeled fire wood doors:

1. Label fire doors listed in accordance with Underwriters Laboratories standard UL10C, Positive Pressure Fire Tests of Door Assemblies and Air Leakage Tests of Door Assemblies - UL 1784.

2. Construct and install doors to comply with applicable issue of ANSI/NFPA 80.

3. Manufacture Underwriters' Laboratories labeled doors under the UL factory inspection program and in strict compliance to UL procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.

4. Manufacture Intertek Testing Services / Warnock Hersey labeled doors under the ITS/WH factory inspection program and in strict compliance to ITS/WH procedures, and provide the degree of fire protection capability indicated by the opening class.

5. Affix physical label to fire doors at an authorized and licensed facility as evidence of compliance with procedures of the labeling agency. Labels to be metal. Labels are not to be removed, defaced or made illegible while the door is in service as covered in NFPA 80. Fire labels are not to be painted or pre-finished.

6. Fire doors with continuous hinges shall have the physical label located on the top rail of the door.

7. Conform to applicable codes for fire ratings. It is the intent of this specification that wood doors comply or exceed the standards for labeled openings. In case of conflict between door types required for fire protection, furnish the type required by NFPA and UL.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with AWI Section 1300.

B. Protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges if stored more than one week. Break seal on-site to permit ventilation.

C. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet “How to store, handle, finish, install, and maintain wood doors”, as well as with the manufacturer’s instructions.

D. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door frames and hardware, using temporary, removable or concealed markings.

E. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project’s geographical location: Referenced AWI quality standard including Section 100-S-3 “Moisture Content”.

1.7 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.8 COORDINATION

A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.9 WARRANTY

A. General: Warranties shall be in addition to, and not a limitation of, other rights the owner may have under the Contract Documents.

B. Door Manufacturer’s Warranty: Submit written agreement indoor manufacturer’s standard form signed by Manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist), or that show telegraphing of core construction in face veneers, or have veneer delamination, or do not conform to tolerance limitations of referenced quality standards.
   1. Warranty shall also include reinstallation which may be required due to repair or replacement of effective doors where defect was not apparent prior to hanging.

   2. Warranty shall be in effect during following period of time after date of Substantial Completion.

      a. Solid Core Interior Doors: Life of the Installation.

C. Contractor’s Responsibilities: Replace or refinish doors where Contractor’s work contributed to rejection or to voiding of manufacturer’s warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Algoma Hardwoods, Inc.

B. Eggers

C. Graham

2.2 DOOR AND TRANSOM PANEL TYPES

A. Flush Interior Doors: 1-3/4 inches thick; solid core construction as indicated.

2.3 DOOR AND TRANSOM PANEL CONSTRUCTION

A. Core Solid, Non-Rated: Stave Lumber Core (SLC-5) may be a combination of solid, low-density hardwood lumber blocks or strips not more than 2-1/2" wide of one species of wood between 6% to 9% moisture content. Joints to be tight and staggered in adjacent rows. Lumber density is 25 to 27 lbs. per cubic foot.

B. Fire Rated Wood Doors: Where fire-resistance classifications are shown or scheduled, provide doors which are like the non-fire rated doors above but comply with the WDMA standards for fire rated doors. Doors will meet the requirements of NFPA 80 "Standard for Fire Doors and Windows". Fire rated doors shall bear the label of an inspection program in compliance with UL or ITS/WH procedures.

C. Crossbands to be wood-based composites of a minimum thickness of 1/16". Crossbands and face veneers are laminated to the core with Type 2 interior use glue using the Hot Press process. Crossbands must extend the full width of the door. Minimum properties include internal bond of 100 psi and density of 50 lbs. per cubic foot.

D. Stiles & Rails - Stiles are hardwood, one piece, laminated or veneered. Rails are solid wood, structural composite lumber meeting the minimum requirements of WDMA.

E. Composite wood and adhesive products to contain no added urea formaldehyde resins and meet VOC limits of South Coast Air Quality District Rule #1168.

2.4 FLUSH DOOR FACING

A. Veneer Facing Flush Interior Doors with transparent finish: AWI Premium Grade; wood species and stain color to match existing adjacent doors.

2.5 LOUVER AND LIGHT FRAMES:

A. Manufacturer’s standard steel Manufacturer’s standard fire-rated and non-rated steel installation kits for louvers and glazing.

2.6 ADHESIVE

A. Facing Adhesive: Type I – waterproof, compliant with VOC requirements.

2.7 FABRICATION

A. Fabricate non-rated doors in accordance with AWI Quality Standards requirements.

B. Provide lock blocks at lock edge and top of door for closer for hardware reinforcement.

C. Vertical Exposed Edge of Stiles: Of same species as veneer facing. Hardwood for transparent finish.

D. Fit door edge trim to edge of stiles after applying veneer facing.

E. Bond edge banding to cores.

F. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware. Provide solid blocking for through bolted hardware.

G. Factory pre-fit doors for frame opening dimensions identified on shop drawings.

H. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory pre-machining.

I. Provide adequate undercut for thresholds specified.

J. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.

1. Light Openings: Trim openings shall be metal kits.

2.8 FINISH

A. Factory finish doors in accordance with AWI Quality Standard Section 1500 to the following finish designations:

1. Comply with the requirements indicated for grade, finish system, staining effect and sheen.

a. AWI grade: Premium

b. Finish: AWI System water based epoxy

c. Staining: Per Architect

d. Effect: Filled Finish

e. Sheen: Satin-medium rubbed effect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine installed door frames prior to hanging door:

1. Verify that frames comply with indicated requirements for type, size, location and swing characteristics and have been installed with plumb jambs and level heads.

2. Reject Doors with defects.

3. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment, until conditions have been corrected.

3.2 INSTALLATION

A. Install all doors to comply with Manufacturer's instructions and in accordance with AWI Quality Standards requirements and as indicated: Bevel non-rated doors 1/8" in 2" at lock and hinge edges.

B. Trim non-rated door width by cutting equally on both jamb edges.

C. Pre-Fit doors: Fit to frames for uniform clearances at each edge. Trim door height by cutting bottom edges to a maximum of 3/4 inch. Restore finish on Factory finished doors prior to installation if fitting or matching is required at the job site.

D. Pilot drill screw and bolt holes.

E. Machine cut for hardware. Core for handsets and cylinders.

F. Coordinate installation of doors with installation of frames specified in Section 08112 and hardware specified in Section 08710.

G. Coordinate installation of glass and glazing.

H. Install door louvers, plumb and level.

3.3 INSTALLATION TOLERANCES

A. Conform to AWI requirements for fit and clearance tolerances.

B. Maximum Diagonal Distortion (Warp): 1/8 inch measured with straight edge or taught string, corner to corner, over an imaginary 36 x 84 inch surface area.

C. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taught string, top to bottom, over an imaginary 36 x 84 inch surface area.

D. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taught string, edge to edge, over an imaginary 36 x 84 inch surface area.

3.4 ADJUSTING

A. Adjust door for smooth and balanced door movement, protect from damage until accepted by owner at substantial completion date.

B. Re-hang or replace doors which do not swing or operate freely.

C. Finished doors: Refinish or replace doors damaged during installation.

- END OF SECTION 08 14 29 -

SECTION 087100 - FINISH HARDWARE
Approved by FCPS – 2/6/2019

PART 1 GENERAL

1.01 DESCRIPTION:

A. Provide all work necessary to complete all finish hardware work as shown on the drawings or inferable therefrom and/or specified herein, in accordance with the requirements of the Contract Documents.

1.02 RELATED SECTIONS:

A. 06200: Finish Carpentry
B. 08110: Steel Doors and Frames
C. 08210: Wood Doors
D. 08410: Aluminum Storefront Systems (this section shall require hardware by section 08710 specified herein).
E. 16700: Electrical Work
F. Overhead Roll-up Doors (7-pin SFIC cylinder)
G. Kitchen Equipment (7-pin SFIC cylinder)
H. Sound Module (9K cylindrical lock)
I. Folding Doors and Partitions (7-pin SFIC cylinder)
J. Security Gate (7-pin cylinder)
K. Walk-in Freezer or Refrigerator (Best 7-pin padlock)
L. Elevators/ADA Chair Lift (7-pin SFIC cylinder)

1.03 DETAILS OF WORK:

A. Refer to drawings, details and schedules for items requiring finish hardware. It is the intent of this section to include all finish hardware required for the project, except for items, which are specifically noted as being specified in other sections of the specifications.

B. Coordinate the application of hardware items with door and frame details and with methods of fastening as hereinafter specified.

C. Furnish complete templates, schedules and fastening details to door and frame manufacturers and other trades requiring same, to insure doors and frames are properly cut, reinforced and prepared to receive hardware.

D. Single source, furnish only the products of one manufacturer where several manufacturers are specified for one type of hardware.

E. Work includes, but not limited to the following items:

Hinges
Lock and latch sets

Deadlocks
Exit devices and removable mullions
Door closers
Electro-magnetic door release
Electro-magnetic locks
Power supply
Key switch
Overhead stops and holders
Push and pull plates
Kick and armor plates
Flush bolts
Floor and/or wall stops
Thresholds
Astragals
Weather-stripping
Gasketing
Door silencers
Key cabinet

F. Work specified to be provided under other sections, includes rough carpentry and items of finish hardware so specified or provided as part of other sections, including the following;

Hardware For:

Windows
Toilet partitions
Operable partitions
Lockers
Cabinets or casework
Roof scuttles
Fence or gates

1.04 REQUIREMENTS OF REGULATORY AGENCIES:

A. Furnish finish hardware in accordance with the requirements, under the published procedures of the following recognized agencies. Wherever possible all hardware and its application are intended to comply with the latest edition of CABO/ANSI A117.1, NFPA 80, NFPA 101 and NFPA 105. It is the intent of this specification that all hardware and its application shall comply or exceed the standards for labeled openings. In case of conflict between type of hardware specified and type required for fire protection, furnish type required by NFPA and UL.

1.05 QUALITY ASSURANCE:

A. All work performed and all materials furnished shall be in conformity with the contract requirements.

B. All products listed herein are intended to describe quality, type and function of items listed. Accuracy, and strict compliance with the samples and descriptive literature upon which acceptance is based, shall be the sole responsibility of this supplier.

C. If the Architect finds materials or the finished product in which the materials are used are not in complete conformity with the contract requirements and has resulted in an inferior or unsatisfactory product, the materials shall be removed and replaced by and at the expense of the supplier.

D. The supplier shall be responsible for the provisions, proper coordination and function of the finish hardware required for all openings.

1.06 SUPPLIER QUALIFICATIONS:

A. The hardware supplier shall, in the opinion of the Architect, have sufficient experience and shall have an Architectural Hardware Consultant (AHC) as certified by the Door and Hardware Institute, as a full time employee of its organization. The Architectural Hardware Consultant shall be available to attend job meetings as required.

B. After delivery of hardware and prior to its installation, the hardware consultant shall meet with the Architect and Contractor to compare final samples with actual hardware delivered. To assure acceptability, they shall review catalogs, brochures, templates, installation instructions, final hardware schedule, and shall rehearse installation, procedures and workmanship, with special emphasis on unusual conditions to ensure correct technique of installation, and coordination with other work.

C. The hardware supplier shall maintain a warehouse and office within a fifty (50) mile radius of the job and maintain an inventory and field service staff in order to service the project properly.

1.07 SUBMITTALS:

A. Submit, for review, six (6) complete copies of the finish hardware schedule covering complete identification of all items required for the project. Include manufacturer's names and identification of finishes. Include six (6) complete copies of catalog cuts and/or technical data sheets, identifying each item of hardware and any other data as may be required to show compliance with these specifications. The data on the shop drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable the Architect to review the information as required. These schedules shall be prepared in conformity with the best practice and standards of the Door and Hardware Institute.

B. Include a separate keying schedule, which shall include Architect’s door numbers,

hardware headings, room description numbers and Owner's revised room description numbers as part of the final submittal of the hardware schedule. Schedule format to include an additional column to allow for Owner's revised room description numbers. Upon final approval of the keying requirements by the Architect and Owner, the Owners room numbers shall be listed in the appropriate column and resubmitted to Frederick County Public Schools for final review and approval.

C. The Architect's review of schedules shall neither be construed as a complete check nor shall it relieve the Contractor of responsibility for errors, deviations or omissions from the specified requirements to provide complete hardware for the project.

D. After approval of the hardware schedule the hardware supplier shall furnish to FCPS, four (4) complete sets of manufacturers warranties and product data.

All information will be submitted bound in a hardware schedule cover and shall contain the following information in the order as listed:

- Hardware schedule cover sheet
- Index of manufacturer's
- Manufacturers catalog cuts in the order as listed in the index
- Catalog cuts to be color coded and identified
- Warranties to be listed in order of index the supplier shall also make available to the owner any service manuals for locksets.

1.08 SAMPLES:

A. In conjunction, and concurrent therewith, with the submission of the finish hardware schedule, submit to the Architect, samples of each typical item of exposed hardware in specified finish. Submission of samples prior to installation is mandatory. Architect's review of samples will be for design, pattern, finish and color only. All other requirements are the exclusive responsibility of the Contractor.

B. Samples Required

1. Hinges, each type.
2. Lockset with lever, SFIC cylinder.
3. Panic device, rim type with trim.
4. Pulls complete with mounting accessories.
5. Push plate with fasteners.
6. Surface mounted closer.
7. Overhead holder/stop
8. Floor and/or wall bumpers

C. After final review, deliver samples to job site for comparison with hardware delivered for installation. Unblemished samples may be used as part of the Work.

1.09 PRODUCT HANDLING AND STORAGE:

A. Package and label each item of hardware separately. Tag each item in accordance with the final hardware schedule. Each package shall contain appropriate fastenings, instructions and installation templates. Protect all items from loss or damage in shipment.

B. The General Contractor shall be responsible for receiving and providing an adequate secured storage area for all hardware. Materials shall be stored so as to assure the preservation of its quality and acceptability for the work. Locate stored material to facilitate its prompt inspection by the Architect.

PART 2 PRODUCTS

2.01 GENERAL:

A. Refer to hardware sets for application of individual hardware items as referenced to each opening or function.

2.02 HARDWARE FINISHES:

A. Produce finishes to exact match with Architect's selected samples. Variances in the color of each finish shall be minimized regardless of whether the base metal is cast, forged or stamped, or when plating is applied over steel, brass or bronze. Comparative finishes shall appear the same when viewed two feet apart and three feet away. The two samples shall be under the same lighting conditions and on the same relative plane. The finish for each item of hardware shall match the finish selected for lock and latch sets. The type of finish for each hardware item is indicated in the hardware sets.

2.03 HARDWARE MOUNTING HEIGHTS:

A. The following mounting heights shall apply throughout the work unless otherwise shown or specified and shall comply with the locations for hardware as recommended by the Door and Hardware Institute, other than as specified herewith.

Centerline of strike for levers	40-5/16
Centerline of exit device touch pad	40"
Centerline of strike for dead locks	48"
Centerline of push plates	40"
Centerline of door pulls	40"

2.04 FASTENERS:

A. Provide concealed fastenings wherever possible. The use of self-tapping or sheet metal screws is prohibited on all hardware except kick plates and push plates. All

exit devices and door closers shall be through-bolt mounted.

1. Concealed Fasteners: Furnish hardware items complete with appropriate type and length of screws or other fastenings suitable to ensure proper application.

2. Exposed Fasteners: Furnish hardware with countersunk Phillips oval head type screws where concealed fastening is not possible. The finish or color of these screws shall harmonize with the product as to finish and material.

2.05 MATERIALS AND MANUFACTURERS:

A. Acceptable manufacturers for the various items specified are listed below. Products of the underlined manufacturers are ones used in this specification to denote the quality, type, design and function of hardware required. The items of hardware as specified by manufacturer's name and product nomenclature shall comply with any additional features and/or modifications such as base material, finishes, fasteners, etc. The manufacturer and supplier shall be responsible to comply with these requirements as a part of their acceptance. The special features as specified supersede the manufacturer's standard product. Only equivalent products of the listed manufacturers will be accepted. Items listed with NO SUBSTITUTE have been requested by Owner to match existing products, No alternate products will be considered for review, provide products as specified.

Hinges	Hager-Bommer-Ives
Continuous Hinges	Ives-Hager
Cylindrical Lock /Latch sets	Best-No Substitute
Mortise Locks w/Indicator	Schlage-No Substitute
Panic Devices	Von Duprin-No Substitute
Mullions	Von Duprin-No Substitute
Overhead Closers	LCN-No Substitute
Auto Operators	LCN-No Substitute
Overhead Holder	Glynn-Johnson-ABH
Electro-Magnetic Door Release	LCN - Rixson
Push Plates	Ives - Trimco - Burns

Kick and Armor Plates	Ives - Trimco - Burns
Flush Bolts	Ives - Trimco - Burns
Coordinators	Ives - Trimco - Burns
Stop and Bumpers	Ives - Trimco - Burns
Thresholds	Zero - National Guard - Reese
Weather-stripping	Zero - National Guard - Reese
Gasketing	Zero - National Guard - Reese
Astragals	Zero - National Guard - Reese
Door Silencers	Ives - Rockwood - Hager
Key Cabinet	Telkee
Access Control System	Best-No Substitute
Electric Strikes	Von Duprin-No Substitute

2.06 HINGES:

A. All hinges shall be of the type and size as specified and shall conform to the latest edition of ANSI/BHMA A156.1 standards and in compliance with NFPA 80 Table 2.8A. Package all hinges with machine or wood screws as required by door and frame construction.

B. Hinges shall be of flush ball bearing design with flat bottom tips and non-rising pins.

C. All non-ferrous type hinges shall be furnished with stainless steel pins as a standard and all exterior hinges shall be stainless steel with a non-removable pin (NRP) feature per hinge.

D. Where the door jamb and/or trim projects to such an extent that the width of the hinge leaf specified will not allow the door to properly clear the frame or trim, the supplier shall furnish hinges of sufficient width to clear.

E. Types and Manufacturers:

Hager	Bommer	Ives
BB1279	BB5000	5BB1
BB1168	BB5004	5BB1HW

BB1191	BB5006	5BB1
BB1199	BB5006	5BB1HW

F. Continuous hinges to be used at all aluminum storefront, cross-corridor, stairwell, cafeteria, gymnasium, locker room and exterior openings, and interior openings where doors are greater than 36" wide.

G. Types and manufacturers:

Ives	Hager
112XY	780-112HD
224XY	780-224HD

2.07 CYLINDRICAL LOCKS AND LATCHES:

A. General: Lockset and latches shall be Best 9K extra-heavy-duty cylindrical series with 7-pin interchangeable core. Locks to have solid shank with no opening for access to keyed lever keeper. Lock chassis must be through-bolted outside of the lock chassis prep to prevent rotation of chassis after installation. Lock manufacturer shall provide three-year warranty, in writing, to the Owner, along with three copies of the lock service manual.

B. Strikes shall be 16 gauge, curved brass, bronze, or stainless steel with a 1" deep box construction, and have sufficient length to clear trim and protect clothing.

C. Tubular Deadbolts shall be Best 83T with 7-pin interchangeable core.

D. Note: Mortise-type locksets will not be acceptable except at staff corridor restroom applications. Provide Schlage L9485BD-06A-L283-722-L583-363 faculty restroom mortise locksets at restrooms designated by owner.

E. Types and Manufacturer's

Cylindrical: Best-No Substitution

1) Lock series and design: 93K7 x 15 x 626
2) Tubular Deadbolts: 83T x 626
3) Cores/Cylinders: 7-pin to match existing system

Mortise: Schlage-No Substitution

2.08 PANIC DEVICES:

A. General: Furnish panic devices of the design, type, function and finish as specified here-within.

1. All devices shall be a push through type touch pad design with return

stroke fluid dampener and rubber bottoming dampers. Touch pads are to be stainless steel with no exposed rivets or screws and shall exceed height of mechanism case or rail assembly (T-Shaped) to eliminate pinch points. Plastic touchpads are not acceptable.

2. Latchbolts shall be self-lubricating and have a deadlocking feature.

3. Exit devices shall be listed by UL for accident and hazard. Devices shall conform to ANSI A156.3, Grade 1 and conform to NFPA 80 and NFPA 101.

4. All panic devices shall meet the performance tests found in the Underwriters Laboratories Standard UL305 and bear the UL listing mark for panic hardware or UL 305 and UL 10C for fire exit hardware as appropriate.

5. All exit devices shall be through bolted. All trim shall be through bolted by means of concealed fasteners.

6. A factory representative to insure proper adjustment and operation shall inspect all devices after installation. The representative shall submit a written report to the Architect with copies to the General Contractor and hardware supplier upon completion of his service. This report shall include any installation problems, noting door numbers and location along with recommendations to correct the problem.

7. Provide non-fire labeled exit devices with CDSI-cylinder-dogging security indicator feature. Dogging mechanism shall be mechanical hook type with no plastic dogging cams. Provide LD-less dogging at exterior doors as designated by Owner.

8. All surface strikes shall be roller type and come complete with a locking plate to prevent movement.

9. End caps shall be of heavy-duty metal alloy construction and provide horizontal adjustment to provide flush alignment with device cover plate. When end cap is installed, no raised edges will protrude.

10. Lever trim shall be heavy-duty type with a breakaway feature to limit damage to the unit from vandalism and fastened by means of concealed welded lugs and through-bolts from inside. Trim shall be forged brass with a minimum average thickness of .090” and have forged pulls. Provide at fire-labeled openings. Provide fail safe, electrified lever trim at stairwell doors required to lock for security purposes.

11. Provide Ives VR910 Series pulls on all non-fire labeled applications; VR910 DT or VR910 NL.

12. Provide rim exit devices at single doors. Provide two rim exit devices with keyed

removable steel mullion at pairs of doors. **Concealed or surface vertical rod exit devices or aluminum mullions will not be permitted except LBL-Less Bottom Latch concealed cable device may be used at double egress cross-corridor applications.**

13. Provide QEL-Quiet Electric latch Retraction at electrified exit device applications.

B. Types and Manufacturers: Panic devices

Von Duprin-No Substitution

XP99 Series (exterior)
99 Series (interior)
9949/9949-F-LBL (cross-corridor)

B. Types and Manufacturers: Mullions

Von Duprin-No Substitution

KR4954 x 154 Stabilizers
KR9954 x 499F x 154 Stabilizers

2.09 OVERHEAD SURFACE CLOSER

A. Surface Closers

1. Shall conform to ANSI A156.4, Grade 1, NFPA 80, NFPA 101 and UL10C.

2. Full rack-and-pinion type closer with non-ferrous cover and cast iron body. Double heat-treated shaft, full complement bearings, single piece forged piston, chrome silicon steel spring, non-critical screw valves; back check, sweep and latch.

3. ISO 9000 certified. Units stamped with date of manufacturer code.

4. All non-sized closer to be independent lab tested for 10,000,000 cycles.

5. Locate closers on interior side of exterior doors and on the non-public side of interior doors, unless otherwise specified. Closers are to be parallel arm mounted.

6. Closers to be non-sized, field adjustable from size 1 to 6.

7. Furnish all non-sized closers with 1½" diameter piston.

8. All closers shall be mounted with through-bolts.

9. Provide plates, brackets, and special templates when needed for interface with

particular header, door, and wall conditions and adjacent hardware.

10. Maximum opening force to meet ADA: Exterior doors 8.5 lb.; interior doors 5 lb.; fire doors 15 lb.

11. Spring Cush (SC) Arms at all exterior, Gym, Cafeteria, Stair, and high traffic openings.

12. Closers tested to 100 hours of ASTM B117 salt spray test, furnish data on request.

13. Spring power adjustment aided by visible size indicator, i.e. "FAST Power Adjust".

14. Closers to have a stable fluid withstanding temperature range of 120 degrees to–30 degrees hydraulic fluid

15. Install closers at templating to provide maximum ADA compliance.

16. Closer products with any type of pressure relief valve system will not be acceptable.

17. Types and Manufacturers:

    LCN-No Substitution

    4040XP pull-side application
    4040XP SCNS push-side application

18. Auto operators shall be supplied as specified in hardware set at the end of this section. Furnish all labor, materials, equipment and services necessary for proper installation of the LCN Senior Swing handicap door system, a low energy power operated door system as defined in current ANSI/BHMA A159.19. All auto operators are to be installed by a certified LCN installation company. Provide Touchless actuators. Coordinate with access control system.

19. Types and Manufacturers:

    LCN-No Substitution

    Senior Swing Series 9530/9540

2.10 OVERHEAD HOLDERS AND STOPS:

A. General: Furnish surface-mounted overhead holder/stop of the type, design and function as specified here within.

   1. All holders shall be non-handed and furnished complete with proper fasteners.

2. All holder arms and channels shall be made of extruded bronze or stainless steel.

3. Shock absorber to be a shock absorbing coil steel spring with a rubber insert.

4. Furnish sex bolts on all wood doors.

B. All products herewith shall comply with the standards of ANSI/BHMA A.156.8.

C. Types and Manufacturers:

Glynn-Johnson
ABH

2.11 ELECTRO-MAGNETIC DOOR RELEASE:

A. General: Furnish electromagnets hold open devices designed specifically to hold fire and smoke doors open until released under activation of the fire alarm system or loss of power.

1. Faceplates shall be stainless steel for flush or surface mounting and shall fit into standard single gang electrical boxes.

2. Assembly shall consist of an armature contact plate with adjustable pivot mounting.

3. All units to be equipped with easy wire quick insert connectors.

4. Holding force to be 25 pounds, voltage to be 24VDC, unless otherwise approved by the Architect.

5. Types and Manufacturers:

LCN
Rixson

NOTE: ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING, JUNCTION BOXES, CONDUIT, RECIFIERS, TRANSFORMERS ETC., INCLUDING ALL CONNECTIONS AS REQUIRED TO PROVIDE A COMPLETE OPERATIONAL SYSTEM UNDER DIVISION 16/DIVISION 28.

2.12 PUSH/PULL PLATES:

A. General: Push plates and pull plates shall be provided as scheduled.

B. All plates shall be drilled and countersunk approximately 6" on centers. All plates shall be furnished with stainless steel Phillip's head screws with undercut heads to

insure a tight bond on any type of door. All plates shall be packaged in individual envelopes, clearly marked and sized. All material shall be properly packaged to protect the finish.

C. All products shall comply with ANSI/BHMA standards A156.6 and A156.18.

D. All push and pull plates shall have radius corners.

E. All push plates shall be a minimum thickness .125.

F. All pull plates shall be a minimum thickness .050.

G. Types and Manufacturers:

Ives
Trimco
Burns

2.13 KICK AND ARMOR PLATES:

A. General: All kick plates and armor plates shall be .050 inch minimum thickness stainless steel, US32D. Plates to be beveled three edges (B3E), drilled and countersunk with stainless steel screws 5/8" minimum with matching finish.

B. All plates shall be in compliance with ANSI/BHMA standards A156.6 and A156.18.

C. Types and Manufacturers:

Ives
Trimco
Burns

2.14 MANUAL FLUSH BOLTS AND COORDINATORS:

A. General: All flush bolts are to be manually operated and furnished for pairs of doors as specified. Furnish minimum length of 12" for all rods, except where any door is higher than 7'-0", furnish the top bolt in a length sufficient to locate the flush bolt operator no more than 6'-0" above the finished floor. Comply with ANSI A115.4, door and frame preparation and ANSI/BHMA A156.16. Furnish standard strikes with wrought boxes for top bolts. Furnish dustproof strikes for bottom bolts. Coordinators are to be used only on hollow metal doors.

B. Types and Manufacturers:

Ives
Trimco
Burns

2.15 DUSTPROOF STRIKES:

A. Dustproof Floor Strikes: For 5/8" round or 1/2" square bolts.

Ives
Trimco
Burns

2.16 FLOOR AND WALL STOPS:

A. General: Furnish floor and/or wall stops as indicated, unless otherwise specified.

Ives
Trimco
Burns

2.17 THRESHOLDS:

A. General: Furnish thresholds of the type, finish and material as specified.

B. Fasteners shall be of stainless steel or non-ferrous material with a finish compatible with the threshold. The length of the screw used should be the proper length to allow for a minimum of 3/4" thread engagement in the floor or anchoring device used.

C. All material shall be in compliance with ANSI/BHMA standards A156.21.

D. All aluminum extrusions are to be of alloy 6063 hardness T-5.

E. Acceptable Manufacturers:

Zero
National Guard Products
Reese

2.18 WEATHERSTRIPPING/GASKETING:

A. General: Furnish all gasketing, door bottoms and astragals as specified.

B. Wherever the specified materials are used in conjunction with a fire rated opening, products shall have been tested in accordance with the Underwriters Laboratories, UL10C and shall meet the requirements of positive pressure UBC 7-2.

C. All gasketing material shall be silicone and in compliance with ANSI/BHMA standard A156.22 for door gasketing systems.

D. Acceptable Manufacturers:

Zero
National Guard Products
Reese

2.19 DOOR SILENCERS:

A. Furnish for all hollow metal frames, three door silencers for each single door and two each for each pair of doors as manufactured by one of the following manufacturers.

Ives
Rockwood
Hager

2.20 KEY CONTROL SYSTEM:

A. General: Furnish a complete key system of the type specified.

B. Provide key cabinet made of cold rolled, minimum 18-gauge furniture steel electro-welded. Doors shall have continuous brass pin piano type hinge and shall be equipped with chrome-plated locking handles, hook cam and two paracentric keys. All locks shall be nickel plated with solid brass pin tumbler cylinder keyed as directed. Key cabinet and key control system shall accommodate all keys for this project plus fifty percent expansion.

1. Key tags shall consist of two sets: Permanent self-locking and loan key snap hook type with tag colors as follows: Red fiber markers of the permanent self-locking type approximately 1-1/4" inch in diameter on, which shall be engraved the legend, "File Key Must Not Be Loaned."

2. Also furnish for each hook a white cloverleaf key marker with snap hooks on which shall be engraved "Loan Key."

C. The hardware supplier shall attach a key tag to each change key and shall mark thereon the respective architectural key symbol and key bitting number. Each group of keys shall be contained in a key gathering envelope, which shall include the architectural key symbol, key bitting number and architectural room description number.

The hardware supplier shall be responsible for properly identifying and tagging all change keys, setting up the key cabinet and key index system.

The General Contractor shall be responsible for verifying that all locksets are installed in their proper location and that the key changes operate the correct

locks.

1. Key Index System Shall Include:

   a. Hook number
   b. Architectural key symbol
   c. Architectural door number
   d. Owner's revised room number
   e. Key bitting number

D. The hardware supplier shall include in their scope of work all labor necessary to completely layout the key index system and install all keys, properly identified in the key cabinet. The permanent keys and key cabinet shall be delivered directly to the Owner.

E. The key cabinet shall be a three-way cross index system and shall include a hardbound copy and disk, including master key listing the keys alphabetically, the hooks numerically and the key bitting changes numerically. Attach the keys to the two sets of numbered tags supplied with the cabinet, permanent tag and the loan key tags. The supplier shall instruct the Owner in use of the system. The General Contractor shall install the cabinet in a location selected by the Owner.

F. Type and Manufacturers:

1. Telkee Aristocrat AWC-450-S System

   Size of system is minimum requirement, appropriate size to be furnished dependent on project.

2.21 KEYS AND KEYING:

A. Provide Best brass construction cores and keys during the construction period. **Plastic construction cores will not be permitted**. Construction cores shall not be part of the Owner's permanent keying system or furnished on the same keyway or key section as the Owner's permanent keying system.

B. Permanent Best cores and keys shall be prepared according to the approved keying schedule and shall be furnished to the Owner by the local Best factory representative prior to occupancy.

C. All cylinders and cores shall be Best 7-pin, interchangeable core. Furnish Best "Premium" cores at all exterior keyed openings. Best cores shall be keyed by the factory to match the existing Frederick County Public School key system.

D. Permanent Best keys and cores shall be stamped with the applicable key mark for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped "Duplication Prohibited."

E. Grand Masterkeys, Masterkeys and other Security keys shall be transmitted to the Owner by Registered Mail, return receipt requested.

F. Furnish keys in the following quantities:
1. 4 each Grand Masterkeys
2. 4 each Masterkeys per set
3. 4 each Change keys each keyed core
4. 9 each Construction Masterkeys
5. 1 each Construction Control key

G. The Owner, or the Owner's agent, will install permanent cores and return the construction cores to the Contractor's Hardware Supplier. All Construction cores and keys remain the property of the Contractor's Hardware Supplier.

PART 3 EXECUTION

3.01 INSTALLATION GENERAL:

A. The Contractor shall receive all hardware for doors as shown and scheduled and as in accordance with the approved hardware schedule.

B. Provide an adequate and secured storage area for all hardware; refer to paragraph 1.09.

C. Install all hardware in strict accordance with the manufacturer's templates and installation procedures and workmanship, refer to paragraph 1.03.

D. The Contractor shall turn over to the Owner any tools supplied with the hardware to adjust or maintain the hardware.

E. In conjunction with the hardware supplier, the Contractor shall adjust and check the installation of hardware prior to acceptance by the Owner and/or Architect.

F. The Contractor shall obtain a copy of ANSI/DHI A115.IG-1994. "Installation Guide for Doors and Hardware." It is the intent of this document to be used as a reference guide in the proper handling, storage and installation of finish hardware and doors and frames. This document can be obtained through the Door and Hardware Institute, Chantilly, VA.

G. All hardware shall be inspected by the factory representative prior to final acceptance by FCPS to ensure proper installation and adjustment. The representative shall submit a written report to the Architect with copies to the Contractor and hardware supplier upon completion of his service. This report shall include any installation problems, noting door numbers and location along with recommendations to correct the problem.

H. The Contractor and construction manager shall coordinate a pre-installation meeting with the hardware installers, the hardware supplier, and manufacturers'

representative to review products specified and their proper installation.

3.02 Electronic Access Control System Requirements:

A. Summary of Work: The hardware supplier shall obtain the services of Best Access Systems to furnish and install the hardwire Electronic Access Control System (EAC) under this Section. The EAC system shall be tied into Frederick County Public Schools (FCPS) existing BASIS Access Control Software System. Through the hardware supplier, electrical contractor shall furnish all labor, material and services necessary to install a complete EAC system. Note, regardless of door and frame material, the EAC system shall be included in the hardware supplier scope of work. No deviations will be allowed. Card Readers shall be provided at the following doors…

Thurmont Middle School – 1/100, 2/100, 3/100

Middletown Elementary School – 2/100, 2/102, 3/100, 4/100

Middletown Middle School – 2/100, 2/102, 4/100

B. Access Control System Equipment Requirements:

Furnish the following equipment:

1. One (1) Intelligent System Controller / Network Device / Communication Cable & Enclosure # BAS-2220 x LS-MSS100-1 x HOC-ETHLAN.
2. Minimum of five (5) Proximity Car Reader HID 910NNNNEK2037P (Black) per school.
3. Minimum of three (3) Dual Reader Interface Module BAS-1320 per school.
4. Minimum of one (1) “UL” listed Power Supplies & Enclosure BAS-AL600ULM x ABT-12 per School.
5. Wiring requirements are 18 gauge, 4 paired, (8 wire) twisted, shield, plenum rated “UL” listed. Note: Wire shall be provided and installed by electrical contractor. The Electrical Contractor shall provide conduit as required, under Division 16.

Note equipment shall be configured and engineered to suit overall system requirements above quantities may vary.

C. Hardware Requirements and Door Application:

Provide electrified hardware as specified in hardware schedule. All electrified hardware shall be interfaced with the EAC system, and be connected to the emergency generator. Regardless of door and frame material, electrified hardware shall be included in the hardware supplier scope of work.

D. Power and Network Requirements:

As necessary, the Electrical Contractor responsible for Division 16 shall provide switched 120V power, conduit and junction boxes at each card reader location and in the Server/Telecom room for EAC equipment. General Contractor shall be responsible for providing a network drop at the Server/Telecom room. FCPS shall provide a dedicated IP address to security integrator before EAC system start up. EAC system consisting of card reader system and electrified hardware controlled by card access shall be tied into the emergency generator back up system. In addition, provide battery back up at Main Entrance door**.** Prior to installation, coordinate final location of card readers and access control equipment with FCPS.

E. Owner Provided:

Proximity cards shall be furnished and programmed by FCPS.

F. Submittals:

In accordance with Division 1, submit shop drawings and catalog cuts for approval.

Hardware Set Schedule:

Set #1 – Double Cross Corridor Doors (Access Controlled)
1/100 and 2/100 at Thurmont MS
2/100 at Middletown ES
2/100 at Middletown MS
consisting of 1 pair 3'-0"x7'-0" aluminum doors in storefront framing. Each to have:

Function – Access controlled egress hardware with rim (egress only) function and keyed access. Electric latch retraction shall be activated by card reader.

2	Continuous Hinges – Hagar Roton 780-224HD-EPT	Clear
2	Rim Exit Device – Von Duprin QEL99EO With Electric Latch Retraction	626
2	Electric Power Transfer EPT10	US28
1	Keyed Removable Mullion KR4954	689
1	Pull – Ives VR910 DT	US32D
1	Pull – Ives VR910 NL	US32D
1	Rim Cylinder – Best	626
1	Mortise Cylinder – Best	626
2	Surface Closers – LCN 4040XP SCNS-30-61 with 180 deg. hold open	689
2	Mounting Plates	689
1 Pair	Floor Stops	
1 Set	Weather Stripping	
1	Card reader BAS-2005W	
1	Power Supply PS 904-4RL-BBK-KLC	

Set #2 – Admin Door (Access Controlled)
3/100 at Thurmont MS
2/102 at Middletown ES
2/102 at Middletown MS
consisting of single 3'-0"x7'-0" aluminum entrance door in storefront framing.

Function – Access controlled egress hardware with electric strike activated by remote desk station and card reader.

1	Continuous Hinge – Hagar Roton 780-244HD	Clear
1	Cylindrical Lockset – Best 9K-D Series	US32D
1	Electric Strike – Von Duprin 6400	US32D
1	Surface Closer – LCN 4040XP-SCNS	689
1	Mounting Plate	689
1	Floor Stop	
1	Card reader BAS-2005W	
1	Power Supply PS 904-4RL-BB-KLC	
1 set	Smoke seal – Thurmont Middle School only	

Set #3 – Single Cross Corridor Door
4/100 at Thurmont MS
1/100 at Middletown ES
1/100 at Middletown MS
consisting of single 3'-0"x7'-0" aluminum entrance door in storefront framing.

Function – Manual egress hardware only. Electronic access control not included.

1	Continuous Hinge – Hagar Roton 780-244HD	Clear
1	Rim Egress Device – Von Duprin 99EO Series	US32D
1	Pull – Ives VR910 DT	US32D
1	Surface Closer - LCN 4040XP-SCNS	689
1	Mounting Plate	689
1	Wall Stop if possible or Floor Stop if needed	
1 Set	Weather Stripping	

Set #4 – Passage Door
1/404 and 2/404 at Thurmont MS
1/102 and 3/102 at Middletown ES
consisting of single 3'-0"x7'-0" aluminum entrance door in storefront framing.

Function – Office function with keyed access. Electronic access control not included.

1	Continuous Hinge – Hagar Roton 780-244HD	Clear
1	Cylindrical Lockset – Best 9K-AB Series	US32D
1	Surface Closer – LCN 4040XP-SCNS	689
1	Mounting Plat 689	
1	Floor Stop	
1 set	Smoke seal – Thurmont Middle School only	

Set #5A – Retrofit Existing Double Doors for locking only
3/100 at Middletown MS (Both Leaves)
consisting of existing double wood doors in existing hollow metal framing.

Function – Manual egress hardware with keyed access. Electronic access control not included.

2	Rim Exit Device – Von Duprin 99EO	626
1	Keyed Removable Mullion KR4954	689
1	Pull – Ives VR910 DT	US32D
1	Pull – Ives VR910 NL	US32D
1	Rim Cylinder – Best	626
1	Mortise Cylinder – Best	626

Set #5B – Retrofit Existing Double Doors for Access Control
3/100 & 4/100 at Middletown ES (Both Leaves)
4/100 at Middletown MS (Both Leaves)
consisting of existing double wood doors in existing hollow metal framing.

Function – Access controlled egress hardware with rim (egress only) function and keyed access. Electric latch retraction shall be activated by card reader.

2	Rim Exit Device – Von Duprin QEL99EO With Electric Latch Retraction	626
2	Electric Power Transfer EPT10	US28
1	Keyed Removable Mullion KR4954	689
1	Pull – Ives VR910 DT	US32D
1	Pull – Ives VR910 NL	US32D
1	Rim Cylinder – Best	626
1	Mortise Cylinder – Best	626
1	Card reader BAS-2005W	

1	Power Supply PS 904-4RL-BBK-KLC	

Set #6 – Office Door
1/105 at Middletown MS
consisting of single 3'-0"x7'-0" wood door in hollow metal framing.

Function – Office function with keyed access. Electronic access control not included.

1 1/2pr	Butt Hinges	Clear
1	Cylindrical Lockset – Best 9K-D Series	US32D
1 set	Silencers	
1	Wall Stop	

END OF SECTION

SECTION 088000

GLASS AND GLAZING

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes glass and glazing.

B. Work shall be conducted in accordance with General Conditions, Supplementary Conditions, Division 1 and the requirements of this Section.

1.2 STANDARDS

A. As required by Safety Glazing Materials regulations and agencies having jurisdiction, provide safety glass manufactured, tested, permanently labeled and installed per these requirements.

1.3 SUBMITTALS

A. Shop drawings shall be in accordance with the General Conditions, Supplementary Conditions and Division 1.

B. Copies of the shop drawings, after being certified by the contractor and approved by the Architect, shall be requested by the glazier through channels for the purpose of ordering the glass and expediting its delivery.

C. Samples: Submit, when notified for the Architect's inspection and approval, samples of the types of glass specified. Sample shall be at least 4 inches wide by 9 inches long in required thickness.

1.4 WARRANTIES, GUARANTEES, TESTING

A. Warranty: All insulating glass shall be a banded type and carry a 10-year warranty by the manufacturer that under normal conditions, material obstruction of vision resulting from film formation or dust collection between the interior glass surfaces of the double-insulating glass will not occur.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Glass: Glass shall bear the manufacturer's original label for each piece manufactured by the American-Saint Gobain, Libbey-Owens Ford Glass Company, PPG, Guardian or equal as approved by the Architect.

B. Clear glass shall be transparent flat glass that meets the requirements and tolerances of ASTM C-1036.

C. Glass products shall be tempered for use in doors, entranceways, or other high traffic density areas or in hazardous locations as defined in the U.S. Consumer Product Safety Commission Standard 16 CFR 1201 C1 and C11, or for fixed glazed panels as defined in state glazing laws or building codes.

D. Glazing Compound: Glazing compound shall be the product of Pecora, Tremco, or equal as approved by the Architect, in color matching frames as closely as possible.

2.2 SIZES

A. Glass shall conform to manufacturer's standards for maximum size for each type of glass. All tempered glass and double-insulating glass panels shall be ordered from exact sizes given on shop drawings or from field measurements. Lights that are narrower than they are high shall be cut to order to obtain the best viewing.

2.3 GLASS TYPES

A. Float Glass (Type G-1): Polished, clear, 0.25” thick

B. Safety Glass (Type G-2) (interior glazing): Clear tempered, 1/4” thick, ANSI Z97.1, Federal Standard 16 CFR 1201 Category I and Category II, with label clearly visible after glazing. This type includes laminated glass as required by the standards referenced above and IBC 2012 Chapter 24 Section 6.

C. Insulating Glass (Type G-3) (All exterior glazing, unless otherwise noted): total thickness 1”, two thicknesses of clear 0.25” thick glazing separated by a 0.5” sealed air space, Low-E coating on #3 surface, factory fabricated, visible light transmittance of 73%, shading coefficient of 0.76, “U” value of 0.35, tempered as required by Codes.

D. Sealant: Elastic non-hardening glazing sealant, recommended by glazing manufacturer.

E. Setting Blocks: Neoprene, hardness: 70 to 80 Shore A Durometer, generally 1/8” wider than materials to be glazed and minimum 4” long, 1/8” thick.

PART 3 EXECUTION

3.1 INSTALLATION

A. Glazing Standards: Applicable requirements of the Glazing Manual of Flat Glass Marketing Association (FGMA), 3310 Harrison, Topeka, Kansas, 66611 latest edition are hereby made a part of these specifications.

B. Glazing shall not be done when the temperatures are below 40 degrees Fahrenheit. When circumstances require the glazing below 45 degrees Fahrenheit, steps shall be taken to assure clean, dry and frost-free surfaces as approved by the Architect.

C. Spacers and Shims: All glass to be set with 3/32 inch x 1/4 inch x 3 inch spacers, positioned on 24 inch centers on fixed and removable stops made of 40-70 shore hardness rubber or neoprene setting blocks, 1/4 inch x 1 inch x 4 inches long or 1/4 inch x 5/8 inch x 4 inches long, as required by FGJA Standards for installing glass at quarter points.

D. Channel Glazing: All glass to be set with a minimum of 1/8 inch spacers on both sides of glass with setting blocks at quarter points. Against rabbet, apply butyl tape. Face bed with one part acrylic sealant at heel finished with architectural glazing compound or vision strip.

E. Face Glazing: All glass to be set with a minimum of 1/8 inch spacers on rabbet side of glass with setting blocks at quarter points. Against rabbet, apply butyl tape. Face bed with architectural glazing compound.

F. Neoprene Beads: Glass in aluminum door frames and screens held by neoprene-extruded beads, snap-in type shall be inserted into stops with slight buttering at corners with channel glazing compound. Install glass per manufacturer's instructions.

G. Wood Frames: Do not set glass in wood frames or beads of doors until after the wood, including glazing rabbets and beads, has been stained and filled or primed. All glass held in place with wood beads shall be bedded in architectural glazing compound on both faces.

H. Lights in Borrowed Lights: Glaze with metal stops as detailed. Face glaze as specified above.

3.2 CLEANING AND REPLACEMENT

A. This contractor shall properly protect all glass installed by him from injury or breakage during construction of the building. The contractor shall assume all responsibility for breakage by whomsoever caused and shall replace all cracked, broken, scratched or otherwise defective glass when directed to do so by the Architect.

B. Wash, rinse and dry glass at frequent intervals during construction in accordance with manufacturers' recommendations.

- END OF SECTION 088000 -

SECTION 092500
GYPSUM WALLBOARD

PART 1 - GENERAL

1.01 DESCRIPTION:

A. Requirements of the General Conditions and Supplementary Conditions apply to this Section.

B. Include all labor, materials, appliances and services necessary to complete all gypsum wallboard and related work required by the drawings and/or described in this specification.

C. Work of this Section includes repairs to existing gypsum board, located within the existing building, and preparing existing gypsum board to receive new finishes.

1.02 QUALITY ASSURANCE:

A. All work shall be in compliance with the Drywall Construction Handbook, published by United States Gypsum Company.

10.3 SUBMITTALS:

A. Submit manufacturer's literature for all materials and installations.

1.04 WEATHER CONDITIONS:

A. Comply with manufacturer's recommendations.

1.05 WORK BY OTHER SECTIONS:

A. Division 5 - Lightgage Metal Framing (As Specified in Drawings)

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Gypsum Wallboard:

1. Regular: 5/8" x 4' x 8' (minimum), with tapered edges, ASTM C-36, Underwriters Laboratories Approved

2. Water Resistant: ½" x 4' x 8' (minimum), with tapered edges, color coded, to be used in all Rest Rooms and wet areas, full height of all walls, ASTM C-630

3. Type X (special fire resistant): 0.625" x 4' x 8' (minimum), with tapered edges, Underwriters Laboratories Approved

B. Fasteners: 1-1/2" GWB-54 annular ringed nails or 1-1/4" drywall screws, Type W with phillips head.

C. Drywall accessories include corner and casing beads; shall be standard galvanized recessed types requiring finishing with joint treatment compound.

D. Joint Treatment System: Includes perforated tape, joint compound and topping compound.

E. Expansion Joints: USG Control Joint #093

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Install gypsum wallboard and accessories in locations and positions indicated on the drawings, complying with manufacturer's installation instructions.

B. Cut wallboard by scoring and breaking, cut to fit tightly to other sheets of wallboard and around penetrations and protrusions. Joints shall fall on the centers of supporting members. Install with nails at 8" centers or screws at 16" centers.

C. Finish wallboard using 3 coats of compound 24 hours apart. Finish all dimples from fasteners and joints between sheets of wallboard. Apply dampened tape with the first coat and feather compound edges to provide a smooth and uniform surface. Sand rough areas but do not excessively roughen the wallboard paper.

D. Build fire rated assemblies in accordance with specific fire resistance classifications of the Underwriters' Laboratories.

E. Provide expansion joints as indicated on the drawings. Unless otherwise noted, provide joints to align with expansion control joints in masonry walls, concrete floor, and other building structural elements. Joints shall extend from floor to metal deck/top of gypsum wallboard above, and shall be installed aligned on both sides of all interior walls.

F. Finished surfaces shall be smooth, uniform and ready to receive decoration. Protect finished surfaces, and repair damaged work to the satisfaction of the Architect.

G. Level of Finish: Level 4 in accordance with the United States Gypsum Construction Handbook.

3.02 JOINT TREATMENT

A. Tape, fill and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

B. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.

3.03 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.04 CLEAN-UP:

A. At the completion of the job, remove all excess materials from the site.

END OF SECTION

SECTION 095110

SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Suspended metal grid ceiling system and perimeter trim as indicated on the drawings and as required to patch and repair existing materials.

B. Mineral fiber acoustical ceiling tile units.

1.2 RELATED SECTIONS

A. None.

1.3 REFERENCES

A. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

B. ASTM E1264 - Classification of Acoustical Ceiling Products.

C. Ceilings and Interior Systems Contractors Association (CISCA) - Acoustical Ceilings: Use and Practice.

1.4 SYSTEM DESCRIPTION

A. Suspension system to rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.

1.5 SUBMITTALS

A. Submit under provisions of Division 1.

B. Product Data: Provide data on metal grid system components and acoustical units.

C. Product Data: Submit data on acoustical wall treatment.

D. Samples: Submit two samples 6 x 6 inch in size illustrating material and finish of acoustical units.

E. Samples: Submit two samples each, 6 inches long, of suspension system main runner, cross runner and edge trim.

E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.7 QUALIFICATIONS

A. Grid Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Acoustical Unit Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C) and maximum humidity of 40 percent prior to, during and after acoustical unit installation.

1.9 SEQUENCING

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Install acoustical units after interior wet work is dry.

1.10 EXTRA MATERIALS

A. Furnish under provisions of Division 1.

B. Provide 2 percent of total acoustical unit area of extra panels to Owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS - SUSPENSION SYSTEM

A. Armstrong World Industries, Prelude System

B. Chicago Metallic, 200 Series

C. Equal product by CertainTeed

2.2 SUSPENSION SYSTEM MATERIALS

A. Non-fire Rated Grid: ASTM C635, intermediate duty, exposed T components die cut and interlocking.

B. Grid Materials: Commercial quality cold rolled steel with galvanized coating, minimum 25% recycled content.

C. Exposed Grid Surface Width: 15/16 inch.

D. Grid Finish: Baked Polyester Paint, color to be White.

E. Accessories: Stabilizer bars, clips, splices, edge moldings, hold down clips and as required for suspended grid system.

F. Support Channels and Hangers: Primed steel; size and type to suit application and ceiling system flatness requirement specified.

2.3 MANUFACTURERS - ACOUSTICAL UNITS

A. Armstrong World Industries (used as the standard of quality, listed model numbers)

B. Equal product by Chicago Metallic

C. Equal product by CertainTeed

2.4 ACOUSTICAL UNIT MATERIALS

A. Acoustical Ceiling Panels (Size See finish schedule for location of each type of tile):

1. ACT -1 to be 24 X 48 inches, Armstrong Fine Fissured, (to match existing ACT in lobby and corridor),

2. Thickness: 3/4 inches

3. Composition: Wet formed mineral fiber, minimum 35% recycled content, no added formaldehyde.

4. NRC Range: .70

5. CAC Range: 35

6. Fire Hazard Classification: Class A, Flame Spread less than 25

7. Edge: Square

8. Surface Color: White

9. Surface Finish: Factory applied

2.5 ACCESSORIES

A. Touch-up Paint: Type and color to match acoustical tile and grid units.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that layout of hangers will not interfere with other work. Confirm starting lines for layout with Architect.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C-636 and manufacturer's instructions and as supplemented in this section.

B. Intermediate - duty grid: Comply with ASTM C-636, suspension requirements of ASTM C-635, intermediate-duty systems, and manufacturer's installation instructions.

C. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.

D. Locate system on room axis according to reflected plan.

E. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.

F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.

I. Do not eccentrically load system, or produce rotation of runners.

J. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions.

K. Form expansion joints as detailed. Maintain visual closure.

3.3 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Install units after above ceiling work is complete.

D. Install acoustical units level, in uniform plane, and free from twist, warp and dents.

E. Cut panels to fit irregular grid and perimeter edge trim.

F. Where bullnose concrete block corners occur, provide preformed closers to match edge molding.

G. Install hold-down clips to retain panels tight to grid system within 20 ft of all exterior doors.

3.4 ERECTION TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.5 STOCK MATERIALS

A. At the end of the project, provide 2% of the acoustical tile for each size, type and pattern installed. Extra stock to be turned over to the owner.

- END OF SECTION 095110 -

SECTION 096519

RESILIENT FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resilient tile flooring, including vinyl composition tile. Installation requires matching existing tile in multiple locations at multiple schools.

B. Rubber base.

1.2 RELATED SECTIONS

A. None.

1.3 REFERENCES

A. ASTM E84 - Surface Burning Characteristics of Building Materials.

B. ASTM F1066 - Vinyl Composition Floor Tile.

C. FS SS-W-40 - Wall Base: Rubber and Vinyl Plastic.

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.

C. Samples: Submit two sets of samples illustrating color and pattern for vinyl tile, rubber tile, rubber base and reducing/trim strips for color selection by the Architect.

D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame/smoke rating requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Division 1.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Store materials for three days prior to installation in area of installation to achieve temperature stability.

B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 24 hours after installation of materials.

1.8 MAINTENANCE DATA

A. Submit under provisions of applicable Division 1 sections.

B. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.9 EXTRA MATERIALS

A. Furnish under provisions of Section 01700.

B. Provide one box of each type of tile per 50 boxes of tile per color/pattern used, 10 lineal feet of base for every 500 linear feet installed, and four external base corners.

1.10WARRANTY

A. Provide manufacturer's standard 5-year warranty on all tile flooring products.

PART 2 PRODUCTS

2.1 MATERIALS – VINYL TILE FLOORING

A. Vinyl Composition Tile: ASTM F1066 and SS-T-312 BC, Type IV
1. Size: 12 x 12 inch – to match existing
2. Thickness: 1/8 inch – to match existing
3. Design: marbleized – to match existing
4. Manufacturers:
   a. Armstrong, Style - Standard Excelon Imperial Textured
   b. Azrock, Style - Custom Cortina
   c. Tarkett, Style - Expressions
   d. Mannington - L
5. Pattern: None
6. Color: Varies – 3 Colors as selected by Architect

2.2 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

C. Edge (transition) Strips: Flooring material manufactured by Mercer, Johnsonite, or equal, color to match vinyl base color adjacent to strip.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify concrete floors are dry to a maximum moisture content of 7 percent and exhibit negative alkalinity, carbonization or dusting.

B. Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

3.2 PREPARATION

A. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.

B. Prohibit traffic until filler is cured.

C. Vacuum clean substrate.

3.3 INSTALLATION - TILE FLOORING

A. Install in accordance with manufacturer's instructions. See drawings for patterns.

B. Mix tile from container to ensure shade variations are consistent when tile is placed.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Set flooring in place, press with heavy roller to attain full adhesion.

E. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

F. Install tile to turn block pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

G. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.

H. Install resilient edge strips at unprotected or exposed edges, and where flooring terminates.

I. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

J. Install feature strips and floor markings where indicated. Fit joints tightly.

3.4 CLEANING

A. Vinyl Composition and Rubber Flooring

1. Stripping

a. Strip floor using a slow speed floor machine and green stripping pad. Use Freedom, Bravo or Step-Off stripping products only.

b. Rinse floor at least twice with clean water and let dry. Use wet-vac to remove stripping solution and water.

2. Apply Finish

a. Apply five coats (2,000 to 2.500 SF/gal) of Carefree with clean, pre-rinsed rayon mop, allowing 1 hour minimum dry time between coats. Allow final coat to dry 24 hours before allowing traffic on finished floor.

3.6 PROTECTION OF FINISHED WORK

A. Protect finished Work. Entire floor to be protected with red rosin paper, taped.

B. Prohibit traffic on floor finish for 48 hours after installation.

- END OF SECTION 096519 -

SECTION 096816

CARPET TILE

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes carpet tile; loose laid with edges and control grid adhered, self-stick adhesive backed with rubber base and accessories.

B. Related Sections:

1. Section 033000 Cast-In-Place Concrete

2. Section 087000 Finish Hardware

3. Section 092600 Gypsum Board Systems

4. Section 096519 Resilient Flooring

1.2 REFERENCES

A. American Society for Testing and Materials:

1. ASTM D2859 – Standard Test Method for Flammability of Finished Textile Floor Covering Materials.

2. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

3. ASTM E648 – Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

B. Carpet and Rug Institute:

1. CRI 104 – Standard for Installation of Commercial Carpet

C. National Fire Protection Association:

1. NFPA 253 – Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Source.

1.3 SUBMITTALS

A. Section 01330 Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate layout of joints, direction of carpet pile and location of edge moldings.

C. Product Data: Submit on specified products, describing physical and performance characteristics, sizes, patterns, colors available and method of installation.

D. Samples:

1. Submit two carpet tiles illustrating color and pattern design for each carpet style selected.

2. Submit two, 6 inch long samples of edge strip.

E. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.

1.4 CLOSEOUT SUBMITTALS

A. Section 01770 Closeout Procedures

B. Operation and Maintenance Data: Submit maintenance procedures, recommended maintenance materials and suggested schedule for cleaning.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing precuts specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Store materials in area of installation for 48 hours prior to installation.

B. Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for project when occupied for its intended use.

C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by manufacturer.

1.7 EXTRA MATERIALS

A. Sections 01770 and 01787: Spare parts and maintenance products.

B.. Supply 1 spare carton of carpet tiles of each color and pattern selected.

1.8 WARRANTY

A. The definition of "Lifetime Warranty" shall be as follows for this section: The Lifetime Warranty offered from the carpet manufacturer must be valid for as long as the carpet is on the floor. If a problem/complaint occurs – even after five, ten, 25 years or more – the carpet manufacturer will replace or repair it. This warranty is non pro-rated. If the carpet manufacturer's attempts to resolve the complaint are not satisfactory, Frederick County Government will receive full replacement value in event of a failure in the carpet. Only published warranties will be reviewed and accepted by Frederick County Government. Riders to warranties will not be accepted.

B. Backing Systems Lifetime Warranty – Carpet Tiles: The carpet manufacturer must offer a Lifetime Warranty on their carpet tiles covering face yarn, wear, backing material and performances. The product must be warranted against wear, failure of static protection, delamination of secondary backing, edge ravel and tuft bind loss. The carpet

manufacturer must warrant their carpet tile will not cup, dome or dish. Also warranted will be the delamination stability of the carpet throughout the lifetime of the installation.

1. Features Warranted:

   a. Edge Ravel/Tuft Bind:
      Under normal use carpet tiles will not edge ravel along the seams or lose tuft bind integrity for the lifetime of the carpet.
   b. Dimensionally Stable:
      Carpet tiles will remain dimensionally stable and will not shrink or grow under normal use conditions.
   c. Cup, Dome, Dish:
      Carpet tiles will not cup, dome or dish.
   d. Wear:
      Carpet tiles will lose no more than 10% by weight of pile face fiber during the lifetime of the carpet from time of purchase, when installed and maintained in accordance with carpet manufacturer's published procedures, a copy of which will be available to the prospective purchaser at the point of sale. It shall not require the use of chair pads.
   e. Static Protection:
      Carpet tiles give protection from static discharge in excess of 3.0 KV when tested under the Standard Shuffle Test method at 70 degrees F and 20% R.H.
   f. Adhesives:
      Carpet manufacturer must warrant their required adhesive will bond carpet to and release carpet from the properly prepared substrate for the life of the carpet. Substrate must meet manufacturer's recommended floor preparation procedures and glued floor must remain free of dust, debris or other contaminants. Should carpet manufacturer's required adhesive not be used, the lifetime adhesive warranties become null and void.
   g. Smoke Density:
      Carpet manufacturer warrants that every shipment of their shipment of their carpet tiles will generate less than the generally accepted requirement of 450 Corrected Maximum Specific Optical Density (flaming mode) for smoke developed when tested in accordance with ASTM Test Procedure E662 (NFPA 258).

C. Lifetime Stain Resistant Warranty: Carpet manufacturer must provide a lifetime warranty and a 10-year Lightfastness and Atmospheric Containment warranty on all carpets. Carpet must be guaranteed to provide lifetime stain resistance to acid type spills regardless of number of years in service, traffic levels or number of cleanings. The stain resistance technology must be a PERMANENT part of the face fiber. TOPICALLY APPLIED STAIN TREATMENTS WILL NOT BE ACCEPTED. The carpet must pass the General Services Administration (GSA) TEST for Permanence – SIN 31-8, for the life of the carpet.

   1. Permanent Stain Protection against Acid Type Spills – Lifetime Warranty 96% of all spills are acid based, i.e. coffee, tea, sodas, most food spills and many healthcare spills.

   2. Carpet manufacturer must warrant that their carpet as measured by General Services Administration (GSA) Test for Permanence SIN 31-8.

   3. AATCC, 174 modified by exposing carpet sample to 100 revolutions of the Taber Abrader (1,000 gram weight per H-18 wheel) then stain testing in the abraded area. Rating of 8.0 or better on the AATCC Red 40 Stain Scale must be achieved.

   4. Colorfastness: Wet and Dry – Lifetime Warranty

Carpet manufacturer must warrant their carpet will resist color transfer from wear for the life of the carpet. Further, carpet manufacturer warrants their carpet will exhibit permanent colorfastness (wet or dry) for the lifetime of the carpet.

5. Wetfastness: Lifetime Warranty
   Carpet manufacturer must warrant their carpet will resist color change after exposure to water damage for the life of the carpet. Carpet must exhibit permanent wetfastness for the lifetime of the installation as measured by AATCC Test Method 107, minimum shade change should be no less than International Gray Scale Rating of 4.

6. Lightfastness: 10 years
   Carpet must provide a 10-year warranty for colorfastness after exposure to light as measured by AATCC Test Method 16E – International Gray Scale Rating after 200 AFU's (Xenon Arc) should be 3 -4 or better.

7. Atmospheric Contaminants: 10 years
   Carpet must provide a 10 year warranty for colorfastness after exposure to atmospheric contaminants as measured by AATCC Test Method 129 – ozone minimum shade change rating after five cycles should be no less than International Gray Scale Rating of 3.

PART 2 – PRODUCTS

2.1 COMPONENTS

A. Carpet Tile Type 1: manufactured by Lees Carpet

1. Tile Size:	24 x 24 inch, nominal.
2. Construction:	Tufted
3. Surface Texture:	Textured Patterned Loop
4. Fiber Type:	SmartStrand Contract made with DuPont Sorona triextra
5. Fiber Technology:	Permanent Stain Resistant Systems
6. Dye Method:	Solution Dyed/Space Dyed
7. Backing:	Integrated cushion thermobond tile
8. Primary backing:	Reinforced thermoplastic composite
10. Gauge:	1/12
11. Average Yarn Weight:	26 oz/sq/yd
12. Stitches per inch:	7.7
13. Finished pile thickness:	.134 inches average
14. Total weight:	146.45 oz/yd. Sq.
15. Radiant panel (ASTM E-648):	Passes DOC-FF-1-70 pill test
16. Flammability:	Meets NFPA Class 1 when tested under ASTM E-648 give down
17. Smoke Density:	<450 flaming mode per NBS smoke chamber NFPA -258
18. Static (AATCC-134):	<3.0 Kv @ 70 degrees F, 20% R.H. standard shuffle
19. Type Static Control:	Permanent Conductive Fiber
20. Pattern repeat:	None
21. Warranty:	Lifetime
22. Installation:	Quarter Turn

2.2 ACCESSORIES

A. Moldings and Edge Strips: Vinyl, color as selected.

B. Rubber Base: Johnsonite 4” Continuous rolls, color as selected.

C. Contact Adhesive : As recommended by carpet manufacturer, releasable type.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify floor surfaces are smooth and flat and are ready to receive work.

B. Clean substrate.

C. Comply with CRI 104, Section 5, “Storage and Handling”.

D. General: Comply with CRI 104, Section 6.1, “Site Conditions, Temperature and humidity”.

3.2 INSTALLATION

A. Install carpet tile in accordance with CRI 104, Section 8, “Direct Glue-Down”.

B. Do not mix carpet from different cartons unless from same dye lot.

C. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

D. Install carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines aligned as indicated on shop drawings.

E. Locate change of color or pattern between rooms centered under door in closed position.

F. Adhere carpet tile with releasable adhesive per manufacturer’s recommendation.

G. Trim carpet tile neatly at walls and around interruptions. Bid or seal cut edges as recommended by carpet manufacturer.

H. Complete installation of edge strips, concealing exposed edges.

3.3 CLEANING

A. Section 01710 Cleaning: Final cleaning

B. Remove excess adhesive from floor, base and wall surfaces without damage.

C. Clean and vacuum carpet surfaces.

3.4 SCHEDULE

A. As noted per finish schedule.

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END OF SECTION

SECTION 099000

COATINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Section Includes:

1. Paint or natural finish all interior surfaces not specifically excluded. Includes:

a. All areas indicated on the drawings and included in the schedule noted to be painted.
b. Areas of patch and repair of existing painted components.

B. Exclusions: In addition to material obviously not requiring paint such as stainless steel, plastic laminate, glass, flooring, tile, etc. Do not paint or finish:

1. Surfaces indicated by finish schedule to remain unfinished.

2. Factory finished surfaces indicated to be factory finished.

a. Aluminum with anodized or baked-on finish.
b. Finish hardware, except hardware with USP finish.
c. Electrical devices, fixtures, and trim.

3. Equipment such as mechanical, and electrical equipment located inside equipment rooms.

1.2 RELATED SECTIONS

A. None.

1.3 REFERENCES

A. NPCA (National Paint and Coatings Association) - Guide to U.S. Government Paint Specifications.

B. PDCA (Painting and Decorating Contractors of America) - Painting - Architectural Specifications Manual.

C. OTC-Regulation No.41

D. SSPC-SP 1 - Solvent Cleaning

1.4 SYSTEM DESCRIPTION

A. Performance Requirements: Indoor Air Quality: Provide products which will not adversely affect indoor air quality through emission of toxic gasses or vapors. Do not use materials with residual of formaldehyde, epoxy resin, or urea-based materials.

1.5 SUBMITTALS

A. Submit under provisions of Division 1.

B. Product Data: Provide data on all finishing products and special coatings.

C. Samples: Submit two samples, 6 x 6 inch in size illustrating selected colors and textures for each color selected. Wood stains shall be applied to actual piece of trim material.

D. Manufacturer's Instructions: Indicate special surface preparation procedures, and substrate conditions requiring special attention.

E. Verify in writing that the products specified will be used as directed or submit for approval a list of comparable materials of another listed approved manufacturer, including full identification of all products by name, color and catalogue number adjacent to those specified, with a statement of equality by the proposed manufacturer.

F. Submit Manufacturer's certification (MSDS Sheet) for each paint and coating highlighting VOC limits and chemical component limits.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5) years experience.

B. Applicator: Company specializing in performing the work of this section with minimum five (5) years experience and approved by manufacturer.

1.7 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame and smoke rating requirements for finishes.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, VOC content, and instructions for mixing and reducing.

C. Store paint materials at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions. Storage space shall be designated by the Contractor and approved by the Architect.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F (7 degrees C) for interiors; 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.

1.10 EXTRA MATERIALS

A. Provide 1 gallon of each color and surface texture to Owner at the completion of the project.

B. Contractor shall label each container with color, type, texture, and room locations in addition to the manufacturer's label. Contractor shall also provide detailed listing by room of color, type, and texture along with manufacturer's name and identification number.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer's: Best quality materials as manufactured by one of following manufacturers will be acceptable:

1. For Brush, Roller or Spray work:

a. Sherwin Williams
b. Benjamin Moore
c. Pittsburgh Paints

B. Quality: All products not specified by name shall be "best grade" or "first line" products of acceptable manufacturers. See Part 3- Execution for materials required for this project. Where possible, provide materials of single manufacturer.

2.2 MATERIALS

A. Coatings: Ready mixed. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.

B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

2.3 FINISHES

A. Refer to schedule at end of section for surface finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate conditions are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application to the Architect and General Contractor.

C. Test shop applied primer for compatibility with subsequent cover materials.

D. Allow masonry work to cure for at least 30 days before coating. Gypsum board shall be allowed to dry for 15 days before coating.

3.2 PREPARATION

A. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

B. Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.

C. Seal with shellac and seal marks which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

F. Galvanized Surfaces: Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP7 is necessary to remove these treatments.

G. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

H. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.

I. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

J. Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Do not apply finishes to surfaces that are not dry.

C. Apply each coat to uniform finish.

D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

E. Sand surfaces lightly between coats to achieve required finish.

F. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.

G. Allow applied coat to dry before next coat is applied.

3.4 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Divisions 15 and 16 for schedule of color coding and identification banding of equipment, duct work, piping, and conduit.

B. Paint shop primed equipment.

C. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

D. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.

E. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to visible surfaces. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

F. Paint exposed conduit and electrical equipment occurring in finished areas.

G. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

H. Color code equipment, piping, conduit, and exposed duct work in accordance with requirements indicated. Color band and identify with flow arrows, names and numbering.

I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

J. Finished work is to be adequately covered with uniform color and finish. The number of coats herein specified being a minimum, this contract shall provide any additional coats to produce a first-class job. Architect may select accent colors or deeptone colors (contrasting bright colors) for interior painted walls or ceilings. Where bright colors are selected, apply extra coats of paint where required to obtain completely opaque surface. Make allowances for 10 percent deep tones in bid. Additional labor or materials used for this purpose not allowable as extra cost.

K. Objects on Roof: Paint all metal objects on roof including, but not limited to, rooftop mechanical units, flashings, roof drains, vents, exhaust fans, air intake hoods, roof hatches, etc. as specified under ferrous, zinc coated metals.

L. Allow the following minimum drying time between coats:

1. Exterior work-48 hours.

2. Interior work-24 hours.

3.5 PROTECTION AND CLEANING

A. Protection: Protect floors and adjacent surfaces from paint smears, spatters and droppings.

1. Cover fixtures not to be painted. Mask off areas as required.

2. Finish Hardware: Ensure hardware is removed prior to starting painting operations and that it is replaced only after painting operations have been completed.

a. Hardware Removal and Replacement: Section 08710.

B. Damage to Other Work: Be responsible for damage done to adjacent work. Repair damaged work to satisfaction of Architect. Replace materials damaged to extent that they cannot be restored to their original condition.

3.6 SCHEDULE OF COATINGS

A. Exterior:

Surface	Area	Type, Luster + Coats

1.	Ferrous Metal	New galv. steel lintels, Exposed steel structure, HM Doors & Frames, etc.	1 coat S-W ProCryl Universal Primer, B66-310 Series (5-10 mils wet, 2-4 mils dry) 2 coats S-W Waterbased Industrial Enamel, B53-300 Series (4 mils wet, 1.6 mils dry per coat)

Surface		Area	Type, Luster + Coats
2.	Plastic	PVC Pipe Penetrations, etc.	1 coat S-W All Surface Enamel Latex Primer, A41W210 (10 mils wet, 5 mils dry) 1 coat S-W Duration Exterior Latex Acrylic Gloss Coating, K34 Series (7 mils wet, 2.8 mils dry per coat)

B. Interior:

Surface		Area	Type, Luster & Coats
1.	Cementitious Materials	New CMU	1 coat: S-W PrepRite Block Filler, B25W25 (16 mils wet, 8 mils dry) 2 coats: S-W Harmony Low Odor Interior Latex Eg-Shel, B9 Series (4 mils wet, 1.6 mils dry per coat)
2.	Gypsum Board	New ceilings, walls, and bulkheads	1 coat: S-W Harmony Low Odor Interior Latex Primer, B11W900 (4 mils wet, 1.3 mils dry per coat) 2 coats: S-W Harmony Low Odor Interior Latex Eg-Shel, B9 Series or S-W Harmony Low Odor Interior Latex Semi-Gloss, B10 Series. (4 mils wet, 1.6 mils dry per coat)
3.	Ferrous Metal	New louvers, grilles, HM Doors & Frames, Exposed steel columns & beams, Steel railings	1coat S-W ProCryl Universal Primer, B66-310 Series (2-4 mils dry) 2 coats: S-W Harmony Low Odor Interior Latex Semi-Gloss, B10 Series (4 mils wet, 1.6 mils dry per coat)
4.	Exposed Structure	Steel joists & deck	1 coat: S-W ProCryl Universal Primer, B66-310 Series (2-4 mils dry) 2 coats: S-W Waterborne Acrylic Dry Fall, B42W2
5.	Finished wood	Wood structure, trim, caps, etc.	1 coat: S-W Wood Classics® 250 VOC Stain (two colors, to be selected from manufacturer's full range), 2 Coats: S-W Wood Classics Waterborne Polyurethane Varnish, Satin A68F90 or Gloss A68V91 (4 mils wet, 1.0 mil dry per coat)

- END OF SECTION 099000 -

SECTION 22 14 20

WET – PIPE FIRE SUPPRESSION SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. All fire protection system work shall be completed by a licensed, certified, Fire Protection Contractor acting as a subcontractor to the Plumbing Contractor. All work shall be directly coordinated with the local Fire Department.

C. All pipe materials shall be subject to the acceptability of that material with the prevailing local fire and plumbing codes, NFPA 13.

D. The Drawings and Specifications for this project are generally schematic and are intended for bidding purposes only **and are not intended to cover each item required for a total system as outlined in NFPA 13.** The minimum spacing, quantity and arrangement of proposed sprinkler locations, equipment, piping, indicated on the Drawings generally are diagrammatic. The exact arrangement, sizes, quantity and spacing required by the agencies having jurisdiction shall be indicated on the Working Drawings that are to be prepared by the Contractor.

1.2 SCOPE

A. The fire protection work to be performed shall include the following, but not necessarily limited to:

1. Furnish and install Contractor revised-hydraulically designed wet fire protection systems, including all required drain piping and accessories, complete in every detail to accommodate new architectural floor plan. See sprinkler note on drawings.

2. Directly after award of Contract, regardless of dates of existing flow tests; or flow test data obtained or shown on any drawings; and prior to any submittal, the Contractor shall be responsible for conducting and obtaining new flow test data. Obtain water flow, pressure, capacity data, elevations, and other related pertinent information from the nearest available fire hydrant(s), and as arranged with the Water Authority serving the building. Arrange any times and dates with the Water Authority. Water flow test data obtained from the Water Authority will not be acceptable, regardless of when such flow tests were performed. Include all costs involved with obtaining the flow test data, including the use of special tools, equipment, and accessories and include in the Contract Bid. Typed copies of confirmed flow test results shall be furnished by the Contractor to the Professional and the Architect. Approval by the Architect of Contractor's test results is necessary prior to forwarding submittals or beginning any work.

3. Include all tests, permits, and fees, including all costs involved.

4. Contractor shall complete all Contractor's Material and Test Certificates for above ground installations.

5. Construction fire protection standpipes.

1.4 CODE COMPLIANCE

A. All fire protection work and materials herein described shall comply with all applicable federal, state, county, health, and local laws, ordinances, rules and regulations, and all other local authorities having jurisdiction and shall be subject to the approval of these authorities, notwithstanding anything in these specifications to the contrary. In addition, all work and materials to be provided under this Section of the Specification shall conform to the applicable requirements of the National Board of Fire Underwriters Standards, and the National Fire Protection Association Standards; special reference is made to NFPA 13, Standard for the Installation of Sprinkler Systems. All threads shall conform to the local Fire Department Standards; confirm prior to ordering.

1.5 SHOP DRAWINGS

A. Product Data: Submit manufacturer's technical product data and installation instructions for all fire protection materials and products.

B. Approval Drawings: All fees for this approval shall be by this Contractor. Prepare approval drawings of the fire protection systems coordinated with other mechanical, electrical, structural and general building drawings, of the fire protection systems proposed by the Plumbing Contractor and submit prints of the drawings to the appropriate governmental, health, and underwriting agencies for their review and approval. Prints bearing the approval stamp of the Underwriting Agency, authorized Fire Marshal and other Authorities having jurisdiction shall be submitted to the Architect prior to the commencement of any fabrication or installation of any portion of the system. The drawings shall include all of the following information and whatever additional information that may be required by the authority having jurisdiction.

1. All sets of drawings with appropriate NFPA standards listed.

2. System type.

3. Sprinkler spacing and locations with dimensions showing all lighting fixtures, diffusers and return air grilles.

4. Occupancy type.

5. Hazard classification.

6. Hangers, types and details.

7. Temperature and type of sprinkler heads.

8. Sprinkler system accessories and specialties.

C. Approval Calculations: Prepare hydraulic calculations of fire protection systems to determine all pipe sizes. Submit to Agency having jurisdiction for approval. Submit one approved copy, bearing stamp and/or signature of Agency having jurisdiction to the Architect before proceeding with the installation.

D. Certificate of Installation: Submit certificates upon completion of fire protection work which indicates that work has been installed and tested in accordance with NFPA 13 and NFPA 14, and also that the system is operational, complete and has no defects.

E. Record Drawings: At project closeout, submit record as-built drawings of installed fire protection piping and products.

F. Maintenance Data: Submit maintenance data and parts lists for fire protection materials and products. Include this data, product data, shop drawings, approval drawings, approval calculations, certificate of installation and record drawings in maintenance manual.

PART 2 - PRODUCTS

2.1 FIRE PROTECTION PIPING AND EQUIPMENT INSIDE BUILDING

A. Pipe:

1. All wet system piping herein specified shall be UL Listed and FM Approved. Pipe shall be as manufactured by Allied Tube & Conduit, Youngstown Tube Co., or Wheatland Tube Company. For the wet-pipe systems only, all piping that utilizes threaded fittings shall be Schedule 40 black steel. "Plain-end" pipe/fittings and threadable light-wall pipe are not permitted. Sprinkler piping 1-1/4" in diameter or larger, connected by welded, flanged fittings or roll grooved fittings, shall be Schedule 40 or Schedule 10 as permitted by NFPA 13. Cut grooves are not permitted. All sprinkler piping 2" in diameter and smaller (that is not roll grooved or welded) shall be Schedule 40 utilizing screwed fittings (plain end fittings will not be accepted). All miscellaneous drain and test piping and fittings shall be Schedule 40, internally and externally galvanized. All piping shall include factory coating of the inner wall of piping, to guard against MIC (microbiologically influenced corrosion). The coating shall adhere to the wall of the pipe, thereby providing protection against contamination and pipe deterioration by impeding the attachment of microbes to the pipe wall.

2. Instead of hard-pipe armovers above ceiling areas, the Contractor will be permitted to use a flexible stainless-steel hose to connect sprinkler heads to the branch lines. System shall be UL Listed and FM Approved type, conforming to NFPA 13, as manufactured by FlexHead Industries, Inc., Fivalco, Inc., AquaFlex, or Gateway Tubing, Inc. Flexible hose shall be rated up to 300 psi, in 2-6 foot lengths. Each system shall be factory pressure and leak-tested. Approval on models of flexible metal sprinkler hose is limited for use in commercial suspended or sheetrock ceilings, with ceiling bracket assembly, without hangers. System shall be approved for use in suspended ceilings with light, medium, and heavy load grids (ASTM C635, C636). System will not be acceptable for exposed sprinkler system installations. System shall be installed in strict accordance with manufacturer's installation instructions. System installation must be acceptable to the Owner and Fire Insurance Carrier.

B. Hangers for the fire protection system shall be UL Listed, FM approved. Contractor's attention is directed to "Unsupported Armover Lengths", for pipe hanger installations for pressures above and below 100 psi, in accordance with NFPA 13

C. Fittings:

1. For wet-pipe system, 150 psi, screwed malleable iron, or Victaulic FireLock ductile iron fittings and FireLock EZ ductile iron, Nibco Steelok, or Tyco couplings for grooved end piping. Grooved end fittings and couplings shall be UL Listed and FM approved and shall be the products of a single manufacturer. Grooving tools shall be supplied by the same manufacturer as the grooved components.

D. Sprinkler Heads: All sprinkler heads shall be the product of a single manufacturer, UL Listed, and FM approved. All heads shall be the same model year and style throughout. The Architect must approve any deviations. Sprinkler heads shall be of a type, upright, pendent, or sidewall that is best suited to the conditions in which they are installed. Heads shall be as manufactured by Viking, Tyco, or Victaulic. Provide quick response sprinkler heads where required, in accordance with NFPA requirements. Heads which must be painted, shall be factory-painted only. Where required, heads shall be of a design suited to the protection of areas having irregular building design and structural arrangements such as cornices, soffits, beams and columns or building environmental systems such as light fixtures, grilles and diffusers, or building furnishings and equipment. Full consideration shall be given in the spacing of heads, of the type of head, and the arrangement of the piping to afford the protection required to be installed. Temperature ratings of all heads shall be coordinated with the NFPA 13 requirements. Provide higher temperature heads near heat – producing equipment. The Victaulic "strapless" style sprinkler heads will not be acceptable. The finish and type of sprinkler heads in finished areas must be approved by the Architect.

1. In general, sprinkler heads in finished areas with ceilings shall be fully recessed, concealed type. Heads shall include finished flat coverplate installed flush with ceiling, the Viking Mirage (QR, 5.6K, VK462), Victaulic Model V38, or approved equivalent. Finish and color of flat coverplate shall be as selected by the Architect.

2. Sprinkler heads in service rooms with ceilings shall be semi-recessed type, chrome finish, the Viking Model M (QR, 5.6K, VK302), Victaulic Model V27, or approved equivalent.

3. Where indicated on the drawings, sprinkler heads shall be semi-recessed, extended coverage, chrome finish, the Viking Microfast (QR, 5.6K, VK600), or approved equivalent.

4. Sprinkler heads in unfinished areas installed on exposed piping shall generally be of the upright type having rough bronze finish, the Viking Model M (QR, 5.6 K, VK300), Victaulic Model V27, or approved equivalent.

5. Use chromed heads on exposed piping or concealed piping in finished areas.

6. Sidewall heads having a bronze finish or chrome finish shall be the Viking Model M (QR, 5.6K, VK305), Victaulic Model V27, or approved equivalent.

7. Concealed horizontal sidewall sprinkler heads shall be quick response, extended coverage, UL Listed, and shall be the Viking VK630, with 14' x 26' coverage, Reliable, or Tyco.

8. Pendent dry heads shall include a special sealed brass inlet with a threaded dry steel barrel to prevent water or condensation from entering the drop nipple after testing and before sprinkler operation, Viking Model M, Victaulic Model V36, or approved equivalent.

9. Guards shall be provided on all heads subject to mechanical damage where normal movement of equipment or products would present a hazard to the sprinkler head, Viking Model D-1 Guard, or approved equivalent, such as Gymnasium, Multi-Purpose Room, equipment rooms, storage rooms, and similar areas. All sprinkler heads in areas throughout the building that are below 7 foot clearance shall be equipped with head guards. Sprinkler head guards shall be listed, supplied, and approved for use with the sprinkler, by the sprinkler manufacturer.

10. Coordinate installation of sprinkler heads with surface mounted lighting fixtures for proper clearances.

11. Install sprinklers under all ducts or obstructions greater than 48” in width in accordance with NFPA 13.

12. Horizontal sidewall and pendent vertical sprinkler heads for glass window applications shall be the Victaulic Model V10, Tyco WS Series, or Viking.

E. In accordance with UL listing requirements, protective caps or straps shall be required for all glass bulb sprinklers. The caps or straps shall be removed from the sprinklers only when the system is “placed in service”, in accordance with NFPA definitions. Protective caps and straps shall be removed only using means in accordance with manufacturer’s installation instructions. “Dropped” glass sprinklers, with or without protection, shall be replaced. Solder element sprinklers are not required to be protected with caps or straps.

PART 3 - EXECUTION

3.1 REVISED SPRINKLER SYSTEM INSTALLATIONS

A. All systems shall be fully automatic, shall be complete in all detail, and shall be provided with all the required components and devices necessary to install approved systems.

B. The layout of the sprinkler system, the arrangements of the heads; and the location and size of main and branch piping shall be developed from the design requirements of the applicable sprinkler criteria and the limitations imposed by the structural and architectural design. However, the degree of protection, hence the exact spacing and arrangement of the sprinkler heads and pipe sizes in any area shall be as required by the authority having jurisdiction.

C. Rearrangement of branch piping and adjustment of the pipe sizes, where proven by hydraulic calculations and when approved by the authorities having jurisdiction, and where compatible with the building design, may be made in the preparation of the Shop Drawings.

D. In finished areas, sprinkler heads shall be uniformly spaced and patterned to suit the ceiling finishes, decorations and interferences. In unfinished areas, the pattern of spacing and the coverage shall be as determined by the shape of the space and the interferences caused by construction details and the furnishings of the space. Maximum spacing shall not exceed that permitted by the authority having jurisdiction. Sprinkler heads in “lay-in” ceilings shall be centered in both directions.

E. Additional spare sprinkler heads of each type shall be provided to the Owner. Not less than six (6) heads or 2% of the total number of each type of head shall be furnished to the Owner for storage. Furnish and install a metal wall storage cabinet, mounted where directed by the Architect. Storage cabinet shall be as manufactured by Tyco, Victaulic, or Viking. A wrench suited to each type of head shall also be provided in the cabinet.

F. Test pipes with control valves shall be provided as required in the fire protection system.

3.2 FIRE PROTECTION SYSTEM TESTS

A. Before the completed fire protection system is accepted by the Owner, the entire system included under this Contract shall be pressure tested by the Contractor and approved in the presence of representatives of the Owner, the Architect, local Fire Department, local authorities, the Insurance Underwriters, and any other parties directly concerned.

B. This Contractor shall furnish all labor and equipment and shall conduct and bear the cost of all required tests of the fire protection system. This Contractor shall give all concerned parties three days advance notice of scheduled tests; 48 hours to Water Authority

C. The entire fire protection system included under this Contract shall be tested under a hydrostatic pressure of not less than 200 lbs. for at least two hours, or at 50 psi in excess of the maximum static pressure when the maximum static pressure is in excess of 150 psi, or as otherwise required or directed by the local Fire Department. Testing of underground service main piping shall conform to NFPA 24 requirements. All defective work shall be promptly repaired or replaced with new pipe and fittings, etc.

D. Tests shall be repeated until the installation receives the approval of the Architect and all parties concerned.

E. Any damage resulting from the tests shall be repaired and/or damaged materials replaced, all to the satisfaction of the Architect, at the expense of this Contractor.

(END OF SECTION 22 14 20)

SECTION 23 05 05

HVAC SCOPE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Condition and other Division 01 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK

A. The Contract requirements include the providing of all labor, materials, equipment and appliances, and in performing all operations in connection with the installation of HVAC Construction Work complete for this Project, in strict accordance with this Section of the Specifications and the applicable drawings.

B. At the completion of the project, all systems shall be calibrated, tested, balanced, commissioned, and all systems shall be operating as intended.

C. Contractor is hereby bound by all applicable portions of all Contract Documents and Supplemental Specifications bound herein or included by reference.

D. In all cases where a device or part of equipment is herein referred to in the singular, such reference applies to as many such items as are required to complete the installation.

E. Provide all related and miscellaneous components or appurtenance to make all specified systems complete and functional.

F. Perform all work in accordance with work of all other contractors on this project.

G. Install work in phases during the construction period; coordinate mechanical schedule and operations with other trades and with construction schedule.

H. The work to be performed by the HVAC Contractor under these Specifications and the accompanying Drawings comprises the furnishing of all labor, materials, tools, and other services and facilities necessary for the complete installation of, but <u>not</u> necessarily limited to the following:

1. New
   a. The installation of low supply air ductwork, insulation, grilles, registers, diffusers, supports and all other accessories and equipment as shown, specified and required for complete operating air distribution systems. <u>All supply air ductwork must be externally insulated, unless noted otherwise.</u>
   b. Furnish combination starter/disconnects, disconnect switches, magnetic motor starters, manual motor starters and fuses to the Electrical Contractor for installation for all HVAC equipment. Coordinate all electrical requirements with the Electrical Contractor before ordering any such equipment and following review of submittals.

c. Provide new low pressure supply duct systems, return air duct systems and exhaust air duct systems as indicated. Provide new manual damper of the single leaf type in each new and existing branch supply, return and exhaust air ductwork, for balancing air delivery.
d. Furnish and install new storm louvers.
e. Provide vibration isolation devices.
f. Provide 1/2" plywood overlay for the bonded roof where work is being done. Any repairs to the roof caused by this Contractor shall be repaired at this Contractor's expense. All roofing work shall be done by the Roofing Contractor that installed the bonded roof. Roof bond shall be maintained.
g. Provide all structural steel supports, concrete and masonry foundations, and steel lintels for equipment furnished and installed under this contract, unless otherwise noted.
h. Provide all cutting and patching of existing building construction for work required under this contract, unless otherwise noted.
i. Contractor shall be responsible for maintaining all existing utility services during construction.
j. Provide all testing and balancing of all new systems. Submit balance report.

1.3 BASE BID AND ALTERNATE BIDS

A. Refer to Division 01 for descriptions of the Base Bid and Alternate Bids.

1.4 WORK BY OTHERS

A. The following construction and equipment related to the work under this Contract will be furnished or provided by others, unless noted otherwise:

1. Openings in new roof and roof deck. (General Contractor) Openings and patching in existing roof and roof deck by General Contractor.
2. Openings in new exterior walls. (General Contractor) Cutting and patching of existing exterior walls. (General Contractor)
3. Furring around new piping. (General Contractor)
4. Final painting of new interior surfaces. (General Contractor)
5. Final painting of existing interior walls, floors and ceilings where the surfaces are being refinished and remodeled under the General Contract. (General Contractor) Where the existing area is to be repainted by the General Contractor, the HVAC Contractor must repair his openings ready to paint. Refer to General Construction drawings for finishes.
6. Recesses and opening in new construction for piping and equipment. (General Contractor)
7. New chases for piping where specifically shown on the drawings. (General Contractor)
8. Funnel and floor drains required for the various equipment. (Plumbing Contractor)
9. The removal of existing power wiring, conduit and boxes for existing removed HVAC equipment. (Electrical Contractor)
10. Furnish and installation of all line and load side power wiring to all new electrically operated HVAC equipment. (Electrical Contractor) All control and interlock wiring, both low and line voltage shall be included under the HVAC Contract as hereinafter specified for the HVAC equipment, unless noted otherwise.
11. The Electrical Contractor will be responsible for all power wiring and associated terminations to line and load side as well as mounting of all combination starter/disconnects, magnetic starters, VFD's manual starters, disconnect switches, etc. furnished by the HVAC Contractor and external to equipment they are designated to serve.

12. Furnishing of duct mounted smoke detectors. (Electrical Contractor) Wiring to fire alarm system by Electrical Contractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

(END OF SECTION 23 05 05)

SECTION 23 05 06

BASIC HVAC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Condition and other Division 01 Specification Sections, apply to this Section.

1.2 HVAC WORK

A. The word "building" used throughout these specifications shall be interpreted to mean the entire Building Complex.

B. The actual runs and locations of all piping, ductwork, equipment, etc., shall be determined at the site and shall be installed to meet the various conditions at the building. It is, however, the HVAC Contractor's responsibility to predetermine the exact locations of ductwork, piping, and equipment, and to notify the other contractors accordingly to avoid confliction with other lines and equipment. Any changes necessary to conceal pipes, ductwork or clear pipes and equipment of other trades shall be made without additional expense to the Owner. This Contractor shall be responsible to create ductwork and HVAC piping coordination drawings and distribute to other contractors for coordination and sign off. Refer to Subsection 3.5 for further clarification.

C. No piping, ductwork or equipment shall be installed without first obtaining sign off from the other trades. Should such installation occur and then subsequent conflicts arise, this Contractor shall, at his own expense, remove all that is in conflict and reinstall appropriately.

D. All work shall be executed and all equipment constructed and installed in accordance with the requirements of the State Building Code, the Department of Labor and Industry, ASME, Department of Environmental Resources, Department of Labor, Safety and Health Regulations for Construction, OSHA, National Fire Protection Association, the National Electrical Code as amended to date of bidding, and all federal, state, county and local ordinances and regulations. Nothing contained in these specifications or shown on the drawings shall be construed to conflict with the aforesaid codes, ordinances, or regulations. Certificates of approval shall be obtained from any department issuing same, and shall be turned over to the Owner at the completion of the work. All fees and permits required shall be satisfied and obtained by the Contractor and the cost shall be included in the Contract price.

E. The Contractor shall carefully examine the general building drawings and all mechanical and electrical drawings, and carry on his work so as not to delay or interfere with the work of other trades. He shall obtain in writing from the other contractors such data as is necessary to coordinate his work with other branches. As the work in the building nears completion, all threading, cutting, etc., shall be done where directed by the Architect. Upon completion of the work, all remaining waste materials and rubbish resulting from the Contract work shall be removed from the building and premises. The Contractor shall review the phasing schedule and meet all requirements of the schedule. The building must be kept in use at all times.

F. Where the phrase "or approved equivalent," "or equivalent" or "approved" appears in these specifications, it shall refer to the approval of the Architect on the material or equipment involved.

G. The terms "The Contractor" or "This Contractor" or "the HVAC Contractor" mentioned in these specifications refers to the Contractor responsible for the work and equipment included in these specifications.

H. The General Contractor will provide chases and openings in walls, floors, ceilings, and partitions of new construction to receive pipe lines, risers, ducts, and other equipment insofar as it is possible to predetermine the exact location, but the Contractor shall install his work sufficiently in advance of the building construction to permit his work to be built into place. This Contractor shall advise the General Contractor of the exact size and location of all chases and openings required for the installation of his work, and shall check size and location of all such chases and openings provided by the General Contractor.

I. The HVAC Contractor shall furnish and install all necessary structural steel members for the proper support of all piping, ductwork, and equipment furnished and installed under this Contract.

J. The Contractor shall furnish and place all sleeves required for pipes or ducts passing through new floors, walls and ceilings before such general construction work is built into place. The Contractor shall place all inserts required for hangers and supports, as the construction work progresses, so that unnecessary cutting of construction work will be eliminated.

K. Contractor's particular attention is directed to the Present Building construction. The HVAC Contractor shall furnish and install all necessary structural steel members for the proper support of all piping, ductwork, and equipment furnished and installed under this Contract. Refer to the Architect's front end specifications for additional requirements.

L. The Contractor shall do all cutting and patching required for the installation of his work.

M. Advance work as rapidly as possible to permit the heating and cooling systems to be used when it is required for all areas of the building. The installation of equipment shall follow the phasing schedule. Instruct the Operating Personnel as to the proper care and maintenance of all systems. However, this Contractor shall operate the new systems until the new systems are complete while the building is under construction. He shall also coordinate the operation of the system with the Owner so that heat remains on in all areas during construction. Provide all required temporary heat as directed by the Construction Manager.

N. Equipment and materials of similar types shall be of the same manufacturer unless specifically indicated otherwise on the drawings or herein specified. All materials shall be strictly in accordance with the quality, style, and sizes as specified herein. Manufacturers' names and plate numbers are given in the specifications to denote a standard of quality, style, size, and type and shall exclude material of other manufacturers. The Contractor shall make final connections between all equipment furnished under this Contract and equipment furnished under other contracts as noted.

O. The materials used throughout shall be those of reputable manufacturers and shall be new and the best of their respective kinds. All equipment, components and materials shall be installed in

a neat and workmanlike manner in accordance with best trade practices, manufacturer's recommendations, and applicable codes and standards and by men skilled in each particular branch of the work assigned to them. All work shall be installed subject to the approval of the Architect.

P. A complete list of materials proposed for each installation shall be submitted to the Architect for approval before delivery to the site. The Contractor shall submit samples of materials for approval at the site as requested by the Architect. Such materials may be incorporated into the structures after serving their purpose as samples.

Q. Where the Contractor elects to substitute approved materials or equipment for materials or equipment specified, as the basis of design. The Contractor will be held responsible for all structural, mechanical, and electrical changes required for their installation at no additional cost to the Owner. If additional engineering design is required, the Contractor shall reimburse the design engineer for all costs.

R. The Contractor shall be entirely responsible for all apparatus, equipment and appurtenances furnished by him or his Subcontractors in connection with the work, and special care shall be taken to protect all parts thereof in such manner as may be necessary or as may be directed. Protection shall include covers, crating, sheds, or other means to prevent dirt, grit, plaster, or other foreign substances from entering the working parts of machinery or equipment. Special care shall be taken to keep all open ends of pipes, ductwork, VAV/CAV Boxes and all other equipment, etc., closed while in storage and during installation. Where equipment must be stored outside the building, it shall be totally covered and secured with heavy waterproof tarps and kept dry at all times. Where equipment has been subjected to moisture, it shall be suitably dried out before placed in service. Materials and equipment shall be stored in areas designated by the Architect.

S. Grades, elevations and locations shown on the drawings are approximately correct; however, the Contractor shall field check and otherwise verify all such data at the site before proceeding with the work. The Contractor shall make necessary survey equipment available at all times and shall make use of such equipment wherever necessary to properly install his equipment.

T. The Contractor shall visit the site and thoroughly acquaint himself with conditions existing at the site before submitting his proposal as he will be held responsible for the installation of the work complete in every detail. The Contractor shall especially review the phasing schedule and ensure compliance with this schedule.

U. All work shown on the drawings and not specifically included in the specifications shall be considered a part of the Contract work. All work included in the specifications and not specifically included on the drawings shall also be considered a part of the Contract work.

V. Carefully examine all drawings included under this Contract and drawings included under other contracts and report any discrepancies noticed to the Architect as this contractor shall be responsible for the HVAC system installation in its entirety.

W. Due to the small scale of the drawings, it is not possible to indicate all offsets, fittings, valves, dampers, access panels, and similar parts which may be required. The drawings are diagrammatic and generally indicative of the work to be installed. The Contractor shall carefully investigate the structural and finish conditions affecting the work and arrange all work accordingly, furnishing necessary parts and equipment as may be required to meet the various conditions.

X. Contractor shall layout his work from dimensions of Architectural and Structural Drawings and actual dimensions of equipment being installed. Layouts in congested areas should not be scaled from Mechanical and Electrical Drawings. Clearances shall be provided on all sides of equipment as required for proper maintenance purposes and as required by the Department of Labor and Industry, OHSA and the National Electrical Code.

Y. The Contractor shall furnish the services of manufacturers' representatives for all equipment furnished under these Contract Documents. The amount of factory service provided by the Contractor shall be as normally recommended and furnished by the various equipment manufacturers unless specified otherwise. Testing of such systems and equipment shall be made under the direct supervision of competent authorized service representatives and the Commissioning Agent. Any and all expenses incurred by the equipment manufacturers' representatives shall be borne by the Contractor.

Z. All equipment and materials shall be manufactured in accordance with national standards established by manufacturer's associations, engineering and testing societies, such as NBMA, NEMA, ASTM, AMCA, ASME, ANSI, ACI, etc., where such standards have been established.

AA. When the installation is reported in writing by the Contractor to be complete and ready for acceptance, tests and inspection shall be made by the Contractor in the presence of the Architect and Commissioning Agent to ascertain whether it complies with the specifications and Contract, and upon its failure to do so, the Contractor shall at once remedy all defects and shortcomings and any additional tests that may be required shall be entirely at the Contractor's expense. All of the testing work shall be done when and as directed by the Architect before the system is accepted.

BB. Include any excavation and backfill as required for work included under this Contract. Work shall conform to all applicable state and local regulations governing safety provisions at excavation sites.

CC. The Architect/Engineer reserves the right to revise locations of piping, ductwork, locations of equipment, etc., within the building as long as sizes remain the same.

DD. In all cases where equipment and materials are specified in the singular or plural number, it is intended that such reference shall apply to as many such items as are required to complete the installation.

EE. The Contractor shall properly lubricate all moving parts of equipment and appurtenances installed under this Contract.

FF. The Contractor will be responsible for the completion of all work included under this Contract and shall employ skilled and qualified tradesmen as necessary to satisfy all work and trades.

GG. Piping, ductwork, materials and equipment shall be stored in areas as coordinated with the Architect.

1.3 PERMITS, CODES AND INSPECTIONS

A. Obtain and pay for permits and inspections required by laws, ordinances, rules and regulations having jurisdiction for work included under Contract. Obtain certificates of each required inspection as construction progress dictates, and submit same to the Owner's Representative prior to acceptance of the Work.

B. Systems and installation work shall be completed in accordance with the 2015 International Building Code, 2015 International Mechanical Code, and 2015 International Energy Conservation Code.

C. Do work in accordance with all applicable requirements including but not limited to National Fire Protection Association, Underwriter's laboratories, Inc., National Electrical Code, O.S.H.A., and other regulatory bodies having jurisdiction over this class of work. Where applicable, materials and equipment shall bear stamps or seals of NFPA, UL, ASME, AMCA, NEMA, IEEE, NEC, and other recognized regulating agencies.

1.4 DEFINITIONS

A. To clarify and establish relationships for responsibility of work to be performed under this section, designations underlined in the subsequent paragraphs of this Article are defined.

B. Provide shall mean that work or equipment thus described shall be furnished and installed complete and all responsibility and costs relative thereto shall rest with designated Contractor or Subcontractor.

C. Furnish shall mean that equipment thus described shall be purchased by this Contractor or Subcontractor and delivered to job site for installation or erection under this or another contract or subcontract. Furnishing contractor shall be responsible for including installation data and competent supervision assistance to coordinate equipment or components into working and operable systems.

1. Magnitude of installation data and supervision assistance shall be as specifically stated elsewhere herein, or the minimum as interpreted by the Owner's Representative.

D. Contractor as stated herein shall mean HVAC Contractor or Subcontractor unless specifically designated as General Contractor, electrical Subcontractor, etc. If trades or sections of work are prime or sublet, the term "Contractor" shall be used as applicable to Contractor or Subcontractor as defined by the division established by the Contract Documents.

E. Contract as stated herein shall mean HVAC Contract or Subcontract unless specifically designated as General Contract, Electrical Subcontract, etc. If trades or sections of work are prime or sublet, the term "Contract" shall be used as applicable to Contract or Subcontract as defined by the division established by the Contract Documents.

F. Inspect, Inspection, Inspector: To inspect the work of contractors means to observe the work of those contractors and/or subcontractors on all tiers responsible for implementing Consultant's plans, specifications, reports, and other instruments of professional service. An inspector has no authority or responsibility to direct any construction workers, and may not stop the work. An inspector is not responsible for, and does not have the education, training, or experience needed to affect the means, methods, sequences, or operations of construction, or safety procedures attendant thereto.

G. Accepted shall mean accepted by the Owner's Representative.
Approved shall mean approved by the Owner's Representative.
Equivalent shall mean equivalent approved by the Owner's Representative
Directed shall mean directed by Owner's Representative.
HC or HVAC shall mean Heating, & Ventilating Contractor.
PC shall mean Plumbing Contractor.
EC shall mean Electrical Contractor.

GC shall mean General Contractor.*
NEC shall mean National Electrical Code, latest revision.
AFF shall mean Above Finished Floor or Grade to centerline.
FBO shall mean Furnished By Others.
*"General" Contract Work may be performed by various contractors.
See documents for division of responsibilities.

1.5 SHOP DRAWINGS AND SUBMITTALS

A. Refer to Architect's specifications for submittal requirements.

B. At the close of the job, prior to final review, five (5) bound copies of operations and maintenance (O&M) manuals shall be submitted by transmittal to the Engineer for review and acceptance. In lieu of hard copy O&M manuals, the Contractor may submit two (2) copies on CD format containing PDF files. O&M manuals, regardless of format, shall include the following:

1. Equipment warranties.
2. Contractors' warranties.
3. Parts list and manuals for all equipment.
4. Operating instructions (in writing).
5. Written instructions on maintenance and care of the systems.
6. Lubrication and recommended spare parts.

C. Prior to the installation of any equipment or materials, submit shop drawings and manufacturer's data for the items listed in the Submittal Log (Attachment A) in accordance with the Contract Documents. Submittal Log (Attachment A) shall serve as the Contractor's checklist to assure the complete submission of all required shop drawings and manufacturer's data. Additionally, all equipment and materials furnished as part of this Contract shall be submitted for review regardless of whether it is listed on Submittal Log (Attachment A) or not.

D. The submissions are the Contractor's documents, and the Architect's and Engineer's review or acceptance constitutes an acknowledgment that the documents have been submitted and nothing more. It is the Contractor's responsibility to check his own submissions for compliance with the Contract Documents and job conditions.

E. Any deviations from the design documents must be clearly identified so that the Engineer may properly review such items. It shall not be the Engineer's responsibility to search out these discrepancies. If such changes are not properly flagged for the Engineer's review, the Contractor shall be completely responsible for all consequences said changes might result in on the project.

F. Submit Record (As-Built) Drawings. Refer to Paragraph 3.03

1.6 SUBSTITUTIONS

A. Throughout the Specifications, types of materials may be specified by manufacturer's name and catalog number in order to establish standards of quality and performance and not for the purpose of limiting competition. Unless specifically stated otherwise, the bidder may assume the phrase "or approved equivalent," except that the burden is upon the bidder to prove such equality. If the bidder elects to prove such equality, he must request the Architect's approval in writing to substitute such item for the specified item, and shall submit supporting data, and samples if required, to permit a fair evaluation of the proposed substitution with respect to

quality, serviceability and warranty. All data pertinent to the proposed substitution shall be submitted to the Architect at least 10 days prior to the bid date for evaluation and review purposes. If the Architect accepts the proposed substitution, an addendum will be issued to all bidders advising all bidders that this substitution will be acceptable from all bidders.

B. Substitutions of equipment other than that specified must be very carefully checked to assure that no problems will occur due to dimensional differences, code requirements, connection points, weights, etc. Where the Contractor elects to substitute materials or equipment approved by the Architect for those specified, the Contractor will be held responsible for all architectural, structural, mechanical, and electrical changes required for the installation of the substituted materials at no additional cost to the Owner. All tests required to substantiate the equivalence of the material will be the obligation of the Contractor.

C. When this Contractor desires to furnish equipment of a manufacturer other than that specified or intended, he shall include a complete specification of the substituted item, along with each submission copy of shop drawings, indicating the necessary modifications to the substituted product to satisfy the requirements of the Contract Specifications. Manufacturer's specifications shall be written as close as possible over the Contract Specifications and each paragraph shall bear the same paragraph number as the Contract Specifications so that close comparison can be made. All submissions will be rejected should they not include the comparison specification. Comparison specification shall be submitted for approval 10 days prior to the Bid Date. If prior approval is not obtained, no substitutions will be considered and the Engineer reimbursed for time spent to reject and return such submission.

D. The verification specification shall include the exact wording of the Contract Specification and the revised wording identified properly indicating all the deviations proposed. If no deviations are noted, the Contractor must furnish the material or equipment in accordance with the Contract Specifications.

E. Should the Contractor elect to propose a substitution after the project has been awarded, the Contractor will be billed for the time spent by the Architect and his consultants in evaluating the proposed substitution. This billing shall occur whether the proposed substitution is accepted or rejected and shall be at the rate of the direct cost to the Architect times a 2.5 multiplier.

F. The submissions are the Contractor's documents, and the Architect's and Engineer's approval constitutes an acknowledgment that the documents have been submitted and nothing more. It is the Contractor's responsibility to check his own submissions for compliance with the Contract Documents and job conditions.

1.7 QUESTIONS AND CLARIFICATIONS OF BID DOCUMENTS

A. Bidders shall not rely on any verbal clarification of the Drawings and Specifications. Any questions or clarifications shall be referred to Engineer at least seven (7) working days prior to bidding to allow for issuance of an addendum.

1.8 MECHANICAL PLANS

A. The mechanical plans are intended to be diagrammatic and are based on one (1) manufacturer's equipment. They are not intended to show every item in its exact location, the exact dimensions or all the details of the equipment. The Contractor shall verify the actual dimensions of any specified or substituted materials and equipment to ensure that they will fit in the available space. All apparatus shall be located as closely as conditions will permit and

deviations there from shall be made only with the consent of the Engineer and without additional charge. The right is reserved by the Engineer to make any reasonable changes in the location of the equipment prior to rough-in without invoking additional expense. This contractor shall be responsible to create and distribute for sign-off amongst other trades ductwork and HVAC piping coordination drawings. Refer to Subsection 3.5 for further clarification.

1.9 SPECIAL ENGINEERING SERVICES

A. In the instance of Mechanical and Control systems, such as all major and special equipment, heating equipment, controls, fans, or similar miscellaneous systems and equipment, the installations, final connections and testing of such systems shall be made under the direct supervision of competent authorized service engineers who shall be employed by the respective equipment manufacturer and/or an authorized representative. Any and all expenses incurred by these equipment manufacturers' representatives shall be borne by the Contractor.

1.10 SCHEDULE OF WORK

A. The Contractor shall arrange his work to comply with the Architect's schedule and the published or revised phasing schedule. The Contractor shall submit a complete schedule of work to the Architect for approval at the beginning of the Contract in accordance with the phasing schedule. The schedule shall clearly indicate the proposed order in which the various parts of the work will be undertaken and the estimated time required for the completion of each particular part of the work. All work shall be coordinated with work being performed by contractors of other trades, with the Owner and phasing schedule.

B. The schedule of work may be revised periodically during the course of construction, but each revised schedule must be approved by the Architect.

1.11 EQUIPMENT GUARDS

A. Equipment guards shall be provided for protection at all belts, chains, gears, motors or other moving parts of equipment and machinery installed under this Contract. Guards shall be made up of suitable structural shapes and heavy gauge steel welded together and attached to equipment by removable clips and bolts. Guards shall be neat and substantial and shall be securely attached to equipment. After fabrication, guards shall be cleaned of rust and scale and painted with one coat of metal primer followed by two coats of enamel to match the equipment. Guards shall be easily removable for maintenance and service of equipment. All equipment guards shall conform with OSHA requirements.

1.12 LOCATIONS

A. Obtain detailed and specific information regarding location of all equipment, as the final location may differ from that indicated on drawings. Relocate work improperly placed because of Contractor's failure to obtain this information and reinstall as directed, without additional expense to Owner.

B. The design is subject to such revisions as may be necessary to overcome building obstructions. No changes are to be made in location of equipment without prior written approval by Architect.

C. Owner's Representative reserves the right to change locations of equipment, diffusers, registers, thermostats, plumbing fixtures, floor drains, and other items prior to roughing-in, up to a distance of 25 feet without additional charge by the Contractor.

D. Door swings may vary from plans. Take note of actual door swings at time of rough-in. Do not install thermostats, switches or other items behind the swing of any door.

1.13 PAINTING

A. The painting of all exposed pipe, conduits, hangers, and other metal clad equipment provided under this Contract shall be the responsibility of the HVAC Contractor.

B. Factory finished equipment shall be touched up where necessary with same type, texture and color of paint as equipment was originally finished. Touch-up shall be done as directed after all work has been completed and equipment is in final location.

C. All anti-corrosive and anti-rust paints shall not exceed the VOC content limit of 250g/l as described in the LEED Reference Guide – Version 2.2 EQ Credit 4.2 - Low Emitting Materials – Paints and Coatings. All other paints used on this project shall conform to the criteria in this credit.

D. General Contractor will paint all patchwork.

1.14 MISCELLANEOUS IRON WORK

A. Furnish and install all miscellaneous iron work including, but not limited to, piping hangers, piping anchors and guides, ductwork supports, and all other equipment supports. All additional structural members shall be furnished and installed to support the heating, ventilating and air conditioning equipment without excessive stress or strain on the building construction. Structural beams and other structural members shall be furnished and installed under this Contract for anchors and guides where the building steel is not available or capable of supporting or anchoring pipe lines and equipment.

B. All equipment and materials furnished and installed under this Contract which are not mounted on bases or floors shall be securely attached and supported from the main supporting structure of the building by metal hangers, clamps and/or brackets. Metal hangers, clamps and/or brackets shall be of suitable design and of sufficient strength to properly and safely support the materials and equipment involved. Lag screws and bolts shall be used where required at wood construction.

C. Materials

1. Structural steel members for the support of equipment installed under this Contract shall conform to ASTM Specifications A 36 and shall comply with the latest requirements of the American Institute of Steel Construction. Structural steel shall be of standard sections as given in the structural steel manufacturers' handbooks.

D. Priming and Painting

1. All steel and iron work shall be primed with Rust Oleum X 60, or approved equivalent. Before priming all metal shall be thoroughly cleaned free from scale, rust, and dirt.

E. Paint final coat black on all miscellaneous steel installed under this contract by this Contractor.

F. Anchors

1. The Contractor shall provide all anchors, bolts, screws, dowels, and connecting members and do all cutting and fitting necessary to secure the work to adjoining construction. Build in connecting members to masonry, concrete, and structural steel as the new and remodeling work progresses.

G. Supports and Brackets

1. Supports and brackets shall be neatly constructed of structural shapes to adequately support the equipment intended. All supports must be approved prior to installation. Field conditions will regulate the type of support.

1.15 DRAWINGS AND SPECIFICATIONS

A. Carefully examine the drawings and specifications for architectural, structural and other Divisions and Sections of the Work. If any discrepancies occur between the drawings, or between the drawings and specifications, report such discrepancies to the Owner's Representative in writing and obtain written instructions as to the manner in which to proceed. No departures from Contract Drawings will be made without prior written approval of Owner's Representative.

B. Report any discrepancies at least 72 hours prior to submission of a bid. Questions received less than 72 hours prior to date of bid opening will not be answered by formal written addendum. Oral and other interpretations or clarifications will be without legal effect. In the event such discrepancies are not reported and claims for extra charges to any contract result, such claims will be allocated to, and charged to, the Contractor who, in the judgment of Owner's Representative, is the responsible party.

C. In the event of questions or disputes as to intent or meaning of Contract Drawings or Specifications, an interpretation will be given by the Owner's Representative and said interpretation will be final and binding.

D. Specifications and the Drawings are not intended to define all details, finish materials, covers, fittings and special construction which may be required or necessary. Furnish, install and connect same in order to make installation complete and adequate as implied by Specifications and Drawings.

E. Drawings are diagrammatic only and do not show exact routes and locations of equipment. Familiarize yourself with the work of other contractors and arrange your work to avoid conflicts. In the event of conflict of work with existing conditions and work of any other contractor, obtain a new approved location of work from Owner's Representative.

F. Because of the small scale of the Drawings, it is not possible to indicate offsets in piping, conduit and ductwork, pipe, fittings, valves, access panels and similar items which may be required to make a complete operating system. Carefully investigate conditions affecting work and install work in such manner that interferences between pipes, ducts, conduit, equipment, architectural and structural features will be avoided and provide such offsets, fittings, access

panels or valves as may be required to meet conditions at the building, and in accordance with applicable codes or governing body so as to avoid such interferences, without additional cost to the Owner.

G. Specifications and drawings are complementary, include work shown on drawings but not specified, and vice versa, as if both shown and specified. All work shown on the drawings and not specifically included in the specifications shall be considered a part of the Contract work. All work included in the specifications and not specifically included on the drawings shall also be considered a part of the Contract work.

H. Consider work new even though no mention is made of new, unless otherwise indicated to the contrary herein or on the drawings.

I. When work has been completed and before final approval, deliver to the Owner's Representative a complete set of prints of contract drawings, properly and clearly marked in colored pencil, to show all changes made in original contract drawings and to represent the work as constructed.

J. Contractor shall layout his work from dimensions of Architectural and Structural Drawings and actual dimensions of equipment being installed. Layouts in congested areas shall not be scaled from Mechanical and Electrical Drawings. Clearances shall be provided on all sides of equipment as required for proper maintenance purposes and as required by the Department of Labor and Industry.

1.16 UTILITIES

A. Be responsible for all coordination and scheduling of construction as necessary for the performance of work under your Contract.

B. Unless otherwise indicated, be responsible for payment of all utility charges for installation/connection/on site construction for work required under your Contract.

1.17 PROTECTION

A. Effectively protect at own expense, such of work, materials or equipment as are liable to loss, damage or injury during the construction period and be held responsible for any such loss, injury or damage until work is fully and finally accepted.

B. Refer to Division 01 for additional requirements.

1.18 SKILLED MECHANICS

A. Install work under the Contract in a neat and workmanlike manner. Work which in the judgment of the Owner's Representative is not so installed: remove and replace to his satisfaction, at your expense. Do work with workmen skilled in their respective trade. Leave areas broom clean and equipment clean of dirt, rust, dust, tags and fingermarks.

1.19 TRADE NAMES

A. Trade names and manufacturer's equipment numbers are used to amplify the specifications and establish type and quality of equipment specified.

B. If substitute equipment offered for use requires material or equipment beyond that shown or required by this contract, it will be provided at Contractor's expense, regardless of trade involved.

C. Substitutions will be accepted as delineated in Division 01.

1.20 PERFORMANCE OF EQUIPMENT

A. Materials, equipment and appurtenances of any kind shown on drawings, hereinafter specified, or required for completion of the work in accordance with the intent of these specifications, will be completely satisfactory and acceptable as regards operation, performance and capacity. No approval, written or verbal, of any drawings, descriptive data or samples of such material, equipment or appurtenances will relieve you of your responsibility to turn over complete installation of heating and ventilating systems to the Owner's Representative in perfect working order and in complete conformance with Drawings and specifications at completion of the work.

B. Any material, equipment or appurtenances, the operation, capacity or performance of which does not comply with requirements of Drawings and Specifications, or which is damaged prior to acceptance by the Owner's Representative will be held to be defective material and will be removed and replaced with proper and acceptable materials, equipment and appurtenances or put in proper and acceptable working order, satisfactory to the Owner's Representative.

C. Properly lubricate moving parts of equipment and appurtenances. Start up and test them.

D. Operate equipment without objectionable noise or vibration as determined by the Owner's Representative. Should such objectionable noise or vibration be produced and transmitted to occupied portions of the building by apparatus, piping, pumps or other parts of this Work, make necessary changes as approved without cost to the Owner.

1.21 AVAILABLE SPACE

A. Be responsible for verifying dimensions of available space for equipment to be installed under this Contract, and verify dimensions of new equipment prior to delivery. After delivery of new equipment, if it is found that it does not properly fit available space, with required clearances, remove the equipment from the project site and provide equipment to fit available space, at no additional cost to Owner. Be responsible for rigging new equipment required under Contract, through the building, and provide cutting and patching of building construction for rigging of equipment to be installed under Contract, unless otherwise noted.

B. Should the proposed equipment require disassembly for entry through openings, be responsible for disassembling equipment for passage through the openings, and reassembling the equipment for installation at locations as indicated. Be responsible for proper operation and guarantee of disassembled and reassembled equipment; should equipment not operate properly or become damaged due to disassembly and reassembly, replace equipment at no additional cost to the Owner.

C. Carefully schedule delivery of equipment to project site in accordance with the Schedule of Work.

1.22 FLASHINGS

A. The Contractor shall furnish and install roof curbs as required for his equipment.

B. The Contractor shall furnish and install pipe portals for pipes as required.

C. An approved roofing sub-contractor, responsible to the Heating Contractor, shall install flashings at roof curbs and final roofing, to maintain the roof warranty.

1.23 OPENINGS IN WALLS AND ROOF

A. The appropriate Prime Contractor will furnish openings for intakes in the new exterior walls of the building. These are all located and shown on the Drawings and shall be coordinated between this Contractor and the appropriate Prime Contractor. HVAC Contractor shall furnish openings in existing walls and roof for intake and outlets. This Contractor shall coordinate location and site. Openings in existing roofs shall be the responsibility of this Contractor. Final roofing shall be by the appropriate Prime Contractor.

1.24 EXISTING EQUIPMENT

A. Contractor shall disconnect and remove existing equipment, piping, controls and all auxiliaries; as required for renovations. All materials and equipment being removed shall become Contractor's property and shall be removed from site immediately upon being removed from the system unless equipment is tagged or marked to remain Owner's property, in which case it shall be stored on the project site where directed by the Owner.

B. Material and equipment to be removed shall be demolished in place either by disassembly or by flame cutting. All flame cutting shall be performed with adequate fire protection and extinguishing facilities available as required by safety codes and by local Fire Official. All materials, equipment and debris shall be removed as the property of Contractor. Demolished materials, equipment and debris shall be removed from the project site at least weekly and shall not be stored on project, except by specific permission of Owner. Any existing equipment which is removed and remains the Owner's property shall be carefully disconnected from piping and foundations. Flame cutting of piping or equipment shall have prior approval from the Owner since other portions of the Building will be occupied during construction.

C. Contractor shall remove all existing concrete pads, steel frames, etc., on which the existing equipment being removed was mounted, remove pads down to below level of existing floor. Contractor shall patch openings in exiting floor due to removal of the concrete pads and existing equipment, piping, ductwork and similar items.

D. All existing branch piping and ductwork shall be removed from existing mains or risers to units being removed. Contractor shall cap branch piping and ductwork at existing mains or risers. Piping buried in existing walls that are to remain need not be removed providing it does not interfere with construction but shall be capped or plugged.

E. Unless otherwise indicated this Contractor shall also terminate all wiring and remove all electrical items pertaining to the items removed under this Contract.

PART 2 - PRODUCTS

2.1 ELECTRIC MOTORS, STARTERS AND SELECTOR SWITCHES

A. Electric Motors

1. All electrical motors furnished and installed under this Contract shall be manufactured by Reliance, General Electric, U.S. Motors, or approved equivalent and shall be of the proper type and frame of the services involved in accordance with the NEMA and Equipment Manufacturer's recommendations. Motors shall be "energy efficiency" type with 1.15 service factor. Motor windings shall be all copper. Where possible, motors shall be permanently lubricated. Where motors must be lubricated, the manufacturer shall furnish the services of a representative to review the lubrication procedure with the Contractor and the Owner and turn over to both of them all of the necessary maintenance literature. Motors and installation shall conform with all applicable requirements of the National Electrical Code. Motors shall be suitable for across-the-line or reduced voltage starting as applicable in each instance. Provide the Electrical Contractor with all motor data to properly size overcurrent protection devices for all combination starters and disconnect switches. The HVAC Contractor shall be responsible for any additional costs to the Electrical Contractor resulting from any changes in motor sizes initiated by the HVAC Contractor, from sizes scheduled on the Drawings.

B. Safety Switches

1. Safety Switches shall be furnished to the Electrical Contractor for installation.
   a. Safety switches shall be of the fusible type as indicated, quick make, quick break in NEMA Type 1 sheet steel enclosure unless otherwise noted. Switches shall be horsepower rated, and of size and number of poles as indicated on the Drawings. Safety switches shall be of type having a direct mechanical linkage between contacts and operating handle. Safety switches shall be as manufactured by Cutler-Hammer, General Electric, or Square D Company. Fuses for all switches shall be of the UL Class RKI Low Peak as manufactured by the Bussmann Mfg. Division of the McGraw Edison Company. Fuses for motors shall be sized to conform with the motor running current and in strict accordance with the recommendations of the fuse manufacturer.
   b. Where switches are located at the exterior of the Building or in wet locations, they shall be provided with NEMA 3R or 4 weather tight and weather resistant enclosures. Enclosures for switches located in hazardous areas shall be of the appropriate explosion proof type.
   c. Switches used as service entrance switches shall be Underwriters Laboratories listed suitable for Service Entrance Equipment.

C. The H.C. shall coordinate the starter control circuit transformer VA requirements with the ATC contractor prior to ordering starters.

D. Disconnect switches serving remotely mounted soft starters or VFD's shall be furnished with a minimum of one (1) set of normally open auxiliary contacts.

2.2 ACCESS PANELS

A. The HVAC Contractor shall furnish and install factory fabricated access panels for access to all concealed dampers, damper actuators valves, and other equipment where no other means of access is available. Access panels shall be of appropriate size but not less than 24" flush type, hinged to drop down and out, screwdriver operated, stainless steel in tile work and prime coated sheet steel in plaster or acoustical tile of all types. The HVAC Contractor shall furnish and

install access panels for all equipment installed under this Contract. Exact locations and sizes of panels shall be determined by the HVAC Contractor, but panels shall be located for a symmetrical appearance. Access panels are not required at lift out removable tile ceilings.

PART 3 - EXECUTION

3.1 CLEANING

A. At the completion of the work all parts of the installation shall be thoroughly cleaned. All strainers, vents, pumps, etc., shall be cleaned of all dirt. All temporary replaceable air filters shall be removed and new replaceable air filters shall be installed after the areas have been cleaned for occupancy. The system shall be operated for a sufficient period to remove all grease, metal cuttings, and other foreign matter from the system.

B. Any stoppage or any discoloration or other damage to any part of the building, its finish or furnishings due to the Contractor's failure to properly clean the piping, shall be repaired by the Contractor without cost to the Owner.

C. All new equipment installed under this Contract, existing remaining equipment, and new and existing furnishings and finishes soiled or damaged due to the work included under this Contract shall be thoroughly cleaned as required to remove plaster, dust, paint splashes, labels and debris.

3.2 INSTRUCTIONS TO OPERATING PERSONNEL

A. The Contractor and his subcontractors shall satisfactorily complete the systems so that they are functional and operating to the satisfaction of the Architect and Commissioning Agent. All systems, their controls and their sequencing must be demonstrated to the satisfaction of the Architect and Commissioning Agent.

B. The Contractor shall furnish the services of qualified personnel, approved by the Architect and thoroughly familiar with the completed installation to instruct the permanent operating personnel in the proper operation of all systems included under this Contract and the proper care of all equipment and apparatus. These services shall be furnished for a period of five 8 hour days after the operation of the building has been taken over by the Owner.

C. When instructions are provided under this Contract, the Contractor shall have in his possession three copies of an identifying letter which shall list the names of the Contractor's qualified instruction personnel including manufacturers' representatives and subcontractors that will be giving instructions. Likewise on the same letter, spaces shall be provided for the Owner's personnel who will receive the instructions. After instructions have been given and received for each system, the Contractor's representatives and subcontractors shall sign and date the letter, and the Owner's personnel shall sign and date the letter acknowledging that they have received adequate instructions for operating and maintaining the systems and equipment. One signed copy shall be delivered to the Owner, one copy to the Architect, and one copy shall be retained by the Contractor.

D. In addition to the verbal instructions outlined above, the Contractor and his manufacturers' representatives and subcontractors shall furnish written basic instructions indicating the proper operation of each system and associated equipment. Each manufacturer shall also submit a brochure on his equipment including instructions on operation, lubrication, recommended spare

parts, and instructions on preventative, routine, and breakdown maintenance. All brochures and formats must be approved by the Architect.

E. The Contractor shall combine the written instructions and the manufacturers' equipment brochures in complete volumes with hard back binders which shall be turned over to the Owner before final acceptance of the Contract work. The Contractor shall furnish the Owner with three (3) complete sets of the manuals indexed by equipment and by manufacturer. The Contractor shall obtain two copies of a signed receipt from the Owner for the written instructions and equipment brochures. One copy of the receipt shall be delivered to the Architect and one copy retained by the Contractor.

F. It is the intent that this entire system with its complement of equipment and auxiliary equipment operate properly in accordance with the design concept and functional intent. It is also the intent that the Owner be given complete instructions for the proper operation and maintenance of the entire system.

3.3 RECORD (AS-BUILT) DRAWINGS

A. The Contractor shall maintain a complete set of Contract Drawings at the site and shall record all deviations in his work (in red ink or pencil) from that indicated on the Contract Drawings. Deviations shall be clearly and accurately recorded so that the Engineer can prepare final record (as-built) drawings using the Contractor's marked-up drawings. Dimensions shall be recorded using permanent reference points such as columns, building walls and like items. Of particular importance are the locations of all interior and exterior underground utilities. These record drawings shall be submitted to the Architect prior to final acceptance.

3.4 WARRANTY

A. The Contractor shall warrant that the materials and workmanship used in the erection of this installation are as herein specified, and he shall provide all labor and materials required to make good any defects in same which become apparent within one year from date of final payment providing such defects are due to faulty materials or workmanship and not to misuse of apparatus by the Owner, his employees, or tenants. Certain equipment shall be warranted or guaranteed for longer than one year from date of final payment where specifically mentioned in these specifications.

B. The equipment and materials manufacturers are expected to recognize that they are responsible for the failure of their products to perform in accordance with data furnished by them or their authorized representatives as well as misrepresentations of such data. When the products have been installed in accordance with the manufacturer's published or written instructions and recommendations and such products fail, then the Contractor and the manufacturers are responsible for replacement of the products and all associated work and materials without additional cost to the Owner. This warranty applies to all items supplied on the equipment and not just those that are the product of the manufacturer.

3.5 CUTTING AND PATCHING

A. New Construction

1. Except where indicated otherwise, General Contractor will construct all chases and recesses, bulkheads and openings through roof and walls in new construction to

accommodate work to be placed under this Contract. Contractor shall locate and size all openings and set sleeves when requested so as not to delay work of the General Contractor. Final responsibility for placement and suitability of such chases, openings and recesses shall rest with this Contractor.

2. Interior openings not located before walls are in place shall be cut at this Contractor's expense. All patching made necessary by said cutting shall be at this Contractor's expense. All holes required after masonry is in place shall be made with a rotary drill and shall be drilled between ribs, beams or joist spacing.

B. Existing Construction

1. All openings in completed new work and in existing walls or ceilings of existing building construction required to install work under Contract shall be cut by this Contractor, except openings in existing exterior walls and existing roofs which shall be cut by the General Contractor. All rough patching made necessary by Contractor's cutting shall be this Contractor's responsibility and shall be performed by workmen skilled in the respective trades. Surfaces of patchwork shall match adjacent existing construction subject to approval of Owner's Representative. Holes required through existing walls shall be cut with a core drill and shall be drilled between ribs, beams or joists. Finish patching will be by General Contractor.
2. Coordinate location of equipment, sleeves and raceways with other contractors.
3. Rough patch all openings in existing construction created by Contractor, caused by removal of existing equipment, and associated materials under Contract, except openings in existing roofs which shall be patched by General Contractor. Finish patching will be by General Contractor.

(END OF SECTION 23 05 06)

SECTION 23 05 29

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Steel pipe hangers and supports
2. Trapeze pipe hangers

1.2 DEFINITIONS

A. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.3 PERFORMANCE REQUIREMENTS

A. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Steel pipe hangers and supports
2. Thermal-hanger shield inserts
3. Powder-actuated fastener systems

B. Shop Drawings: fabrication and installation details and include calculations for the following:

1. Trapeze pipe hangers. Include Product Data for components.
2. Metal framing systems. Include Product Data for components.
3. Equipment supports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

B. Manufacturers

1. B-Line Systems, Inc.; a division of Cooper Industries
2. Carpenter & Paterson, Inc.
3. ERICO/Michigan Hanger Co.
4. Grinnell Corp.
5. National Pipe Hanger Corporation
6. PHD Manufacturing, Inc.

C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use padded hangers for piping that is subject to scratching.

F. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6" for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.

G. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.

H. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4".
2. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
3. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.

I. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

J. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.

K. Perforated band iron, wire or chain will not be permitted for hangers or supports of pipe.

3.2 HANGER AND SUPPORT INSTALLATION

A. Fastener System Installation

1. Install powder-actuated fasteners in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

B. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

C. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

D. Install hangers and supports to allow controlled thermal and movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

E. Install lateral bracing with pipe hangers and supports to prevent swaying.

F. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

G. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

H. Install hangers to provide minimum 1/2" space between finished covering and adjacent work.

I. Use hangers with 1-1/2" minimum vertical adjustment.

J. Seal all openings through walls of air plenum spaces and relief air shafts, where ducts, pipelines, etc. are installed under this Contract to assure airtight plenum spaces. Coordinate all work with contractors of other trades.

K. All necessary structural supports and inserts to hang all equipment shall be provided by this Contractor. Hanger rods shall be securely attached to plates. Where cutting is required for the installation of hangers, piping and supports, all openings must be neatly drilled by the HVAC Contractor. Punching or chipping of concrete will not be permitted. All necessary openings shall be drilled in a location and manner satisfactory to the Architect. All concrete damaged by the HVAC Contractor shall be patched, reinforced or replaced as directed by the Architect. Location of all holes, openings and sleeves shall clear reinforcing steel in floor and roof decks. Coordinate all work with the Architect and shall determine exact locations of all supports and openings, especially vibration isolation.

L. Strap hangers, wire hangers, or split-ring hangers will <u>not</u> be acceptable. Clevis hangers are acceptable only as hereinbefore specified for copper tubing.

M. Insulation shall be installed <u>over</u> band hangers and all openings shall be sealed as hereinafter specified.

N. Hanger rods installed in conjunction with hangers shall be not less than 3/8" for pipe sizes 1/2" to 2"; 1/2" for pipe sizes 2-1/2" and 3"; 5/8" for pipe sizes 4" and 5"; 3/4" for 6" pipe; and 7/8" for 8" to 12" pipe sizes. Hanger rods shall be larger where recommended by the hanger manufacturer.

3.3 FASTENINGS

A. For fastenings and attachments such as screws, bolts, nuts, etc.: use non-ferrous silicon bronze, or galvanized or cadmium plated steel. Where such devices are not commercially available in non-ferrous metals, or in steel with a protective coating: use fastenings and attachments made of such materials or so protected to offer maximum protection against deterioration from age, weather and dampness. Where subject to weather or wet locations use stainless steel bolts and screws.

B. Do not support items by nylon ties, tape or tie wire, or perforated metal straps. Where items are to be fastened to masonry construction: do not use wooden or fiber plugs. Use screws or bolts in conjunction with approved lead-alloy expansion sleeves (Hilti or equivalent). As desired use approved plastic anchors for #10 and smaller screws, up to static loads of 20 lbs. per screw. Insert anchors fully in solid masonry (not in plaster, etc.).

3.4 FINISH

A. Prime coat exposed steel hangers and supports. Hangers and supports located in pipe shafts, and suspended ceiling spaces are not considered exposed.

3.5 MISCELLANEOUS IRON WORK

A. Furnish and install all miscellaneous iron work including, but not limited to, piping hangers, piping anchors and guides, ductwork supports, and all other equipment supports. All additional structural members shall be furnished and installed to support the heating, ventilating and air conditioning equipment without excessive stress or strain on the building construction. Structural beams and other structural members shall be furnished and installed under this Contract for anchors and guides where the building steel is not available or capable of supporting or anchoring pipe lines and equipment.

B. All equipment and materials furnished and installed under this Contract which are not mounted on bases or floors shall be securely attached and supported from the main supporting structure of the building by metal hangers, clamps and/or brackets. Metal hangers, clamps and/or brackets shall be of suitable design and of sufficient strength to properly and safely support the materials and equipment involved. Lag screws and bolts shall be used where required at wood construction.

C. Materials

1. Structural steel members for the support of equipment installed under this Contract shall conform to ASTM Specifications A-36 and shall comply with the latest requirements of the American Institute of Steel Construction. Structural steel shall be of standard sections as given in the structural steel manufacturers' handbooks.

D. Priming

1. All steel and iron work shall be primed with Rust-Oleum X-60, or equivalent. Before priming all metal shall be thoroughly cleaned free from scale, rust, and dirt.

E. Anchors

1. Provide all anchors, bolts, screws, dowels, and connecting members and do all cutting and fitting necessary to secure the work to adjoining construction. Build in connecting members to masonry, concrete, and structural steel as the new and remodeling work progresses.

F. Supports and Brackets

1. Supports and brackets shall be neatly constructed of structural shapes to adequately support the equipment intended. All supports must be approved prior to installation. Field conditions will regulate the type of support.

3.6 PAINTING

A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

(END OF SECTION 23 05 29)

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Balancing Air Systems
   a. Constant-volume air systems

1.2 DEFINITIONS

A. AABC: Associated Air Balance Council.

B. NEBB: National Environmental Balancing Bureau.

C. TAB: Testing, adjusting, and balancing.

D. TABB: Testing, Adjusting, and Balancing Bureau.

E. TAB Specialist: An entity engaged to perform TAB Work.

1.3 REFERENCES

A. AABC - National Standards for Field Measurement and Instrumentation, Total System Balance.

B. ASHRAE – 2011 Applications Handbook: Chapter 38, Testing, Adjusting and Balancing.

C. NEBB – Procedural Standards for testing, Balancing and Adjusting of Environmental Systems.

1.4 SUBMITTALS

A. LEED Submittal

1. Air balance report for LEED Prerequisite EQ-1: Documentation of work performed for ASHRAE 62.1-2004, Section 7.2.2, "Air Balancing".

B. Strategies and Procedures Plan: Within 30 days of Contractor's Notice to Proceed, submit TAB strategies and step-by-step procedures as specified in "Preparation" Article.

C. Certified TAB reports.

1.5 QUALITY ASSURANCE

A. TAB Contractor Qualifications: Engage a TAB entity certified by AABC or NEBB.

1. TAB Field Supervisor: Employee of the TAB contractor and certified by AABC or NEBB.
2. TAB Technician: Employee of the TAB contractor and who is certified by AABC or NEBB as a TAB technician.
3. All field work by the Testing, Adjusting, and Balancing Firm shall be under the direct supervision of a registered Professional Engineer, licensed to practice in the Commonwealth of Pennsylvania and who is a full time employee of the firm.

B. Certify TAB field data reports and perform the following:

1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.

C. TAB Report Forms: Use standard TAB contractor's forms approved by Architect.

D. Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation."

1.6 TESTING AND BALANCE REPORT

A. Provide the services of an independent qualified testing, adjusting and balancing firm as approved by the Owner’s Representative. The testing, adjusting and balancing firm shall submit evidence that it has been engaged in this type of service for a minimum of five (5) years and that it has balanced systems of comparable size and complexity as specified for the project.

B. HVAC Contractor and balancing firm are responsible for testing, adjusting and balancing air and water systems and balancing and adjusting existing equipment and systems where this equipment and systems are being altered under this Contract.

C. Coordinate the balancing work with all other Contractors, Temperature Control Subcontractor, Owner’s Representative and the Owner. Temperature Control Subcontractor shall adjust controls. Perform balancing of the heating systems when outdoor air temperature is averaging below 30°F and the cooling systems when outdoor air temperature is above 80°F.

D. Contractor shall furnish and install new sheaves, if required, to balance the air systems, at no additional cost.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

B. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.

C. Examine the approved submittals for HVAC systems and equipment.

D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine ceiling plenums and underfloor air plenums used for supply, return, or relief air to verify that they meet the leakage class of connected ducts as specified in Division 23 Section "Metal Ducts and Nonmetal Ducts" and are properly separated from adjacent areas. Verify that penetrations in plenum walls are sealed and fire-stopped if required.

F. Examine equipment performance data including fan and pump curves.

1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.

G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

H. Examine test reports specified in individual system and equipment Sections.

I. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation. Verify that dirty filters have been removed and that new clean filters are in place.

J. Examine terminal units, such as variable-air-volume boxes, and verify that they are accessible and their controls are connected and functioning.

K. Examine strainers. Verify that startup screens are replaced by permanent screens with indicated perforations.

L. Examine three-way valves for proper installation for their intended function of diverting or mixing fluid flows.

M. Examine heat-transfer coils for correct piping connections and for clean and straight fins.

N. Examine system pumps to ensure absence of entrained air in the suction piping.

O. Examine operating safety interlocks and controls on HVAC equipment.

P. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Prepare a TAB plan that includes strategies and step-by-step procedures.

B. Complete system-readiness checks and prepare reports. Verify the following:

1. Permanent electrical-power wiring is complete.
2. Hydronic systems are filled, clean, and free of air.
3. Automatic temperature-control systems are operational.
4. Equipment and duct access doors are securely closed.
5. Balance, smoke, and fire dampers are open.
6. Isolating and balancing valves are open and control valves are operational.
7. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
8. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing" and in this Section.

1. Comply with requirements in ASHRAE 62.1-2004, Section 7.2.2, "Air Balancing."

B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.

1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
2. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Division 23 Section "HVAC Insulation."

C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' "as-built" duct layouts.

C. For variable-air-volume systems, develop a plan to simulate diversity.

D. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

E. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

G. Verify that motor starters are equipped with properly sized thermal protection.

H. Check dampers for proper position to achieve desired airflow path.

I. Check for airflow blockages.

J. Check condensate drains for proper connections and functioning.

K. Check for proper sealing of air-handling-unit components.

L. Verify that air duct system is sealed as specified in Division 23 Section "Metal Ducts."

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

1. Measure Total Airflow
   a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.
2. Measure fan static pressures as follows to determine actual static pressure:
   a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
   b. Measure static pressure directly at the fan outlet or through the flexible connection.
   c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
   d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
   a. Report the cleanliness status of filters and the time static pressures are measured.
4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.

5. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
6. Obtain approval from Architect for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in Division 23 Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
7. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.

1. Measure airflow of submain and branch ducts.
   a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.
3. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.

C. Measure air outlets and inlets without making adjustments.

1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.

D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.

1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
2. Adjust patterns of adjustable outlets for proper distribution without drafts.

3.6 PROCEDURES FOR HEAT-TRANSFER COILS

A. Measure, adjust, and record the following data for each electric heating coil:

1. Nameplate data.
2. Airflow.
3. Entering- and leaving-air temperature at full load.
4. Voltage and amperage input of each phase at full load and at each incremental stage.
5. Calculated kilowatt at full load.
6. Fuse or circuit-breaker rating for overload protection.

B. Measure, adjust, and record the following data for each refrigerant coil:

1. Dry-bulb temperature of entering and leaving air.

2. Wet-bulb temperature of entering and leaving air.
3. Airflow.
4. Air pressure drop.
5. Refrigerant suction pressure and temperature.

3.7 PROCEDURES FOR EXISTING SYSTEMS

A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.

1. Measure and record the operating speed, airflow, and static pressure of each fan.
2. Measure motor voltage and amperage. Compare the values to motor nameplate information.
3. Check the refrigerant charge.
4. Check the condition of filters.
5. Check the condition of coils.
6. Check the operation of the drain pan and condensate-drain trap.
7. Check bearings and other lubricated parts for proper lubrication.
8. Report on the operating condition of the equipment and the results of the measurements taken. Report deficiencies.

B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:

1. New filters are installed.
2. Coils are clean and fins combed.
3. Drain pans are clean.
4. Fans are clean.
5. Bearings and other parts are properly lubricated.
6. Deficiencies noted in the preconstruction report are corrected.

C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.

1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.
2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
3. If calculations increase or decrease the air flow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
4. Balance each air outlet.

3.8 TOLERANCES

A. Set HVAC system's air flow rates and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.
2. Air Outlets and Inlets: Plus or minus 10 percent.
3. Heating-Water Flow Rate: Plus or minus 10 percent.
4. Cooling-Water Flow Rate: Plus or minus 10 percent.

3.9 REPORTING

A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.

B. Status Reports: Prepare weekly progress reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

3.10 FINAL REPORT

A. General: Prepare and submit four (4) copies of a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
2. Include a list of instruments used for procedures, along with proof of calibration.

B. Final Report Contents: In addition to certified field-report data, include the following:

1. Pump curves.
2. Fan curves.
3. Manufacturers' test data.
4. Field test reports prepared by system and equipment installers.
5. Other information relative to equipment performance; do not include Shop Drawings and product data.

C. General Report Data: In addition to form titles and entries, include the following data:

1. Title page.
2. Name and address of the TAB contractor.
3. Project name.
4. Project location.
5. Architect's name and address.
6. Engineer's name and address.
7. Contractor's name and address.
8. Report date.
9. Signature of TAB supervisor who certifies the report.
10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
11. Summary of contents including the following:
    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.
12. Nomenclature sheets for each item of equipment.
13. Data for terminal units, including manufacturer's name, type, size, and fittings.
14. Notes to explain why certain final data in the body of reports vary from indicated values.
15. Test conditions for fans and pump performance forms including the following:

a. Settings for outdoor-, return-, and exhaust-air dampers.
b. Conditions of filters.
c. Cooling coil, wet- and dry-bulb conditions.
d. Face and bypass damper settings at coils.
e. Fan drive settings including settings and percentage of maximum pitch diameter.
f. Inlet vane settings for variable-air-volume systems.
g. Settings for supply-air, static-pressure controller.
h. Other system operating conditions that affect performance.

D. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:

1. Quantities of outdoor, supply, return, and exhaust airflows.
2. Duct, outlet, and inlet sizes.
3. Terminal units.
4. Position of balancing devices.

3.11 ADDITIONAL TESTS

A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

(END OF SECTION 23 05 93)

SECTION 23 31 13

METAL DUCTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Rectangular ducts and fittings
2. Round ducts and fittings
3. Sheet metal materials
4. Sealants and gaskets
5. Hangers and supports
6. **[Restraint Devices]**

B. Related Sections

1. Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.
2. Division 23 Section "HVAC Casings" for factory- and field-fabricated casings for mechanical equipment.
3. Division 23 Section "Air Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports **[and restraints]** shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" **[and] [SMACNA's "Restraint Manuals: Guidelines for Mechanical Systems."]**.

1. [Hazard Level A: Force to weight ratio, 0.48.]
2. [Hazard Level B: Force to weight ratio, 0.30.]
3. [Hazard Level C: Force to weight ratio, 0.15.]

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings

1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
2. Factory- and shop-fabricated ducts and fittings.
3. Duct layout indicating sizes, configuration, liner material, and static-pressure classes.
4. Elevation of top of ducts.
5. Dimensions of main duct runs from building grid lines.
6. Fittings.
7. Reinforcement and spacing.
8. Seam and joint construction.
9. Penetrations through fire-rated and other partitions.
10. Equipment installation based on equipment being used on Project.
11. Locations for duct accessories, including dampers, turning vanes, and access doors and panels.
12. Hangers and supports, including methods for duct and building attachment **[restraints,]** and vibration isolation.

C. Delegated-Design Submittal

1. Sheet metal thicknesses.
2. Joint and seam construction and sealing.
3. Reinforcement details and spacing.
4. Materials, fabrication, assembly, and spacing of hangers and supports.

D. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Duct installation in congested spaces, indicating coordination with general construction, building components, and other building services. Indicate proposed changes to duct layout.
2. Suspended ceiling components.
3. Structural members to which duct will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Penetrations of smoke barriers and fire-rated construction.
6. Items penetrating finished ceiling including the following:
   a. Lighting fixtures
   b. Air outlets and inlets
   c. Speakers
   d. Sprinklers
   e. Access panels
   f. Perimeter moldings
7. Ductwork shall not be installed until all contractors have signed off on coordination drawings.

E. Welding certificates.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel," for hangers and supports.

2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum," for aluminum supports.
3. AWS D9.1M/D9.1, "Sheet Metal Welding Code," for duct joint and seam welding.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."

C. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS

2.1 LOW VELOCITY DUCTWORK (2 INCH WG POSITIVE OR NEGATIVE AND VELOCITIES LESS THAN 2000 FPM)

A. All low velocity ductwork shall be constructed and installed in strict accordance with the recommendations and details of SMACNA (Sheet Metal and Air Conditioning Contractors' National Association, Inc., 8224 Old Courthouse Road, Tysons Corner, Vienna, Virginia 22180), except where these Specifications exceed SMACNA requirements. Low velocity ductwork shall consist of outdoor intake ducts, supply ducts, exhaust ducts, transfer ducts, relief air ducts, and return ducts. Do not use snap lock stove pipe type round ducts, adjustable elbows, dovetail or spin connections.

B. No variation of duct configuration or sizes permitted except by written permission of Engineer where NC levels are critical such as theaters.

C. All miscellaneous transitions, shapes and accessories have not been indicated due to the scale of the Drawings; however, the Contractor shall install all sheet metal accessories to complete the systems. Special care shall be exercised to provide tight fitting, well-fabricated well-braced ductwork systems. Adjustment mechanisms, controls and dampers of all kinds must be accessible.

D. Drive slip joints shall <u>not</u> be used for joint connections unless the Contractor thoroughly tapes each joint with 3M or approved equal 4" wide vinyl impregnated cloth duct tape with adhesive back. Two 2" wide overlapped tapes may be used in lieu of 4" wide tape. Taped drive slip joints may be used on ducts up to and including 18" only.

E. All new low velocity ductwork shall be constructed to SMACNA 2" wg pressure class standards and shall be neatly built, rigidly braced with structural shapes to prevent vibration and made up of the following gauges: Exposed ductwork shall be one (1) gauge heavier than that listed.

Steel Gauge	Aluminum Thickness	Maximum Size, Inches	Type of Transverse Joint Connections	Bracing
24	.020"	Up to 12	Plain S Slip, Pocket Lock or Bar Slips on 8'-0" Centers	None

Steel Gauge	Aluminum Thickness	Maximum Size, Inches	Type of Transverse Joint Connections	Bracing
24	.025"	13 to 18	Plain S Slip, Pocket Lock or Bar Slips on 8'-0" Centers	None
24	.025"	19 to 30	Hemmed S Slip, 1" Pocket Lock or 1" Bar Slips on 10'-0" Centers	1" x 1" x 1/8" angles 5'-0" OC max.
22	.032"	31 to 42	1" Pocket Lock or 1" Bar Slips, on 5'-0" Centers	1" x 1" x 1/8" angles 5'-0" OC max.
22	.032"	43 to 54	1-1/2" Angle Connections or 1-1/2" Pocket or 1-1/2" Bar Slips on 5'-0" Max. Centers	1-1/2" x 1-1/2" x 1/8" angles 5'-0" OC max.
20	.040"	55 to 60	1-1/2" Angle Connections or 1-1/2" Pocket or 1-1/2" Bar Slips on 5'-0" Max. Centers with 1-3/8" x 1/8" Bar Reinforcing	1-1/2"x 1-1/2" x 1/8" angles 5'-0" OC max.
20	.040"	61 to 84	1-1/2" Angle Connections or 1-1/2" Bar Slips on 5'-0" Max. Centers with 1-3/8" x 1/8" Bar Reinforcing	1-1/2"x 1-1/2" x 1/8" angles 4'-0" OC max.
18	.051"	85 to 96	1-1/2" Angle Pocket Connections or 1-1/2" Angle Slips or 1-1/2" Bar Slips 5'-0" Max. Centers with 1-3/8" x 3/16" Bar Reinforcing	1-1/2" x 1-1/2" x 3/16" angles 3'-0" OC max.
18	.051"	Over 96	2" Angle Pocket Connections or 2" Angle Slips 5'-0" Maximum Centers with 2" x 1/4" Bar Reinforcing	2" x 2" x 1/4" angles 2'-6" OC max.

F. Round low velocity ductwork shall be fabricated of galvanized steel with lock-type spiral seams in accordance with SMACNA details and steel gauge thickness as listed in the SMACNA Manual. Duct system shall be as manufactured by United Sheet Metal, Semco, or approved equal.

G. All joints in ductwork shall be airtight and shall be constructed in accordance with SMACNA recommendations, except where SMACNA recommendations are exceeded by these Specifications. Seal all low pressure ducts with United McGill Duct seal for Seal Class B.

H. All connections between motor-operated equipment and ductwork shall be made through 20 oz. fire-resistant canvas throats, "Ventfab," "Durodyne," or approved equal. A short length of flexible duct (24" maximum) will be permitted to connect diffusers to low pressure ductwork. Flex duct and collar in duct shall be not less than diffuser collar size and held in place with strap or clamp.

I. All ductwork shall be supported by hanger straps, angles, rods, or bands, attached, sized and spaced in accordance with the SMACNA duct construction standards. Standard sheet metal practices listed and shown in the SMACNA "Duct Manual" shall apply to work to be performed.

J. Branch duct take-offs from rectangular ducts shall be full size bellmouth type (such as the Buckley Air-Tite Bellmouth Take-Off) with a heavy duty volume regulator for round branch ducts and 45° shoe tap type with volume regulator for rectangular branch ducts.

2.2 CASINGS

A. Fabricate casings in accordance with SMACNA Duct Construction Standards and construct for operating pressures indicated.

B. Mount floor mounted casings on concrete curbs. At floor, rivet panels on 8 inch centers to angles. Where floors of plenum are acoustically insulated, provide liner of 18 gauge galvanized expanded metal mesh supported at 12 inch centers, turned up 12 inches at sides with sheet metal shields.

C. Reinforce door frames with steel angles tied to horizontal and vertical plenum supporting angles. Install hinged access doors where indicated or required for access to equipment for cleaning and inspection. Provide clear wire glass observation ports, minimum 6 X 6 inch.

D. Fabricate acoustic casings with reinforcing turned inward. Provide 16 gauge back facing and 22 gauge perforated front facing with 3/32 inch diameter holes on 5/32 inch centers. Construct panels 3 inches thick packed with 4.5 lb/cu ft minimum glass fiber media, on inverted channels of 16 gauge.

2.3 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.

E. Steel Cables for Stainless-Steel Ducts: Stainless steel complying with ASTM A 492.

F. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

H. Trapeze and Riser Supports

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

2.4 RESTRAINT DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.; a division of Cooper Industries
2. Ductmate Industries, Inc.
3. Hilti Corp.
4. Kinetics Noise Control
5. Loos & Co.; Cableware Division
6. Mason Industries
7. TOLCO; a brand of NIBCO INC.
8. Unistrut Corporation; Tyco International, Ltd.

B. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by [**an evaluation service member of the ICC Evaluation Service**] [**the Office of Statewide Health Planning and Development for the State of California**] [**an agency acceptable to authorities having jurisdiction**].

1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum forces to which they will be subjected.

C. Channel Support System: Shop- or field-fabricated support assembly made of slotted steel channels rated in tension, compression, and torsion forces and with accessories for attachment to braced component at one end and to building structure at the other end. Include matching components and corrosion-resistant coating.

D. Restraint Cables: ASTM A 492, stainless-steel cables with end connections made of cadmium-plated steel assemblies with brackets, swivel, and bolts designed for restraining cable service; and with an automatic-locking and clamping device or double-cable clips.

E. Hanger Rod Stiffener: [**Steel tube or steel slotted-support-system sleeve with internally bolted connections**] [**Reinforcing steel angle clamped**] to hanger rod.

F. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings. Duct sizes listed are inside dimensions. For lined ducts maintain sizes inside liner.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install round ducts in maximum practical lengths.

D. Install ducts with fewest possible joints.

E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 23 Section "Air Duct Accessories" for fire and smoke dampers.

L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials

M. Set plenum doors 6 to 12 inches above floor. Arrange door swings so that fan static pressure holds door in closed position.

N. Provide residue traps in kitchen hood exhaust ducts at base of vertical risers with provisions for cleanout.

O. During construction provide temporary closures of metal or taped polyethylene or open ductwork to prevent construction dust from entering ductwork system.

P. Install flexible canvas connections at inlet and outlet of all fans. Flexible connections: UL Listed fire-retardant neoprene coated woven glass fabric to NFPA 90 approximately 6" wide crimped into metal edging strip. Where installed in outside atmosphere, use hypalon coated connections in lieu of neoprene coated. Provide minimum of 1" slack to insure that no vibration is transmitted

Q. Do not use flexible ducts as elbows.

R. Do not use flexible ducts in return or exhaust duct systems.

S. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pitot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.

T. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. Do not install ducts above electrical panelboards, switchgear, or other electrical equipment.

U. Pack space between duct and masonry with UL approved mineral wool where ducts pass through floors or fire partitions.

V. At ductwork penetrations of exterior walls, pack space between duct and wall with UL approved mineral wool. Install proper size backer rod and caulk exterior exposure with silicone base caulking (1/2" minimum depth). Make seal weathertight.

W. In existing building: where existing cross-bracing interferes with duct installation, coordinate alterations to cross bracing with Architect.

X. At all duct shafts from Mechanical Rooms, seal spaces between ducts by caulking with loose fiberglass insulation faced with mastic. Large spaces shall be closed off with sound-lined 16 gauge galvanized sheet metal.

Y. All ductwork serving moisture laden or other condensable vapor laden air streams shall be sealed liquid tight to prevent leakage. Any leaking ductwork shall be replaced and all damage caused by leakage shall be the responsibility of the Contractor.

3.2 DUCT SEALING

A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":

1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
2. Outdoor, Supply-Air Ducts: Seal Class A.
3. Outdoor, Exhaust Ducts: Seal Class B.
4. Outdoor, Return-Air Ducts: Seal Class B.
5. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
6. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class A.
7. Unconditioned Space, Exhaust Ducts: Seal Class B.
8. Unconditioned Space, Return-Air Ducts: Seal Class B.
9. Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
10. Conditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class B.
11. Conditioned Space, Exhaust Ducts: Seal Class B.
12. Conditioned Space, Return-Air Ducts: Seal Class B.

3.3 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
5. **[Do not use powder-actuated concrete fasteners for restraints.]**

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.4 CONNECTIONS

A. Make connections to equipment with flexible connectors complying with Division 23 Section "Air Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.5 DUCT CLEANING

A. Clean [**new**] [**existing**] [**new and existing**] duct system(s) before testing, adjusting, and balancing.

B. Use service openings for entry and inspection.

1. Create new openings and install access panels appropriate for duct static-pressure class if required for cleaning access. Provide insulated panels for insulated or lined duct. Patch insulation and liner as recommended by duct liner manufacturer. Comply with Division 23 Section "Air Duct Accessories" for access panels and doors.
2. Disconnect and reconnect flexible ducts as needed for cleaning and inspection.
3. Remove and reinstall ceiling to gain access during the cleaning process.

C. Particulate Collection and Odor Control

1. When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron-size (or larger) particles.

2. When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.

D. Clean the following components by removing surface contaminants and deposits:

1. Air outlets and inlets (registers, grilles, and diffusers).
2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
4. Coils and related components.
5. Return-air ducts, dampers, actuators, and turning vanes except in ceiling plenums and mechanical equipment rooms.
6. Supply-air ducts, dampers, actuators, and turning vanes.
7. Dedicated exhaust and ventilation components and makeup air systems.

E. Mechanical Cleaning Methodology

1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.
4. Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet. Replace fibrous-glass duct liner that is damaged, deteriorated, or delaminated or that has friable material, mold, or fungus growth.
5. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
6. Provide drainage and cleanup for wash-down procedures.
7. Antimicrobial Agents and Coatings: Apply EPA-registered antimicrobial agents if fungus is present. Apply antimicrobial agents according to manufacturer's written instructions after removal of surface deposits and debris.

3.6 START UP

A. Air Balance: Comply with requirements in Division 23 Section "Testing, Adjusting, and Balancing for HVAC."

3.7 EXISTING BUILDINGS

A. Where existing cross-bracing interferes with duct installation, coordinate cross bracing alteration with Architect.

3.8 RESTRAINT-DEVICE INSTALLATION

A. Install ducts with hangers and braces designed to support the duct and to restrain against forces required by applicable building codes. Comply with SMACNA's "Restraint Manual: Guidelines for Mechanical Systems."

1. Space lateral supports a maximum of 40 feet o.c., and longitudinal supports a maximum of 80 feet o.c.
2. Brace a change of direction longer than 12 feet.

B. Select restraint devices with capacities adequate to carry present and future static and loads.

C. Install cables so they do not bend across edges of adjacent equipment or building structure.

D. Install cable restraints on ducts that are suspended with vibration isolators.

E. Install restraint devices using methods approved by [**an evaluation service member of the ICC Evaluation Service**] [**the Office of Statewide Health Planning and Development for the State of California**] [**an agency acceptable to authorities having jurisdiction**].

F. Attachment to Structure: If specific attachment is not indicated, anchor bracing and restraints to structure, to flanges of beams, to upper truss chords of bar joists, or to concrete members.

G. Drilling for and Setting Anchors

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcement or embedded items during drilling. Notify the Architect if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Set anchors to manufacturer's recommended torque, using a torque wrench.
5. Install zinc-coated steel anchors for interior applications and stainless-steel anchors for applications exposed to weather.

3.9 DUCT SYSTEM TESTING

A. Test duct systems after erection of system with all openings blanked. Systems shall be substantially airtight at this pressure. Provide blower, instruments, etc., necessary to establish results. Owner's Representative must be present at pressure test, and test results are subject to his approval. Previously test the system and maintain this test pressure before test is performed for approval of Owner's Representative.

B. All medium and high pressure duct systems shall be tested at 1-1/2 times operating pressure. Maximum allowable leakage shall be not more than 5% of total design air quantity of systems at 6" H_2O.

C. First shipment of low pressure ductwork delivered and erected at the project site shall be tested. Two additional random tests shall be conducted at request of Owner's Representative during

remainder of project with test locations as determined by Owner's Representative. Low pressure duct systems shall be tested at [_____] inches H_2O. [**(DESIGNER:** Use pressure applicable to duct construction pressure rating specified.)] Maximum allowable leakage shall be not more than 3% of total design air quantity systems.

(END OF SECTION 23 31 13)

SECTION 23 82 39

UNIT HEATERS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Cabinet unit heaters with centrifugal fans and [**electric-resistance heating**] coils.

1.2 SUBMITTALS

A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for each product indicated.

B. [LEED Submittal

1. Product Data for Prerequisite EQ 1: Documentation indicating that units comply with ASHRAE 62.1-2004, Section 5 - "Systems and Equipment."]

C. Field quality-control test reports.

D. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IESNA 90.1-2004 Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6 - "Heating, Ventilating, and Air-Conditioning."

PART 2 - PRODUCTS

2.1 ELECTRIC CABINET UNIT HEATERS

A. Furnish and install, where indicated on the Drawings, complete electric cabinet type unit heaters. Units shall be the recessed ceiling-mounted type as shown. Ceiling-mounted unit heaters shall be securely attached to the building construction in accordance with the manufacturer's details. Vibration isolators shall be installed at all supports.

B. Each unit heater shall be of the multi-speed type consisting of fan, motor, factory-wired multi-speed switch with operating handle inside cabinet and electrical finned strip heating elements, high limit cutout switch, contactors, terminal block, fan switch selector switch, etc., all enclosed in a furniture steel cabinet with end compartments. Provision for expansion and contraction of heating elements shall be incorporated in the design of units. Heating elements shall be of the enclosed-nonglow type with all connections totally enclosed. Unit heaters shall be furnished with all protective and disconnect devices required by Underwriters' and the National Electrical Code. All controls and controllers shall be concealed within the cabinets.

C. Fans shall be the centrifugal, double-inlet type with forward-curved blades. Fans in each unit shall be mounted on a common shaft and shall be driven by a single motor mounted inside the cabinet. Fans shall be especially designed for quiet operation. Motors shall be not less than horsepower indicated, multi-speed type, wound for single-phase, 60 cycles and arranged for operation at voltage shown on Drawings, or provided with a transformer. Motors shall have automatic thermal overload protection or be provided with a thermal type switch for motor protection.

D. Cabinets shall be constructed of furniture grade steel with rounded corners, each complete with discharge grille and return air grille and finished with baked enamel of colors selected by the Architect from the manufacturer's six standard colors.

E. Cabinet unit heater heating elements shall have capacities of not less than indicated on the Drawings when supplied with voltage noted. The air-handling capacity of each unit shall be not less than indicated on the Drawings.

F. All controls for the heating elements and motors shall be factory-wired and mounted in the end compartment of each unit heater. Controls for each unit shall include contactors for heating elements and motor, disconnect circuit breaker, capacity reduction selector switch, high limit safety cutout switch, normally open fan switch to prevent element overheating. Wall mounted electric thermostats shall be furnished to the Electrical Contractor for installation and wiring.

G. All wiring inside the cabinets shall be installed in flexible metallic conduit with heat-resistant insulated conductors and in accordance with the National Electrical Code. All internal wiring shall be connected to properly labeled terminal blocks for field extension.

H. Cabinet type unit heaters shall be the Series CUH as manufactured by Berko or equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install unit heaters to comply with NFPA 90A.

B. Suspend cabinet unit heaters from structure with elastomeric hangers[**and restraints**]. Vibration isolators[**and restraints**] are specified in Division 23 Section "Vibration Controls for HVAC Piping and Equipment."

C. Suspend propeller unit heaters from structure with all-thread hanger rods and elastomeric hangers. Hanger rods and attachments to structure are specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment." Vibration hangers are specified in Division 23 Section "Vibration Controls for HVAC Piping and Equipment."

D. Install wall-mounted thermostats and switch controls in electrical outlet boxes at heights to match lighting controls. Verify location of thermostats and other exposed control sensors with Drawings and room details before installation.

E. Unless otherwise indicated, install union and ball valve on supply-water connection and union and calibrated balancing valve on return-water connection of each hot water unit heater.

F. Install union and ball valve on steam connection and union, trap and ball valve on condensate return connection for steam unit heaters.

G. Install new filters in each unit within two weeks of Substantial Completion.

H. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

I. Install piping adjacent to machine to allow service and maintenance.

J. Connect piping to cabinet unit heater's factory, hot-water piping package. Install the piping package if shipped loose.

K. Connect supply and return ducts to ducted cabinet unit heaters with flexible duct connectors specified in Division 23 Section "Air Duct Accessories."

L. Comply with safety requirements in UL 1995.

M. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

N. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.2 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
2. Operate electric heating elements through each stage to verify proper operation and electrical connections.
3. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

B. Remove and replace malfunctioning units and retest as specified above.

(END OF SECTION 23 82 39)

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 EXECUTION OF THE WORK

A. The scope of work shown on the drawings and in these specifications, Division 26, and 27 are all a part of this contract and shall be included in the base bid unless otherwise noted.

B. These Specifications call out certain duties of the Electrical Contractor and/or Subcontractors. They are not intended as a material list of items required by the Contract.

C. These divisions of the Specifications cover the electrical systems of the project. It includes work performed by the electrical trades as well as trades not normally considered as electrical trades.

D. Provide all items and work indicated on the Drawings and all items and work called for in the Specifications in accordance with the conditions of Contract (Division 1 General Requirements Documents). This includes all incidentals, equipment, appliances, services, hoisting, scaffolding, supports, tools, supervision, labor, consumable items, fees, licenses, etc., necessary to provide complete systems. Perform start-up and checkout on each item and system to verify the systems are fully operable.

E. Comply with all provisions of the Contract Documents including Division 1, General Conditions, and Supplementary General Conditions of the Specifications.

F. Certain terms such as "shall, provide, install, complete, start up" are not used in some parts of these Specifications. This does not indicate that the items shall be less than completely installed or that systems shall be less than complete.

G. Examine and compare the Electrical Drawings and Specifications with the Drawings and Specifications of other trades, and report any discrepancies between them to the Engineer and obtain written instructions for changes necessary in the work. At time of bid the most stringent requirements must be included in said bid. Install and coordinate the electrical work in cooperation with other trades installing interrelated work. Before installation, make proper provisions to avoid interferences in a manner approved by the Engineer. All changes required in the work of the Contractor caused by neglect shall be corrected at the expense of the Contractor.

H. It is the intent of the drawings and specifications to provide a complete workable system ready for the Owner's operation. These specifications are equipment and performance specifications. Items described or called out in the specification but not shown on the drawings are considered to be part of the project. Any item not specifically shown on the drawings or called for in the specifications, but normally required to conform to the intent are to be considered a part of the contract. Installation of the equipment shall be in accordance with the N.E.C., manufacturer recommendation, and industry standards.

I. All material furnished by the Contractor shall be new and unused (temporary lighting and power products are excluded) and free from defects. All materials used shall bear the Underwriters Laboratory, Inc label provided a standard has been established for the material in question.

J. All products and materials to be new, clean, free of defects and free of damage and corrosion.

K. No exclusion from, or limitation in, the symbolism used on the Drawings for electrical work or the languages used in the Specifications for electrical work shall be interpreted as a reason for omitting accessories necessary to complete any required system or item of equipment.

L. The use of words in the singular shall not be considered as limiting where other indications denote that more than one item is referred to.

M. Except for conduit, conduit fittings, outlet boxes, wire and cable, all items of equipment or material shall be the product of one manufacturer throughout. Multiple manufacturers will not be permitted.

1.2 COORDINATION OF THE WORK

A. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.

B. Carefully check space requirements with other trades and the physical confines of the area to ensure that all material can be installed in the spaces allotted thereto including finished suspended ceilings. Make modifications thereto as required and approved.

C. Transmit to other trades all information required for work to be provided under their respective sections in ample time for installation.

D. Wherever work interconnects with work of other trades, coordinate with other trades to ensure that all trades have the information necessary so that they may properly install all the necessary connections and equipment. Identify all items of work that require access so that the ceiling trade will know where to install access doors and panels.

E. The locations of lighting fixtures, outlets, panels and other equipment indicated on the Drawings are approximately correct, but they are understood to be subject to such revision as may be found necessary or desirable at the time the work is installed in consequence of increase or reduction of the number of outlets, or in order to meet field conditions or to coordinate with modular requirements of ceilings, or to simplify the work, or for other legitimate causes.

F. Exercise particular caution with reference to the location of panels, outlets, switches, etc., and have precise and definite locations approved by the Engineer before proceeding with the installation.

G. The Drawings show only the general run of raceways and approximate location of outlets. Any significant changes in location of outlets, cabinets, etc., necessary in order to meet field conditions shall be brought to the immediate attention of the Engineer and shall receive approval before such alterations are made. All such modifications shall be made without additional cost to the Owner.

H. Obtain from the Engineer in the field the location of such outlets or equipment not definitively located on the Drawings.

I. Circuit "tags" in the form of arrows are used where shown to indicate the home runs of raceways to electrical distribution points. These tags show the circuits in each home run and the panel designation. Show the actual circuit numbers on the finished record tracing and on panel

directory card. Where circuiting is not indicated, the Electrical Contractor must provide required circuiting in accordance with the loading indicated on the drawings and/or as directed.

J. The Drawings generally do not indicate the exact number wires in each conduit for the branch circuit wiring of fixtures, and outlets, or the actual circuiting. Provide the correct wire size and quantity as required by the indicated circuiting and/or circuit numbers indicated and control wiring diagrams, if any, specified voltage drop or maximum distance limitations, and the applicable requirements of the NEC.

K. Adjust locations of conduits, panels, equipment, pull boxes, fixtures, etc. to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each raceway prior to installation.

1. Right of way: lines which pitch to have the right-of-way over those which do not pitch. For example: steam, condensate, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed to have right-of-way over lines whose elevations can be changed.
2. Make offsets, transitions and changes in direction in raceways and as required to maintain proper head room in pitch of sloping lines whether or not indicated on the Drawings.

L. Contractor shall furnish services of experienced Superintendent, who shall be in constant charge of all work, and who shall coordinate his work with the work of other trades. No work shall be installed before coordinating with other trades.

1.3 EXAMINATION OF SITE

A. Prior to submitting of bids, the Contractor shall visit the site of the job and shall familiarize himself with all conditions affecting the proposed installation and shall make provisions as to the cost thereof. Failure to comply with the intent of this paragraph will in no way relieve the Contractor of performing all necessary work shown on the Drawings.

1.4 PROGRESS OF WORK

A. The Contractor shall order the progress of his work so as to conform to the progress of the work of other trades and shall complete the entire installation as soon as the conditions of the building will permit. Any cost resulting from the defective or ill-timed work performed under this section shall be borne by the Contractor.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ship and store all products and materials in a manner which will protect them from damage, weather and entry of debris. If items are damaged, do not install, but take immediate steps to obtain replacement or repair. Any such repairs shall be subject to review and acceptance of the Engineer.

B. Delivery of Materials: Deliver materials (except bulk materials) in manufacturer's unopened container fully identified with manufacturer's name, trade name, type, class, grade, size and color.

C. Storage of Materials, Equipment and Fixtures: Store materials suitably sheltered from the elements, but readily accessible for inspection by the Engineer until installed. Store all items subject to moisture damage in dry, heated spaces.

1.6 EQUIPMENT ACCESSORIES

A. Provide supports, hangers and auxiliary structural members required for support of the work.

B. Furnish and set all sleeves for passage of raceways through structural, masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each raceway and passing through building surfaces.

C. Wall mounted equipment, total weight of 100 pounds or less, may be directly secured to wall by means of steel bolts. Maintain at least 1" air space between equipment and supporting wall.

1.7 CUTTING, PATCHING, ETC.

A. The work shall be carefully laid out in advance. Where Cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of raceway, outlets or other equipment, the work shall be carefully done. Any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc. shall be repaired by skilled mechanics of the trades involved at no additional cost to the Owner.

B. The Contractor shall do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless he first obtains permission from the Engineer. If permission is granted, the Contractor shall perform this work in a manner approved by the Engineer.

C. Where conduits, outlet, junction, or pullboxes are mounted on a painted surface, or a surface to be painted, they shall be painted to match the surface. Whenever support channels are cut, the bare metal shall be cold galvanized.

D. Slots, chases, openings and recesses through floors, walls, and ceilings will be provided by the various trades in their respective materials. The trade requiring them to properly locate such openings and be responsible for any cutting and patching caused by the neglect to do so.

1.8 CLEANING UP

A. Contractor shall take care to avoid accumulation of debris, boxes, crates, etc. resulting from the installation of work. Contractor shall remove from the premises each day all debris, boxes, etc., and keep the premises clean, subject to the Architect's instructions, which shall be promptly carried out.

B. Contractor shall clean all fixtures and equipment at the completion of the project.

C. All panelboards, cabinets, enclosures, etc. shall be thoroughly vacuumed clean prior to energizing equipment at the completion of the project. Equipment shall be opened for observation by the Architect as required.

1.9 WATERPROOFING

A. Avoid, if possible, the penetration of any waterproof membranes such as roofs, machine room floors, basement walls, and the like. If such penetration is necessary, perform it prior to the waterproofing and furnish all sleeves or pitch-pockets required. Advise the Architect and obtain written permission before penetrating any waterproof membrane, even where such penetration is shown on the Drawings. Perform work so as to maintain any warranties currently in effect.

B. If this Contractor penetrates any walls or surfaces after they have been waterproofed, this Contractor shall restore the waterproof integrity of that surface at the expense of this Contractor and as directed by the Architect.

1.10 PRODUCTS

A. If products and materials are specified or indicated on the drawings for a specific item or system, use those products or materials. Where noted in other sections of this specification, equipment has been specified for a specific performance and substitutions are not permitted. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of Shop Drawings where Shop Drawings are required or as approved in writing where Shop Drawings are not required.

1.11 OMISSIONS FROM THE DRAWINGS

A. Should a Bidder find discrepancies in or omissions from the drawings or specifications or be in doubt as to their meaning, he shall notify the Architect before submitting his proposal. The Architect will in turn, send written instructions to all Bidders. Neither the Architect nor the Owner will be responsible for oral instructions. If the Contractor fails to comply with this requirement, he shall accept the Engineer's interpretations as to the intended meaning of the drawings and specifications.

1.12 EXECUTION

A. Follow manufacturer's instructions for installing, connecting, and adjusting all equipment. Provide one copy of such instructions to the Architect before installing any equipment. Provide a copy of such instructions at the equipment during any work on the equipment. Provide all special supports, connections, wiring, accessories, etc.

B. Use mechanics skilled in their trade for all work.

C. Clean all items before and after installation. Clean up all debris.

D. Perform all tests required by local authorities in addition to tests specified herein, such as life safety systems.

E. Applicable equipment and materials to be listed by Underwriters' Laboratories and manufactured in accordance with ASME, NEMA, ANSI or IEEE standards and as approved by local authorities having jurisdiction.

F. Before commencing work, examine all adjoining, underlying, etc., work on which this work is in any way dependent for perfect workmanship and report any condition which prevents performance of first class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.

1.13 VERIFICATION OF ELECTRICAL REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS

A. Prior to the installation of wiring systems for any equipment furnished by others, this contractor shall verify that the electrical requirements of the equipment match those shown on the electrical drawings by examining the approved shop drawings of that equipment. Any discrepancies shall be immediately reported to the engineer.

B. If the contractor fails to comply with this requirement, he shall be responsible for any additional costs incurred at no additional cost to the Owner.

1.14 PROTECTION OF BUILDING FIRE/SMOKE BARRIERS

A. Passages of conduit through fire barriers and/or smoke barriers shall be protected as follows:

1. The space between the penetrating item and the fire barrier and/or smoke barrier shall be filled with a material capable of maintaining the fire/smoke resistance of the barrier or be protected by an approved device designed for the specific purpose.
2. Where the penetrating item uses a sleeve to penetrate the fire and/or smoke barrier the sleeve shall be solidly set in the fire/smoke barrier and the space between the item and the sleeve shall be filled as described above.
3. Fire barriers shall include 1-hour, 2-hour, and 3-hour rated floors and walls. Refer to architectural plans for location of fire barriers and smoke barriers and provide protection required to maintain ratings in accordance with all codes.
4. Approved fill material for fire barriers shall be packed mineral wool, with ASTME-136 rating and 3M Fire Barrier caulk. Coordinate sealing of all openings with requirements of Division 7 of this specification.
5. Perform work in accordance with the appropriate UL Ratings.
6. Product Data: Provide manufacturer's specifications, recommendations and installation instructions for each application.

1.15 CODES AND FEES

A. General: Comply with Codes in accordance with the Contract Documents.

B. The electrical installation shall be in compliance with the requirements of OSHA, NEC and the rules, regulations and requirements of the power company supplying power to the building.

C. The electrical installation shall comply fully with all township, county and state laws, ordinances and regulations applicable to electrical installations.

D. All equipment shall be equal to or exceed the minimum requirements of NEMA, IEEE and UL.

E. Should any change in Drawings or Specifications be required to comply with governmental regulations, the Contractor shall notify Architects prior to execution of the work. The work shall be carried out according to the requirements of such code in accordance with the instruction of the Architect and at no additional cost to the Owner.

F. The local fees and permits and services of inspection authorities shall be obtained and paid for by the Contractor. The Contractor shall cooperate fully with local utility companies with respect to their services.

G. Certificate of Inspection and approval shall be procured and paid for by this Contractor from an approved certified inspection agency.

1.16 GUARANTEE

A. General: Provide a Guarantee in accordance with the Contract Documents.

B. Submit a single guarantee stating that all portions of the work are in accordance with Contract requirements. Guarantee all work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the Owner, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to Owner, all to the satisfaction of the Owner and Architect. Obtain similar guarantees from subcontractors, manufacturers, suppliers and subtrade specialists.

1.17 DISPOSAL

A. All electrical items not designated by the Owner for his use to be properly disposed of according to local, state and Federal regulations.

B. Items containing polychlorinated biphenyl (PCB) to be removed, transported and disposed of according to Federal Toxic Substances Control Act (TSCA). Contractor to submit certification that these items have been properly disposed.

(END OF SECTION 26 05 00)

SECTION 26 05 19

LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary conditions and Division 1 Specification Section, apply to this Section.

1.2 SUMMARY

A. General: Provide 600 volt wire and cable in accordance with the Contract Documents.

1.3 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. Underwriters Laboratory Standard No. UL 467
   a. ASTM
   b. IPECA
2. Terminal Blocks
   a. UL-1059

PART 2 - PRODUCTS

2.1 WIRE AND CABLE

A. General

1. Provide wire with a minimum insulating rating of 600 volts, except for wire used in 50 volts or below applications for control of signal systems use 300 volt minimum or 600 volt where permitted to be incorporated with other wiring systems.

B. Conductor

1. Electrical grade, annealed copper fabricated in accordance with ASTM standards. Minimum size number 12 for branch circuits; number 14 for control wiring.
2. The conductors shown on the drawings are copper, except as noted otherwise.

C. Stranding and Number of Conductors

1. Number 12 and number 10 solid.
2. Cables larger than number 10, stranded in accordance with ASTM Class B stranding designations.

3. Control wires stranded in accordance with ASTM Class B stranding designations.
4. Cables, multi-conductor unless otherwise noted for low tension systems.

D. Insulation

1. Type THWN/THHN insulation suitable for use in wet locations up to 75 degrees Centigrade. Use for lighting, receptacle and motor circuits and for panel and equipment feeders.

2.2 CONNECTORS

A. Make connections, splices, taps and joints with solderless devices, mechanically and electrically secure. Protect exposed wires and connecting devices with electrical tape or insulation to provide not less than that of the conductor.

B. Branch Circuit wires (Number 10 and smaller): Use any of the following types of terminals and connecting devices:

1. Hand Applied
   a. Coiled tapered, spring wound devices with a conducting corrosion-resistant coating over the spring steel and a plastic cover and skirt providing full insulation for splice and wired ends. Screw connector on by hand.
2. Tool Applied
   a. Steel cap, with conduction and corrosion resistant metallic plating, open at both ends, fitted around the twisted ends of the wire and compressed or crimped by means of a special die designed for the purpose. Specifically fitted plastic or rubber insulating cover wrap over each connector.

2.3 ELECTRICAL TAPE

A. Specifically designed for use as insulating tape.

2.4 LUBRICANT

A. Use lubricant only where the possibility of damage to conductors exists. Use only a lubricant approved by the cable manufacturer and one which is inert to cable and raceways.

PART 3 - EXECUTION

3.1 WIRE AND CABLE

A. Provide a complete system of conductors in raceway system. Mount wiring through a specified raceway, regardless of voltage application.

B. Drawings do not indicate size of branch circuit wiring. For branch circuits whose length from panel to furthest outlet exceeds 100 feet for 120-volt circuits, use number 10 or larger.

C. Do not install wire in incomplete conduit runs nor until after the concrete work and plastering is completed and moisture is swabbed from conduits. Eliminate splices wherever possible. Where necessary, splice in readily accessible pull, junction, or outlet.

D. Provide cable supports for all vertical risers where required by code.

E. Use terminating fittings, connectors, etc., of a type suitable for the specified cable furnished. Make bends in cable at termination prior to installing compression device. Make fittings tight.

F. Extend wire sizing for the entire length of a circuit, feeder, etc. unless specifically noted otherwise.

G. Provide a separate neutral conductor for each branch circuit. In the event a common neutral conductor is used, such as in furniture systems, the circuit breaker in the panelboard must be common trip for each phase that uses one neutral conductor.

(END OF SECTION 26 05 19)

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary conditions and Division 1 Specification Section, apply to this Section.

1.2 SUMMARY

A. General: Provide a low impedance grounding system in accordance with the Contract Documents.

1.3 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. Underwriters Laboratory Standard No. UL 467
2. ANSI C-1 1978

PART 2 - PRODUCTS

2.1 GENERAL

A. Grounding systems shall be installed in accordance with the requirements of the local authorities, NEC Section 250, and subject to the approval of the Architect.

B. All ground wires and bonding jumpers shall be stranded copper installed in conduit. All ground wires shall be without joints and splices over its entire length.

2.2 GROUNDING SYSTEMS

A. Each system of continuous metallic piping and ductwork shall be grounded in accordance with the requirements of the NEC Section 250.

B. Metal conduits and portions of metallic piping and duct systems which are isolated by flexible connections, insulated coupling, etc., shall be bonded to the equipment ground with a flexible bonding jumper, or separate grounding conductor.

C. All conduits, metal raceways, boxes, cabinets, etc., installed by this Contractor and all motors and equipment connected shall be properly bonded and grounded.

D. In all feeders and branch circuits install a green colored ground wire to each panel, cabinet, receptacle, motor or a piece of control equipment.

E. The green ground wires shall be extended and connected to the ground bus in the panels or equipment enclosure. Neutral wiring system shall not be used for this purpose. Green ground wire shall be connected to all junction or pull boxes through which they pass and to all cabinet and panel enclosures.

F. This ground wire shall be run in same conduit as phase and neutral wires feeding equipment, motor or receptacles and conduit size shall be increased if necessary. This conductor shall be installed whether or not shown on the drawings and shall be sized in accordance with NEC but shall not be smaller than #12 AWG. Motors shall be grounded by a grounding terminal in their connection box. Tie all ground wires together in panels and connect to ground bus in panel cabinet.

PART 3 - EXECUTION

3.1 GENERAL

A. Grounding connections and splices shall be bolted clamp terminal or pressure-connector type. Bolted connections and pressure-connectors shall be used for connections to removable equipment.

(END OF SECTION 26 05 26)

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary conditions and Division 1 Specification Section, apply to this Section.

1.2 SUMMARY

A. Equipment shall be installed on hangers and supports as specified in this section of the specifications.

1.3 SUPPORTS

A. Support work in accordance with the best industry practice and the following.

B. Nothing, (including outlet, pull and junction boxes and fittings) shall depend on electric conduits, raceways, or cables for support, except that threaded hub type fittings having a gross volume not in excess of 100 cubic inches may be supported from heavy wall conduit, where the conduit in turn is securely supported from the structure within five inches of the fitting on two opposite sides.

C. Nothing shall rest on, or depend for support on, suspended ceilings media (tiles, lath, plaster, as well as splines, runners, bars and the like in the plane of the ceiling).

D. Provide required supports and hangers for conduit, equipment, etc., so that loading will not exceed allowable loadings of structure.

1.4 FASTENINGS

A. Fasten electric work to building structure in accordance with the best industry practice and the following:

B. As a minimum procedure, where weight applied to the attachment points is 100 pounds or less, fasten to building elements of:

1. Wood – with wood screws.
2. Concrete and solid masonry – with bolts and expansion shields.
3. Hollow Construction – with toggle bolts.
4. Solid metal – with machine screws in tapped holes or with welded studs.
5. Steel decking or subfloor – with fastenings as specified below for applied weights in excess of 100 pounds.

C. For items which are shown as being ceiling mounted at locations where fastening to the building construction element above is not possible, provide suitable auxiliary channel or angle iron bridging tying to the building structural elements.

(END OF SECTION 26 05 29)

SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

A. General: Provide raceways in accordance with the Contract Documents.

1.2 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
   1. Electrical Metallic Tubing – EMT
      a. UL Standard UL-797
      b. ANSI C80-3
      c. Federal Specification WW-C-563
   2. Flexible Metal Conduit – FMC
      a. UL Standard UL-1
   3. Metal Clad Cable – MC
      a. UL Standard 1581
      b. Federal Spec J-C-30B

PART 2 - PRODUCTS

2.1 RACEWAY TYPES

A. Electric Metallic Tubing – EMT

   1. Continuous, seamless tubing galvanized or sheradized on the exterior coated on the interior with a smooth hard finish of lacquer, varnish or enamel.
   2. All couplings, connectors, etc., used in conjunction with this raceway which are 2 inch in size and smaller shall be watertight compression type. EMT fittings shall be malleable iron zinc coated. With conduits of 2-1/2 inch in size and larger, set screw type couplings are permitted.

B. Flexible Metal Conduit – FMC

   1. Single strip, continuous, flexible interlocked double-wrapped steel, galvanized inside and outside forming smooth internal wiring channel.
   2. Maximum length: 6 feet.
   3. Each section of raceway must contain a bonding wire bonded at each end and sized as required. Provide connectors with insulating bushings.

C. Metal Clad Cable – MC

   Non Health Care

1. Type MC cable shall be armored galvanized steel sheath cable with copper conductors and THHN 90 º insulation. Furnish with insulated grounding conductor.

2.2 OUTLET, JUNCTION AND PULLBOXES

A. Provide zinc-coated or cadmium-plated sheet steel outlet boxes not less than 4 inches octagonal or square, unless otherwise noted. Equip fixture outlet boxes with 3/8 inch no-bolt fixture studs where required. Where fixtures are mounted on or in an accessible type ceiling, provide a junction box and extend flexible conduit to each fixture. Fit outlet boxes in finished ceilings or walls with appropriate covers, set flush with the finished surface. Where more than one switch or device is located at one point, use gang boxes and covers unless otherwise indicated. Sectional switch boxes or utility boxes will not be permitted. Provide Series "GW" (Steel City) tile box, or as accepted, or a 4 inch square box with tile ring in masonry walls which will not be plastered or furred. Where drywall material is utilized, provide plaster ring. Provide outlet boxes of the type and size suitable for the specific application. Where outlet boxes contain two or more 277 volt devices, or where devices occur of different applied voltages, or where normal and emergency devices occur in same box, provide suitable barrier.

B. Construct junction or pullboxes not over 150 cubic inches in size as standard outlet boxes, and those over 150 cubic inches the same as "cabinets" with screw covers of the same gauge metal.

C. Plug any open knockouts not utilized.

D. Provide surface mounted outlet and junction boxes in indoor locations where exposed to moisture and outdoor locations of cast metal with threaded hubs.

PART 3 - EXECUTION

3.1 APPLICATION OF RACEWAYS

A. The following applications must be adhered to except as otherwise required by Code. Raceway not conforming to this listing must be removed by this Contractor and replaced with the specified material at this Contractor's expense.

B.

Raceway Types	Application
Electrical Metallic Tubing EMT	Use in every instance except where another material is specified.
Flexible Metal Conduit – FMC	Use in dry areas for connections to lighting fixtures in hung ceilings, connections to equipment installed in removable panels of hung ceilings at all transformer or equipment raceway connections where sound and vibration isolation is required.
Metal-Clad Cable - MC	Use for branch circuit wiring above suspended ceilings or in metal stud walls. Cable shall not be run exposed. Home run wiring from panelboard to first outlet box shall be installed in conduit. MC cable not permitted for fire alarm wiring systems or emergency lighting.

3.2 RACEWAY SYSTEMS IN GENERAL

A. Provide raceways for all wiring systems unless noted otherwise. Wiring of each type and system must be installed in separate raceways.

B. Locate raceways so that the strength of structural members is unaffected and they do not conflict with the services of other trades. Install 1 inch or larger raceways in or through structural members (beams, slabs, etc.) only when and in the manner accepted by the Architect. Draw up couplings and fittings full and tight. Protect threads from corrosion with one coat zinc chromate after installation.

C. Above Grade – Defined as the area above finished grade for a building exterior and above top surface of any slabs (or other concrete work) on grade for a building interior. Above-grade raceways to comply with the following:

1. Install raceways concealed except at surface cabinets and for motor and equipment connection in electrical and mechanical rooms. Install a minimum of 6 inches from flues, steam pipes, or other heated lines. Waterproof sleeved raceways where required.
2. Provide raceway expansion joints for exposed and concealed raceways with necessary bonding conductor at building expansion joints and between buildings or structures and where required to compensate for raceway or building thermal expansion and contraction.

D. Raceways in hung ceilings shall be run on and secured to slab or primary structural members of ceiling, not to lathing channels or T-bars or other elements which are the direct supports of the ceiling panels. Secure conduit firmly to steel by clips and fittings designed for that purpose. Install as high as possible, but not less than, 1-0" above hung ceilings.

E. Exposed raceways shall be run parallel or at right angles with building lines. Secure raceway clamps or supports to masonry materials by toggle bolts, expansion bolts, or steel inserts. Install raceway on steel construction with approved clamps which do not depend on friction or set-screw pressure alone.

F. Clear raceway of all obstructions and dirt prior to pulling in wires or cables. This shall be done with ball mandrel (diameter approximately 85% of conduit inside diameter) followed by close fitting wire brush and wad of felt or similar material. This assembly may be pulled in together with, but ahead of the cable being installed. All empty raceways shall be similarly cleaned. Clear any raceway which rejects ball mandrel.

G. Support less than 2 inch trade size, vertically run, raceways at intervals no greater than eight feet. Support such raceways, 2 inch trade size or larger, at intervals no greater than 10 feet.

H. Support less than 1 inch trade size horizontally run, raceways at intervals not greater than 7 feet. Support such raceways, 1 inch trade size or larger, at intervals no greater than 10 feet.

3.3 OUTLET, JUNCTION, AND PULLBOXES

A. Provide outlet, junction, and pullboxes as indicated on the Drawings and as required for the complete installation of the various electrical systems, and to facilitate proper pulling of wires and cables. J-boxes and pullboxes shall be sized per NEC minimum.

B. The exact location of outlets and equipment is governed by structural conditions and obstructions or other equipment items. When necessary, relocate outlets so that when fixtures

or equipment are installed, they will be symmetrically located according to the room layout and will not interfere with other work or equipment. Verify final location of outlets, panels equipment, etc., with Architect.

C. Back-to-back outlets in the same wall or "thru-wall" type boxes are not permitted. Provide 12 inch (minimum) spacing for outlets shown on opposite sides of a common wall to minimize sound transmission.

(END OF SECTION 26 05 33)

SECTION 26 27 26

WIRING DEVICES

PART 1 - GENERAL

1.1 DESCRIPTIONS

A. General: Provide wiring devices in accordance with the Contract Documents.

1.2 QUALITY ASSURANCE

A. Switches and receptacles shall be of the same manufacturer.

B. Reference shall be made to the drawings for additional wiring devices not noted in this section of the specifications.

C. Manufacturer shall have a minimum of ten (10) years experience in the manufacture of wiring devices similar to those specified on this project.

D. Manufacturer shall have ISO-9002 certification.

1.3 STANDARDS

A. Switches: Federal Specifications WS-896E.

B. Receptacles: Federal Specification WC596-D, NEMA WD-1, and UL 498.

1.4 SUBMITTALS

A. Manufacturer's product data sheets.

1.5 COLORS

A. Device and coverplate colors shall be white unless otherwise indicated on the architectural drawings:

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Catalog numbers shall not be used to determine colors of devices and coverplates. Catalog numbers are used to establish minimum acceptable standard.

B. Switches and Receptacles: Hubbell or equal.

2.2 SWITCHES

A. General

1. Switches shall be of the type indicated on the Drawings.
2. Switches shall be commercial specification grade, quiet type, 20A, 120/277V, 1 HP rated at 120V, 2HP rated at 240V, back and side wired, silent handle operation.

B. Lighting Switches
1. Toggle Handle Type
a. Single pole: Hubbell: HBL1221
b. 3-way: Hubbell: HBL1223
c. 4-way: Hubbell: HBL1224

2.3 RECEPTACLES

A. General

1. Receptacles shall be of the type indicated on the Drawings.
2. Receptacles shall be heavy duty 20A specification grade, 125V, grounding type, back and side wired.

B. Receptacles

1. Duplex, 20A: Hubbell: HBL5362

2.4 WALL PLATES

A. Single and combination types to match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: satin-finished stainless steel 302/304, 0.03-inch thick.

PART 3 - EXECUTION

3.1 GENERAL

A. General

1. The exact location of wiring devices shall be determined by location of equipment and as detailed on the Architectural Drawings. Prior to installation the Owner has the right to have the devices relocated 25'-0" at no cost.

B. Switches

1. Mount switches vertically with the ON position on top.
2. Mount switches on the strike side of doors, unless otherwise detailed on the drawings.

C. Receptacles

1. Mount receptacles vertically with the grounding pin on top.

D. Coverplates

1. Install device plates in full contact with wall surface. Plates shall not project out from the wall.

3.2 IDENTIFICATION

A. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

(END OF SECTION 26 27 26)

SECTION 26 28 16

ENCLOSED SWITCHES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide enclosed fusible disconnect switches in accordance with the Contract Documents.

1.2 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. UL Standards #98
2. NEMA KS-1

1.3 SUBMITTALS

A. Submit manufacturers' data for all disconnect switches.

PART 2 - PRODUCTS

2.1 ENCLOSED SWITCHES

A. Enclosed switches shall be fused heavy-duty, single-throw knife switch with quick-make, quick-break mechanism, capable of full load operations. Meet NEMA and U.S. Government specifications for Class A switches. Install fused switches unless otherwise noted.

B. Provide with contact arc-quenching devices, such as magnetic blowouts or snuffing plates. Provide self-aligning switchblades with silver alloy contact areas and designed so that arcing upon making and breaking does not occur on the final contact surfaces. Provide with high-pressure, spring-loaded contact. Mount switch parts on high-grade insulating base. All safety switches shall be fused unless otherwise noted.

C. Enclosure: NEMA 1 with hinged door, and defeatable interlock when switch is in "On" position and can be positively padlocked in "on" and "off" positions.

D. Lugs must be UL listed for aluminum and/or copper conductors and be front removable.

E. Acceptable manufacturers: Square D, Cutler-Hammer, General Electric or Siemens.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Each piece of equipment utilizing multi-phase power shall be supplied with a safety-type disconnect switch.

B. Each piece of equipment utilizing single-phase power and protected at over 30 amperes shall be supplied with a safety-type disconnect switch.

3.2 MOUNTING

A. Do not mount switches to equipment housing.

(END OF SECTION 26 28 16)

SECTION 28 13 00

ACCESS CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes a security access system consisting of a Central Station, operating system and application software, and field-installed Controllers connected by a high-speed electronic data transmission network. The security access system shall have the following:

1. Access Control:

   a. Regulating access through doors.
   b. Credential cards and readers.
   c. Push-button switches.
   d. Monitoring of field-installed devices.
   e. Reporting.

B. See Division 23 Section "Sequence of Operations for HVAC Controls" to interface after-hours runtime accounting with security access-control reporting system.

1.2 SYSTEM DESCRIPTION

A. System shall be compatible with existing system.

1.3 PERFORMANCE REQUIREMENTS

A. System Network Requirements:

1. Interconnect system components and provide automatic communication of status changes, commands, field-initiated interrupts, and other communications required for proper system operation.
2. Communication shall not require operator initiation or response, and shall return to normal after partial or total network interruption such as power loss or transient upset.
3. System shall automatically annunciate communication failures to the operator and identify the communication link that has experienced a partial or total failure.
4. Communications Controller may be used as an interface between the Central Station display systems and the field device network. Communications Controller shall provide functions required to attain the specified network communications performance.

B. Field equipment shall include Controllers, sensors, and controls. Controllers shall serve as an interface between the Central Station and sensors and controls. Data exchange between the Central Station and the Controllers shall include down-line transmission of commands, software, and databases to Controllers. The up-line data exchange from the Controller to the Central Station shall include status data such as intrusion alarms, status reports, and entry-control records. Controllers are classified as alarm-annunciation or entry-control type.

C. System Response to Alarms: Field device network shall provide a system end-to-end response time of 1 second(s) or less for every device connected to the system.

D. False Alarm Reduction: The design of Controllers shall contain features to reduce false alarms. Equipment and software shall comply with SIA CP-01.

E. Error Detection: A cyclic code error detection method shall be used between Controllers and the Central Station, which shall detect single- and double-bit errors, burst errors of eight bits or less, and at least 99 percent of all other multibit and burst error conditions. Interactive or product error detection codes alone will not be acceptable.

F. Data Line Supervision: System shall initiate an alarm in response to opening, closing, shorting, or grounding of data transmission lines.

G. Door Hardware Interface: Coordinate with Division 08 Sections that specify door hardware required to be monitored or controlled by the security access system. The Controllers in this Section shall have electrical characteristics that match the signal and power requirements of door hardware. Integrate door hardware specified in Division 08 Sections to function with the controls and PC-based software and hardware in this Section.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include operating characteristics, furnished specialties, and accessories. Reference each product to a location on Drawings. Test and evaluation data presented in Product Data shall comply with SIA BIO-01.

B. Shop Drawings:

1. Diagrams for cable management system.
2. System labeling schedules, including electronic copy of labeling schedules that are part of the cable and asset identification system of the software specified in Parts 2 and 3.
3. Wiring Diagrams. Show typical wiring schematics including the following:

    a. Outlets, jacks, and jack assemblies.
    b. Patch cords.
    c. Patch panels.

4. Cable Administration Drawings: As specified in Part 3 "Identification" Article.
5. Battery and charger calculations for Central Station and Controllers.

C. Project planning documents as specified in Part 3.

D. Field quality-control test reports.

1. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70, "National Electrical Code."

C. Comply with SIA DC-01 and SIA DC-03.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: System shall be capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:Select and revise conditions in four subparagraphs below and specify features required to provide satisfactory service. See Evaluations for discussion of service conditions.

1. Interior, Controlled Environment: System components, except central-station control unit, installed in temperature-controlled interior environments shall be rated for continuous operation in ambient conditions of 36 to 122 deg F (2 to 50 deg C) dry bulb and 20 to 90 percent relative humidity, noncondensing. NEMA 250, Type 1 enclosure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers:
   a. Subject to compliance with existing system requirements.
   b. Honeywell

2.2 APPLICATION SOFTWARE

A. Controller Software:

1. Controllers shall operate as an autonomous intelligent processing unit. Controllers shall make decisions about access control, alarm monitoring, linking functions, and door locking schedules for its operation, independent of other system components. Controllers shall be part of a fully distributed processing control network. The portion of the database associated with a Controller and consisting of parameters, constraints, and the latest value or status of points connected to that Controller, shall be maintained in the Controller.
2. Functions: The following functions shall be fully implemented and operational within each Controller:

   a. Monitoring inputs.
   b. Controlling outputs.
   c. Automatically reporting alarms to the Central Station.
   d. Reporting of sensor and output status to Central Station on request.
   e. Maintaining real time, automatically updated by the Central Station at least once a day.
   f. Communicating with the Central Station.
   g. Executing Controller resident programs.
   h. Diagnosing.
   i. Downloading and uploading data to and from the Central Station.

3. Controller Operations at a Location:

   a. Location: Up to 64 Controllers connected to RS-485 communications loop.
   b. In the event of communications failure between the Central Station and a Location, there shall be no degradation in operations at the Controllers at that Location. The Controllers at each Location shall be connected to a memory buffer with a capacity to store up to 10,000 events; there shall be no loss of transactions in system history files until the buffer overflows.
   c. Buffered events shall be handled in a first-in-first-out mode of operation.

4. Individual Controller Operation:

   a. Controllers shall transmit alarms, status changes, and other data to the Central Station when communications circuits are operable. If communications are not available, Controllers shall function in a stand-alone mode and operational data, including the status and alarm data normally transmitted to the Central Station, shall be stored for later transmission to the Central Station. Storage capacity for the latest 1024 events shall be provided at each Controller.
   b. Card-reader ports of a Controller shall be custom configurable for at least 120 different card-reader or keypad formats. Multiple reader or keypad formats may be used simultaneously at different Controllers or within the same Controller.
   c. Controllers shall provide a response to card-readers or keypad entries in less than 0.25 seconds, regardless of system size.
   d. Controllers that are reset, or powered up from a nonpowered state, shall automatically request a parameter download and reboot to its proper working state. This shall happen without any operator intervention.
   e. Initial Startup: When Controllers are brought on-line, database parameters shall be automatically downloaded to them. After initial download is completed, only database changes shall be downloaded to each Controller.
   f. Failure Mode: On failure for any reason, Controllers shall perform an orderly shutdown and force Controller outputs to a predetermined failure mode state, consistent with the failure modes shown and the associated control device.
   g. Startup After Power Failure: After power is restored, startup software shall initiate self-test diagnostic routines, after which Controllers shall resume normal operation.
   h. Startup After Controller Failure: On failure, if the database and application software are no longer resident, Controllers shall not restart, but shall remain in the failure mode until repaired. If database and application programs are resident, Controllers shall immediately resume operation. If not, software shall be restored automatically from the Central Station.

5. Communications Monitoring:

   a. System shall monitor and report status of RS-485 communications loop of each Location.
   b. Communication status window shall display which Controllers are currently communicating, a total count of missed polls since midnight, and which Controller last missed a poll.
   c. Communication status window shall show the type of CPU, the type of I/O board, and the amount of RAM memory for each Controller.

6. Operating systems shall include a real-time clock function that maintains seconds, minutes, hours, day, date, and month. The real-time clock shall be automatically synchronized with the Central Station at least once a day to plus or minus 10 seconds. The time synchronization shall be automatic, without operator action and without requiring system shutdown.

B. Direct Serial or TCP/IP PC-to-Controller Communications:

1. Communication software on the PC shall supervise the PC-to-Controller communications link.
2. Loss of communications to any Controller shall result in an alarm at all PCs running the communications software.
3. When communications are restored, all buffered events shall automatically upload to the PC, and any database changes shall be automatically sent to the Controller.

C. Controller-to-Controller Communications:

1. Controller-to-Controller Communications: RS-485, 4-wire, point-to-point, regenerative (repeater) communications network methodology.
2. RS-485 communications signal shall be regenerated at each Controller.

D. Database Downloads:

1. All data transmissions from PCs to a Location, and between Controllers at a Location, shall include a complete database checksum to check the integrity of the transmission. If the data checksum does not match, a full data download shall be automatically retransmitted.
2. If a Controller is reset for any reason, it shall automatically request and receive a database download from the PC. The download shall restore data stored at the Controller to their normal working state and shall take place with no operator intervention.

E. Alarms:

1. System Setup:

a. Assign manual and automatic responses to incoming point status change or alarms.
b. Automatically respond to input with a link to other inputs, outputs, operator-response plans, unique sound with use of WAV files, and maps or images that graphically represent the point location.
c. 60-character message field for each alarm.
d. Operator-response-action messages shall allow message length of at least 65,000 characters, with database storage capacity of up to 32,000 messages. Setup shall assign messages to access point.
e. Secondary messages shall be assignable by the operator for printing to provide further information and shall be editable by the operator.
f. Allow 25 secondary messages with a field of 4 lines of 60 characters each.
g. Store the most recent 1000 alarms for recall by the operator using the report generator.

F. Alarm Monitoring: Monitor sensors, Controllers, and DTS circuits and notify operators of an alarm condition. Display higher-priority alarms first and, within alarm priorities, display the oldest unacknowledged alarm first. Operator acknowledgment of one alarm shall not be considered acknowledgment of other alarms nor shall it inhibit reporting of subsequent alarms.

1. Displayed alarm data shall include type of alarm, location of alarm, and secondary alarm messages.
2. Printed alarm data shall include type of alarm, location of alarm, date and time (to nearest second) of occurrence, and operator responses.
3. Maps shall automatically display the alarm condition for each input assigned to that map, if that option is selected for that input location.

4. Alarms initiate a status of "pending" and require the following two handling steps by operators:

    a. First Operator Step: "Acknowledged." This action shall silence sounds associated with the alarm. The alarm remains in the system "Acknowledged" but "Un-Resolved."
    b. Second Operator Step: Operators enter the resolution or operator comment, giving the disposition of the alarm event. The alarm shall then clear.

5. Each alarm point shall be programmable to disallow the resolution of alarms until the alarm point has returned to its normal state.
6. Alarms shall transmit to Central Station in real time, except for allowing connection time for dial-up locations.
7. Alarms shall be displayed and managed from a minimum of four different windows.

    a. Input Status Window: Overlay status icon with a large red blinking icon. Selecting the icon will acknowledge the alarm.
    b. History Log Transaction Window: Display name, time, and date in red text. Selecting red text will acknowledge the alarm.
    c. Alarm Log Transaction Window: Display name, time, and date in red. Selecting red text will acknowledge the alarm.
    d. Graphic Map Display: Display a steady colored icon representing each alarm input location. Change icon to flashing red when the alarm occurs. Change icon from flashing red to steady red when the alarm is acknowledged.

8. Once an alarm is acknowledged, the operator shall be prompted to enter comments about the nature of the alarm and actions taken. Operator's comments may be manually entered or selected from a programmed predefined list, or a combination of both.
9. For locations where there are regular alarm occurrences, provide programmed comments. Selecting that comment shall clear the alarm.
10. The time and name of the operator who acknowledged and resolved the alarm shall be recorded in the database.
11. Identical alarms from same alarm point shall be acknowledged at same time the operator acknowledges the first alarm. Identical alarms shall be resolved when the first alarm is resolved.
12. Alarm functions shall have priority over downloading, retrieving, and updating database from Controllers.
13. When a reader-controlled output (relay) is opened, the corresponding alarm point shall be automatically bypassed.

G. System test software enables operators to initiate a test of the entire system or of a particular portion of the system.

    1. Test Report: The results of each test shall be stored for future display or printout. The report shall document the operational status of system components.

H. Access Card/Code Operation and Management: Access authorization shall be by card, by a manually entered code (PIN), or by a combination of both (card plus PIN).

    1. Access authorization shall verify the facility code first, the card or card-and-PIN validation second, and the access level (time of day, day of week, date), anti-passback status, and number of uses last.
    2. Use data-entry windows to view, edit, and issue access levels. Access authorization entry management system shall maintain and coordinate all access levels to prevent duplication or the incorrect creation of levels.

3. Allow assignment of multiple cards/codes to a cardholder.
4. Allow assignment of up to four access levels for each Location to a cardholder. Each access level may contain any combination of doors.
5. Each door may be assigned four time zones.
6. Access codes may be up to 11 digits in length.
7. Software shall allow the grouping of locations so cardholder data can be shared by all locations in the group.
8. Visitor Access: Issue a visitor badge, without assigning that person a card or code, for data tracking or photo ID purposes.
9. Cardholder Tracing: Allow for selection of cardholder for tracing. Make a special audible and visual annunciation at control station when a selected card or code is used at a designated code reader. Annunciation shall include an automatic display of the cardholder image.
10. Allow each cardholder to be given either an unlimited number of uses or a number from 1 to 9998 that regulates the number of times the card can be used before it is automatically deactivated.
11. Provide for cards and codes to be activated and deactivated manually or automatically by date. Provide for multiple deactivate dates to be preprogrammed.

2.3 CONTROLLERS

A. Controllers: Intelligent peripheral control unit, complying with UL 294, that stores time, date, valid codes, access levels, and similar data downloaded from the Central Station for controlling its operation.

B. Subject to compliance with requirements in this Article, manufacturers may use multipurpose Controllers.

C. Battery Backup: Sealed, lead acid; sized to provide run time during a power outage of 90 minutes, complying with UL 924.

D. Alarm Annunciation Controller:

1. The Controller shall automatically restore communication within 10 seconds after an interruption with the field device network

a. Inputs: Monitor dry contacts for changes of state that reflect alarm conditions. Provides at least eight alarm inputs, which are suitable for wiring as normally open or normally closed contacts for alarm conditions.
b. Alarm-Line Supervision:

1) Supervise the alarm lines by monitoring each circuit for changes or disturbances in the signal, and for conditions as described in UL 1076 for line security equipment using dc change measurements. System shall initiate an alarm in response to an abnormal current, which is a dc change of 10 percent or more for longer than 500 ms.
2) Transmit alarm-line-supervision alarm to the Central Station during the next interrogation cycle after the abnormal current condition.

c. Outputs: Managed by Central Station software.

2. Auxiliary Equipment Power: A GFI service outlet inside the Controller enclosure.

E. Entry-Control Controller:

1. Function: Provide local entry-control functions including one- and two-way communications with access-control devices such as card readers, keypads, biometric personal identity verification devices, door strikes, magnetic latches, gate and door operators, and exit push-buttons.

    a. Operate as a stand-alone portal Controller using the downloaded database during periods of communication loss between the Controller and the field-device network.
    b. Accept information generated by the entry-control devices; automatically process this information to determine valid identification of the individual present at the portal:

        1) On authentication of the credentials or information presented, check privileges of the identified individual, allowing only those actions granted as privileges.
        2) Privileges shall include, but not be limited to, time of day control, day of week control, group control, and visitor escort control.

    c. Maintain a date-, time-, and Location-stamped record of each transaction. A transaction is defined as any successful or unsuccessful attempt to gain access through a controlled portal by the presentation of credentials or other identifying information.

2. Inputs:

    a. Data from entry-control devices; use this input to change modes between access and secure.
    b. Database downloads and updates from the Central Station that include enrollment and privilege information.

3. Outputs:

    a. Indicate success or failure of attempts to use entry-control devices and make comparisons of presented information with stored identification information.
    b. Grant or deny entry by sending control signals to portal-control devices.
    c. Maintain a date-, time-, and Location-stamped record of each transaction and transmit transaction records to the Central Station.
    d. Door Prop Alarm: If a portal is held open for longer than 20 seconds, alarm sounds.

4. With power supplies sufficient to power at voltage and frequency required for field devices and portal-control devices.
5. Data Line Problems: For periods of loss of communications with Central Station, or when data transmission is degraded and generating continuous checksum errors, the Controller shall continue to control entry by accepting identifying information, making authentication decisions, checking privileges, and controlling portal-control devices.

    a. Store up to 1000 transactions during periods of communication loss between the Controller and access-control devices for subsequent upload to the Central Station on restoration of communication.

6. Controller Power: NFPA 70, Class II power supply transformer, with 12- or 24-V ac secondary, backup battery and charger.

a. Backup Battery: Premium, valve-regulated, recombinant-sealed, lead-calcium battery; spill proof; with a full 1-year warranty and a pro rata 19-year warranty. With single-stage, constant-voltage-current, limited battery charger, comply with battery manufacturer's written instructions for battery terminal voltage and charging current recommendations for maximum battery life.
b. Backup Battery: Valve-regulated, recombinant-sealed, lead-acid battery; spill proof. With single-stage, constant-voltage-current, limited battery charger, comply with battery manufacturer's written instructions for battery terminal voltage and charging current recommendations for maximum battery life.
c. Backup Power Supply Capacity: 90 minutes of battery supply. Submit battery and charger calculations.
d. Power Monitoring: Provide manual dynamic battery load test, initiated and monitored at the control center; with automatic disconnection of the Controller when battery voltage drops below Controller limits. Report by using local Controller-mounted LEDs and by communicating status to Central Station. Indicate normal power on and battery charger on trickle charge. Indicate and report the following:

1) Trouble Alarm: Normal power off load assumed by battery.
2) Trouble Alarm: Low battery.
3) Alarm: Power off.

2.4 CARD READERS

A. Power: Card reader shall be powered from its associated Controller, including its standby power source.

B. Response Time: Card reader shall respond to passage requests by generating a signal that is sent to the Controller. Response time shall be 800 ms or less, from the time the card reader finishes reading the credential card until a response signal is generated.

C. Enclosure: Suitable for surface, semiflush, or pedestal mounting. Mounting types shall additionally be suitable for installation in the following locations:

1. Indoors, controlled environment.
2. Indoors, uncontrolled environment.
3. Outdoors, with built-in heaters or other cold-weather equipment to extend the operating temperature range as needed for operation at the site.

2.5 DOOR AND GATE HARDWARE INTERFACE

A. Electric Door Strikes: Use end-of-line resistors to provide power line supervision. Signal switches shall transmit data to Controller to indicate when the bolt is not engaged and the strike mechanism is unlocked, and shall report a forced entry. Power and signal shall be from the Controller. Electric strikes are specified in Division 08 Section "Door Hardware."

B. Electromagnetic Locks: End-of-line resistors shall provide power line supervision. Lock status sensing signal shall positively indicate door is secure. Power and signal shall be from the Controller. Electromagnetic locks are specified in Division 08 Section "Door Hardware."

2.6 TRANSFORMERS

A. NFPA 70, Class II control transformers, NRTL listed. Transformers for security access-control system shall not be shared with any other system.

2.7 CABLE AND ASSET MANAGEMENT

A. Manufacturers:

1. IMAP Textron; Division of Greenlee Textron.
2. Total Wire Software Company, Inc.

B. Computer-based cable and asset management system, with fully integrated database and graphic capabilities, complying with requirements in TIA/EIA-606.

1. Document physical characteristics by recording the network, asset, user, TIA/EAI details, device configurations, and exact connections between equipment and cabling.

a. Manage the physical layer of security system.
b. List device configurations.
c. List and display circuit connections.
d. Record firestopping data.
e. Record grounding and bonding connections and test data.

2. Information shall be presented in database view, schematic plans, or technical drawings.

a. Microsoft Visio Technical Drawing shall be used as drawing and schematic plans software. Drawing symbols, system layout, and design shall comply with SIA AG-01.

3. System shall interface with the following testing and recording devices:

a. Direct upload tests from circuit testing instrument into the PC.
b. Direct download circuit labeling into labeling printer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Comply with recommendations in SIA CP-01.

B. Comply with EIA/TIA-606, "Administration Standard for the Telecommunications Infrastructure of Commercial Buildings."

C. Obtain detailed Project planning forms from manufacturer of access-control system; develop custom forms to suit Project. Fill in all data available from Project plans and specifications and publish as Project planning documents for review and approval.

1. Record setup data for control station.
2. For each Location, record setup of Controller features and access requirements.

3. Propose start and stop times for time zones and holidays, and match up access levels for doors.
4. Set up groups, facility codes, linking, and list inputs and outputs for each Controller.
5. Assign action message names and compose messages.
6. Set up alarms. Establish interlocks between alarms, intruder detection, and video surveillance features.
7. Prepare and install alarm graphic maps.
8. Develop user-defined fields.
9. Develop screen layout formats.
10. Propose setups for guard tours and key control.
11. Discuss badge layout options; design badges.
12. Complete system diagnostics and operation verification.
13. Prepare a specific plan for system testing, startup, and demonstration.
14. Develop acceptance test concept and, on approval, develop specifics of the test.
15. Develop cable and asset management system details; input data from construction documents. Include system schematics and Visio Technical Drawings.

D. In meetings with Architect and Owner, present Project planning documents and review, adjust, and prepare final setup documents. Use final documents to set up system software.

3.2 CABLING

A. Comply with NECA 1, "Good Workmanship in Electrical Contracting."

B. Install cables and wiring according to requirements in Division 28 Section "Conductors and Cables for Electronic Safety and Security."

C. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters. Conceal raceway and wiring except in unfinished spaces.

D. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use NRTL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.

E. Install LAN cables using techniques, practices, and methods that are consistent with Category 5E rating of components and that ensure Category 5E performance of completed and linked signal paths, end to end.

F. Install cables without damaging conductors, shield, or jacket.

G. Boxes and enclosures containing security system components or cabling, and which are easily accessible to employees or to the public, shall be provided with a lock. Boxes above ceiling level in occupied areas of the building shall not be considered to be accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public shall be covered with a suitable cover plate and secured with tamperproof screws.

H. Install end-of-line resistors at the field device location and not at the Controller or panel location.

3.3 CABLE APPLICATION

A. Comply with EIA/TIA-569, "Commercial Building Standard for Telecommunications Pathways and Spaces."

B. Cable application requirements are minimum requirements and shall be exceeded if recommended or required by manufacturer of system hardware.

C. RS-485 Cabling: Install at a maximum distance of 4000 feet (1220 m).

D. Card Readers:

1. Install number of conductor pairs recommended by manufacturer for the functions specified.
2. Unless manufacturer recommends larger conductors, install No. 22 AWG wire if maximum distance from Controller to the reader is 250 feet (75 m), and install No. 20 AWG wire if maximum distance is 500 feet (150 m).
3. For greater distances, install "extender" or "repeater" modules recommended by manufacturer of the Controller.
4. Install minimum No. 18 AWG shielded cable to readers and keypads that draw 50 mA or more.

E. Install minimum No. 16 AWG cable from Controller to electrically powered locks. Do not exceed 250 feet (75 m).

F. Install minimum No. 18 AWG ac power wire from transformer to Controller, with a maximum distance of 25 feet (8 m).

3.4 GROUNDING

A. Comply with Division 26 Section "Grounding and Bonding for Electrical Systems."

B. Comply with IEEE 1100, "Power and Grounding Sensitive Electronic Equipment."

C. Ground cable shields, drain conductors, and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

D. Bond shields and drain conductors to ground at only one point in each circuit.

E. Signal Ground:

1. Terminal: Locate in each equipment room and wiring closet; isolate from power system and equipment grounding.
2. Bus: Mount on wall of main equipment room with standoff insulators.
3. Backbone Cable: Extend from signal ground bus to signal ground terminal in each equipment room and wiring closet.

3.5 INSTALLATION

A. Push Buttons: Where multiple push buttons are housed within a single switch enclosure, they shall be stacked vertically with each push-button switch labeled with 1/4-inch- (6.4-mm-) high text and symbols as required. Push-button switches shall be connected to the Controller associated with the portal to which they are applied, and shall operate the appropriate electric strike, electric bolt, or other facility release device.

B. Install card, fob, and biometric readers.

3.6 IDENTIFICATION

A. In addition to requirements in this Article, comply with applicable requirements in Division 26 Section "Identification for Electrical Systems" and with TIA/EIA-606.

B. Using cable and asset management software specified in Part 2, develop Cable Administration Drawings for system identification, testing, and management. Use unique, alphanumeric designation for each cable, and label cable and jacks, connectors, and terminals to which it connects with same designation. Use logical and systematic designations for facility's architectural arrangement.

C. Label each terminal strip and screw terminal in each cabinet, rack, or panel.

1. All wiring conductors connected to terminal strips shall be individually numbered, and each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with the name and number of the particular device as shown.
2. Each wire connected to building-mounted devices is not required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

D. At completion, cable and asset management software shall reflect as-built conditions.

3.7 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections and to assist in field testing. Report results in writing.

B. Perform the following field tests and inspections and prepare test reports:

1. LAN Cable Procedures: Inspect for physical damage and test each conductor signal path for continuity and shorts. Use Class 2, bidirectional, Category 5 tester. Test for faulty connectors, splices, and terminations. Test according to TIA/EIA-568-1, "Commercial Building Telecommunications Cabling Standards - Part 1 General Requirements." Link performance for UTP cables must comply with minimum criteria in TIA/EIA-568-B.
2. Test each circuit and component of each system. Tests shall include, but are not limited to, measurements of power supply output under maximum load, signal loop resistance, and leakage to ground where applicable. System components with battery backup shall be operated on battery power for a period of not less than 10 percent of the calculated battery operating time. Provide special equipment and software if testing requires special or dedicated equipment.
3. Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

3.8 STARTUP SERVICE

A. Engage a factory-authorized service representative to supervise and assist with startup service. Complete installation and startup checks according to approved procedures that were developed in " Preparation" Article and with manufacturer's written instructions.

1. Enroll and prepare badges and access cards for Owner's operators, management, and security personnel.

3.9 PROTECTION

A. Maintain strict security during the installation of equipment and software. Room housing the control station that has been powered up shall be locked and secured, with an activated burglar alarm and access-control system reporting to a Central Station complying with UL 1610, "Central-Station Burglar-Alarm Units," during periods when a qualified operator in the employ of Contractor is not present.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain security access system. Refer to Division 01 Section "Demonstration and Training."

B. Develop separate training modules for the following:

1. Computer system administration personnel to manage and repair the LAN and databases and to update and maintain software.
2. Operators who prepare and input credentials to man the control station and to enroll personnel.
3. Security personnel.
4. Hardware maintenance personnel.

C. Corporate management.

(END OF SECTION 28 13 00)

SECTION 28 23 00

VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes video surveillance system consisting of cameras, data transmission wiring, and a control station with its associated equipment.

B. Video surveillance system shall be integrated with monitoring and control system specified in Division 28 Section that specifies systems integration.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated, including dimensions and data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: Detail assemblies of standard components that are custom assembled for specific application on this Project.

1. Functional Block Diagram: Show single-line interconnections between components for signal transmission and control. Show cable types and sizes.
2.
3. Wiring Diagrams: Power, signal, and control wiring, and grounding.

C. Equipment List: Include every piece of equipment by model number, manufacturer, serial number, location, and date of original installation.

D. Field quality-control test reports.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NECA 1.

C. Comply with NFPA 70.

D. Electronic data exchange between video surveillance system with an access control system shall comply with SIA TVAC.

1.4 PROJECT CONDITIONS

A. Environmental Conditions: Capable of withstanding the environmental conditions without mechanical or electrical damage or degradation of operating capability.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with existing system requirements,
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
   a. Honeywell

2.2 SYSTEM REQUIREMENTS

A. Video signal format shall comply with the NTSC standard composite video, interlaced. Composite video signal termination shall be 75 ohms.

B. Color Camera:

1. Comply with UL 639.
2. Pickup Device: CCD interline transfer, 380,000 [**771(H) by 492(V)**]
3. Horizontal Resolution: 480 lines.
4. Signal-to-Noise Ratio: Not less than 50 dB, with the camera AGC off.
5. With AGC, manually selectable on or off.
6. Sensitivity: Camera shall deliver 1-V peak-to-peak video signal at the minimum specified light level. The illumination for the test shall be with lamps rated at approximately 2200-K color temperature, and with the camera AGC off.
7. Manually selectable modes for backlight compensation or normal lighting.
8. Scanning Synchronization: Determined by external synch over the coaxial cable. Camera shall revert to internally generated synchronization on loss of external synch signal.
9. White Balance: Auto-tracing white balance, with manually settable fixed balance option.
10. Motion Detector: Built-in digital.

C. Automatic Color Dome Camera: Assembled and tested as a manufactured unit, containing a dome assembly, color camera, motorized pan and tilt, zoom lens, and receiver/driver.

1. Comply with UL 639.
2. Pickup Device: CCD interline transfer, 380,000 [**768(H) by 494(V)**].
3. Horizontal Resolution: 480 lines.
4. Signal-to-Noise Ratio: Not less than 50 dB, with the camera AGC off.
5. With AGC, manually selectable on or off.
6.
7. Sensitivity: Camera shall deliver 1-V peak-to-peak video signal at the minimum specified light level. The illumination for the test shall be with lamps rated at approximately 2200-K color temperature, and with the camera AGC off.

8. Manually selectable modes for backlight compensation or normal lighting.
9. Pan and Tilt: Direct-drive motor, 360-degree rotation angle, and 180-degree tilt angle. Pan-and-tilt speed shall be variable controlled by operator. Movement from preset positions shall be not less than 300 degrees per second.
10. Preset Positioning: 8 user-definable scenes, each allowing 16-character titles. Controls shall include the following:

    a. In "sequence mode," camera shall continuously sequence through preset positions, with dwell time and sequencing under operator control.
    b. Motion detection shall be available at each camera position.
    c. Up to four preset positions may be selected to be activated by an alarm. Each of the alarm positions may be programmed to output a response signal.

11. Scanning Synchronization: Determined by external synch over the coaxial cable. Camera shall revert to internally generated synchronization on loss of external synch signal.
12. White Balance: Auto-tracing white balance, with manually settable fixed balance option.
13. Motion Detector: Built-in digital.
14. Dome shall support multiplexed control communications using coaxial cable recommended by manufacturer.

2.3 LENSES

A. Manufacturers:

1. Honeywell

B. Description: Optical-quality coated optics, designed specifically for video surveillance applications, and matched to specified camera. Provide color-corrected lenses.

1. Auto-Iris Lens: Electrically controlled iris with circuit set to maintain a constant video level in varying lighting conditions.
2. Fixed Lenses: With calibrated focus ring.
3. Zoom Lenses: Motorized, remote-controlled units, rated as "quiet operating." Features include the following:

    a. Electrical Leads: Filtered to minimize video signal interference.
    b. Motor Speed: Variable.
    c. Lens shall be available with preset positioning capability to recall the position of specific scenes.

2.4 CAMERA-SUPPORTING EQUIPMENT

A. Manufacturers:

1. Honeywell

B. Minimum Load Rating: Rated for load in excess of the total weight supported times a minimum safety factor of two.

C. Pan-and-Tilt Units: Motorized units arranged to provide remote-controlled aiming of cameras with smooth and silent operation and equipped with matching mounting brackets.

1. Panning Rotation: 0 to 355 degrees, with adjustable stops.
2. Tilt Movement: 90 degrees, plus or minus 5 degrees, with adjustable stops.
3. Speed: 12 degrees per second in both horizontal and vertical planes.
4. Wiring: Factory prewired for camera and zoom lens functions and pan-and-tilt power and control.
5. Built-in encoders or potentiometers for position feedback.
6. Pan-and-tilt unit shall be available with preset positioning capability to recall the position of a specific scene.

D. Mounting Brackets for Fixed Cameras: Type matched to items supported and mounting conditions. Include manual pan-and-tilt adjustment.

E. Protective Housings for Fixed and Movable Cameras: Steel enclosures with internal camera mounting and connecting provisions.

1. Tamper switch on access cover sounds an alarm signal when unit is opened or partially disassembled. Central-control unit shall identify tamper alarms and indicate location in alarm display. Tamper switches and central-control unit are specified in Division 28 Section "Intrusion Detection."
2. Camera Viewing Window: [**Polycarbonate**] window, aligned with camera lens.
3. Duplex Receptacle: Internally mounted.
4. Alignment Provisions: Camera mounting shall provide for field aiming of camera and permit removal and reinstallation of camera lens without disturbing camera alignment.
5. Mounting bracket and hardware for wall or ceiling mounting of the housing. Bracket shall be of same material as the housing; mounting hardware shall be stainless steel.
6. Finish: Housing and mounting bracket shall be factory finished using manufacturer's standard finishing process suitable for the environment.

2.5 COLOR MONITORS

A. Manufacturers:

1. Honeywell

B. Screen Size (Diagonal Dimension): 42”.

C. Horizontal Resolution: **300** lines.

D. Minimum Front Panel Devices and Controls: Power switch, power-on indicator, and brightness, contrast, color, and tint controls.

E. Degaussing: Automatic.

F. Mounting: [**Single, 14-inch (356-mm)**],vertical, EIA 19-inch (483-mm) electronic equipment rack or cabinet complying with EIA 310.

G. Electrical: 120-V ac, 60 Hz.

2.6 SIGNAL TRANSMISSION COMPONENTS

A. Cable: Coaxial cable elements have 75-ohms nominal impedance. Cables shall comply with Division 27 Section "Master Antenna Television System."

B. Video Surveillance Coaxial Cable Connectors: BNC type, 75 ohms. Of three-piece construction, consisting of a crimp-type center tit, sleeve, and main body.

PART 3 - EXECUTION

3.1 WIRING

A. Wiring Method: Install cables in raceways[**except in accessible indoor ceiling spaces,** and as otherwise indicated. Conceal raceways and wiring except in unfinished spaces.

B. Wiring Method: Install cables concealed in accessible ceilings, walls, and floors where possible.

C. Wiring within Enclosures: Bundle, lace, and train conductors. Provide and use lacing bars and distribution spools.

D. Splices, Taps, and Terminations: For power and control wiring, use numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

E. Grounding: Provide independent-signal circuit grounding recommended in writing by manufacturer.

3.2 VIDEO SURVEILLANCE SYSTEM INSTALLATION

A. Install cameras with 84-inch- (2134-mm-) minimum clear space below cameras and their mountings. Change type of mounting to achieve required clearance.

B. Set pan-and-tilt unit stops to suit final camera position and to obtain the field of view required for camera. Connect all controls and alarms, and adjust.

C. Avoid ground loops by making ground connections at only the control station.

1. For 12- and 24-V dc cameras, connect the coaxial cable shields only at the monitor end.

D. Identify system components, wiring, cabling, and terminals according to Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation and supervise pretesting, testing, and adjusting of video surveillance equipment.

B. Pretesting: Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements. Conduct tests at varying lighting levels, including day and night scenes as applicable. Prepare video surveillance equipment for acceptance and operational testing as follows:

1. Verify operation of auto-iris lenses.

2. Set back-focus of fixed focal length lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Adjust until image is in focus with and without the filter.
3. Set back-focus of zoom lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Additionally, set zoom to full wide angle and aim camera at an object 50 to 75 feet (17 to 23 m) away. Adjust until image is in focus from full wide angle to full telephoto, with the filter in place.
4. Set and name all preset positions; consult Owner's personnel.
5. Set sensitivity of motion detection.
6. Connect and verify responses to alarms.
7. Verify operation of control-station equipment.

C. Test Schedule: Schedule tests after pretesting has been successfully completed and system has been in normal functional operation for at least 14 days. Provide a minimum of 10 days' notice of test schedule.

D. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation.

E. Record test results for each piece of equipment.

F. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain video surveillance equipment.

(END OF SECTION 28 23 00)

PROJECT INFORMATION

NEW SECURITY VESTIBULE RENOVATIONS FOR:

MIDDLETOWN ELEMENTARY SCHOOL

FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
MIDDLETOWN, MARYLAND 21769

FCPS RFQ #20C2

CONTACT LIST

OWNER:
FREDERICK COUNTY PUBLIC SCHOOLS
191 SOUTH EAST STREET
FREDERICK, MD 21701
TEL. : (301)-644-5000

ARCHITECT:
PROFFITT & ASSOCIATES ARCHITECTS, PC
49 SOUTH CARROLL STREET
FREDERICK, MD 21701
TEL. : (301)-662-8532
FAX : (301)-662-4192

MECH. / ELEC. ENGINEER :
CJL ENGINEERING INC.
3 WEST SECOND STREET
FREDERICK, MD 21701
TEL. : (301)-695-9424
FAX : (301)-293-6338

GENERAL NOTES

1. BIDDERS SHALL CAREFULLY EXAMINE THE PERMIT DOCUMENTS, ACQUAINT THEMSELVES WITH ALL GOVERNING LAWS AND CODES, VISIT THE SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS BEFORE SUBMITTING BIDS.
2. ALL WORK DESCRIBED WITHIN THE CONTRACT DOCUMENTS SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, INCLUDING BUT NOT LIMITED TO, THE CURRENT BUILDING CODE, LIFE SAFETY CODE, ADAAG, AS WELL AS ORDINANCES AND REGULATIONS AND OTHER BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
3. ALL MATERIALS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WARRANTY REQUIREMENTS.
4. INDIVIDUAL SUBCONTRACTORS FOR ANY PLUMBING, ELECTRICAL, AND MECHANICAL WORK SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS, ETC., AND PERFORM ALL WORK IN CONFORMANCE TO ALL LOCAL CODES.
5. DISTURB AS SMALL AN AREA OF THE SITE AS POSSIBLE DURING CONSTRUCTION OPERATIONS. UNLESS OTHERWISE NOTED, PREPARE AND SEED DISTURBED AREAS AT THE COMPLETION OF THE PROJECT.
6. REPAIR ALL AREAS DISTURBED BY THE WORK OF THIS PROJECT, INCLUDING SUBSTRATES OR STRUCTURAL REPAIRS, AND REPAIRS TO FINISHES TO MATCH AND ALIGN WITH EXISTING FINISHES TO REMAIN OR NEW FINISHES INSTALLED.
7. THE JOB SITE IS TO BE LEFT CLEAN AND FREE FROM DEBRIS AT ALL TIMES.
8. UNLESS OTHERWISE NOTED, ALL WORK IS CONSIDERED TO BE NEW CONSTRUCTION.
9. CONTRACTOR TO PROTECT ALL EXISTING UNDERGROUND UTILITIES AND VERIFY LOCATION PRIOR TO ANY EXCAVATION.
10. CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING, BRACING, AND TAKE OTHER PRECAUTIONS NECESSARY FOR SAFETY AS REQUIRED BY CODE AND PRACTICE.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, CONCEALED WITHIN THE WALLS, FOR ATTACHMENT OF SURFACE AND/OR RECESSED MOUNTED EQUIPMENT OR ACCESSORIES, WHETHER SHOWN IN THE DRAWINGS OR NOT. BLOCKING TO BE FIRE RETARDANT.
12. CONTRACTOR SHALL SUPPLY ALL NECESSARY ANCHORS, TIES, CLIPS, HANGERS, BOLTS, AND OTHER FASTENING DEVICES AS REQUIRED BY CODE AND GOOD PRACTICE.
13. CONTRACTOR SHALL PROVIDE SEALANT AROUND WINDOWS, DOOR JAMBS AND HEADS, AND ADJACENT CONSTRUCTION.
14. PART OF THIS WORK MAY INCLUDE THE INSTALLATION AND/OR MODIFICATION OF A SPRINKLER SYSTEM IN AN EXISTING BUILDING. CONTRACTOR IS RESPONSIBLE TO CONCEAL ALL NEW PIPING WITHIN EXISTING CONSTRUCTION AND MAKE REPAIRS AS NECESSARY TO MATCH EXISTING OR NEW FINISHES.
15. PRIOR TO MODIFICATION OR ADDITION OF SPRINKLER IN EXISTING BUILDING, SUBCONTRACTOR TO CONFIRM FINAL CEILING HEIGHT WITH CONTRACTOR DUE TO JOB CONDITIONS.
16. EXISTING BUILDING INFORMATION IS BASED ON INFORMATION PROVIDED BY OTHERS AND PROFFITT & ASSOCIATES ARCHITECTS' FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO SUBMITTING SHOP DRAWINGS, AND BEFORE CONSTRUCTION AND FABRICATION OF MATERIALS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM THE INFORMATION PROVIDED IN A TIMELY MANNER.
17. DRAWING INTENT IS TO INDICATE GENERAL ARRANGEMENT, DESIGN AND INTENT OF WORK AND IS PARTIALLY DIAGRAMMATIC. IT SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS, INCLUDING CONSTRUCTION OR FABRICATION. ALL DIMENSIONS FOR BUILT-IN ITEMS SHALL BE BASED ON FIELD DIMENSIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF DIMENSIONS.
18. DIMENSIONS, NOTES, FINISHES AND FIXTURES SHOWN ON TYPICAL PLANS, SECTIONS OR DETAILS SHALL APPLY TO SIMILAR, SYMMETRICAL, OR OPPOSITE PLANS, SECTIONS OR DETAILS.
19. SEE WALL TYPE NOTES FOR ADDITIONAL INFORMATION REGARDING TYP. WALL TYPES.
20. REFER TO THE GENERAL SPECIFICATIONS.

VICINITY & LOCATION MAP

SEE LOCATION MAP

VICINITY MAP
NOT TO SCALE

LOCATION OF MIDDLETOWN ELEMENTARY SCHOOL

LOCATION MAP
NOT TO SCALE

LEGEND

- BRICK
- CMU
- CONCRETE
- FINISHED WOOD
- ROUGH WOOD
- PLYWOOD
- METAL
- GYPSUM BOARD
- RIGID INSULATION
- BATT INSULATION
- WINDOW OPENING
- 1-202 — DOOR / FRAME SEE SCHEDULE
- 3042 ROOM NAME / 5F — ROOM NAME, ROOM NUMBER
- 12 / G — COLUMN REFERENCE
- 5 / A5.2 — DETAIL NUMBER; SHEET TO LOCATE DETAIL
- 1 / A3.1 — DIRECTION OF VIEW; ELEVATION NUMBER; SHEET TO LOCATE ELEVATION
- 2 / A4.1 — DIRECTION OF CUTTING PLANE; SECTION NUMBER; SHEET TO LOCATE SECTION
- EXTENT OF SECTION CUT
- 3 — WALL TYPE
- 3 — WALL TYPE, FIRE-RATED
- 3 — REVISION NOTE
- N — KEY NOTE
- FIN. FLR. = — HEIGHT INDICATOR (ABOVE FINISHED FLOOR, ABOVE SEA LEVEL)
- INTERIOR ELEVATION KEY: A, B, C, D / A8.1 — ELEVATION INDICATOR; SHEET TO LOCATE ELEVATION; DIRECTION OF VIEW

ABBREVIATIONS

∠	ANGLE	JAN.	JANITOR
ACOUS.	ACOUSTIC	JT.	JOINT
ACT	ACOUSTICAL CEILING TILE	LAM.	LAMINATE
A.D.	AREA DRAIN	LAV.	LAVATORY
ADJ.	ADJUSTABLE	LIN. FT.	LINEAR FEET
A.F.F.	ABOVE FINISHED FLOOR	LG.	LONG
AIR COND.	AIR CONDITIONING	L.L.H.	LONG LEG HORIZONTAL
ALT.	ALTERNATE	L.L.V.	LONG LEG VERTICAL
ALUM.	ALUMINUM		
ANCH.	ANCHORED	MAS.	MASONRY
A.P.	ACCESS PANEL	MATL.	MATERIAL
APPROX.	APPROXIMATE	MAX.	MAXIMUM
ARCH.	ARCHITECT	MECH.	MECHANICAL
		MFGR.	MANUFACTURER
BD.	BOARD	MIN.	MINIMUM
BIT.	BITUMINOUS	MISC.	MISCELLANEOUS
BLDG.	BUILDING	M.O.	MASONRY OPENING
BLK'G	BLOCKING	MTD.	MOUNTED
B.O.F.	BOTTOM OF FOOTING	MTL.	METAL
BOT.	BOTTOM		
BRG.	BEARING	NAT.	NATURAL
		N.I.C.	NOT IN CONTRACT
℄	CENTER LINE	NO.	NUMBER
CAB.	CABINET	NOM.	NOMINAL
C.J.	CONSTRUCTION JOINT	N.T.S.	NOT TO SCALE
CLG.	CEILING		
CLG. HT.	CEILING HEIGHT	OA.	OVERALL
CLO.	CLOSET	O/C	ON CENTER
CLR.	CLEAR	O.D.	OUTSIDE DIMENSION
CMU	CONCRETE MASONRY UNIT	OH.	OVERHANG
CNTRL. JT.	CONTROL JOINT	O/O	OUT TO OUT
C.O.	CLEAN OUT	OPG.	OPENING
COL.	COLUMN	OPP.	OPPOSITE
CONC.	CONCRETE		
CONT.	CONTINUOUS	PGB	PAINTED GYPSUM BOARD
CORR.	CORRIDOR	PL., P ⌊	PLATE
C.T.	CERAMIC TILE	PLAS. LAM.	PLASTIC LAMINATE
CTR.	CENTER	PLYWD.	PLYWOOD
		POL.	POLISHED
ϕ	DIAMETER	PREFAB.	PREFABRICATED
DBL.	DOUBLE	PREFIN.	PREFINISHED
D.F.	DRINKING FOUNTAIN	PR.	PAIR
DIA.	DIAMETER	P.T.	PRESSURE TREATED
DIM.	DIMENSION	PTD.	PAINTED
DR.	DOOR	P.V.C.	POLYVINYL CHLORIDE
DN.	DOWN		
DS.	DOWNSPOUT	R.	RISERS
DTL.	DETAIL	R.D.	ROOF DRAIN
DWG.	DRAWING	RECEPT.	RECEPTACLE
		REINF.	REINFORCING
EA.	EACH	REQ'D	REQUIRED
E.J.	EXPANSION JOINT	REV.	REVISED
EL., ELEV.	ELEVATION	RM.	ROOM
ELEC.	ELECTRIC	R.O.	ROUGH OPENING
EQ.	EQUAL		
EQUIP.	EQUIPMENT	SCHED.	SCHEDULE
E.W.	EACH WAY	SECT.	SECTION
E.W.C.	ELECTRIC WATER COOLER	SHT.	SHEET
EX., EXIST.	EXISTING	SIM.	SIMILAR
EXP.	EXPANSION	S.M.P.	SOLID MASONRY PIER
EXT.	EXTERIOR	SPECS.	SPECIFICATIONS
		SQ.	SQUARE
F.D.	FLOOR DRAIN	ST. STL.	STAINLESS STEEL
F.E.	FIRE EXTINGUISHER	STD.	STANDARD
F.E.C.	FIRE EXTINGUISHER CABINET	STL.	STEEL
FIN.	FINISH	STOR.	STORAGE
FL., FLR.	FLOOR	STRUCT.	STRUCTURAL
FLUOR.	FLUORESCENT	SUSP.	SUSPENDED
F.O.E.X.	FACE OF EXISTING	SYM.	SYMMETRICAL
FURR.	FURRING/FURRED		
FT., '	FOOT/FEET	T.	TREAD
FTG.	FOOTING	T&G	TONGUE & GROOVE
		TEL.	TELEPHONE
GA.	GAUGE	THK.	THICKNESS
GALV.	GALVANIZED	THRU.	THROUGH
G.C.	GENERAL CONTRACTOR	T.O.S.	TOP OF SLAB
GL.	GLASS	T.O.STL.	TOP OF STEEL
GRD.	GRADE	TYP.	TYPICAL
GYP. BD., GWB	GYPSUM WALL BOARD		
		U.O.N.	UNLESS OTHERWISE NOTED
H.C.	HANDICAPPED		
H.B.	HOSE BIB	VAR.	VARIES
HDW.	HARDWARE	V.C.T.	VINYL COMPOSITION TILE
H.M.	HOLLOW METAL	VERT.	VERTICAL
HORIZ.	HORIZONTAL	VEST.	VESTIBULE
HT.	HEIGHT	V.I.F.	VERIFY IN FIELD
HVAC	HEATING, VENTILATION & AIR CONDITIONING	V.W.C.	VINYL WALL COVERING
		W/	WITH
I.D.	INSIDE DIAMETER	W.	WIDTH
IN., "	INCHES	WD.	WOOD
INFO.	INFORMATION	WDW.	WINDOW
INSUL.	INSULATION	WGT., WT.	WEIGHT
INT.	INTERIOR	W/O	WITHOUT
		WP.	WEATHERPROOF
		WWF	WELDED WIRE FABRIC

DRAWINGS LIST

A0.1 COVER SHEET

ARCHITECTURAL DRAWINGS
CA1.1 CODE ANALYSIS & EGRESS FLOOR PLAN
A1.1 EXISTING / DEMOLITION & PROPOSED FLOOR PLANS
A1.2 PROPOSED PLAN DETAILS & WALL SECTIONS
A6.1 EXISTING / DEMO. & PROPOSED REFLECTED CEILING PLANS
A7.1 SCHEDULES & DETAILS

MECHANICAL DRAWINGS
M001 SYMBOLS, ABBREVIATIONS, AND NOTES
M201 FIRST FLOOR PLAN - NEW WORK - MECHANICAL

ELECTRICAL DRAWINGS
E101 FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL
E201 FIRST FLOOR PLAN - NEW WORK - LIGHTING
E301 FIRST FLOOR PLAN - NEW WORK - POWER

SCOPE OF WORK

THIS PROJECT CONSISTS OF INTERIOR RENOVATIONS TO AN EXISTING SCHOOL FOR A NEW SECURITY VESTIBULE. THE DESIGN IS INTENDED TO RECONFIGURE THE EXISTING ENTRANCE TO CREATE A SECURED VESTIBULE THAT DIRECTS ALL VISITORS TO THE MAIN OFFICE.

IMPROVEMENTS TO THE SPACE ARE LIMITED TO INTERIOR WORK AND INCLUDE ALL OR MOST OF THE FOLLOWING ASPECTS:

SELECTIVE DEMOLITION - PROJECT INCLUDES REMOVAL OF EXISTING NON-BEARING STUD PARTITIONS AND/OR MASONRY WALLS, DOORS, FRAMES, HARDWARE, INTERIOR WINDOWS, CEILINGS, AND OTHER FINISH SYSTEM COMPONENTS.

CARPENTRY AND GENERAL TRADES - THE PROJECT REQUIRES INSTALLATION OF NEW LIGHT GAUGE METAL STUD WALLS, NEW DOORS AND HARDWARE.

DOORS AND WINDOWS - THE PROJECT INCLUDES RETROFIT OF EXISTING AND/OR INSTALLATION OF NEW STOREFRONT DOORS, FRAMES, AND HARDWARE.

STRUCTURAL MASONRY AND CONCRETE - THE PROJECT INCLUDES REMOVAL OF EXISTING MASONRY TO ACCOMMODATE A NEW DOOR OPENING AND THE INSTALLATION OF A PRECAST CONCRETE LINTEL. SOME CONCRETE REMOVAL AND PATCHING IS INCLUDED.

FINISHES - THE PROJECT REQUIRES RETROFIT OF EXISTING FINISHES AND INSTALLATION OF NEW FLOOR AND CEILING FINISH SYSTEMS IN THE WORK AREA SHOWN. THE PROJECT ALSO REQUIRES WALL PAINTING INCLUDING EXISTING WALLS IMMEDIATELY ADJACENT TO THE WORK AREA.

SPRINKLER SYSTEM - THE BUILDING IS EQUIPPED WITH A SPRINKLER SYSTEM THAT WILL REQUIRE RETROFIT TO ACCOMMODATE THE NEW STOREFRONT LAYOUT. THE SCOPE OF SPRINKLER WORK IS EXPECTED TO BE LIMITED TO ADJUSTING HEAD LOCATIONS AND ADDING HEADS WHERE NECESSARY.

MECHANICAL - THE PROJECT REQUIRES TESTING AND BALANCING OF THE EXISTING HEATING AND COOLING SYSTEM AFTER THE NEW VESTIBULE IS COMPLETE.

ELECTRICAL - THE PROJECT INCLUDES RETROFIT OF EXISTING AND INSTALLATION OF NEW LOW VOLTAGE ACCESS CONTROL DEVICES AS WELL AS NEW LIGHTING, NEW POWER/DATA DISTRIBUTION AND DEVICES, NEW WIRING AND RACEWAYS AND NEW SOUND SYSTEM.

NO SITE WORK OR UTILITY WORK IS INCLUDED.
NO PLUMBING WORK IS INCLUDED.
NO EXTERIOR ENVELOPE WORK OR ROOF WORK IS INCLUDED.

SECURITY DOOR HARDWARE AND ACCESS CONTROL

INCLUDES ELECTRIFIED HARDWARE AND CARD READERS AT ALL SETS OF CROSS CORRIDOR DOORS NOTED ON THE FLOOR PLAN AND DOOR SCHEDULE AND INCLUDES ELECTRIFIED HARDWARE, CARD READER, AND AIPHONE AT NEW OFFICE WITH NEW AIPHONE DESK CONTROL STATION TO CONTROL THE NEW OFFICE DOOR AND EXTERIOR DOOR INDEPENDENTLY. ALSO INCLUDES RETROFIT OF EXISTING DOORS WITH SECURED HARDWARE AS NOTED ON THE FLOOR PLAN AND DOOR SCHEDULE.

ADA MANEUVERING CLEARANCES AT DOORS

SCALE: 1/4" = 1'-0"

NOTE: '2010 ADA STANDARDS FOR ACCESSIBLE DESIGN' FIGURE NUMBERS REFERENCED, FOR ADDITIONAL INFORMATION REFER TO THE FULL '2010 ADA STANDARDS FOR ACCESSIBLE DESIGN'.

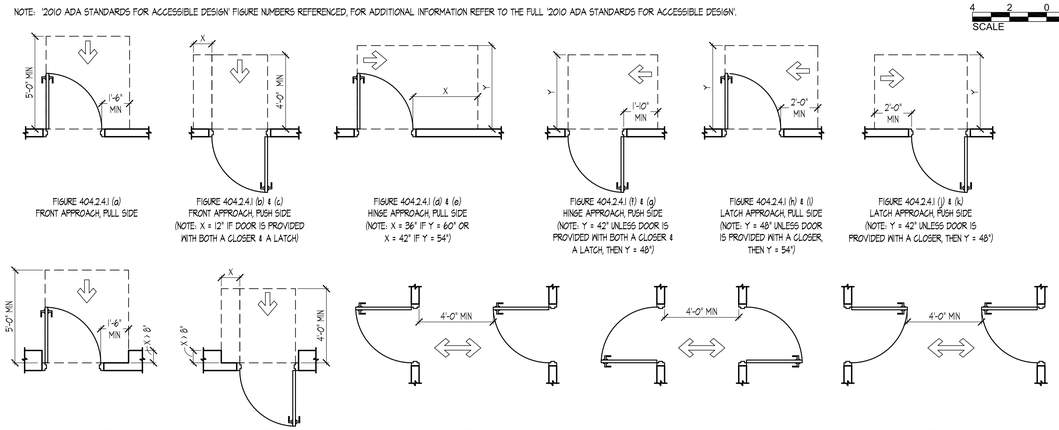

FIGURE 404.2.4.1 (a) FRONT APPROACH, PULL SIDE

FIGURE 404.2.4.1 (b) & (c) FRONT APPROACH, PUSH SIDE (NOTE: X = 12" IF DOOR IS PROVIDED WITH BOTH A CLOSER & A LATCH)

FIGURE 404.2.4.1 (d) & (e) HINGE APPROACH, PULL SIDE (NOTE: X = 36" IF Y = 60" OR X = 42" IF Y = 54")

FIGURE 404.2.4.1 (f) & (g) HINGE APPROACH, PUSH SIDE (NOTE: Y = 42" UNLESS DOOR IS PROVIDED WITH BOTH A CLOSER & A LATCH, THEN Y = 48")

FIGURE 404.2.4.1 (h) & (i) LATCH APPROACH, PULL SIDE (NOTE: Y = 48" UNLESS DOOR IS PROVIDED WITH A CLOSER, THEN Y = 54")

FIGURE 404.2.4.1 (j) & (k) LATCH APPROACH, PUSH SIDE (NOTE: Y = 42" UNLESS DOOR IS PROVIDED WITH A CLOSER, THEN Y = 48")

FIGURE 404.2.4.3 (a) RECESSED DOOR, PULL SIDE

FIGURE 404.2.4.3 (b) & (c) RECESSED DOOR, PUSH SIDE (NOTE: X = 12" IF DOOR IS PROVIDED WITH BOTH CLOSER & LATCH)

FIGURE 404.2.6 (a) DOORS & GATES IN A SERIES

FIGURE 404.2.6 (b) DOORS & GATES IN A SERIES

FIGURE 404.2.6 (c) DOORS & GATES IN A SERIES

Proffitt & Assoc. ARCHITECTS
49 SOUTH CARROLL STREET
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PHONE (301) 662-8532
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info@proffittandassociates.com

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No. 14510
EXPIRATION DATE 03-07-2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN ELEMENTARY SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
MIDDLETOWN, MARYLAND 21769
FCPS RFQ #20C2

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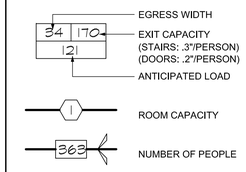
ISSUE		
REV	DATE	DESCRIPTION
	08/20/19	PERMIT SET
	10/09/19	BID SET

PROJECT NO.: 15-30.06
DATE: 10-09-2019

COVER SHEET

A0.1

EGRESS ANALYSIS LEGEND:



CODE ANALYSIS:

REFERENCE IBC 2015

IBC CONSTRUCTION CLASSIFICATION: 2B — IBC USE GROUP E: EDUCATIONAL

ALLOWABLE HEIGHT & AREA CALCULATIONS:
(PER TABLES 504.3, 504.4 & 506.2, SPRINKLERED)
ALLOWABLE AREA PERMITTED PER FLOOR: 58,000 S.F.
ALLOWABLE BUILDING HEIGHT (ABOVE GRADE PLANE): 3 STORIES (75'-0")
ACTUAL HEIGHT & AREA CALCULATIONS:
TOTAL ACTUAL EXISTING FOOTPRINT: 50,760 S.F.
TOTAL ACTUAL HEIGHT (ABOVE GRADE PLANE): 1 STORY (23'-6")
NOTE: NO ADDITIONS OR INCREASE IN AREA OR OCCUPANT LOAD TO EXISTING BUILDING.

NOTES:

NO PROPOSED BUILDING ADDITIONS OR INCREASE IN OCCUPANT LOAD WILL RESULT FROM THE SECURITY VESTIBULE MODIFICATIONS. NO CHANGES TO EXISTING EGRESS CAPACITY OR EXISTING PLUMBING FIXTURES WILL RESULT FROM THE SECURITY VESTIBULE MODIFICATIONS.

BUILDING CODE REQUIREMENTS:

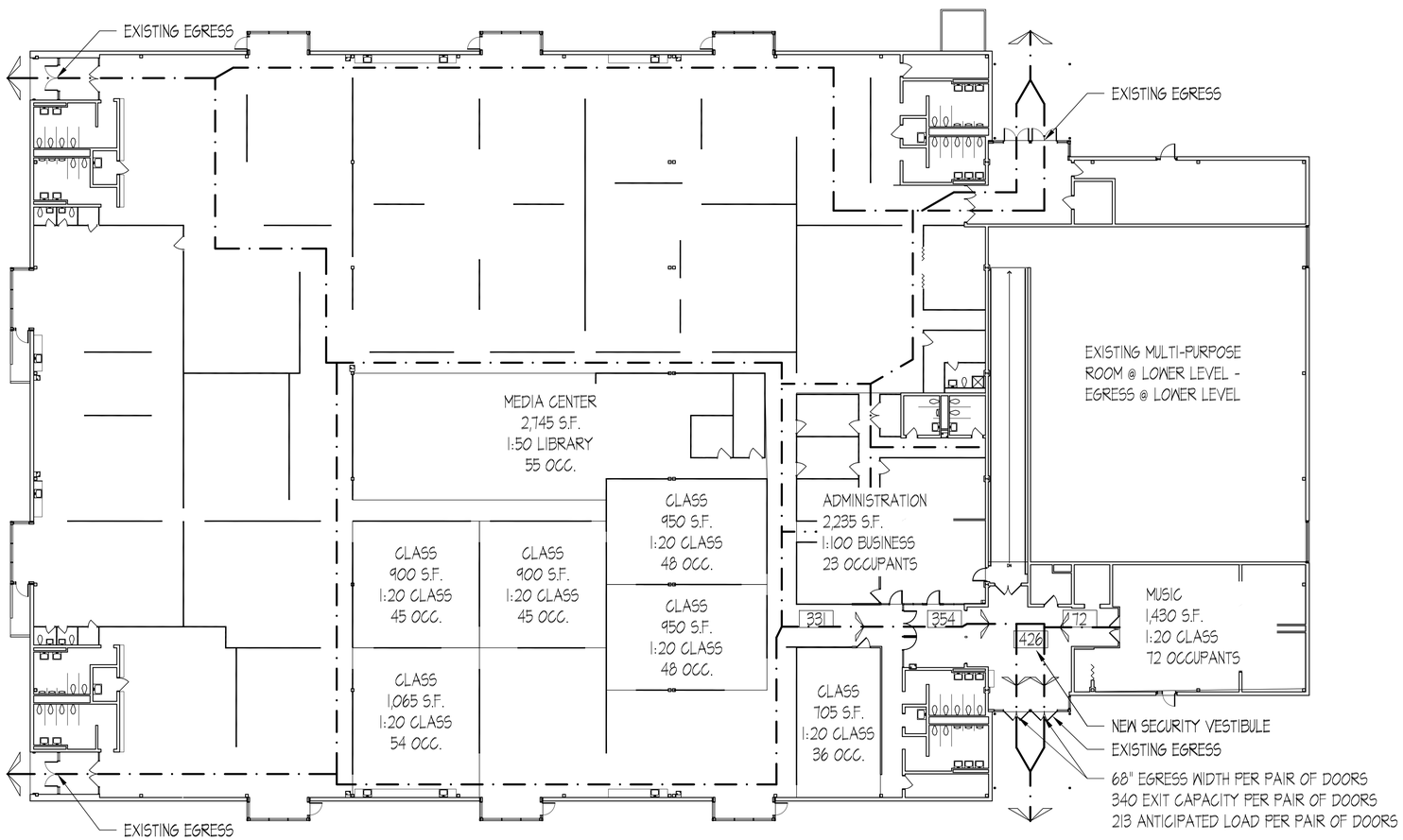
NOTE: REQUIREMENTS 'X'ED OUT ARE LESS STRINGENT. MORE STRINGENT REQUIREMENTS ARE USED.

	REQUIRED	
ITEM	IBC 2015	NFPA-101 2015
EXTERIOR WALLS (LOAD-BEARING)	PER TABLE 601 & 602: X ≥ 30' FIRE SEPARATION DIST. 0 HOURS	
EXTERIOR WALLS (NON-LOAD-BEARING)	PER TABLE 601 & 602: X ≥ 30' FIRE SEPARATION DIST. 0 HOURS	
PRIMARY STRUCTURAL FRAME	PER TABLE 601: 0 HOURS	
FLOOR CONSTRUCTION & SECONDARY MEMBERS	PER TABLE 601: 0 HOURS	
ROOF CONSTRUCTION & SECONDARY MEMBERS	PER TABLE 601: 0 HOURS	
INTERIOR WALLS (LOAD-BEARING)	PER TABLE 601: 0 HOURS	
INTERIOR WALLS (NON-LOAD-BEARING)	PER TABLE 601: 0 HOURS	
FIRE WALLS	PER TABLE 706.4, EXC A: 2 HOURS	PER SECTION 7.2.4.3: 2 HOURS
FIRE PARTITIONS	PER SECTION 708.3: 1 HOUR	PER SECTION 15.3.6 (2): NO SPECIAL REQUIREMENTS
CORRIDORS	PER TABLE 1020.1: 0 HOURS W/ SPRINKLER SYSTEM	PER SECTION 15.3.6 (2): 0 HOURS W/ SPRINKLER SYSTEM
DEAD END CORRIDORS	PER SECTION 1020.4, EXC 2: 50' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.5.2: 50' MAX W/ SPRINKLER SYSTEM
COMMON PATH OF TRAVEL	PER SECTION 1006.2.1: 75' MAX W/ SPRINKLER SYSTEM	~~PER SECTION 15.2.6.3.1: 100' MAX W/ SPRINKLER SYSTEM~~
EXIT ACCESS TRAVEL	PER TABLE 1017.2: 250' MAX W/ SPRINKLER SYSTEM	~~PER SECTION 15.2.6.3: 300' MAX W/ SPRINKLER SYSTEM~~
REMOTENESS	PER SECTION 1007.1.1(2): 1/3 OF DIAG. DISTANCE	PER SECTION 7.5.1.3.3: 1/3 OF DIAG. DISTANCE
CORRIDOR WIDTH	PER SECTION 1020.2: 44" W/ CAPACITY < 100; 72" W/ CAPACITY ≥ 100	PER SECTION 15.2.3.2: 72" EXIT ACCESS CORRIDORS
	PER SECTION 1005.3.2: 0.2" PER OCCUPANT	PER TABLE 7.3.3.1: 0.2" PER OCCUPANT
STAIRWAY WIDTH	PER SECTION 1011.2: 36" W/ CAPACITY < 50; 44" W/ CAPACITY ≥ 50	PER TABLE 7.2.2.2.1.2(B): TOTAL CUMULATIVE OCC. LOAD: 44" W/ CAPACITY < 2000; 56" W/ CAPACITY ≥ 2000
	PER SECTION 1005.3.1: 0.3" PER OCCUPANT	PER TABLE 7.3.3.1: 0.3" PER OCCUPANT

APPLICABLE BUILDING CODES:

AUTHORITY HAVING JURISDICTION: FREDERICK COUNTY, MARYLAND

1. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) WITH AMENDMENTS
MARYLAND BUILDING REHABILITATION CODE COMAR
2. FIRE CODE: 2015 NFPA 101 LIFE SAFETY CODE (LSC) W/ AMENDMENTS
2015 NFPA 1 FIRE CODE (LSC) W/ AMENDMENTS
MARYLAND STATE FIRE PREVENTION CODE
3. MECHANICAL: 2015 INTERNATIONAL MECHANICAL CODE (IMC)
4. ENERGY: 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
5. GAS: 2015 INTERNATIONAL FUEL GAS CODE (IFGC) WITH AMENDMENTS
6. PLUMBING: 2015 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS
9. ELECTRICAL: 2014 NATIONAL ELECTRIC CODE (NEC)
10.ACCESSIBILITY: 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (2010 STANDARDS)
MARYLAND STATE ACCESSIBILITY CODE (COMAR.05.02.02)



1 / CA1.1 EGRESS FLOOR PLAN

SCALE: 1/32" = 1'-0"

32 16 0 16 32 48 64
SCALE FEET

TRUE NORTH — PLAN NORTH

NOTE: THIS EGRESS PLAN IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY TO INDICATE THE LOCATION OF ALL MAIN POINTS OF EGRESS FROM THE BUILDING'S LEVEL OF EXIT DISCHARGE, ALTHOUGH NO OCCUPANT LOAD OR EXIT CAPACITY CALCULATIONS WERE PERFORMED, NO INCREASE OR DECEASE IN OCCUPANT LOAD WILL RESULT FROM THESE MODIFICATIONS. SIMILARLY, THE IMPROVEMENTS FOR THE SECURITY VESTIBULE AT THE MAIN ENTRANCE WILL IN NO WAY COMPROMISE OR REDUCE THE EGRESS CAPACITY THROUGH THE MAIN ENTRANCE WHEN CONSIDERED AS A POINT OF EGRESS.

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LICENSE No. 14510
EXPIRATION DATE 03-07-2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN ELEMENTARY SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
MIDDLETOWN, MARYLAND 21769

FCPS RFQ #20C2

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PROJECT NO.: 15-30.06
DATE: 10-09-2019

CODE ANALYSIS & EGRESS FLOOR PLAN

CA1.1

TYPICAL DEMOLITION GENERAL NOTES:

1. AREAS OF DEMOLITION DENOTED BY DASHED LINES.
2. THE CONTRACTOR SHALL RETURN ALL SALVAGEABLE MATERIAL AND/OR EQUIPMENT NOTED TO BE REMOVED ON SHEET A1.1 TO THE OWNER. THE OWNER SHALL STORE SALVAGEABLE MATERIAL AND/OR EQUIPMENT AT THEIR DISCRETION. THE CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGEABLE MATERIALS IN ACCORDANCE WITH OWNER'S RECOMMENDATIONS AND LOCAL ZONING CODES.
3. THE CONTRACTOR SHALL CONSULT WITH THE ARCHITECT ON ANY CONCEALED CONDITIONS UNCOVERED DURING DEMOLITION THAT IMPEDES THE EXECUTION OF THE DESIGN AS INDICATED ON THE DRAWINGS.
4. ALL AREAS OF DEMOLITION SHALL BE PATCHED OR REPAIRED AS REQUIRED.
5. COORDINATE DEMOLITION WITH PROPOSED NEW CONSTRUCTION INCLUDING CEILINGS, LIGHTS, POWER, DATA, SPRINKLER HEADS, WALLS, DOORS, FRAMES, HARDWARE, FINISHES, CONCRETE SLABS, ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE TO TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE BUILDING AT ALL TIMES AND TO PROVIDE AND BE RESPONSIBLE FOR SHORING AND BRACING REQUIRED THROUGHOUT THE CONSTRUCTION PERIOD.
7. ANY ITEMS NOT NOTED TO BE DEMOLISHED, BUT REQUIRING REMOVAL IN ORDER TO ACCOMPLISH THE REQUIRED DEMOLITION WORK, SHALL BE REINSTALLED OR REPLACED IN KIND IN LOCATION DIRECTED BY OWNER UPON COMPLETION OF THE NEW CONSTRUCTION UNLESS OTHERWISE NOTED.
8. JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. ANY AREAS DAMAGED BY THE DEMOLITION AND/OR CONSTRUCTION WORK SHALL BE REPAIRED AND/OR RECEIVE NEW SUBSTRATES, FINISHES, AND/OR MATERIALS TO MATCH THE EXISTING AFFECTED ITEMS. ANY REPAIR OR REPLACEMENT WORK SHALL BE PERFORMED TO A LEVEL OF QUALITY EQUAL TO THAT FOUND PRIOR TO BEGINNING WORK ON THIS PROJECT.
10. THE SELECTIVE DEMOLITION AS SHOWN ON THE DRAWINGS IS DIAGRAMMATIC, AND IN NO WAY ATTEMPTS TO SHOW ALL EXISTING FIXTURES, CONNECTIONS AND FITTINGS, AND OTHER MISCELLANEOUS ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING/COORDINATING ALL MISCELLANEOUS DEMOLITION AS REQUIRED DUE TO FIELD CONDITIONS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL THE CONTAINMENT OF DUST AND DEBRIS DURING THE DEMOLITION PERIOD AND SHALL OBTAIN ALL REQUIRED PERMITS AND COORDINATE WITH THE CITY BUILDING DEPARTMENT THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. DAILY SITE CLEANING WILL BE REQUIRED WITH ADDITIONAL CLEANING IF REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
12. PRIOR TO BEGINNING DEMOLITION, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A DEMOLITION PLAN OUTLINING THE DESIRED PLACEMENT OF DUMPSTERS, DUST AND DEBRIS CONTROL MEASURES AND SCHEDULE OF ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO EACH DEMOLITION ACTIVITY.
13. PROVIDE TEMPORARY COVER OR PARTITIONS TO PROTECT EXIST. BUILDING DURING CONSTRUCTION FROM EXPOSURE TO AND DAMAGE FROM THE ELEMENTS.
14. EXISTING FINISHES SPECIFICALLY NOT CALLED OUT TO BE REMOVED ARE TO REMAIN (PAINT, FLOORING, ETC.). PREPARE EXISTING SURFACES FOR APPLICATION OF NEW FINISHES AS REQUIRED BY MANUFACTURER RECOMMENDATIONS.
15. SEE MECHANICAL, PLUMBING, & ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

SELECTIVE DEMOLITION NOTES:

1. REMOVE EXISTING DEMOUNTABLE PARTITION INCLUDING WALL, FRAME, DOOR, GLAZING AND ASSOCIATED HARDWARE. PATCH AND REPAIR ALL ADJACENT SURFACES SHOWN TO REMAIN, UNLESS OTHERWISE NOTED.
2. REMOVE EXIST. WOOD DOORS, GLAZING AND ASSOCIATED HARDWARE (INCLUDING FLOOR AND WALL BUMPERS). EXISTING HOLLOW METAL FRAME TO REMAIN. PATCH AND REPAIR ALL ADJACENT SURFACES SHOWN TO REMAIN, U.O.N.
3. REMOVE PORTION (UNLESS OTHERWISE NOTED) OF EXISTING NON-BEARING MASONRY WALL TO ACCOMMODATE NEW OPENING AND INSTALL PRECAST CONCRETE LINTEL. PATCH AND REPAIR ADJACENT SURFACES AS REQUIRED TO MATCH EXIST. CONDITIONS. REMOVE CMU BELOW ADJACENT SLABS AND INFILL W/ CONCRETE.
4. MODIFY/REMOVE PORTION OF EXISTING HANDRAIL TO ALLOW FOR NEW OPENING. PATCH AND REPAIR ADJACENT SURFACES AS REQUIRED TO MATCH EXISTING CONDITIONS
5. REMOVE & SALVAGE EXIST. FURNISHINGS, INCLUDING DESKS AND SHELVING. REPAIR & PATCH ADJACENT SURFACES SHOWN TO REMAIN AND PREP TO RECEIVE NEW FINISHES. COORD. RELOCATION W/ FCPS. SEE ELECTRICAL DRAWINGS FOR NEW ASSOCIATED ELECTRIC DEVICES.

DEMOLITION KEY:

- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN
- WALL TO BE REMOVED
- WINDOW TO BE REMOVED
- DOOR AND FRAME TO BE REMOVED

PROPOSED KEY:

- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN
- NEW WALL
- 1-100 NEW DOOR AND FRAME
- SF-1 NEW STOREFRONT

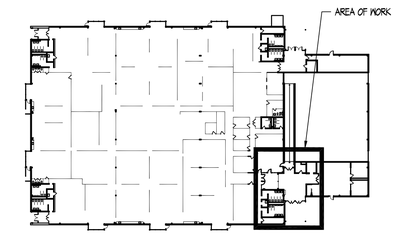
NEW CONSTRUCTION GENERAL NOTES:

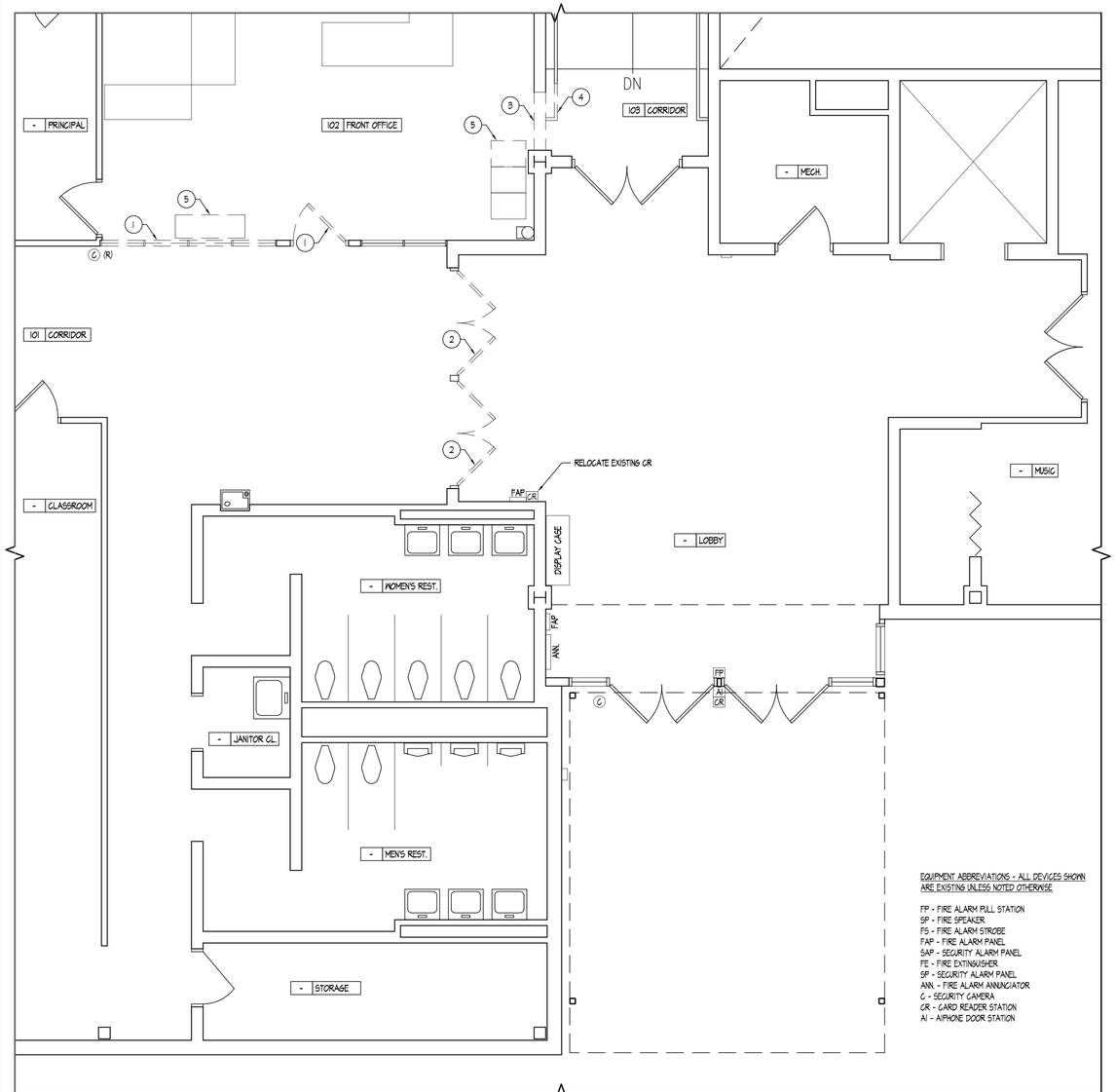
1. DIMENSIONS NOTED "CLR" (CLEAR) ARE NOT ADJUSTABLE WITHOUT APPROVAL FROM THE ARCHITECT.
2. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND EXISTING FIELD CONDITIONS, THE GENERAL CONTRACTOR SHALL IMMEDIATELY CONTACT THE ARCHITECT FOR DIRECTION.
3. ALL NEW PARTITIONS SHOWN ABUTTING TO EXISTING COLUMNS OR WALLS SHALL ALIGN WITH FACE OF EXISTING FINISHED SURFACE UNLESS OTHERWISE NOTED IN THE DRAWINGS.
4. PATCH AND FINISH EXISTING AREAS DISTURBED BY CONSTRUCTION OF NEW ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL WORKS. RESTORE AND REPAIR TO MATCH EXISTING ADJACENT AREA IN MATERIAL AND FINISH.
5. ALL PIPE AND CONDUIT PENETRATIONS THROUGH ANY FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED WITH TESTED UL RATED THROUGH PENETRATION FIRE STOP SYSTEMS BEARING THE REQUIRED RATINGS.

BUILDING KEY PLAN:

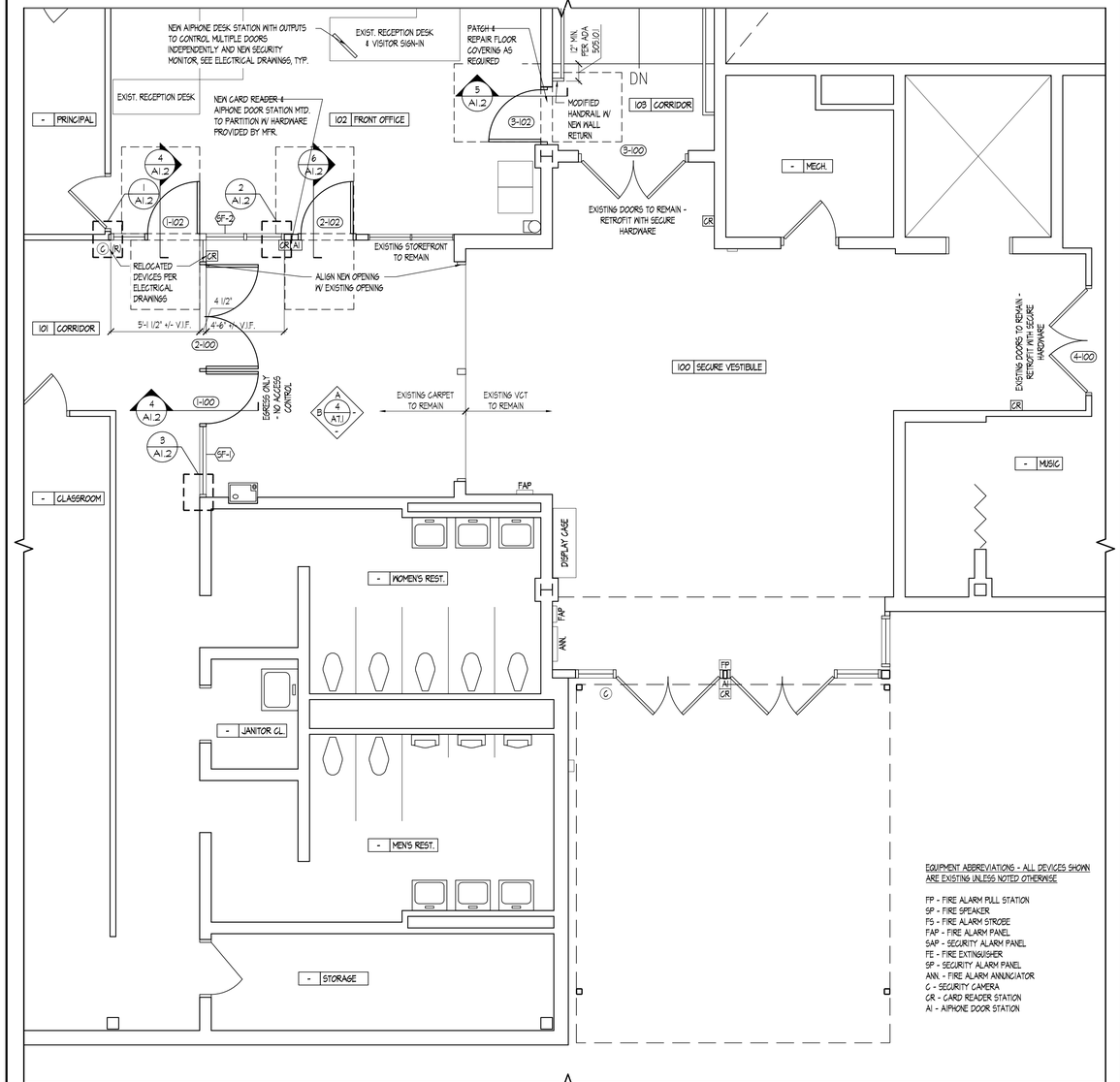
64 32 0 32 64 96 128
SCALE 1/64" = 1'-0" FEET

TRUE NORTH PLAN NORTH





1 A1.1 EXISTING / DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"
4 2 0 2 4 6 8 SCALE FEET
TRUE NORTH PLAN NORTH



2 A1.1 PROPOSED FLOOR PLAN
SCALE: 1/4" = 1'-0"
4 2 0 2 4 6 8 SCALE FEET
TRUE NORTH PLAN NORTH

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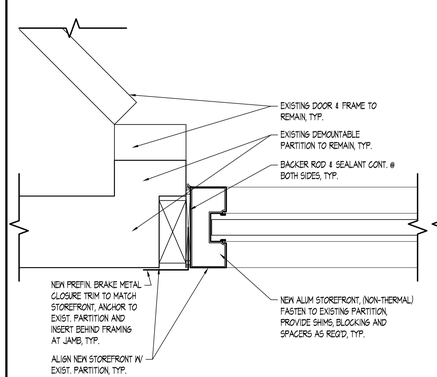
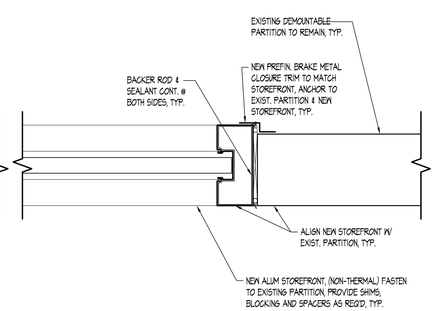
EXISTING / DEMOLITION & PROPOSED FLOOR PLANS

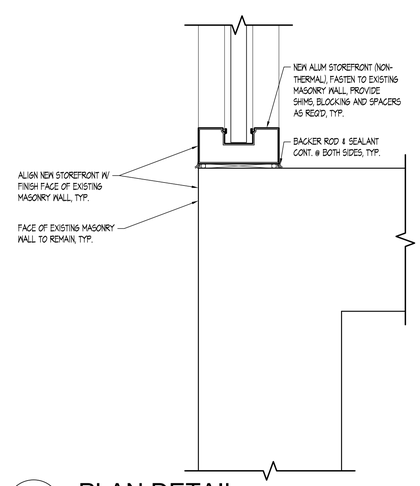
A1.1



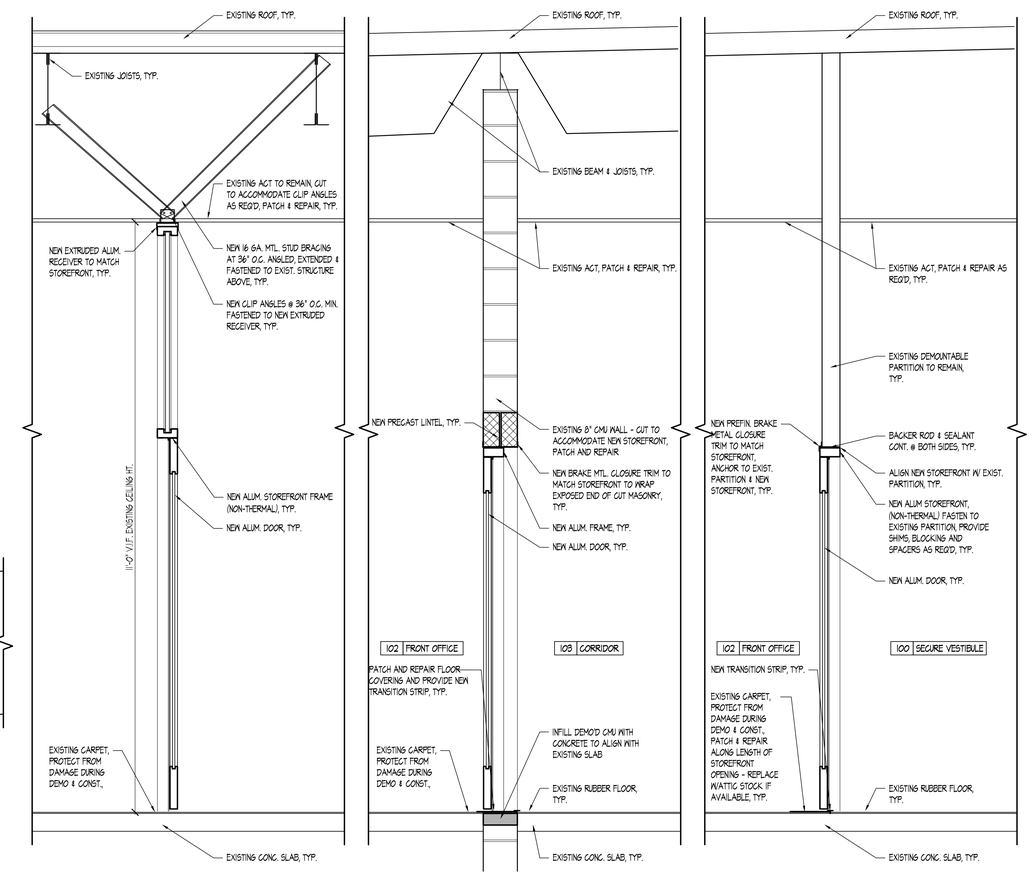
1 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"



2 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"



3 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"



4 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"

5 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"

6 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"

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PROPOSED PLAN DETAILS & WALL SECTIONS

A1.2

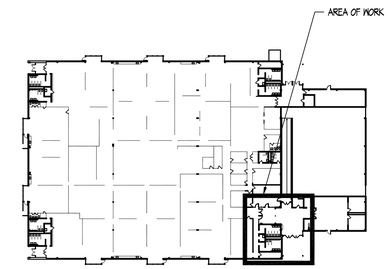
REFLECTED CEILING PLAN KEY:

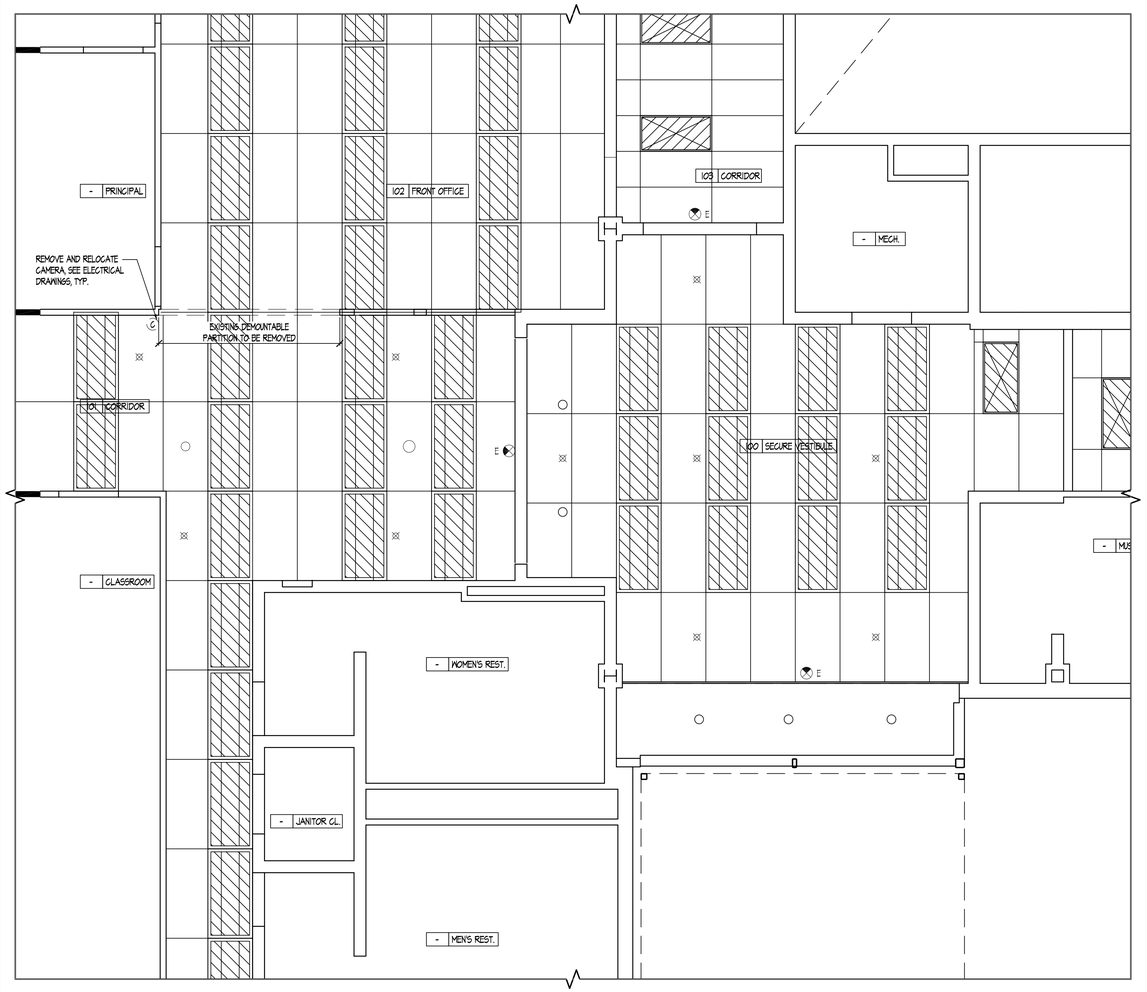
EXISTING 2'-6" x 5'-0" CEILING GRID W/ EXISTING ACOUSTICAL CEILING TILE	EXISTING 2'-0" x 4'-0" CEILING GRID W/ EXISTING ACOUSTICAL CEILING TILE
EXISTING 2'-6" x 5'-0" FLUORESCENT LIGHT FIXTURE TO REMAIN	EXISTING 2'-0" x 4'-0" FLUORESCENT LIGHT FIXTURE TO REMAIN
E — EXISTING EXIT DEVICE	N — NEW EXIT DEVICE
	R — RELOCATED EXIT DEVICE
EXISTING SPRINKLER HEAD	
EXISTING CAMERA	R — RELOCATED CAMERA
	N — NEW CAMERA

BUILDING KEY PLAN:

64 32 0 32 64 96 128
SCALE 1/64" = 1'-0" FEET

TRUE NORTH PLAN NORTH

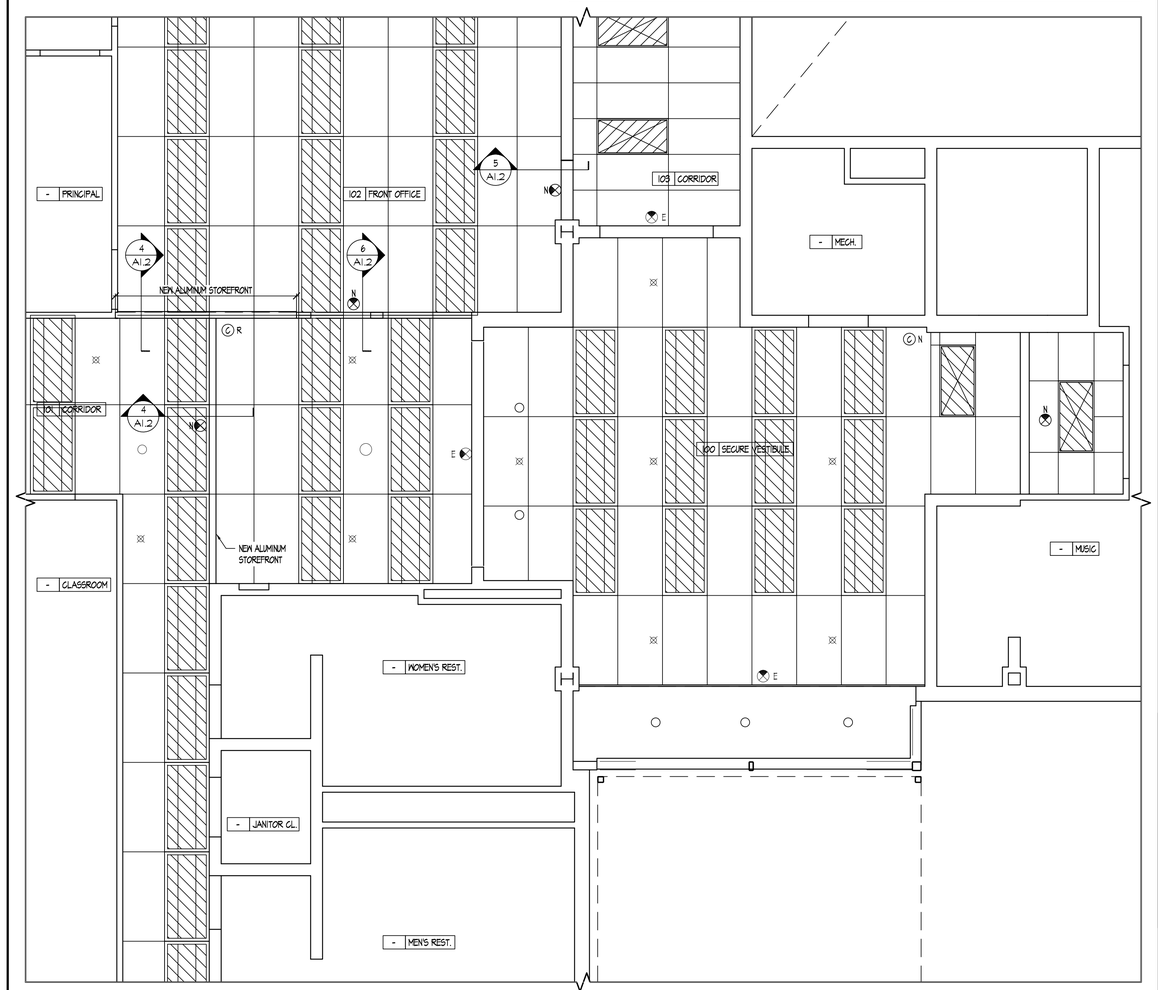




1 A6.1 EXISTING / DEMOLITION REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8 SCALE FEET

TRUE NORTH PLAN NORTH



2 A6.1 PROPOSED REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8 SCALE FEET

TRUE NORTH PLAN NORTH

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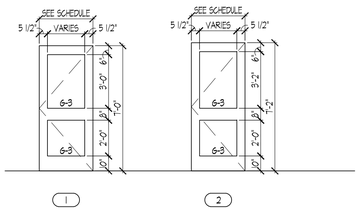
EXISTING / DEMO. & PROPOSED REFLECTED CEILING PLANS

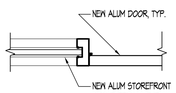
A6.1



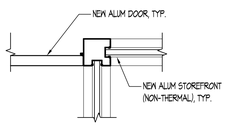
1 A7.1 DOOR TYPES

SCALE: 1/4" = 1'-0"

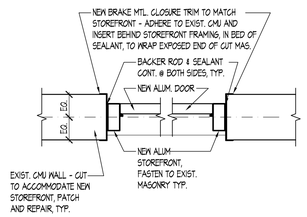
4 2 0 2 4 6 8
SCALE FEET



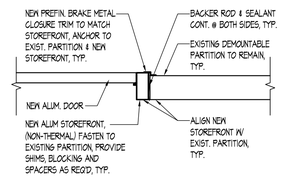
J - 1
ALUM. FRAME @ ALUM. STOREFRONT



J - 2
ALUM. FRAME @ ALUM. STOREFRONT



J - 3
ALUM. FRAME @ ALUM. STOREFRONT & EXIST. WALL

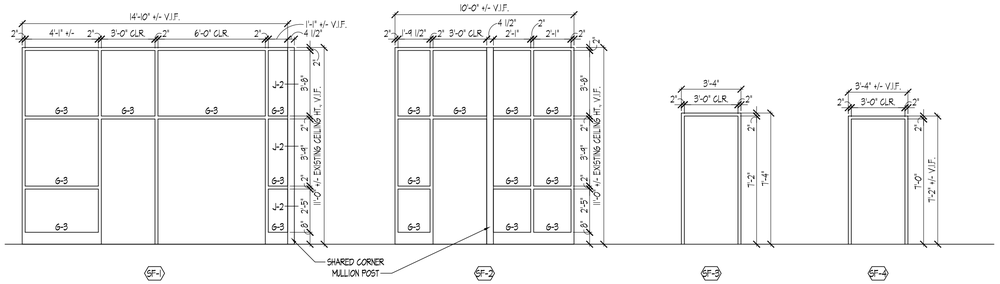


J - 4
ALUM. FRAME @ EXIST. DEMOUNTABLE PARTITION OPENING

2 A7.1 JAMB TYPES

SCALE: 1" = 1'-0"

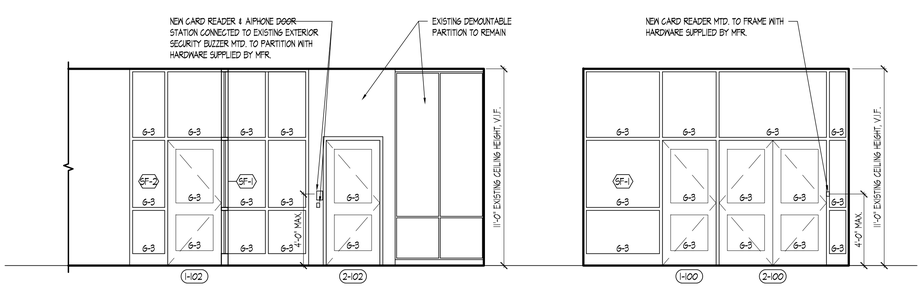
1 1/2 0 1/2 1 1-1/2 2
SCALE FEET



3 A7.1 STOREFRONT TYPES

SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8
SCALE FEET



A - NORTH ELEVATION

B - WEST ELEVATION

4 A7.1 INTERIOR ELEVATIONS

SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8
SCALE FEET

DOOR SCHEDULE

OPENING NUMBER	SIZE			DOOR			FRAME			JAMB TYPE	HARDWARE SET	REMARKS
	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH			
1-100	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-1	ALUM.	CA	J - 1	HW # 3	-
2-100	(2) 3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-1	ALUM.	CA	J - 1	HW # 1	PROVIDE ACCESS CONTROL HARDWARE
3-100	EXIST.	EXIST.	EXIST.	EXIST.	-	-	EXIST.	-	-	EXIST.	HW # 5B	RETROFIT EXISTING DOORS WITH ACCESS CONTROL HARDWARE
4-100	EXIST.	EXIST.	EXIST.	EXIST.	-	-	EXIST.	-	-	EXIST.	HW # 5B	RETROFIT EXISTING DOORS WITH ACCESS CONTROL HARDWARE
1-102	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-2	ALUM.	CA	J - 1 / J -2	HW # 4	-
2-102	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-4	ALUM.	CA	J - 4	HW # 2	PROVIDE ACCESS CONTROL HARDWARE
3-102	3'-0"	7'-2"	1-3/4"	2	ALUM.	CA	SF-3	ALUM.	CA	J - 3	HW # 4	-

CA - CLEAR ANODIZED

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOORS		WALLS								CEILING		REMARKS
				NORTH		EAST		SOUTH		WEST				
		MATERIAL	BASE	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	HEIGHT	
100	SECURE VESTIBULE	EXIST.	EXIST.	EXIST. / SF-2	- / PREFIN.	EXIST.	-	EXIST.	-	EXIST. / SF-1	- / PREFIN.	EXIST.	-	-
101	CORRIDOR	EXIST.	EXIST.	EXIST. / SF-2	- / PREFIN.	EXIST. / SF-1	- / PREFIN.	EXIST.	-	EXIST.	-	EXIST.	-	-
102	FRONT OFFICE	EXIST.	EXIST.	EXIST.	-	EXIST.	-	EXIST. / SF-2	- / PREFIN.	EXIST.	-	EXIST.	-	-
103	CORRIDOR	EXIST. *	EXIST. *	EXIST.	-	EXIST.	-	EXIST.	-	EXIST. / SF-3	- / PREFIN.	EXIST.	-	* PATCH & REPAIR EXISTING - USE ATTIC STOCK IF AVAILABLE

FINISH SELECTIONS SCHEDULE

TYPE	ABBR.	FINISH	SELECTION	REMARKS
FLOORING	VCT-1	VINYL COMPOSITE TILE	SEE SPECIFICATIONS	MATCH EXISTING USING ATTIC STOCK
BASE	RB-1	RUBBER BASE	SEE SPECIFICATIONS	MATCH EXISTING ROPPE 4" BASE USING ATTIC STOCK
WALL	PT0-1	TYPICAL WALL PAINT	SEE SPECIFICATIONS	MATCH EXISTING PAINT USING ATTIC STOCK
CEILING	ACT-1	ACOUSTICAL CEILING TILE	SEE SPECIFICATIONS	MATCH EXISTING ARMSTRONG TILE USING ATTIC STOCK

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I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No. 14510
EXPIRATION DATE 03-07-2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN ELEMENTARY SCHOOL
FCPS RFQ #20C2
FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
MIDDLETOWN, MARYLAND 21769

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ISSUE

REV	DATE	DESCRIPTION
	08/20/19	PERMIT SET
	10/09/19	BID SET

PROJECT NO.: 15-30,06
DATE: 10-09-2019

SCHEDULES & DETAILS

A7.1

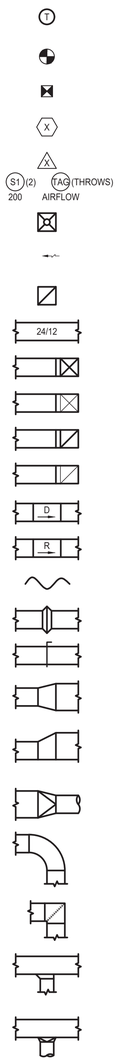
HVAC ABBREVIATIONS

AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
DIA	DIAMETER
DIFF	DIFFUSER
DPR	DAMPER
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELECT	ELECTRIC
ENT	ENTERING
EQUIP	EQUIPMENT
EXIST	EXISTING
GC	GENERAL CONTRACTOR
GR	GRILLE
HC	HVAC CONTRACTOR
HTG	HEATING
HZ	FREQUENCY (HERTZ)
KW	KILOWATT
LBS	POUNDS
LTG	LIGHTING
MBH	THOUSAND BTU's
MFGR	MANUFACTURER
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
%	PERCENT
PH	PHASE
QNTY	QUANTITY
RA	RETURN AIR
SA	SUPPLY AIR
SCH	SCHEDULE
SPEC	SPECIFICATION
SQ FT	SQUARE FEET
TAB	TEST, ADJUST AND BALANCE
T'STAT	THERMOSTAT
TYP	TYPICAL
V	VOLT
XR	EXISTING TO REMAIN

HVAC EQUIPMENT ABBREVIATIONS

AHU	AIR HANDLING UNIT
ECUH	ELECTRIC CABINET UNIT HEATER
FCU	FAN COIL UNIT
RHC	REHEAT COIL
UH	UNIT HEATER

HVAC SYMBOLS



THERMOSTAT

CONNECTION POINT - NEW TO EXISTING

DISCONNECTION POINT

NUMBERED NOTES

REVISION SEQUENCE

GRILLE, REGISTER AND DIFFUSER TAG

SUPPLY DIFFUSER - 4-WAY BLOW

AIR FLOW ARROW

CEILING MOUNTED RETURN OR EXHAUST GRILLE / REGISTER

INTERIOR CLEAR DUCTWORK DIMENSIONS; WIDTH/HEIGHT

SUPPLY DUCT TOWARD VIEWER

SUPPLY DUCT AWAY FROM VIEWER

RETURN OR EXHAUST DUCT TOWARD VIEWER

RETURN OR EXHAUST DUCT AWAY FROM VIEWER

CHANGE IN DUCT ELEVATION DROP INDICATED BY "D"

CHANGE IN DUCT ELEVATION RISE INDICATED BY "R"

FLEXIBLE DUCT

FLEXIBLE CONNECTION

MANUAL VOLUME DAMPER

TRANSITION; SYMMETRIC

TRANSITION; ASYMMETRIC

TRANSITION; RECTANGULAR TO ROUND

90 DEG RADIUS ELBOW (R/W = 1.5)

MITERED ELBOW WITH TURNING VANES

TEE, BOOT ENTRY BRANCH

TEE, CONICAL ROUND BRANCH

ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT

1. GENERAL REQUIREMENTS

   A. HVAC CONTRACTOR SHALL PROVIDE MECHANICAL EQUIPMENT WITH VOLTAGES AND OTHER ELECTRICAL CHARACTERISTICS AS INDICATED ON THE DRAWINGS AND WITHIN THE SPECIFICATIONS.

   B. ALL STARTERS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, AND VARIABLE FREQUENCY DRIVES, FOR EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED UNDER DIVISION 23 AND INSTALLED UNDER DIVISION 26. FACTORY MOUNTED STARTERS, DISCONNECTS SWITCHES, AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. HVAC CONTRACTOR SHALL PROVIDE STARTERS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS AND VARIABLE FREQUENCY DRIVES IN ACCORDANCE WITH DIVISION 26.

   C. HVAC CONTRACTOR SHALL SUBMIT WIRING DIAGRAMS TO THE ARCHITECT/ENGINEER FOR APPROVAL AND PROVIDE APPROVED DIAGRAMS TO THE ELECTRICAL CONTRACTOR SO THAT THE ELECTRICAL WORK MAY BE PROPERLY ACCOMPLISHED.

   D. HVAC CONTRACTOR SHALL FULLY COOPERATE WITH THE OTHER DIVISIONS AND TRADES ON THE PROJECT, AND THEIR MANUFACTURERS, IN PROMPTLY PROVIDING THE INFORMATION REQUIRED FOR PROPER COORDINATION OF MOTOR PROTECTION, CONTROL EQUIPMENT AND WIRING, AND THE OTHER CHARACTERISTICS OF THE EQUIPMENT.

   E. IT SHALL BE THE RESPONSIBILITY OF THE HEATING AND ELECTRICAL CONTRACTORS TO CHECK FOR ADEQUACY OF SUPPLY WIRING, OVERCURRENT PROTECTION, PROPER VOLTAGE, PHASE ROTATION AND FINAL LOCATION OF EQUIPMENT PROVIDED PRIOR TO THE RUNNING OF ANY CONDUIT OR WIRING. COORDINATE WITH DIVISION 26 TO ASSURE PROPER ELECTRICAL SERVICE IS PROVIDED TO EQUIPMENT UNDER DIVISION 23.

   F. EQUIPMENT CONNECTIONS SHALL BE MADE THROUGH CONDUIT OR RACEWAYS IN ACCORDANCE WITH DIVISION 26, WITH THE EXCEPTION THAT CONNECTIONS TO MOTORS SHALL BE MADE THROUGH LIQUID TIGHT FLEXIBLE METAL CONDUIT WITH EQUIPMENT GROUNDING CONDUCTOR.

2. POWER REQUIREMENTS

   A. ALL POWER WIRING FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26 TO THE POINT OF FINAL CONNECTION (FROM THE SOURCE TO THE STARTERS, DISCONNECT SWITCHES, MCC'S OR VFD'S AND TO EQUIPMENT, MOTOR, OR OTHER CONNECTION POINT). EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, ALL POWER WIRING TO THE POINT OF FINAL CONNECTION FOR EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE ACCOMPLISHED UNDER DIVISION 26.

   B. FINAL ELECTRICAL POWER CONNECTIONS TO ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26. IN GENERAL, THE POINT OF FINAL CONNECTION SHALL BE THE TERMINAL HOUSING ON THE EQUIPMENT, MOTOR, OR AN INTERNAL JUNCTION BOX ON THE EQUIPMENT OR ITEM. IF NO JUNCTION BOX IS FURNISHED, A JUNCTION BOX SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26. WIRE LEADS OF ADEQUATE LENGTH TO ENSURE A PROPER CONNECTION AT THE FINAL LOCATION SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26.

   C. WIRING, OVERCURRENT PROTECTION DEVICES, VOLTAGE, PHASE, ROTATION AND FINAL LOCATION OF ALL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE COORDINATED WITH ALL SIMILAR DEVICES AND POWER WIRING FURNISHED AND INSTALLED UNDER DIVISION 26. COORDINATION SHALL BE ACCOMPLISHED PRIOR TO THE RUNNING OF ANY CONDUIT OR WIRING.

3. CONTROL REQUIREMENTS

   A. ALL CONTROL WIRING (LINE VOLTAGE AND/OR LOW VOLTAGE) FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. WIRING FROM THE POWER SOURCE TO ALL CONTROL PANELS, DDC CONTROL PANELS, STARTERS, OPERATOR WORK STATIONS (PC'S, PRINTERS, MONITORS, AND OTHER WORK STATION EQUIPMENT) AND OTHER CONTROL EQUIPMENT REQUIRED FOR A COMPLETE AND OPERABLE CONTROL SYSTEM SERVING MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

   B. ALL WIRING FROM CONTROL PANELS TO CONTROL DEVICES FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATIONS. ALL CONTROL WIRING SHALL BE IN CONDUIT.

   C. UNLESS OTHERWISE NOTED, ALL TEMPERATURE CONTROL DEVICES, INSTALLED PILOT DEVICES, AND ALL ASSOCIATED PILOT CONTROL EQUIPMENT, FOR ALL EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

   D. ELECTRICAL CONTROL WIRING FOR CONNECTION OF TEMPERATURE CONTROLLERS, PUSH BUTTONS, INTERLOCKS IN MOTOR CONTROLLERS, PNEUMATIC SWITCHES AND LIKE ITEMS IS SPECIFIED UNDER THE CONTROL SECTION(S) IN DIVISION 23 AND INSTALLED BY DIVISION 23.

   E. ALL MOTORS, MOUNTS, REMOTE MOUNTED PUSH BUTTON CONTROLS AND ALL SPEED CONTROL SWITCHES FOR MULTI-SPEED MOTORS FOR ALL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

PROJECT GENERAL NOTES

1. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS AND APPLICABLE CODES AND REGULATIONS.
4. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
5. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50 FT OF BOILER OR PRESSURE-REDUCING VALVES.
6. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS OF STEAM MAINS WITHIN 50 FT OF BOILER OR PRESSURE-REDUCING VALVES.
7. THE LOCATION OF EXISTING EQUIPMENT AND UTILITIES IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
8. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
9. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO THE UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
10. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
11. TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.
12. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
13. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
14. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATION.
15. WHEN MECHANICAL WORK IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDED A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
16. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
17. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
18. ALL EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
19. ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOISTS GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
20. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT SUPPORTED FROM A METAL DECK.
21. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING EQUIPMENT AND UTILITIES BEFORE COMMENCING WORK.

SHEET METAL GENERAL NOTES

1. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS WHERE SPECIFIED.
2. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNERS.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF REQUIRED.
4. SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.
5. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET.
6. LOCATE ALL MECHANICAL EQUIPMENT (FAN COIL UNITS, CABINET UNIT HEATERS, ETC.) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVES.
7. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
8. COORDINATE DIFFUSERS, REGISTER AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
9. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS AND HUMIDISTATS 42" (CENTERLINE) ABOVE THE FINISHED FLOOR. NOTIFY THE PROFESSIONAL OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.

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CJL Project #18-0546

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No: 45511 Expiration Date: 06/03/2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN ELEMENTARY SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
MIDDLETOWN, MARYLAND 21769

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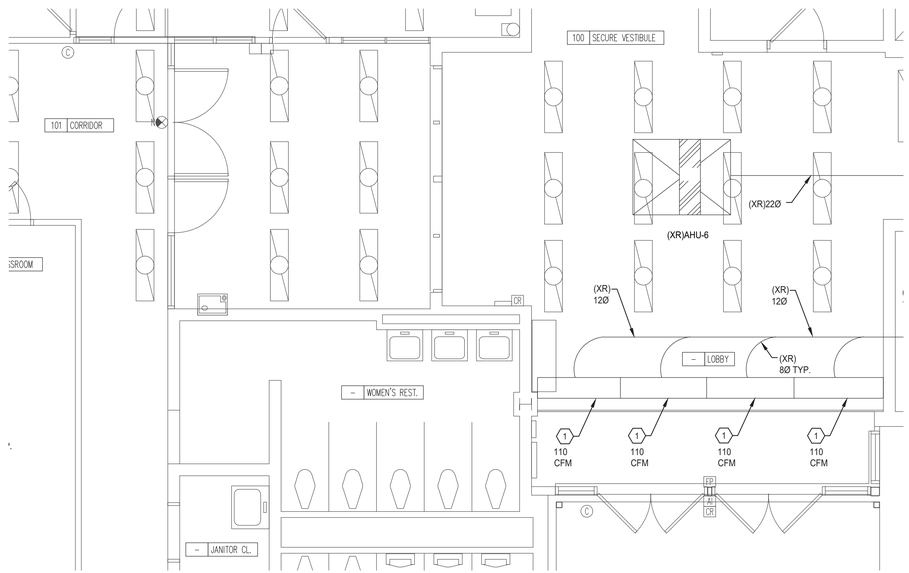
ISSUE

REV	DATE	DESCRIPTION
	08/26/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

SYMBOLS, ABBREVIATIONS, AND NOTES

M001



1 / M201 FIRST FLOOR PLAN - NEW WORK - MECHANICAL

SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. BALANCE TO INDICATED AIRFLOW.

SPRINKLER NOTES:

G1. REVISE/EXTEND EXISTING WET SPRINKLER PIPE. MODIFY, RELOCATE PIPE, ADD HEADS AS NECESSARY TO ACCOMMODATE RENOVATION AS REQUIRED. PROVIDE SPRINKLER DRAWING TO FIRE MARSHAL, INSTALL PER NFPA 13 AND COORDINATE INSTALLATION WITH LOCAL FIRE MARSHAL. COORDINATE/VERIFY EXACT LIMITS OF AREA AFFECTED TO BE REVISED WITH ARCHITECTURAL DRAWINGS.

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CJL Project #18-0546

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No: 45511 Expiration Date: 06/03/2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
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ISSUE

REV	DATE	DESCRIPTION
	08/26/19	PERMIT
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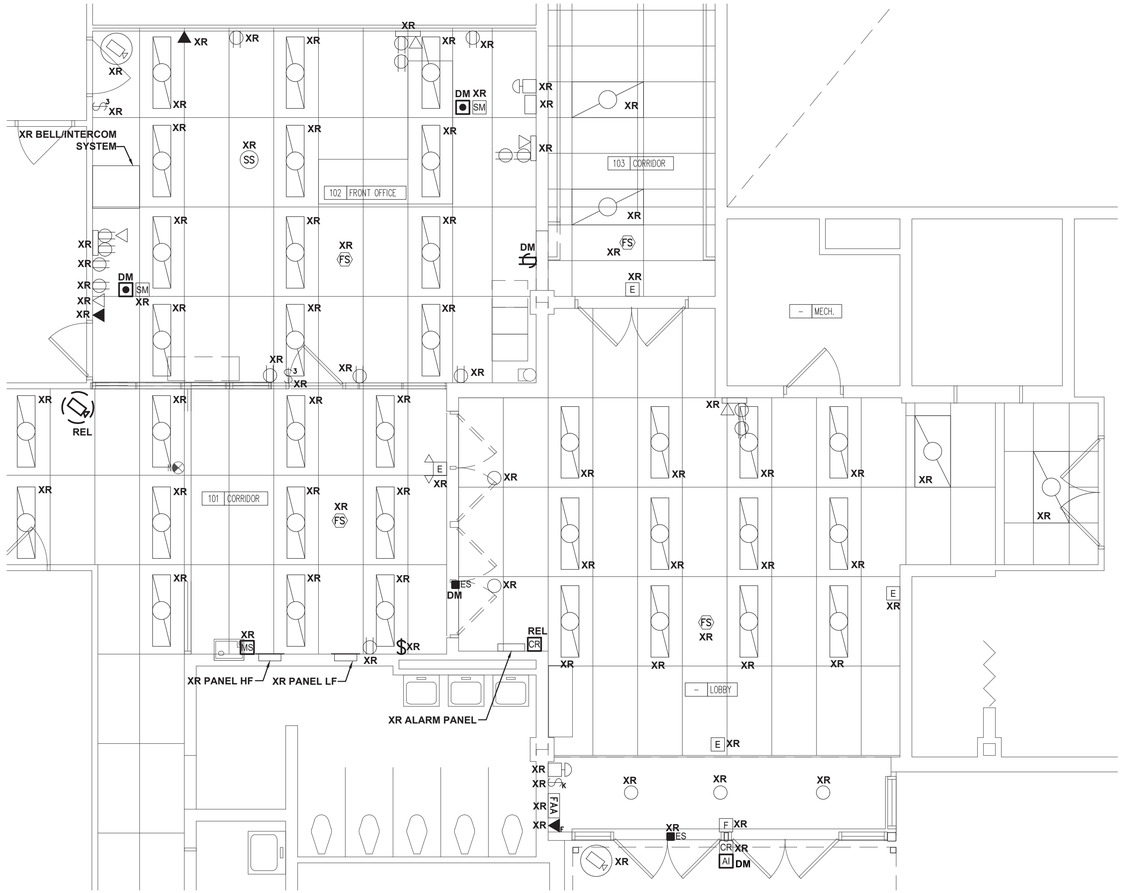
PROJECT NO.: 18-0846
DATE: 10-09-19

FIRST FLOOR PLAN - NEW WORK - MECHANICAL

M201



1 E101 FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL

SCALE: 1/4"=1'-0"

POWER

- NEW PANELBOARD - RECESSED
- EXISTING PANELBOARD - SURFACE
- TC — TIME CLOCK
- EMERGENCY POWER OFF PUSH BUTTON

RECEPTACLES

- DUPLEX 125V-20A RECEPTACLE
- DD — DOUBLE DUPLEX RECEPTACLE

TELECOMMUNICATIONS

- TELEPHONE OUTLET(S)
- DATA OUTLET(S)

FIRE ALARM

- FACP — FIRE ALARM CONTROL PANEL
- F — FIRE ALARM PULL STATION
- F — FIRE ALARM STROBE - WALL MOUNTED
- F — FIRE ALARM HORN/STROBE - WM
- S — SMOKE DETECTOR - CEILING MOUNTED

AUDIO/VISUAL

- SS — SOUND SYSTEM SPEAKER CEILING MOUNTED

SECURITY & DOOR CONTROL

- SECURITY CAMERA
- SECURITY CAMERA IN BUBBLE
- SM — SECURITY MONITOR
- MS — MOTION SENSOR
- CR — CARD READER
- PUSH-BUTTON
- DC — DOOR CONTACT
- ES — ELECTRIC STRIKE

DENOTATIONS & ABBREVIATIONS

DD	DOUBLE DEVICE
DM	ITEM TO BE REMOVED
EC	ELECTRICAL CONTRACTOR
F	FIRE ALARM
PRN	PRESENT LOCATION/ REPLACED WITH NEW
REL	RELOCATE
RED	RELOCATED
XR	EXISTING TO REMAIN

LIGHTING

- LIGHTING FIXTURE - SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- DOWNLIGHT
- E — EXIT SIGN - DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS
- E — EXIT SIGNWITH HEADS AS INDICATED ON DRAWINGS
- REMOTE HEAD FOR BATTERY PACK
- $ — SINGLE POLE SWITCH
- $3 — 3-WAY SWITCH
- $4 — 4-WAY SWITCH
- $K — KEY SWITCH

EXISTING CONDITIONS/DEMOLITION NOTES:

D1. CONDUITS & WIRING REQUIRED FOR THE CONTINUITY OF LIGHTING, OUTLETS, SYSTEMS AND EQUIPMENT THAT IS TO REMAIN SHALL REMAIN UNDISTURBED OR SHALL BE RECONNECTED BY THE CONTRACTOR AS REQUIRED TO MAINTAIN SERVICE. THIS WORK SHALL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.

D2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED AT THE SITE BY THE ELECTRICAL CONTRACTOR, PRIOR TO BIDS.

D3. WHERE EXISTING ELECTRICAL EQUIPMENT IS DESIGNATED TO BE REMOVED, THE EC SHALL REMOVE THE EQUIPMENT AND AND ALL ASSOCIATED WIRING AND CONDUITS BACK TO THE SERVICE POINT.

D4. WHERE EXISTING ELECTRICAL EQUIPMENT IS DESIGNATED TO BE RELOCATED, THE EC SHALL RELOCATE THE EQUIPMENT AS SHOWN ON THE PLANS AND RECONNECT THE EQUIPMENT AS REQUIRED TO MAINTAIN SERVICE. PATCH ALL OPENINGS IN THE WALL, CEILINGS, OR FLOORS CREATED BY THE DEMOLITION WORK.

D5. CONDUITS AND WIRING MADE OBSOLETE DUE TO NEW CONSTRUCTION SHALL BE REMOVED IN IT'S ENTIRETY, BACK TO THE SERVICE POINT.

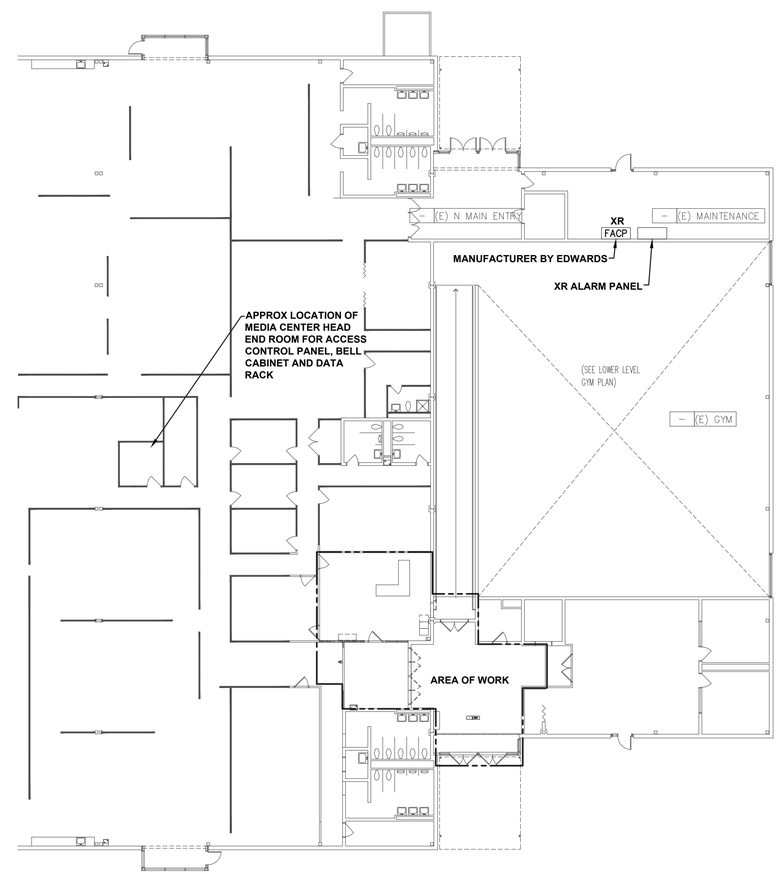
D6. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR THE LIMITS OF DEMOLITION WORK.

D7. REFER TO THE MECHANICAL DRAWINGS FOR THE EXACT LOCATIONS OF THE MECHANICAL EQUIPMENT THAT WILL BE DISCONNECTED.

GENERAL PROJECT NOTES:

G1. UNLESS OTHERWISE NOTED, PROVIDE ALL EQUIPMENT SHOWN ON THE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SYMBOLS SHOWN ON THE PLANS WITH THE SYMBOL LIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INTENT OF ANY SYMBOL THAT IS SHOWN ON THE PLANS AND NOT INDICATED ON THE SYMBOL LIST WITH ELECTRICAL ENGINEER.

G2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE PROFESSIONAL IF A SYMBOL IS USED ON THE PROJECT BUT DOES NOT SHOW IN THE SYMBOL LIST PRIOR TO BID.



2 E101 FIRST FLOOR PLAN - REFERENCE

SCALE: 1/16"=1'-0"

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CJL Project #18-0546

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NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN ELEMENTARY SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
MIDDLETOWN, MARYLAND 21769

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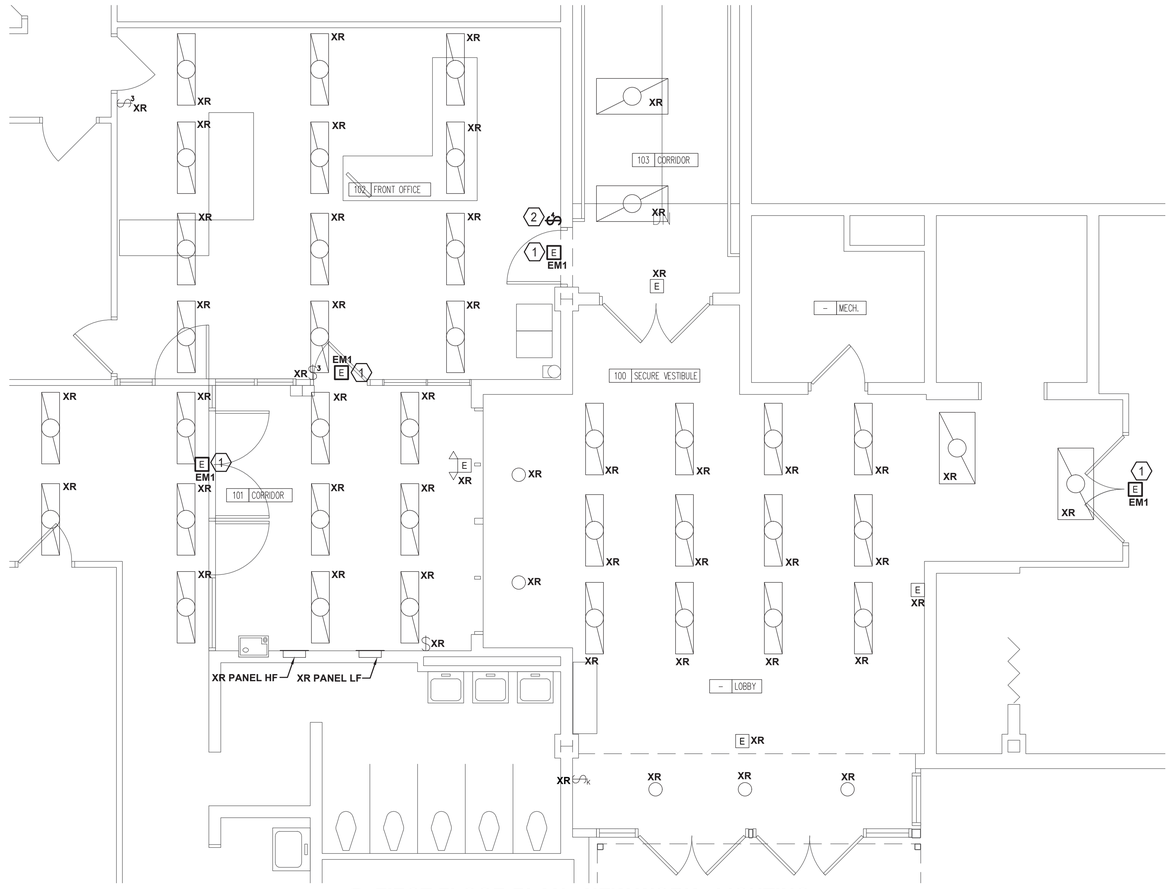
ISSUE

REV	DATE	DESCRIPTION
	08/26/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL

E101



1 E201 **FIRST FLOOR PLAN - NEW WORK - LIGHTING**
SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. NEW EXIT SIGNS SHALL BE CONNECTED TO LINE SIDE OF LOCAL CIRCUIT.
2. PROVIDE NEW SWITCH AS INDICATED AND CONNECT TO EXISTING ROOM LIGHTING CONTROL CIRCUIT.

LIGHTING FIXTURE SCHEDULE

MARK	NUMBER OF LAMPS AND WATTAGE	MANUFACTURE	CATALOG NUMBER	DRIVER VOLTAGE	TYPE OF MOUNTING	REMARKS
EM1	LED (.71 W)			UNV	UNV	OR APPROVED EQUAL
		LITHONIA	LQM-S-W-3-R-120/277-ELN			

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ISSUE

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PROJECT NO.: 18-0846
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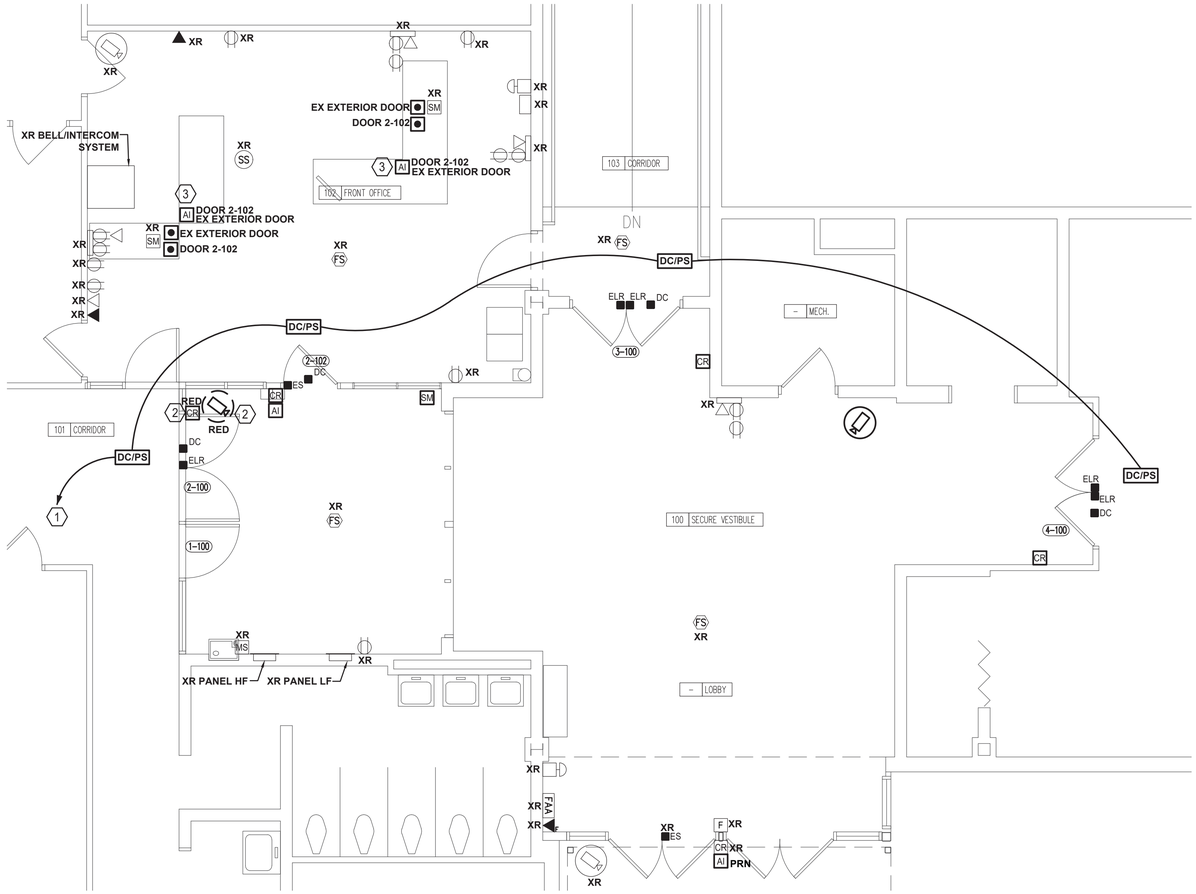
FIRST FLOOR PLAN - NEW WORK - LIGHTING

E201



1 E301 FIRST FLOOR PLAN - NEW WORK - POWER

SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. HOMERUN TO EX PANEL "LF" USING SPARE 20A/1P BREAKER
2. EXTEND CABLES AS REQUIRED TO RECONNECT TO EXISTING SYSTEM.
3. PROVIDE NEW AI PHONE SYSTEM, KB SERIES OR APPROVED EQUAL. PROVIDE MASTER STATIONS AT ALL RECEPTION LOCATIONS AS INDICATED AND NEW VIDEO DOOR STATIONS AT EXISTING EXTERIOR LOCATION AND AT NEW DOOR 2-102. INSTALLATION SHALL BE ACCORDING TO MANUFACTURERS REQUIREMENTS.

GENERAL NOTES:

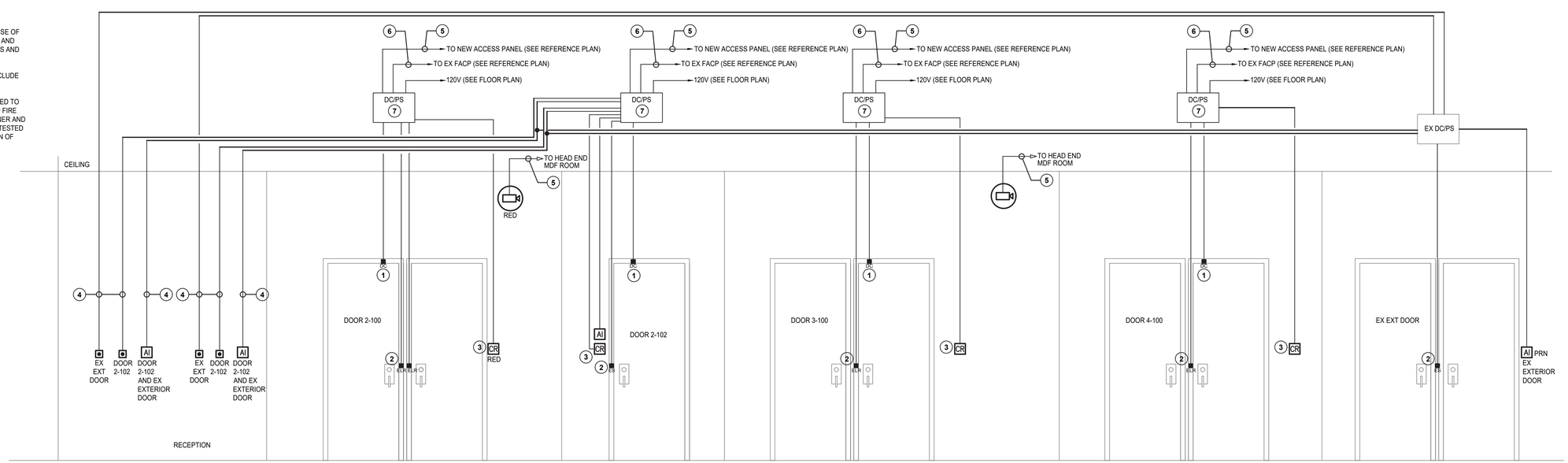
G1. CABLING MAY BE INSTALLED WITHOUT THE USE OF CONDUITS. THE CABLES SHALL BE SECURED AND BUNDLED ACCORDING TO THE LATEST CODES AND REQUIREMENTS.

G2. ANY CABLING PENETRATING WALL SHALL INCLUDE METAL SLEEVES AND SHALL BE SEALED.

G3. ON ALL CROSS CORRIDOR DOORS CONNECTED TO ACCESS SYSTEM SHALL BE RELEASED UPON FIRE ALARM ACTIVATION. COORDINATE WITH OWNER AND ARCHITECT. FIRE ALARM SYSTEM SHALL BE TESTED FOR PROPER OPERATION UPON COMPLETION OF INSTALLATION.

NOTES:

1. STUB CONDUIT INTO HEAD OF DOOR FRAME FOR CONCEALED DOOR POSITION SWITCH. PROVIDE 15/16" DIA HOLE IN HEAD OF FRAME AND PROVIDE 15/16" DIA X 1 5/8" DEEP HOLE IN TOP OF DOOR 6" FROM HANDLE SIDE EDGE. MOUNT 6" FROM EDGE OF DOOR. PROVIDE 22/2 CABLE.
2. STUB CONDUIT DOWN DOOR FRAME TO ELECTRIC STRIKE. PROVIDE 14/2 OAS CABLE
3. PROVIDE 4" X 4" X 2 1/8" DEEP BOX WITH SINGLE GANG DEVICE RING, FLUSH MOUNTED FOR CARD READER. PROVIDE 18/6 OAS SHIELDED CABLE.
4. PROVIDE 22/2 CABLE
5. CAT6 CABLE.
6. PROVIDE 18/2 CABLE.
7. PROVIDE STANLEY SECURITY LENEL DOOR CONTROLLER IN NEW PANEL CABINET AT HEAD END ROOM WITH POWER REEPTACLE AS REQUIRED.



SECURITY/ACCESS DIAGRAM

NO SCALE

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NEW SECURITY VESTIBULE RENOVATIONS FOR:
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FREDERICK COUNTY PUBLIC SCHOOLS
201 EAST GREEN STREET
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ISSUE

REV	DATE	DESCRIPTION
	08/26/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

FIRST FLOOR PLAN - NEW WORK - POWER

E301

PROJECT INFORMATION

NEW SECURITY VESTIBULE RENOVATIONS FOR:

MIDDLETOWN MIDDLE SCHOOL

FREDERICK COUNTY PUBLIC SCHOOLS
100 MARTHA MASON STREET
MIDDLETOWN, MARYLAND 21769

FCPS RFQ #20C2

CONTACT LIST

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ARCHITECT:

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MECH. / ELEC. ENGINEER :

CJL ENGINEERING INC.
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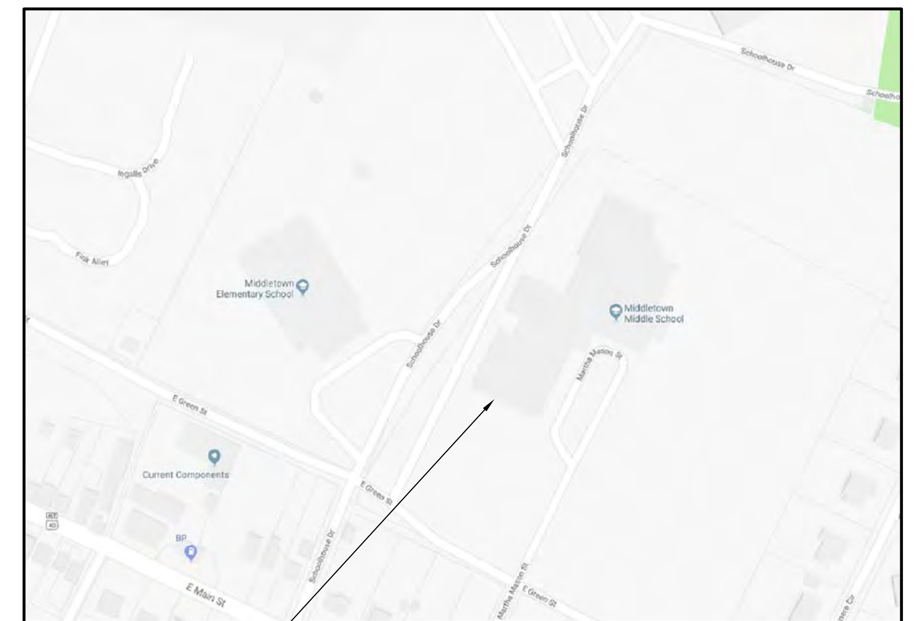
GENERAL NOTES

1. BIDDERS SHALL CAREFULLY EXAMINE THE PERMIT DOCUMENTS, ACQUAINT THEMSELVES WITH ALL GOVERNING LAWS AND CODES, VISIT THE SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS BEFORE SUBMITTING BIDS.
2. ALL WORK DESCRIBED WITHIN THE CONTRACT DOCUMENTS SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, INCLUDING BUT NOT LIMITED TO, THE CURRENT BUILDING CODE, LIFE SAFETY CODE, ADAAG, AS WELL AS ORDINANCES AND REGULATIONS AND OTHER BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
3. ALL MATERIALS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WARRANTY REQUIREMENTS.
4. INDIVIDUAL SUBCONTRACTORS FOR ANY PLUMBING, ELECTRICAL, AND MECHANICAL WORK SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS, ETC., AND PERFORM ALL WORK IN CONFORMANCE TO ALL LOCAL CODES.
5. DISTURB AS SMALL AN AREA OF THE SITE AS POSSIBLE DURING CONSTRUCTION OPERATIONS; UNLESS OTHERWISE NOTED, PREPARE AND SEED DISTURBED AREAS AT THE COMPLETION OF THE PROJECT.
6. REPAIR ALL AREAS DISTURBED BY THE WORK OF THIS PROJECT, INCLUDING SUBSTRATES OR STRUCTURAL REPAIRS, AND REPAIRS TO FINISHES TO MATCH AND ALIGN WITH EXISTING FINISHES TO REMAIN OR NEW FINISHES INSTALLED.
7. THE JOB SITE IS TO BE LEFT CLEAN AND FREE FROM DEBRIS AT ALL TIMES.
8. UNLESS OTHERWISE NOTED, ALL WORK IS CONSIDERED TO BE NEW CONSTRUCTION.
9. CONTRACTOR TO PROTECT ALL EXISTING UNDERGROUND UTILITIES AND VERIFY LOCATION PRIOR TO ANY EXCAVATION.
10. CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING, BRACING, AND TAKE OTHER PRECAUTIONS NECESSARY FOR SAFETY AS REQUIRED BY CODE AND PRACTICE.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, CONCEALED WITHIN THE WALLS, FOR ATTACHMENT OF SURFACE AND/OR RECESSED MOUNTED EQUIPMENT OR ACCESSORIES, WHETHER SHOWN IN THE DRAWINGS OR NOT. BLOCKING TO BE FIRE RETARDANT.
12. CONTRACTOR SHALL SUPPLY ALL NECESSARY ANCHORS, TIES, CLIPS, HANGERS, BOLTS, AND OTHER FASTENING DEVICES AS REQUIRED BY CODE AND GOOD PRACTICE.
13. CONTRACTOR SHALL PROVIDE SEALANT AROUND WINDOWS, DOOR JAMBS AND HEADS, AND ADJACENT CONSTRUCTION.
14. PART OF THIS WORK MAY INCLUDE THE INSTALLATION AND/OR MODIFICATION OF A SPRINKLER SYSTEM IN AN EXISTING BUILDING. CONTRACTOR IS RESPONSIBLE TO CONCEAL ALL NEW PIPING WITHIN EXISTING CONSTRUCTION AND MAKE REPAIRS AS NECESSARY TO MATCH EXISTING OR NEW FINISHES.
15. PRIOR TO MODIFICATION OR ADDITION OF SPRINKLER IN EXISTING BUILDING, SUBCONTRACTOR TO CONFIRM FINAL CEILING HEIGHT WITH CONTRACTOR DUE TO JOB CONDITIONS.
16. EXISTING BUILDING INFORMATION IS BASED ON INFORMATION PROVIDED BY OTHERS AND PROFFITT & ASSOCIATES ARCHITECTS' FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO SUBMITTING SHOP DRAWINGS, AND BEFORE CONSTRUCTION AND FABRICATION OF MATERIALS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM THE INFORMATION PROVIDED IN A TIMELY MANNER.
17. DRAWING INTENT IS TO INDICATE GENERAL ARRANGEMENT, DESIGN AND INTENT OF WORK AND IS PARTIALLY DIAGRAMMATIC. IT SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS, INCLUDING CONSTRUCTION OR FABRICATION. ALL DIMENSIONS FOR BUILT-IN ITEMS SHALL BE BASED ON FIELD DIMENSIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF DIMENSIONS.
18. DIMENSIONS, NOTES, FINISHES AND FIXTURES SHOWN ON TYPICAL PLANS, SECTIONS OR DETAILS SHALL APPLY TO SIMILAR, SYMMETRICAL, OR OPPOSITE PLANS, SECTIONS OR DETAILS.
19. SEE WALL TYPE NOTES FOR ADDITIONAL INFORMATION REGARDING TYP. WALL TYPES.
20. REFER TO THE GENERAL SPECIFICATIONS.

VICINITY & LOCATION MAP

SEE LOCATION MAP

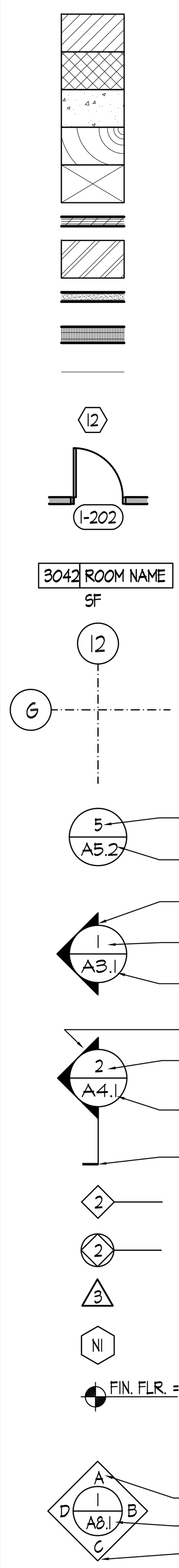
VICINITY MAP
NOT TO SCALE



LOCATION OF MIDDLETOWN MIDDLE SCHOOL

LOCATION MAP
NOT TO SCALE

LEGEND



- BRICK
- CMU
- CONCRETE
- FINISHED WOOD
- ROUGH WOOD
- PLYWOOD
- METAL
- GYPSUM BOARD
- RIGID INSULATION
- BATT INSULATION
- WINDOW OPENING
- DOOR / FRAME SEE SCHEDULE
- ROOM NAME ROOM NUMBER
- COLUMN REFERENCE
- DETAIL NUMBER
- SHEET TO LOCATE DETAIL
- DIRECTION OF VIEW
- ELEVATION NUMBER
- SHEET TO LOCATE ELEVATION
- DIRECTION OF CUTTING PLANE
- SECTION NUMBER
- SHEET TO LOCATE SECTION
- EXTENT OF SECTION CUT
- WALL TYPE
- WALL TYPE, FIRE-RATED
- REVISION NOTE
- KEY NOTE
- HEIGHT INDICATOR (ABOVE FINISHED FLOOR, ABOVE SEA LEVEL)
- INTERIOR ELEVATION KEY:
- ELEVATION INDICATOR
- SHEET TO LOCATE ELEVATION
- DIRECTION OF VIEW

ABBREVIATIONS

∡	ANGLE	JAN.	JANITOR
ACOUS.	ACOUSTIC	JT.	JOINT
ACT	ACOUSTICAL CEILING TILE	LAM.	LAMINATE
A.D.	AREA DRAIN	LAV.	LAVATORY
ADJ.	ADJUSTABLE	LIN. FT.	LINEAR FEET
A.F.F.	ABOVE FINISHED FLOOR	LG.	LONG
AIR COND.	AIR CONDITIONING	L.L.H.	LONG LEG HORIZONTAL
ALT.	ALTERNATE	L.L.V.	LONG LEG VERTICAL
ALUM.	ALUMINUM	MAS.	MASONRY
ANCH.	ANCHORED	MATL.	MATERIAL
A.P.	ACCESS PANEL	MAX.	MAXIMUM
APPROX.	APPROXIMATE	MECH.	MECHANICAL
ARCH.	ARCHITECT	MFGR.	MANUFACTURER
BD.	BOARD	MIN.	MINIMUM
BIT.	BITUMINOUS	MISC.	MISCELLANEOUS
BLDG.	BUILDING	M.O.	MASONRY OPENING
BLK'G	BLOCKING	MTD.	MOUNTED
B.O.F.	BOTTOM OF FOOTING	MTL.	METAL
BOT.	BOTTOM	NAT.	NATURAL
BRG.	BEARING	N.I.C.	NOT IN CONTRACT
℄	CENTER LINE	NO.	NUMBER
CAB.	CABINET	NOM.	NOMINAL
C.J.	CONSTRUCTION JOINT	N.T.S.	NOT TO SCALE
CLG.	CEILING	OA.	OVERALL
CLG. HT.	CEILING HEIGHT	O/C	ON CENTER
CLO.	CLOSET	O.D.	OUTSIDE DIMENSION
CLR.	CLEAR	OH.	OVERHANG
CMU	CONCRETE MASONRY UNIT	O/O	OUT TO OUT
CNTRL. JT.	CONTROL JOINT	OPG.	OPENING
C.O.	CLEAN OUT	OPP.	OPPOSITE
COL.	COLUMN	PGB	PAINTED GYPSUM BOARD
CONC.	CONCRETE	PL., P ⅃	PLATE
CONT.	CONTINUOUS	PLAS. LAM.	PLASTIC LAMINATE
CORR.	CORRIDOR	PLYWD.	PLYWOOD
C.T.	CERAMIC TILE	POL.	POLISHED
CTR.	CENTER	PREFAB.	PREFABRICATED
ϕ	DIAMETER	PREFIN.	PREFINISHED
DBL.	DOUBLE	PR.	PAIR
D.F.	DRINKING FOUNTAIN	P.T.	PRESSURE TREATED
DIA.	DIAMETER	PTD.	PAINTED
DIM.	DIMENSION	P.V.C.	POLYVINYL CHLORIDE
DR.	DOOR	R.	RISERS
DN.	DOWN	R.D.	ROOF DRAIN
DS.	DOWNSPOUT	RECEPT.	RECEPTACLE
DTL.	DETAIL	REINF.	REINFORCING
DWG.	DRAWING	REQ'D	REQUIRED
EA.	EACH	REV.	REVISED
E.J.	EXPANSION JOINT	RM.	ROOM
EL., ELEV.	ELEVATION	R.O.	ROUGH OPENING
ELEC.	ELECTRIC	SCHED.	SCHEDULE
EQ.	EQUAL	SECT.	SECTION
EQUIP.	EQUIPMENT	SHT.	SHEET
E.W.	EACH WAY	SIM.	SIMILAR
E.W.C.	ELECTRIC WATER COOLER	S.M.P.	SOLID MASONRY PIER
EX., EXIST.	EXISTING	SPECS.	SPECIFICATIONS
EXP.	EXPANSION	SQ.	SQUARE
EXT.	EXTERIOR	ST. STL.	STAINLESS STEEL
F.D.	FLOOR DRAIN	STD.	STANDARD
F.E.	FIRE EXTINGUISHER	STL.	STEEL
F.E.C.	FIRE EXTINGUISHER CABINET	STOR.	STORAGE
FIN.	FINISH	STRUCT.	STRUCTURAL
FL., FLR.	FLOOR	SUSP.	SUSPENDED
FLUOR.	FLUORESCENT	SYM.	SYMMETRICAL
F.O.EX.	FACE OF EXISTING	T.	TREAD
FURR.	FURRING/FURRED	T&G	TONGUE & GROOVE
FT., '	FOOT/FEET	TEL.	TELEPHONE
FTG.	FOOTING	THK.	THICKNESS
GA.	GAUGE	THRU.	THROUGH
GALV.	GALVANIZED	T.O.S.	TOP OF SLAB
G.C.	GENERAL CONTRACTOR	T.O.STL.	TOP OF STEEL
GL.	GLASS	TYP.	TYPICAL
GRD.	GRADE	U.O.N.	UNLESS OTHERWISE NOTED
GYP. BD., GWB	GYPSUM WALL BOARD	VAR.	VARIES
H.C.	HANDICAPPED	V.C.T.	VINYL COMPOSITION TILE
H.B.	HOSE BIB	VERT.	VERTICAL
HDW.	HARDWARE	VEST.	VESTIBULE
H.M.	HOLLOW METAL	V.I.F.	VERIFY IN FIELD
HORIZ.	HORIZONTAL	V.W.C.	VINYL WALL COVERING
HT.	HEIGHT	W/	WITH
HVAC	HEATING, VENTILATION & AIR CONDITIONING	W.	WIDTH
I.D.	INSIDE DIAMETER	WD.	WOOD
IN., "	INCHES	WDW.	WINDOW
INFO.	INFORMATION	WGT., WT.	WEIGHT
INSUL.	INSULATION	W/O	WITHOUT
INT.	INTERIOR	WP.	WEATHERPROOF
		WWF	WELDED WIRE FABRIC

DRAWINGS LIST

A0.1 COVER SHEET

ARCHITECTURAL DRAWINGS
CA1.1 CODE ANALYSIS & EGRESS FLOOR PLAN
A1.1 EXISTING / DEMOLITION & PROPOSED FLOOR PLANS
A1.2 PROPOSED PLAN DETAILS & WALL SECTIONS
A6.1 EXISTING / DEMO. & PROPOSED REFLECTED CEILING PLANS
A7.1 SCHEDULES & DETAILS

MECHANICAL DRAWINGS
M001 SYMBOLS, ABBREVIATIONS, AND NOTES
M101 FIRST FLOOR PLAN - DEMOLITION - MECHANICAL
M201 FIRST FLOOR PLAN - NEW WORK - MECHANICAL

ELECTRICAL DRAWINGS
E101 FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL
E102 FIRST FLOOR PLAN - REFERENCE PLAN - ELECTRICAL
E201 FIRST FLOOR PLAN - NEW WORK - LIGHTING
E301 FIRST FLOOR PLAN - NEW WORK - POWER

SCOPE OF WORK:

THIS PROJECT CONSISTS OF INTERIOR RENOVATIONS TO AN EXISTING SCHOOL FOR A NEW SECURITY VESTIBULE. THE DESIGN IS INTENDED TO RECONFIGURE THE EXISTING ENTRANCE TO CREATE A SECURED VESTIBULE THAT DIRECTS ALL VISITORS TO THE MAIN OFFICE.

IMPROVEMENTS TO THE SPACE ARE LIMITED TO INTERIOR WORK AND INCLUDE ALL OR MOST OF THE FOLLOWING ASPECTS:

- SELECTIVE DEMOLITION - PROJECT INCLUDES REMOVAL OF EXISTING NON-BEARING STUD PARTITIONS AND/OR MASONRY WALLS, DOORS, FRAMES, HARDWARE, INTERIOR WINDOWS, CEILINGS, AND OTHER FINISH SYSTEM COMPONENTS.
- CARPENTRY AND GENERAL TRADES - THE PROJECT REQUIRES INSTALLATION OF NEW LIGHT GAUGE METAL STUD WALLS, NEW DOORS AND HARDWARE.
- DOORS AND WINDOWS - THE PROJECT INCLUDES RETROFIT OF EXISTING AND/OR INSTALLATION OF NEW STOREFRONT DOORS, FRAMES, AND HARDWARE.
- STRUCTURAL, MASONRY, AND CONCRETE - THE PROJECT INCLUDES REMOVAL OF EXISTING MASONRY TO ACCOMMODATE A NEW DOOR OPENING. SOME CONCRETE REMOVAL AND PATCHING IS INCLUDED.
- FINISHES - THE PROJECT REQUIRES RETROFIT OF EXISTING FINISHES AND INSTALLATION OF NEW FLOOR AND CEILING FINISH SYSTEMS IN THE WORK AREA SHOWN. THE PROJECT ALSO REQUIRES WALL PAINTING INCLUDING EXISTING WALLS IMMEDIATELY ADJACENT TO THE WORK AREA.
- SPRINKLER SYSTEM - THE BUILDING IS EQUIPPED WITH A SPRINKLER SYSTEM THAT WILL REQUIRE RETROFIT TO ACCOMMODATE THE NEW STOREFRONT LAYOUT. THE SCOPE OF SPRINKLER WORK IS EXPECTED TO BE LIMITED TO ADJUSTING HEAD LOCATIONS AND ADDING HEADS WHERE NECESSARY.
- MECHANICAL - THE PROJECT REQUIRES THE RETROFIT OF THE EXISTING HEATING AND COOLING SYSTEM.
- ELECTRICAL - THE PROJECT INCLUDES RETROFIT OF EXISTING AND INSTALLATION OF NEW LOW VOLTAGE ACCESS CONTROL DEVICES AS WELL AS NEW LIGHTING, NEW POWER/DATA DISTRIBUTION AND DEVICES, NEW WIRING AND RACEWAYS AND NEW SOUND SYSTEM.

NO SITE WORK OR UTILITY WORK IS INCLUDED.

NO PLUMBING WORK IS INCLUDED.

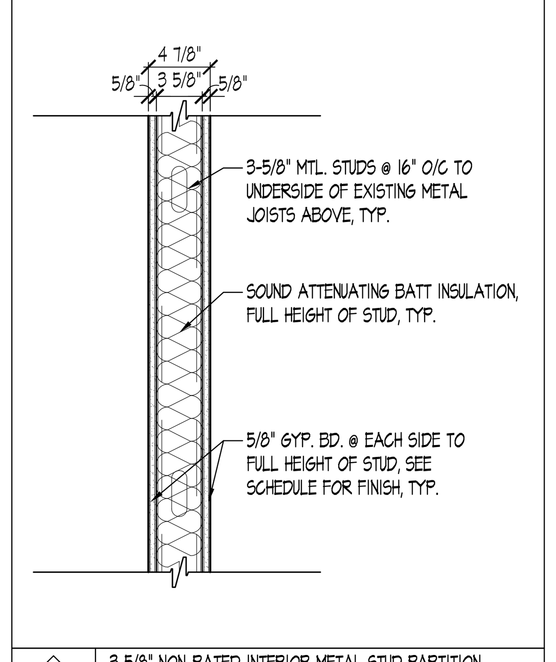
NO EXTERIOR ENVELOPE WORK OR ROOF WORK IS INCLUDED.

SECURITY DOOR HARDWARE AND ACCESS CONTROL

INCLUDES ELECTRIFIED HARDWARE AND CARD READERS AT ALL SETS OF CROSS CORRIDOR DOORS NOTED ON THE FLOOR PLAN AND DOOR SCHEDULE AND INCLUDES ELECTRIFIED HARDWARE, CARD READER, AND AIPHONE AT NEW OFFICE WITH NEW AIPHONE DESK CONTROL STATION TO CONTROL THE NEW OFFICE DOOR AND EXTERIOR DOOR INDEPENDENTLY. ALSO INCLUDES RETROFIT OF EXISTING DOORS WITH SECURED HARDWARE AS NOTED ON THE FLOOR PLAN AND DOOR SCHEDULE.

WALL TYPE NOTES:

1. EXTERIOR DIMENSIONS ARE TO FINISHED FACE OF MASONRY, UNLESS OTHERWISE INDICATED.
2. INTERIOR DIMENSIONS ARE TO FINISHED FACE OF EXISTING WALLS, CENTER LINES OF COLUMNS, CENTER OF OPENINGS AT METAL FRAMING, AND/OR ARE TO FACE OF NEW METAL STUDS, UNLESS OTHERWISE INDICATED.
3. FIRESTOP ALL FRAMED PARTITIONS AS REQUIRED BY CODE.
4. WALL TYPES SHALL BE THE SAME CONTINUOUS TO END OF WALL OR NEXT WALL TYPE DESIGNATION.
5. SIMILAR WALL TYPES SHALL BE CARRIED ABOVE ALL DOORS, WINDOWS, AND OPENINGS U.O.N.
6. EXTEND ALL NEW WALLS/ INSULATION TO UNDERSIDE OF FINISHED CEILING, UNLESS OTHERWISE INDICATED.
7. PROVIDE SMOKE PARTITIONS & RATED WALLS AS SHOWN ON EGRESS PLAN.



1 — 3 5/8" NON-RATED INTERIOR METAL STUD PARTITION

RATED WALL TYPE — NON-RATED WALL TYPE

1/A0.1 TYPICAL WALL TYPES
SCALE: 1" = 1'-0"

ADA MANEUVERING CLEARANCES AT DOORS

SCALE: 1/4" = 1'-0"

NOTE: '2010 ADA STANDARDS FOR ACCESSIBLE DESIGN' FIGURE NUMBERS REFERENCED, FOR ADDITIONAL INFORMATION REFER TO THE FULL '2010 ADA STANDARDS FOR ACCESSIBLE DESIGN'.

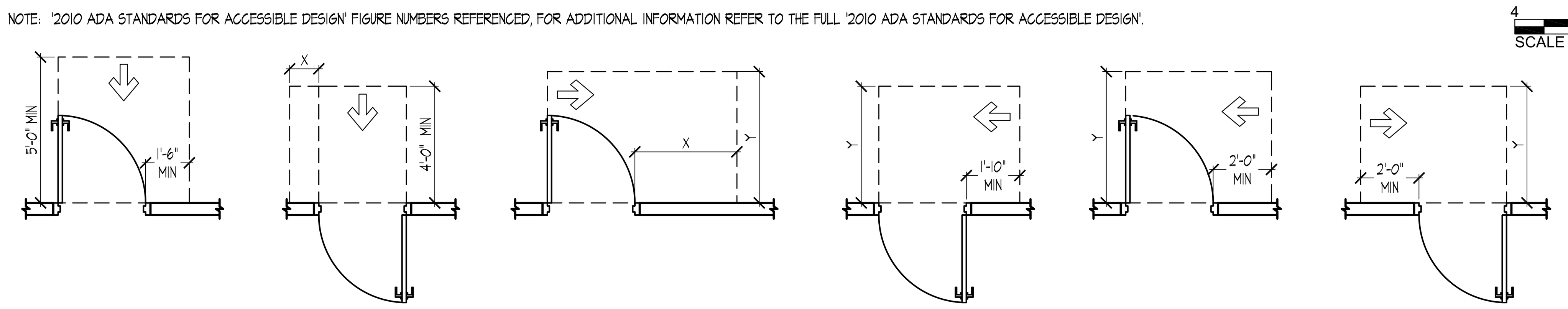


FIGURE 404.2.4.1 (a) FRONT APPROACH, PULL SIDE

FIGURE 404.2.4.1 (b) & (c) FRONT APPROACH, PUSH SIDE (NOTE: X = 12" IF DOOR IS PROVIDED WITH BOTH A CLOSER & A LATCH)

FIGURE 404.2.4.1 (d) & (e) HINGE APPROACH, PULL SIDE (NOTE: X = 36" IF Y = 60" OR X = 42" IF Y = 54")

FIGURE 404.2.4.1 (f) & (g) HINGE APPROACH, PUSH SIDE (NOTE: Y = 42" UNLESS DOOR IS PROVIDED WITH BOTH A CLOSER & A LATCH, THEN Y = 48")

FIGURE 404.2.4.1 (h) & (i) LATCH APPROACH, PULL SIDE (NOTE: Y = 48" UNLESS DOOR IS PROVIDED WITH A CLOSER, THEN Y = 54")

FIGURE 404.2.4.1 (j) & (k) LATCH APPROACH, PUSH SIDE (NOTE: Y = 42" UNLESS DOOR IS PROVIDED WITH A CLOSER, THEN Y = 48")

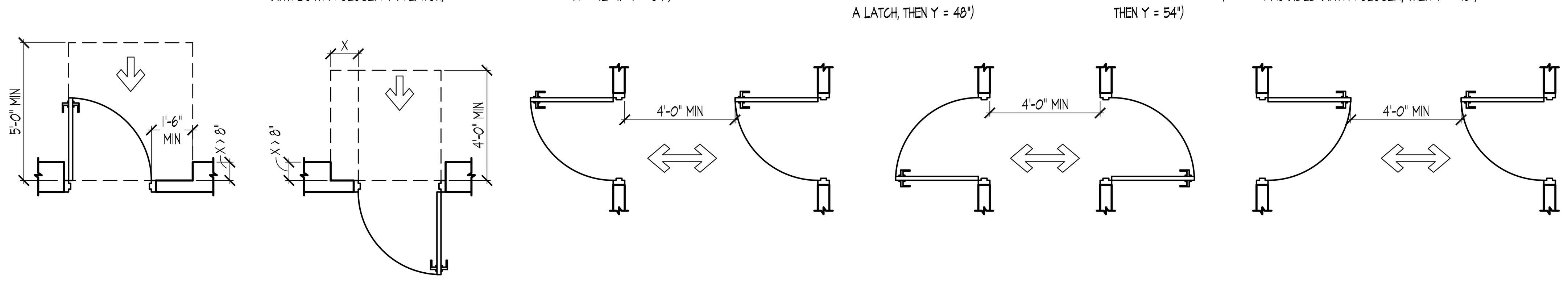


FIGURE 404.2.4.3 (a) RECESSED DOOR, PULL SIDE

FIGURE 404.2.4.3 (b) & (C) RECESSED DOOR, PUSH SIDE (NOTE: X = 12" IF DOOR IS PROVIDED WITH BOTH CLOSER & LATCH)

FIGURE 404.2.6 (a) DOORS & GATES IN A SERIES

FIGURE 404.2.6 (b) DOORS & GATES IN A SERIES

FIGURE 404.2.6 (c) DOORS & GATES IN A SERIES

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NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN MIDDLE SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
100 MARTHA MASON STREET
MIDDLETOWN, MARYLAND 21769
FCPS RFQ #20C2

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ISSUE		
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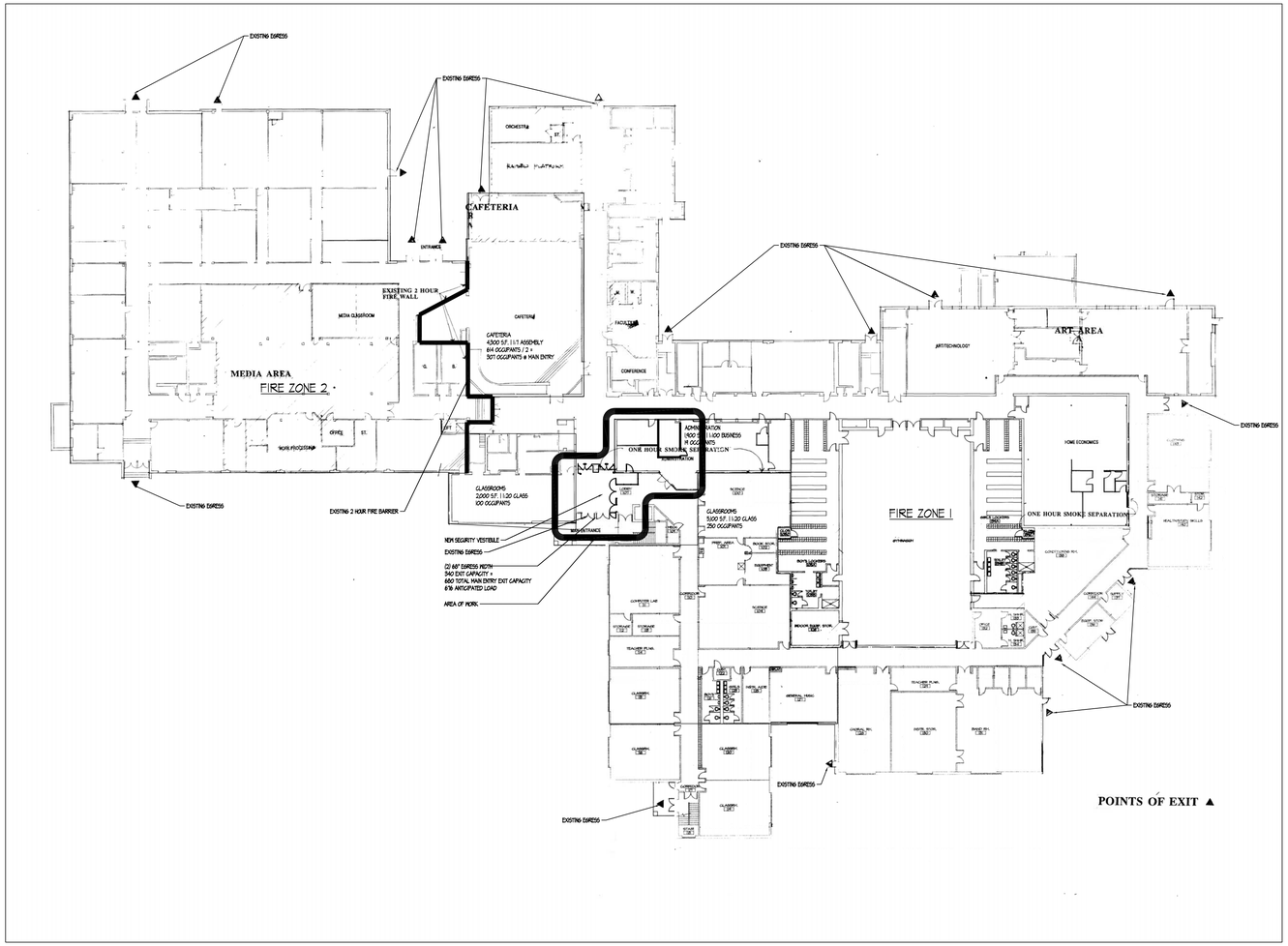
	08/26/19	PERMIT SET
	10/09/19	BID SET

PROJECT NO.: 15-30.07
DATE: 10-09-2019

COVER SHEET

A0.1



EGRESS FLOOR PLAN

1 / CA1.1

SCALE: 1/32" = 1'-0"

32 16 0 16 32 48 64
SCALE FEET

TRUE NORTH

PLAN NORTH

NOTE: THIS EGRESS PLAN IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY TO INDICATE THE LOCATION OF ALL MAIN POINTS OF EGRESS FROM THE BUILDING'S LEVEL OF EXIT DISCHARGE. ALTHOUGH NO OCCUPANT LOAD OR EXIT CAPACITY CALCULATIONS WERE PERFORMED, NO INCREASE OR DECEASE IN OCCUPANT LOAD WILL RESULT FROM THESE MODIFICATIONS. SIMILARLY, THE IMPROVEMENTS FOR THE SECURITY VESTIBULE AT THE MAIN ENTRANCE WILL IN NO WAY COMPROMISE OR REDUCE THE EGRESS CAPACITY THROUGH THE MAIN ENTRANCE WHEN CONSIDERED AS A POINT OF EGRESS.

CODE ANALYSIS:

REFERENCE IBC 2015

IBC CONSTRUCTION CLASSIFICATION: 2B — IBC USE GROUP E: EDUCATIONAL

ALLOWABLE HEIGHT & AREA CALCULATIONS:
(PER TABLES 504.3, 504.4 & 506.2, SPRINKLERED)

ALLOWABLE AREA PERMITTED PER FLOOR:	43,500 S.F.
AREA INCREASE FOR FRONTAGE If=0.35 * 43,500:	15,225 S.F.
TOTAL ALLOWABLE AREA PER ZONE:	58,725 S.F.
ALLOWABLE BUILDING HEIGHT (ABOVE GRADE PLANE):	3 STORIES (75'-0")

ACTUAL HEIGHT & AREA CALCULATIONS:

TOTAL ACTUAL EXISTING FOOTPRINT (PER ZONE):	ZONE 1: 68,157 S.F. * ZONE 2: 28,045 S.F.
TOTAL ACTUAL HEIGHT (ABOVE GRADE PLANE):	2 STORIES (30'-0")

NOTE: NO ADDITIONS OR INCREASE IN AREA OR OCCUPANT LOAD TO EXISTING BUILDING.

NOTES:

*EXISTING BUILDING IS EQUIPPED WITH A SPRINKLER SYSTEM AND HAS BEEN RENOVATED/ENLARGED MULTIPLE TIMES AND BEST AVAILABLE RECORDS INDICATE THERE ARE 2 FIRE AREAS WITH THE LARGEST AREA APPARENTLY EXCEEDING THE CURRENT ALLOWABLE AREA WITH APPLICABLE INCREASES FOR SPRINKLER AND FRONTAGE. PER 2015 IEBC, THE WORK DESCRIBED HEREIN CONSTITUTES A LEVEL 2 ALTERATION AND THE PROPOSED ALTERATIONS TO THE BUILDING DO NOT ADD BUILDING AREA OR INCREASE OCCUPANT LOAD. PER 2015 IEBC 301.1(E), PREVIOUS ADDITIONS AND RENOVATIONS WERE COMPLETED IN A LAWFUL MANNER AND SHOULD BE CONSIDERED COMPLIANT TO THE CURRENT CODE AND PER 2015 IEBC 701.2 THE PROPOSED ALTERATIONS DESCRIBED HEREIN DO NOT ALLOW THE BUILDING TO BECOME LESS SAFE THAN ITS EXISTING CONDITION

BUILDING CODE REQUIREMENTS:

NOTE: REQUIREMENTS 'X'ED OUT ARE LESS STRINGENT. MORE STRINGENT REQUIREMENTS ARE USED.

	REQUIRED	
ITEM	IBC 2015	NFPA-101 2015
EXTERIOR WALLS (LOAD-BEARING)	PER TABLE 601 & 602: X ≥ 30' FIRE SEPARATION DIST. 0 HOURS	
EXTERIOR WALLS (NON-LOAD-BEARING)	PER TABLE 601 & 602: X ≥ 30' FIRE SEPARATION DIST. 0 HOURS	
PRIMARY STRUCTURAL FRAME	PER TABLE 601: 0 HOURS	
FLOOR CONSTRUCTION & SECONDARY MEMBERS	PER TABLE 601: 0 HOURS	
ROOF CONSTRUCTION & SECONDARY MEMBERS	PER TABLE 601: 0 HOURS	
INTERIOR WALLS (LOAD-BEARING)	PER TABLE 601: 0 HOURS	
INTERIOR WALLS (NON-LOAD-BEARING)	PER TABLE 601: 0 HOURS	
FIRE WALLS	PER TABLE 706.4, EXC A: 2 HOURS	PER SECTION 7.2.4.3: 2 HOURS
FIRE PARTITIONS	PER SECTION 708.3: 1 HOUR	PER SECTION 15.3.6 (2): NO SPECIAL REQUIREMENTS
CORRIDORS	PER TABLE 1020.1: 0 HOURS W/ SPRINKLER SYSTEM	PER SECTION 15.3.6 (2): 0 HOURS W/ SPRINKLER SYSTEM
DEAD END CORRIDORS	PER SECTION 1020.4, EXC 2: 50' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.5.2: 50' MAX W/ SPRINKLER SYSTEM
COMMON PATH OF TRAVEL	PER SECTION 1006.2.1: 75' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.5.3.1: 100' MAX W/ SPRINKLER SYSTEM
EXIT ACCESS TRAVEL	PER TABLE 1017.2: 250' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.5.3: 200' MAX W/ SPRINKLER SYSTEM
REMOTENESS	PER SECTION 1007.1.1(2): 1/3 OF DIAG. DISTANCE	PER SECTION 7.5.1.3.3: 1/3 OF DIAG. DISTANCE
CORRIDOR WIDTH	PER SECTION 1020.2: 44" W/ CAPACITY < 100 72" W/ CAPACITY ≥ 100	PER SECTION 15.2.3.2: 72" EXIT ACCESS CORRIDORS
	PER SECTION 1005.3.2: 0.2" PER OCCUPANT	PER TABLE 7.3.3.1: 0.2" PER OCCUPANT
STAIRWAY WIDTH	PER SECTION 1011.2: 36" W/ CAPACITY < 50 44" W/ CAPACITY ≥ 50	PER TABLE 7.2.2.2.1.2(B): TOTAL CUMULATIVE OCC. LOAD: 44" W/ CAPACITY < 2000 56" W/ CAPACITY ≥ 2000
	PER SECTION 1005.3.1: 0.3" PER OCCUPANT	PER TABLE 7.3.3.1: 0.3" PER OCCUPANT

APPLICABLE BUILDING CODES:

AUTHORITY HAVING JURISDICTION: FREDERICK COUNTY, MARYLAND

1. BUILDING CODE:	2015 INTERNATIONAL BUILDING CODE (IBC) WITH AMENDMENTS MARYLAND BUILDING REHABILITATION CODE COMAR
2. FIRE CODE:	2015 NFPA 101 LIFE SAFETY CODE (LSC) W/ AMENDMENTS 2015 NFPA 1 FIRE CODE (LSC) W/ AMENDMENTS MARYLAND STATE FIRE PREVENTION CODE
3. MECHANICAL:	2015 INTERNATIONAL MECHANICAL CODE (IMC)
4. ENERGY:	2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
5. GAS:	2015 INTERNATIONAL FUEL GAS CODE (IFGC) WITH AMENDMENTS
6. PLUMBING:	2015 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS
9. ELECTRICAL:	2014 NATIONAL ELECTRIC CODE (NEC)
10.ACCESSIBILITY:	2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (2010 STANDARDS) MARYLAND STATE ACCESSIBILITY CODE (COMAR.05.02.02)

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DATE: 10-09-2019

CODE ANALYSIS & EGRESS FLOOR PLAN

CA1.1

TYPICAL DEMOLITION GENERAL NOTES:

1. AREAS OF DEMOLITION DENOTED BY DASHED LINES.
2. THE CONTRACTOR SHALL RETURN ALL SALVAGEABLE MATERIAL AND/OR EQUIPMENT NOTED TO BE REMOVED ON SHEET A1.1 TO THE OWNER. THE OWNER SHALL STORE SALVAGEABLE MATERIAL AND/OR EQUIPMENT AT THEIR DISCRETION. THE CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGEABLE MATERIALS IN ACCORDANCE WITH OWNER'S RECOMMENDATIONS AND LOCAL ZONING CODES.
3. THE CONTRACTOR SHALL CONSULT WITH THE ARCHITECT ON ANY CONCEALED CONDITIONS UNCOVERED DURING DEMOLITION THAT IMPEDES THE EXECUTION OF THE DESIGN AS INDICATED ON THE DRAWINGS.
4. ALL AREAS OF DEMOLITION SHALL BE PATCHED OR REPAIRED AS REQUIRED.
5. COORDINATE DEMOLITION WITH PROPOSED NEW CONSTRUCTION INCLUDING CEILINGS, LIGHTS, POWER, DATA, SPRINKLER HEADS, WALLS, DOORS, FRAMES, HARDWARE, FINISHES, CONCRETE SLABS, ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE TO TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE BUILDING AT ALL TIMES AND TO PROVIDE AND BE RESPONSIBLE FOR SHORING AND BRACING REQUIRED THROUGHOUT THE CONSTRUCTION PERIOD.
7. ANY ITEMS NOT NOTED TO BE DEMOLISHED, BUT REQUIRING REMOVAL IN ORDER TO ACCOMPLISH THE REQUIRED DEMOLITION WORK, SHALL BE REINSTALLED OR REPLACED IN KIND IN LOCATION DIRECTED BY OWNER UPON COMPLETION OF THE NEW CONSTRUCTION UNLESS OTHERWISE NOTED.
8. JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. ANY AREAS DAMAGED BY THE DEMOLITION AND/OR CONSTRUCTION WORK SHALL BE REPAIRED AND/OR RECEIVE NEW SUBSTRATES, FINISHES, AND/OR MATERIALS TO MATCH THE EXISTING AFFECTED ITEMS. ANY REPAIR OR REPLACEMENT WORK SHALL BE PERFORMED TO A LEVEL OF QUALITY EQUAL TO THAT FOUND PRIOR TO BEGINNING WORK ON THIS PROJECT.
10. THE SELECTIVE DEMOLITION AS SHOWN ON THE DRAWINGS IS DIAGRAMMATIC, AND IN NO WAY ATTEMPTS TO SHOW ALL EXISTING FIXTURES, CONNECTIONS AND FITTINGS, AND OTHER MISCELLANEOUS ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING/COORDINATING ALL MISCELLANEOUS DEMOLITION AS REQUIRED DUE TO FIELD CONDITIONS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL THE CONTAINMENT OF DUST AND DEBRIS DURING THE DEMOLITION PERIOD AND SHALL OBTAIN ALL REQUIRED PERMITS AND COORDINATE WITH THE CITY BUILDING DEPARTMENT THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. DAILY SITE CLEANING WILL BE REQUIRED WITH ADDITIONAL CLEANING IF REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
12. PRIOR TO BEGINNING DEMOLITION, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A DEMOLITION PLAN OUTLINING THE DESIRED PLACEMENT OF DUMPSTERS, DUST AND DEBRIS CONTROL MEASURES AND SCHEDULE OF ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO EACH DEMOLITION ACTIVITY.
13. PROVIDE TEMPORARY COVER OR PARTITIONS TO PROTECT EXIST. BUILDING DURING CONSTRUCTION FROM EXPOSURE TO AND DAMAGE FROM THE ELEMENTS.
14. EXISTING FINISHES SPECIFICALLY NOT CALLED OUT TO BE REMOVED ARE TO REMAIN (PAINT, FLOORING, ETC.). PREPARE EXISTING SURFACES FOR APPLICATION OF NEW FINISHES AS REQUIRED BY MANUFACTURER RECOMMENDATIONS
15. SEE MECHANICAL, PLUMBING, & ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

SELECTIVE DEMOLITION NOTES:

1. REMOVE PORTION (UNLESS OTHERWISE NOTED) OF EXISTING NON-BEARING MASONRY/GYP. BD. WALL TO ACCOMMODATE NEW OPENING. PATCH AND REPAIR ADJACENT SURFACES AS REQUIRED TO MATCH EXIST. CONDITIONS. REMOVE CMU WALL BELOW ADJACENT SLAB AND INFILL W/ CONCRETE.
2. REMOVE EXISTING DEMOUNTABLE PARTITION INCLUDING WALL, FRAME, DOOR, GLAZING AND ASSOCIATED HARDWARE. PATCH AND REPAIR ALL ADJACENT SURFACES SHOWN TO REMAIN, UNLESS OTHERWISE NOTED.
3. REMOVE & SALVAGE EXISTING FURNISHINGS, INCLUDING DESKS AND SHELVING. REPAIR & PATCH ADJACENT SURFACES SHOWN TO REMAIN AND PREP TO RECEIVE NEW FINISHES. COORD. RELOCATION W/ FCPS. SEE ELECTRICAL DRAWINGS FOR NEW ASSOCIATED ELECTRIC.
4. REMOVE AND RELOCATE EXISTING WIRE MOLD, MONITOR, ALERT PANEL AND BUTTON, SEE ELECTRICAL, TYP.
5. RETROFIT DOOR AND HARDWARE WITH SECURED ELECTRIFIED HARDWARE AS NOTED ON FLOOR PLAN AND DOOR SCHEDULE.
6. REMOVE EXISTING CARPET AND PREP SLAB FOR NEW FLOOR COVERINGS

DEMOLITION KEY:

- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN
- WALL TO BE REMOVED
- WINDOW TO BE REMOVED
- DOOR AND FRAME TO BE REMOVED

PROPOSED KEY:

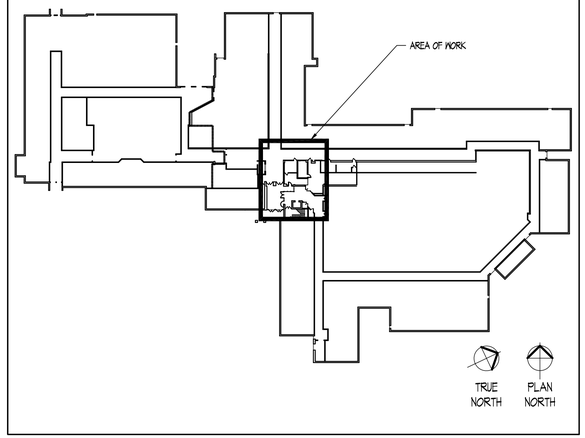
- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN
- NEW WALL
- 1-100 NEW DOOR AND FRAME
- SF-1 NEW STOREFRONT

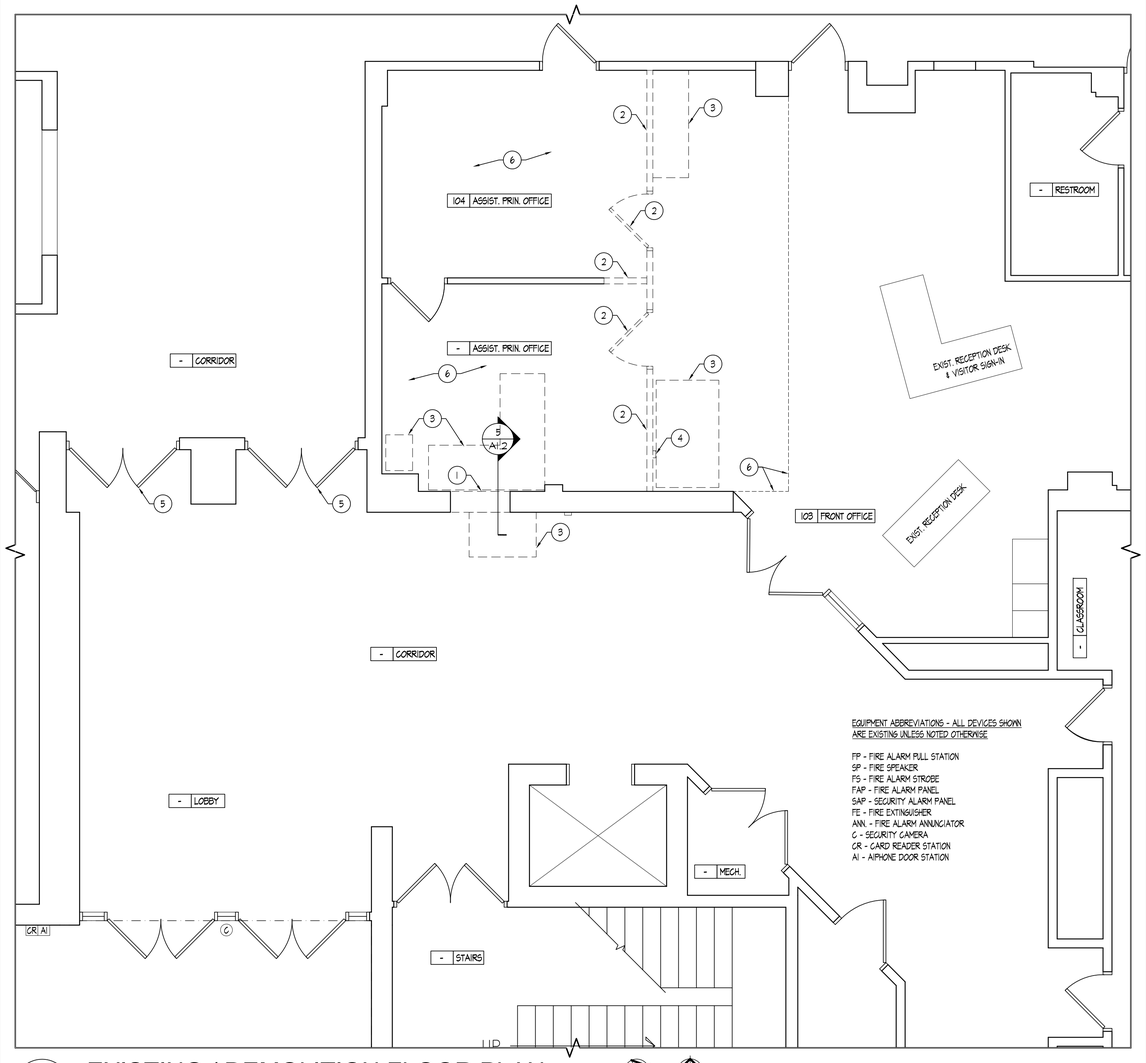
NEW CONSTRUCTION GENERAL NOTES:

1. DIMENSIONS NOTED "CLR" (CLEAR) ARE NOT ADJUSTABLE WITHOUT APPROVAL FROM THE ARCHITECT.
2. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND EXISTING FIELD CONDITIONS, THE GENERAL CONTRACTOR SHALL IMMEDIATELY CONTACT THE ARCHITECT FOR DIRECTION.
3. ALL NEW PARTITIONS SHOWN ABUTTING TO EXISTING COLUMNS OR WALLS SHALL ALIGN WITH FACE OF EXISTING FINISHED SURFACE UNLESS OTHERWISE NOTED IN THE DRAWINGS.
4. PATCH AND FINISH EXISTING AREAS DISTURBED BY CONSTRUCTION OF NEW ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL WORKS. RESTORE AND REPAIR TO MATCH EXISTING ADJACENT AREA IN MATERIAL AND FINISH.
5. ALL PIPE AND CONDUIT PENETRATIONS THROUGH ANY FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED WITH TESTED UL RATED THROUGH PENETRATION FIRE STOP SYSTEMS BEARING THE REQUIRED RATINGS.

BUILDING KEY PLAN:

NOT TO SCALE



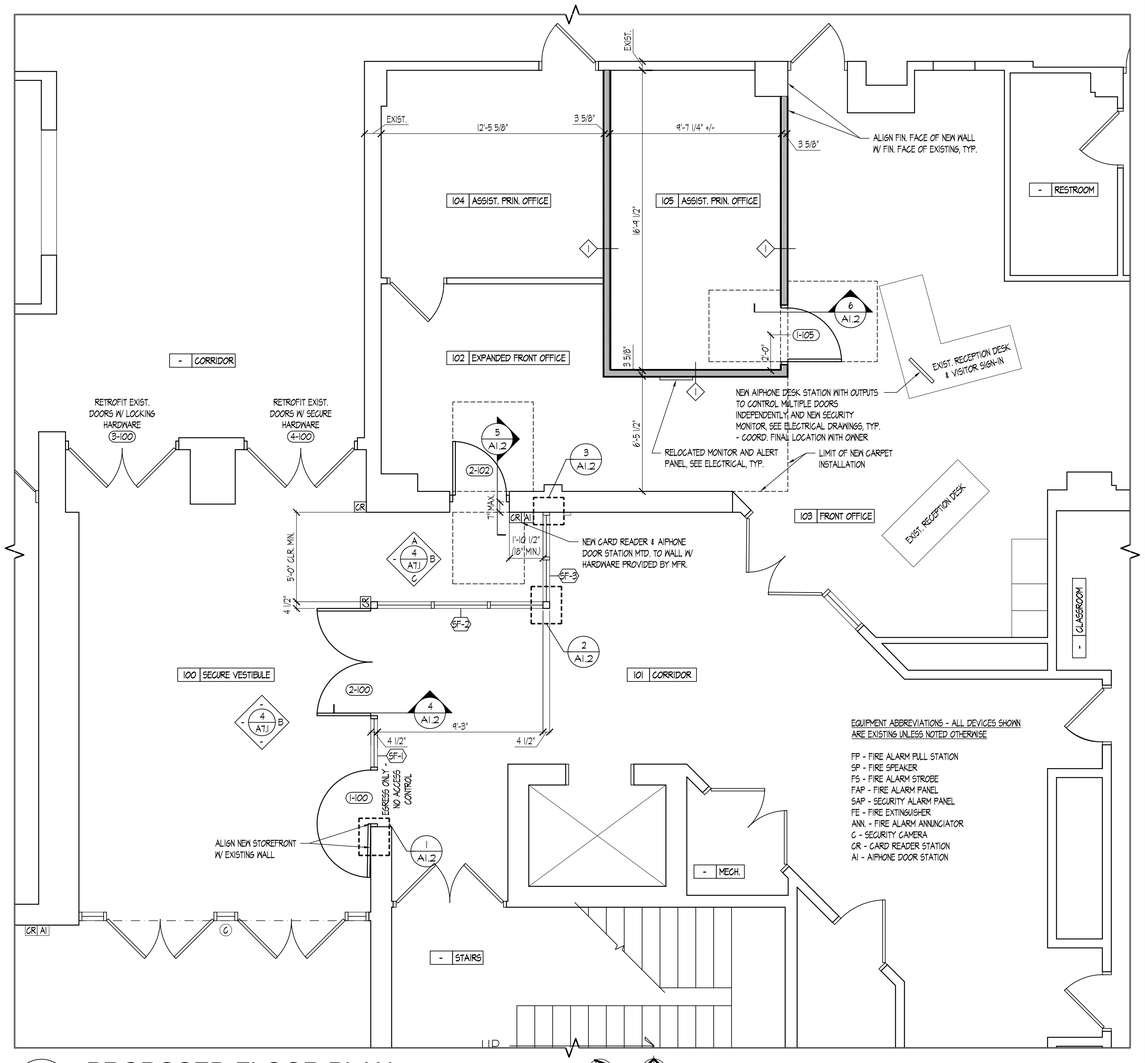


1 A1.1 EXISTING / DEMOLITION FLOOR PLAN

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET

TRUE NORTH PLAN NORTH



2 A1.1 PROPOSED FLOOR PLAN

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET

TRUE NORTH PLAN NORTH

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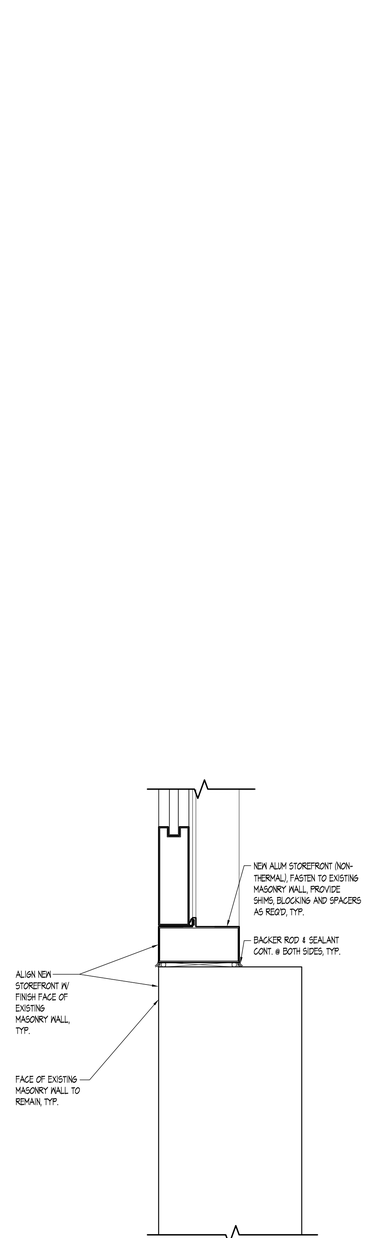
EXISTING / DEMOLITION & PROPOSED FLOOR PLANS

A1.1



1 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"
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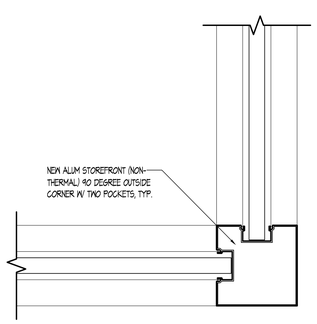

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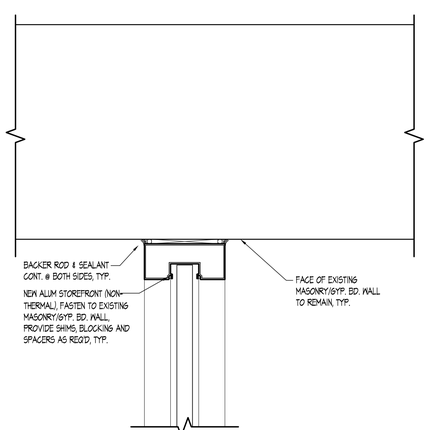

3 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"
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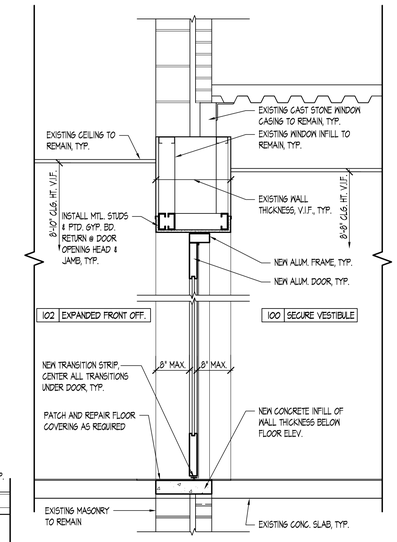
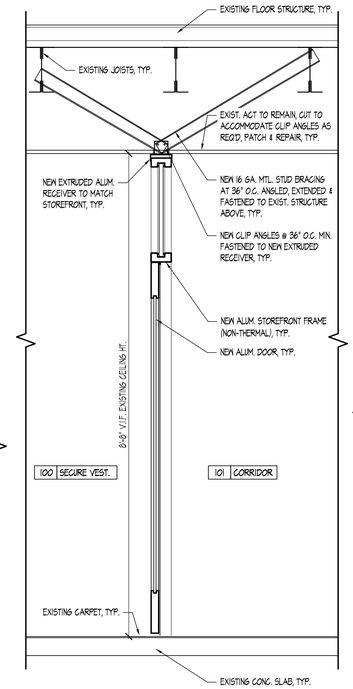
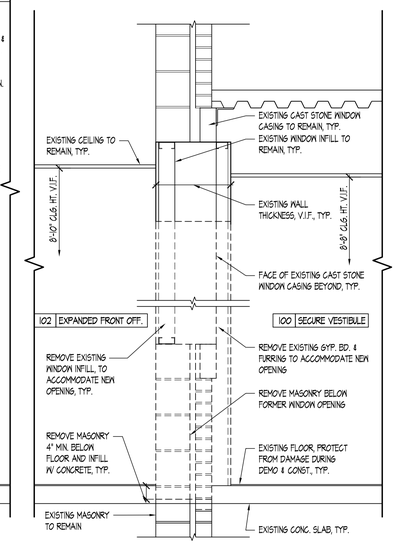


PROPOSED WALL SECTION

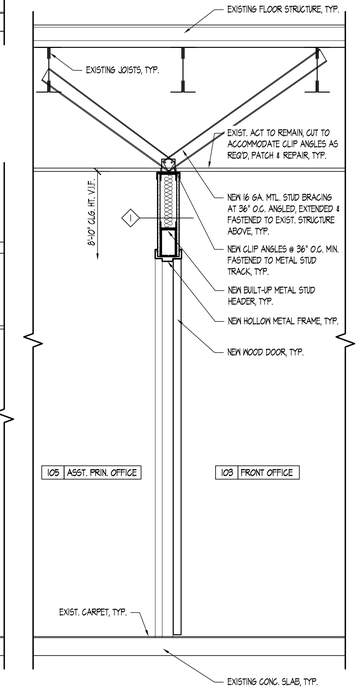


4 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"
1 0 1 2 3 SCALE FEET



EXISTING / DEMOLITION WALL SECTION

5 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"
1 0 1 2 3 SCALE FEET



6 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"
1 0 1 2 3 SCALE FEET

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DATE: 10-09-2019

PROPOSED
PLAN DETAILS
& WALL SECTIONS

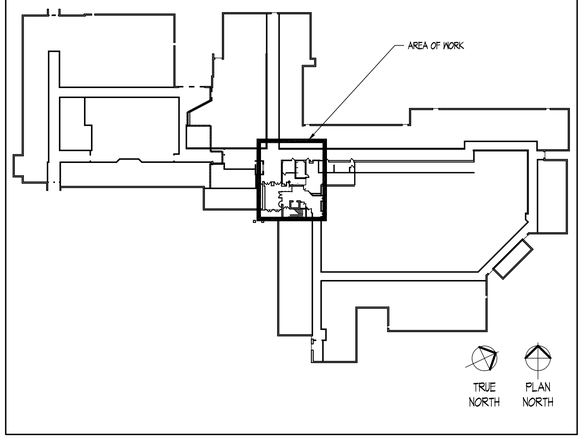
A1.2

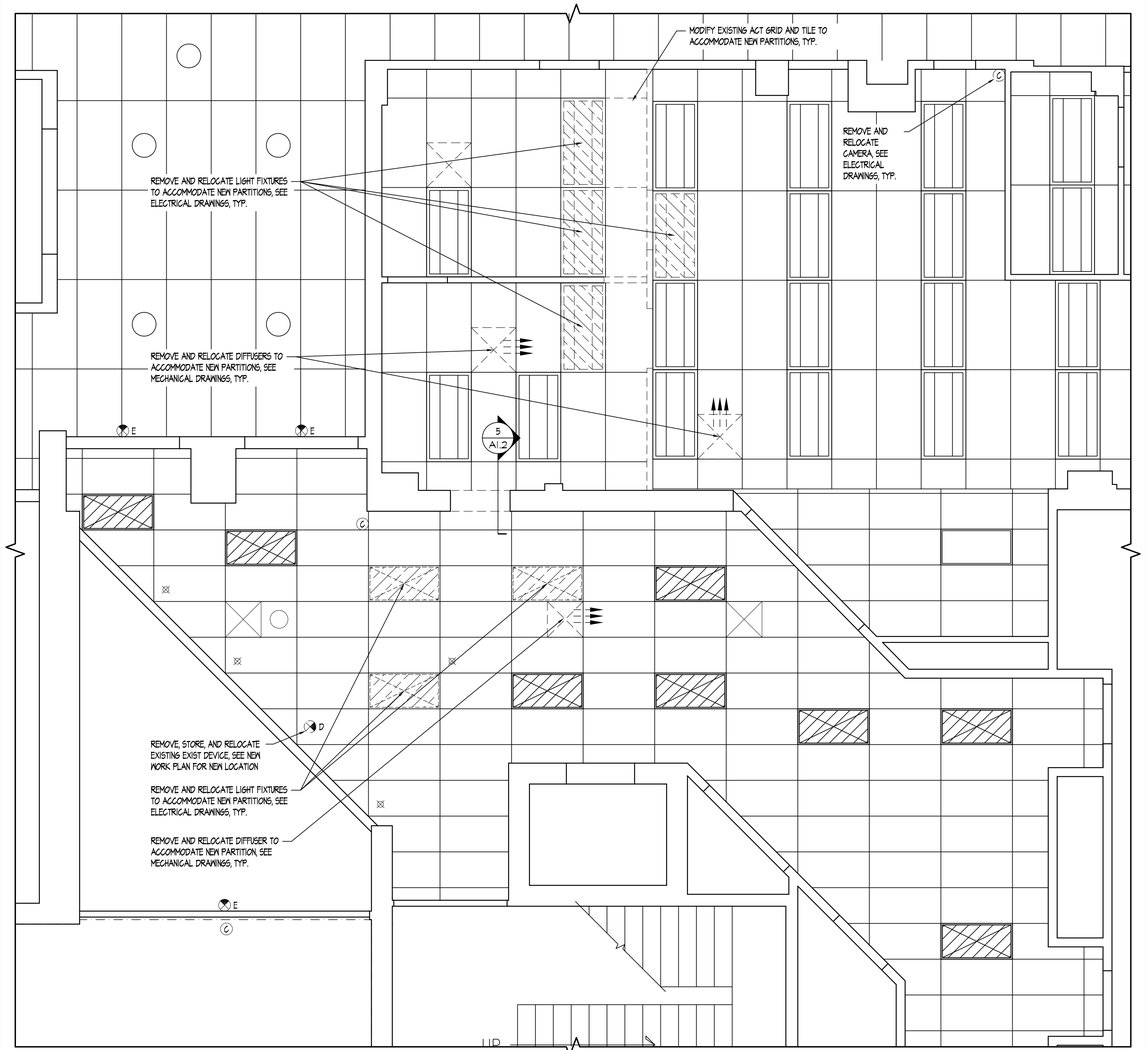
REFLECTED CEILING PLAN KEY:

EXISTING 2'-6" x 5'-0" CEILING GRID W/ EXISTING ACOUSTICAL CEILING TILE	EXISTING 2'-0" x 4'-0" CEILING GRID W/ EXISTING ACOUSTICAL CEILING TILE
EXISTING 2'-6" x 5'-0" FLUORESCENT LIGHT FIXTURE TO REMAIN	EXISTING 2'-0" x 4'-0" FLUORESCENT LIGHT FIXTURE TO REMAIN
EXISTING 2'-6" x 5'-0" LIGHT FIXTURE TO BE REMOVED & SALVAGED FOR RE-USE	EXISTING 2'-0" x 4'-0" LIGHT FIXTURE TO BE REMOVED & SALVAGED FOR RE-USE
RELOC. SALVAGED EXISTING LIGHT FIXTURE IN NEW LOCATION	RELOC. SALVAGED EXISTING 2'-0" x 4'-0" LIGHT FIXTURE IN NEW LOCATION
EXISTING DIFFUSER TO REMAIN	EXISTING DIFFUSER TO REMAIN
RELOC. RELOCATED DIFFUSER	NEW MOVE EXISTING DIFFUSER TO NEW LOCATION
E EXISTING EXIT DEVICE	N NEW EXIT DEVICE
D EXISTING EXIT DEVICE TO BE REMOVED AND STORED FOR REINSTALLATION	R RELOCATE PREVIOUSLY DEMOLISHED EXIT DEVICES
EXISTING SPRINKLER HEAD	N NEW SPRINKLER HEAD
	R RELOCATE SPRINKLER HEAD AS REQUIRED

BUILDING KEY PLAN:

NOT TO SCALE

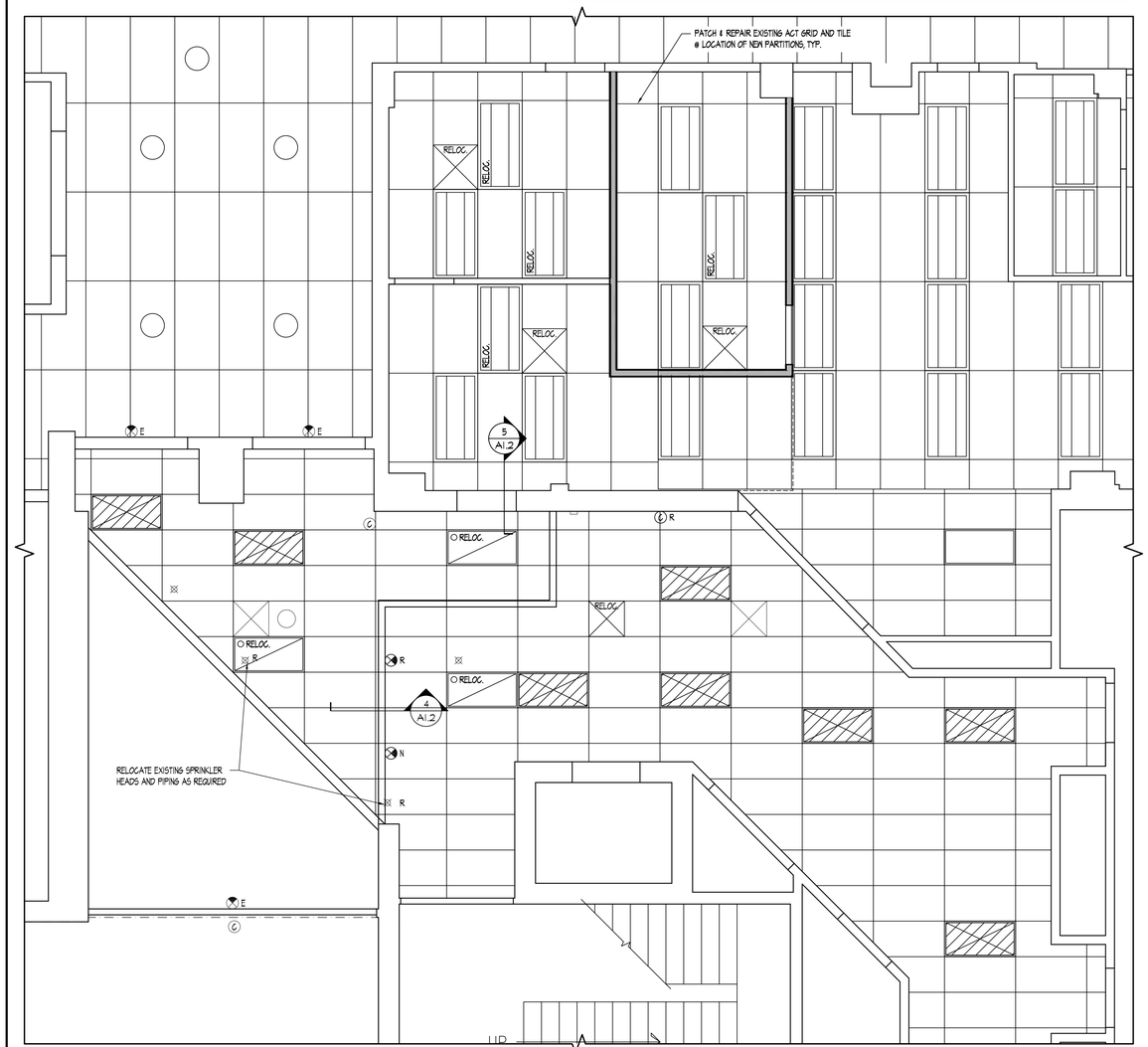




1 A6.1 EXISTING / DEMOLITION REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET — TRUE NORTH — PLAN NORTH



2 A6.1 PROPOSED REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET — TRUE NORTH — PLAN NORTH

Proffitt & Assoc. ARCHITECTS

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I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No. 14510
EXPIRATION DATE 03-07-2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
MIDDLETOWN MIDDLE SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
100 MARTHA MASON STREET
MIDDLETOWN, MARYLAND 21769

FCPS RFQ #20C2

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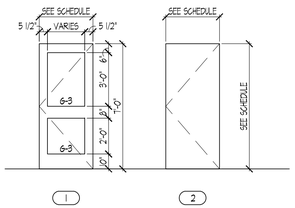
ISSUE

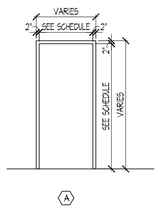
REV	DATE	DESCRIPTION
	08/26/19	PERMIT SET
	10/09/19	BID SET

PROJECT NO.: 15-30.07
DATE: 10-09-2019

EXISTING / DEMO. & PROPOSED REFLECTED CEILING PLANS

A6.1





1A A7.1 DOOR TYPES

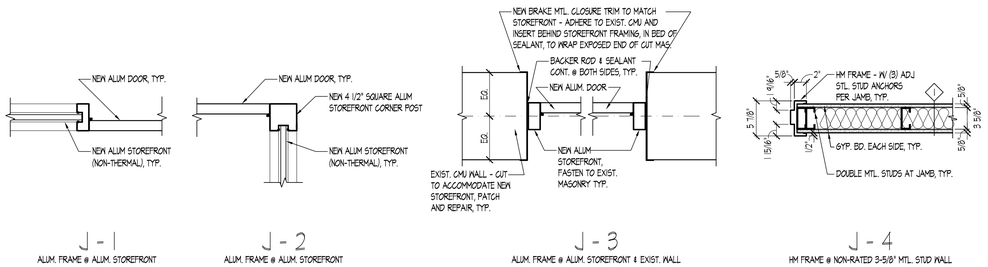
SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8
SCALE FEET

1B A7.1 FRAME TYPES

SCALE: 1/4" = 1'-0"

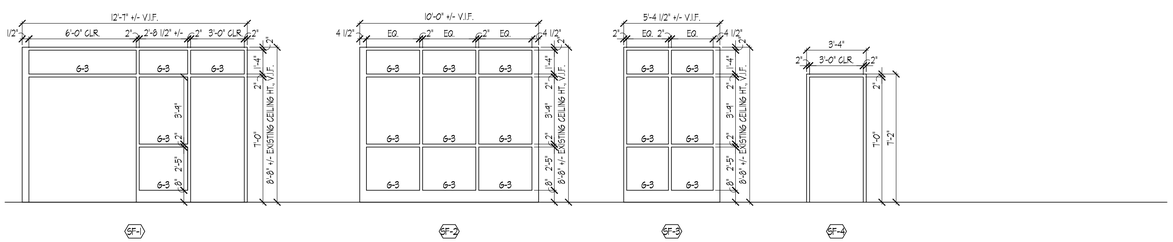
4 2 0 2 4 6 8
SCALE FEET



2 A7.1 JAMB TYPES

SCALE: 1" = 1'-0"

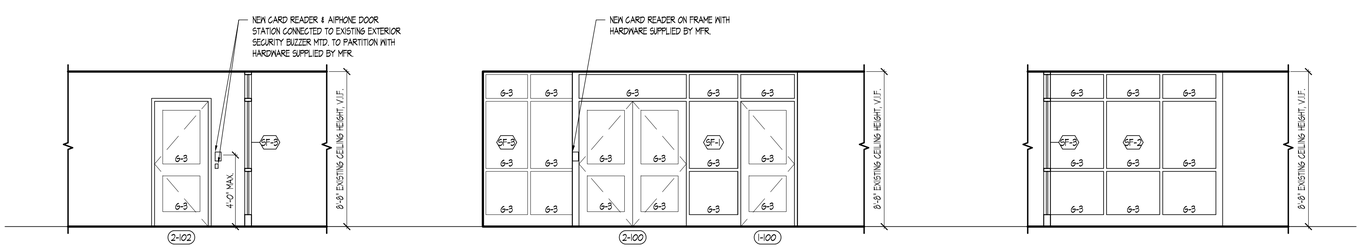
1 1/2 0 1/2 1 1-1/2 2
SCALE FEET



3 A7.1 STOREFRONT TYPES

SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8
SCALE FEET



A - NORTH ELEVATION

B - EAST ELEVATION

C - SOUTH ELEVATION

4 A7.1 INTERIOR ELEVATIONS

SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8
SCALE FEET

DOOR SCHEDULE

OPENING NUMBER	SIZE			DOOR			FRAME			JAMB TYPE	HARDWARE SET	REMARKS
	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH			
1-100	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-1	ALUM.	CA	1/A1.2 / J - 1	HW # 3	-
2-100	(2) 3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-1	ALUM.	CA	J - 1 / J - 2	HW # 1	ACCESS CONTROL HARDWARE
3-100	EXIST.	EXIST.	EXIST.	EXIST.	-	-	EXIST.	-	-	EXIST.	HW # 5A	RETROFIT EXISTING DOORS WITH LOCKING EGRESS HARDWARE
4-100	EXIST.	EXIST.	EXIST.	EXIST.	-	-	EXIST.	-	-	EXIST.	HW # 5B	RETROFIT EXISTING DOORS WITH ACCESS CONTROL HARDWARE
2-102	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-4	ALUM.	CA	J - 3	HW # 2	PROVIDE ACCESS CONTROL HARDWARE
1-105	3'-0"	7'-0"	1-3/4"	2	WD.	PRE-FINISHED	A	HM	PTD-2	J - 4	HW # 6	-

CA - CLEAR ANODIZED

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOORS		WALLS								CEILING		REMARKS
				NORTH		EAST		SOUTH		WEST				
		MATERIAL	BASE	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	HEIGHT	
100	SECURE VESTIBULE	EXIST.	EXIST.	EXIST.	-	EXIST. / SF-1 / SF-3	- / PREFIN.	EXIST.	-	EXIST.	-	EXIST.	-	-
101	CORRIDOR	EXIST.	EXIST.	EXIST. / SF-2	- / PREFIN.	EXIST.	-	EXIST.	-	EXIST. / SF-1 / SF-3	- / PREFIN.	EXIST.	-	-
102	EXPANDED FRONT OFFICE	CPT-1	RB-1	EXIST. / GYP. BD.	PTD-1	EXIST. / GYP. BD.	PTD-1	EXIST.	PTD-1	EXIST.	PTD-1	EXIST.	-	-
103	FRONT OFFICE	EXIST.	EXIST.	EXIST. / GYP. BD.	PTD-1	EXIST.	-	EXIST.	-	EXIST. / GYP. BD.	PTD-1	EXIST.	-	-
104	ASSISTANT PRINCIPAL OFFICE	CPT-1	RB-1	EXIST.	-	GYP. BD.	PTD-1	EXIST.	-	EXIST.	-	EXIST. *	-	* PATCH & REPAIR EXISTING CEILING GRID & TILE AS REQ'D.
105	ASSISTANT PRINCIPAL OFFICE	CPT-1	RB-1	EXIST.	PTD-1	EXIST. / GYP. BD.	PTD-1	GYP. BD.	PTD-1	GYP. BD.	PTD-1	EXIST. *	-	* PATCH & REPAIR EXISTING CEILING GRID & TILE AS REQ'D.

FINISH SELECTIONS SCHEDULE

TYPE	ABBR.	FINISH	SELECTION	REMARKS
FLOORING	CPT-1	CARPET	SEE SPECIFICATIONS	MATCH EXISTING USING ATTIC STOCK
BASE	RB-1	RUBBER BASE	SEE SPECIFICATIONS	MATCH EXISTING ROPPE 4" BASE USING ATTIC STOCK
WALL	PTD-1	TYPICAL WALL PAINT	SEE SPECIFICATIONS	MATCH EXISTING PAINT USING ATTIC STOCK
WALL	PTD-2	ACCENT WALL PAINT (HM FRAMES)	SEE SPECIFICATIONS	MATCH EXISTING PAINT USING ATTIC STOCK
CEILING	ACT-1	ACOUSTICAL CEILING TILE	SEE SPECIFICATIONS	MATCH EXISTING ARMSTRONG TILE USING ATTIC STOCK

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SCHEDULES & DETAILS

A7.1

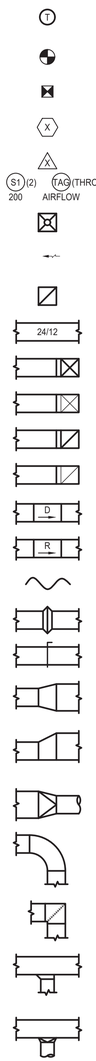
HVAC ABBREVIATIONS

AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
DIA	DIAMETER
DIFF	DIFFUSER
DPR	DAMPER
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELECT	ELECTRIC
ENT	ENTERING
EQUIP	EQUIPMENT
EXIST	EXISTING
GC	GENERAL CONTRACTOR
GR	GRILLE
HC	HVAC CONTRACTOR
HTG	HEATING
HZ	FREQUENCY (HERTZ)
KW	KILOWATT
LBS	POUNDS
LTG	LIGHTING
MBH	THOUSAND BTU's
MFGR	MANUFACTURER
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
%	PERCENT
PH	PHASE
QNTY	QUANTITY
RA	RETURN AIR
SA	SUPPLY AIR
SCH	SCHEDULE
SPEC	SPECIFICATION
SQ FT	SQUARE FEET
TAB	TEST, ADJUST AND BALANCE
T'STAT	THERMOSTAT
TYP	TYPICAL
V	VOLT
XR	EXISTING TO REMAIN

HVAC EQUIPMENT ABBREVIATIONS

AHU	AIR HANDLING UNIT
ECUH	ELECTRIC CABINET UNIT HEATER
FCU	FAN COIL UNIT
RHC	REHEAT COIL
UH	UNIT HEATER

HVAC SYMBOLS



- THERMOSTAT
- CONNECTION POINT - NEW TO EXISTING
- DISCONNECTION POINT
- NUMBERED NOTES
- REVISION SEQUENCE
- GRILLE, REGISTER AND DIFFUSER TAG
- SUPPLY DIFFUSER - 4-WAY BLOW
- AIR FLOW ARROW
- CEILING MOUNTED RETURN OR EXHAUST GRILLE / REGISTER
- INTERIOR CLEAR DUCTWORK DIMENSIONS; WIDTH/HEIGHT
- SUPPLY DUCT TOWARD VIEWER
- SUPPLY DUCT AWAY FROM VIEWER
- RETURN OR EXHAUST DUCT TOWARD VIEWER
- RETURN OR EXHAUST DUCT AWAY FROM VIEWER
- CHANGE IN DUCT ELEVATION DROP INDICATED BY "D"
- CHANGE IN DUCT ELEVATION RISE INDICATED BY "R"
- FLEXIBLE DUCT
- FLEXIBLE CONNECTION
- MANUAL VOLUME DAMPER
- TRANSITION; SYMMETRIC
- TRANSITION; ASYMMETRIC
- TRANSITION; RECTANGULAR TO ROUND
- 90 DEG RADIUS ELBOW (R/W = 1.5)
- MITERED ELBOW WITH TURNING VANES
- TEE, BOOT ENTRY BRANCH
- TEE, CONICAL ROUND BRANCH

ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT

1. GENERAL REQUIREMENTS

   A. HVAC CONTRACTOR SHALL PROVIDE MECHANICAL EQUIPMENT WITH VOLTAGES AND OTHER ELECTRICAL CHARACTERISTICS AS INDICATED ON THE DRAWINGS AND WITHIN THE SPECIFICATIONS.

   B. ALL STARTERS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, AND VARIABLE FREQUENCY DRIVES, FOR EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED UNDER DIVISION 23 AND INSTALLED UNDER DIVISION 26. FACTORY MOUNTED STARTERS, DISCONNECTS SWITCHES, AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. HVAC CONTRACTOR SHALL PROVIDE STARTERS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS AND VARIABLE FREQUENCY DRIVES IN ACCORDANCE WITH DIVISION 26.

   C. HVAC CONTRACTOR SHALL SUBMIT WIRING DIAGRAMS TO THE ARCHITECT/ENGINEER FOR APPROVAL AND PROVIDE APPROVED DIAGRAMS TO THE ELECTRICAL CONTRACTOR SO THAT THE ELECTRICAL WORK MAY BE PROPERLY ACCOMPLISHED.

   D. HVAC CONTRACTOR SHALL FULLY COOPERATE WITH THE OTHER DIVISIONS AND TRADES ON THE PROJECT, AND THEIR MANUFACTURERS, IN PROMPTLY PROVIDING THE INFORMATION REQUIRED FOR PROPER COORDINATION OF MOTOR PROTECTION, CONTROL EQUIPMENT AND WIRING, AND THE OTHER CHARACTERISTICS OF THE EQUIPMENT.

   E. IT SHALL BE THE RESPONSIBILITY OF THE HEATING AND ELECTRICAL CONTRACTORS TO CHECK FOR ADEQUACY OF SUPPLY WIRING, OVERCURRENT PROTECTION, PROPER VOLTAGE, PHASE ROTATION AND FINAL LOCATION OF EQUIPMENT PROVIDED PRIOR TO THE RUNNING OF ANY CONDUIT OR WIRING. COORDINATE WITH DIVISION 26 TO ASSURE PROPER ELECTRICAL SERVICE IS PROVIDED TO EQUIPMENT UNDER DIVISION 23.

   F. EQUIPMENT CONNECTIONS SHALL BE MADE THROUGH CONDUIT OR RACEWAYS IN ACCORDANCE WITH DIVISION 26, WITH THE EXCEPTION THAT CONNECTIONS TO MOTORS SHALL BE MADE THROUGH LIQUID TIGHT FLEXIBLE METAL CONDUIT WITH EQUIPMENT GROUNDING CONDUCTOR.

2. POWER REQUIREMENTS

   A. ALL POWER WIRING FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26 TO THE POINT OF FINAL CONNECTION (FROM THE SOURCE TO THE STARTERS, DISCONNECT SWITCHES, MCC'S OR VFD'S AND TO EQUIPMENT, MOTOR, OR OTHER CONNECTION POINT). EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, ALL POWER WIRING TO THE POINT OF FINAL CONNECTION FOR EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE ACCOMPLISHED UNDER DIVISION 26.

   B. FINAL ELECTRICAL POWER CONNECTIONS TO ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26. IN GENERAL, THE POINT OF FINAL CONNECTION SHALL BE THE TERMINAL HOUSING ON THE EQUIPMENT, MOTOR, OR AN INTERNAL JUNCTION BOX ON THE EQUIPMENT OR ITEM. IF NO JUNCTION BOX IS FURNISHED, A JUNCTION BOX SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26. WIRE LEADS OF ADEQUATE LENGTH TO ENSURE A PROPER CONNECTION AT THE FINAL LOCATION SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26.

   C. WIRING, OVERCURRENT PROTECTION DEVICES, VOLTAGE, PHASE, ROTATION AND FINAL LOCATION OF ALL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE COORDINATED WITH ALL SIMILAR DEVICES AND POWER WIRING FURNISHED AND INSTALLED UNDER DIVISION 26. COORDINATION SHALL BE ACCOMPLISHED PRIOR TO THE RUNNING OF ANY CONDUIT OR WIRING.

3. CONTROL REQUIREMENTS

   A. ALL CONTROL WIRING (LINE VOLTAGE AND/OR LOW VOLTAGE) FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. WIRING FROM THE POWER SOURCE TO ALL CONTROL PANELS, DDC CONTROL PANELS, STARTERS, OPERATOR WORK STATIONS (PC'S, PRINTERS, MONITORS, AND OTHER WORK STATION EQUIPMENT) AND OTHER CONTROL EQUIPMENT REQUIRED FOR A COMPLETE AND OPERABLE CONTROL SYSTEM SERVING MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

   B. ALL WIRING FROM CONTROL PANELS TO CONTROL DEVICES FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATIONS. ALL CONTROL WIRING SHALL BE IN CONDUIT.

   C. UNLESS OTHERWISE NOTED, ALL TEMPERATURE CONTROL DEVICES, INSTALLED PILOT DEVICES, AND ALL ASSOCIATED PILOT CONTROL EQUIPMENT, FOR ALL EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

   D. ELECTRICAL CONTROL WIRING FOR CONNECTION OF TEMPERATURE CONTROLLERS, PUSH BUTTONS, INTERLOCKS IN MOTOR CONTROLLERS, PNEUMATIC SWITCHES AND LIKE ITEMS IS SPECIFIED UNDER THE CONTROL SECTION(S) IN DIVISION 23 AND INSTALLED BY DIVISION 23.

   E. ALL MOTORS, MOUNTS, REMOTE MOUNTED PUSH BUTTON CONTROLS AND ALL SPEED CONTROL SWITCHES FOR MULTI-SPEED MOTORS FOR ALL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

PROJECT GENERAL NOTES

1. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS AND APPLICABLE CODES AND REGULATIONS.
4. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
5. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50 FT OF BOILER OR PRESSURE-REDUCING VALVES.
6. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS OF STEAM MAINS WITHIN 50 FT OF BOILER OR PRESSURE-REDUCING VALVES.
7. THE LOCATION OF EXISTING EQUIPMENT AND UTILITIES IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
8. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
9. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO THE UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
10. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
11. TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.
12. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
13. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
14. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATION.
15. WHEN MECHANICAL WORK IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDED A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
16. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
17. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
18. ALL EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
19. ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOISTS GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
20. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT SUPPORTED FROM A METAL DECK.
21. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING EQUIPMENT AND UTILITIES BEFORE COMMENCING WORK.

SHEET METAL GENERAL NOTES

1. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS WHERE SPECIFIED.
2. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNERS.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF REQUIRED.
4. SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.
5. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET.
6. LOCATE ALL MECHANICAL EQUIPMENT (FAN COIL UNITS, CABINET UNIT HEATERS, ETC.) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVES.
7. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
8. COORDINATE DIFFUSERS, REGISTER AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
9. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS AND HUMIDISTATS 42" (CENTERLINE) ABOVE THE FINISHED FLOOR. NOTIFY THE PROFESSIONAL OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.

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3 West 2nd Street
Frederick, MD 21701
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CJL Project #18-0546

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No: 45511 Expiration Date: 06/03/2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
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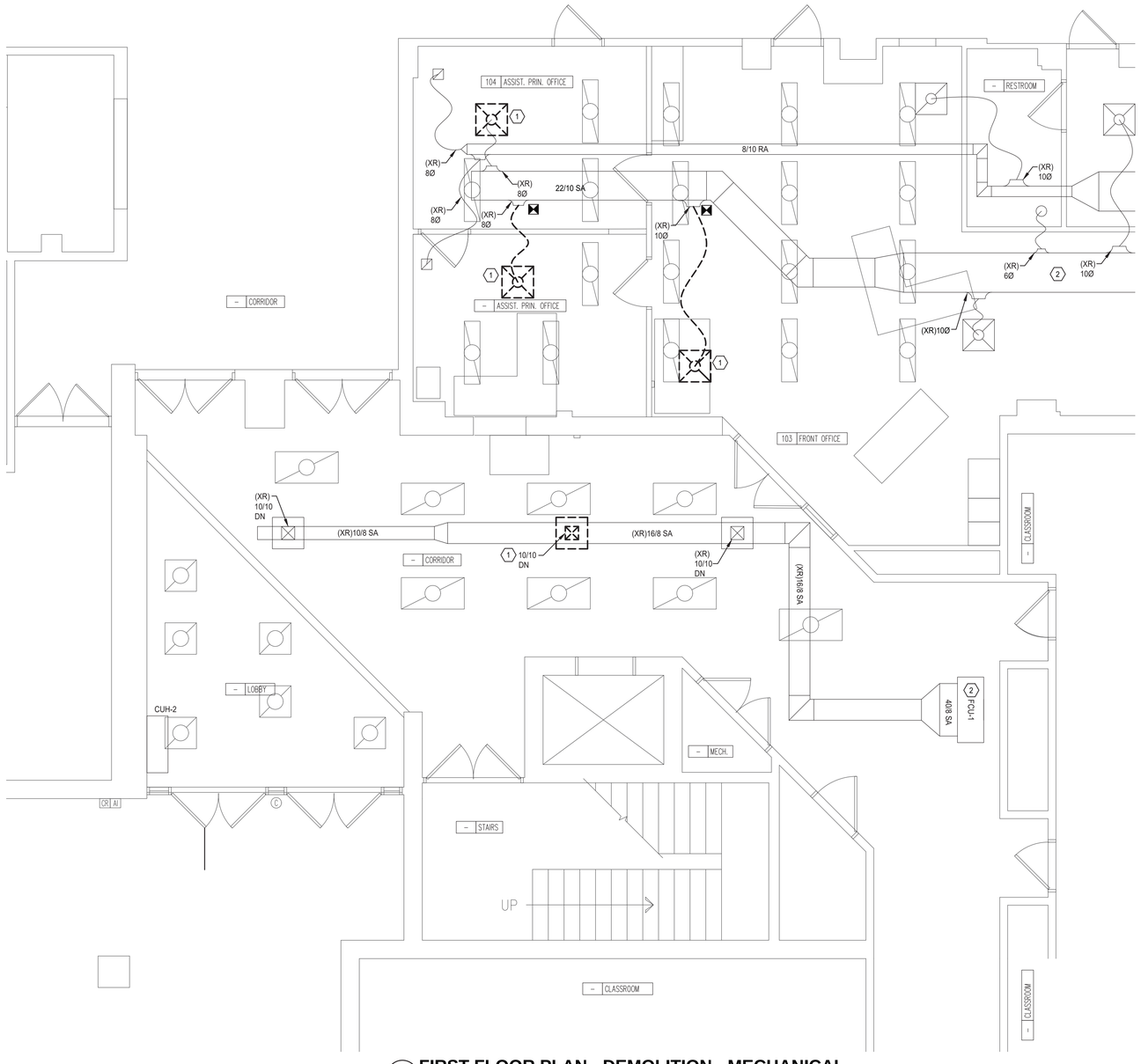
ISSUE

REV	DATE	DESCRIPTION
	08/26/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

SYMBOLS, ABBREVIATIONS, AND NOTES

M001



NUMBERED NOTES:

1. REMOVE AND RELOCATE EXISTING SUPPLY AIR DIFFUSER.
2. PROVIDE PRE DEMOLITION TESTING FOR SUPPLY AIR.

1 / M101 **FIRST FLOOR PLAN - DEMOLITION - MECHANICAL**

SCALE: 1/4"=1'-0"

Proffitt & Assoc. ARCHITECTS

49 SOUTH CARROLL STREET
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CJL Project #18-0546

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No: 45511 Expiration Date: 06/03/2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:

MIDDLETOWN MIDDLE SCHOOL

FREDERICK COUNTY PUBLIC SCHOOLS
100 MARTHA MASON STREET
MIDDLETOWN, MARYLAND 21769

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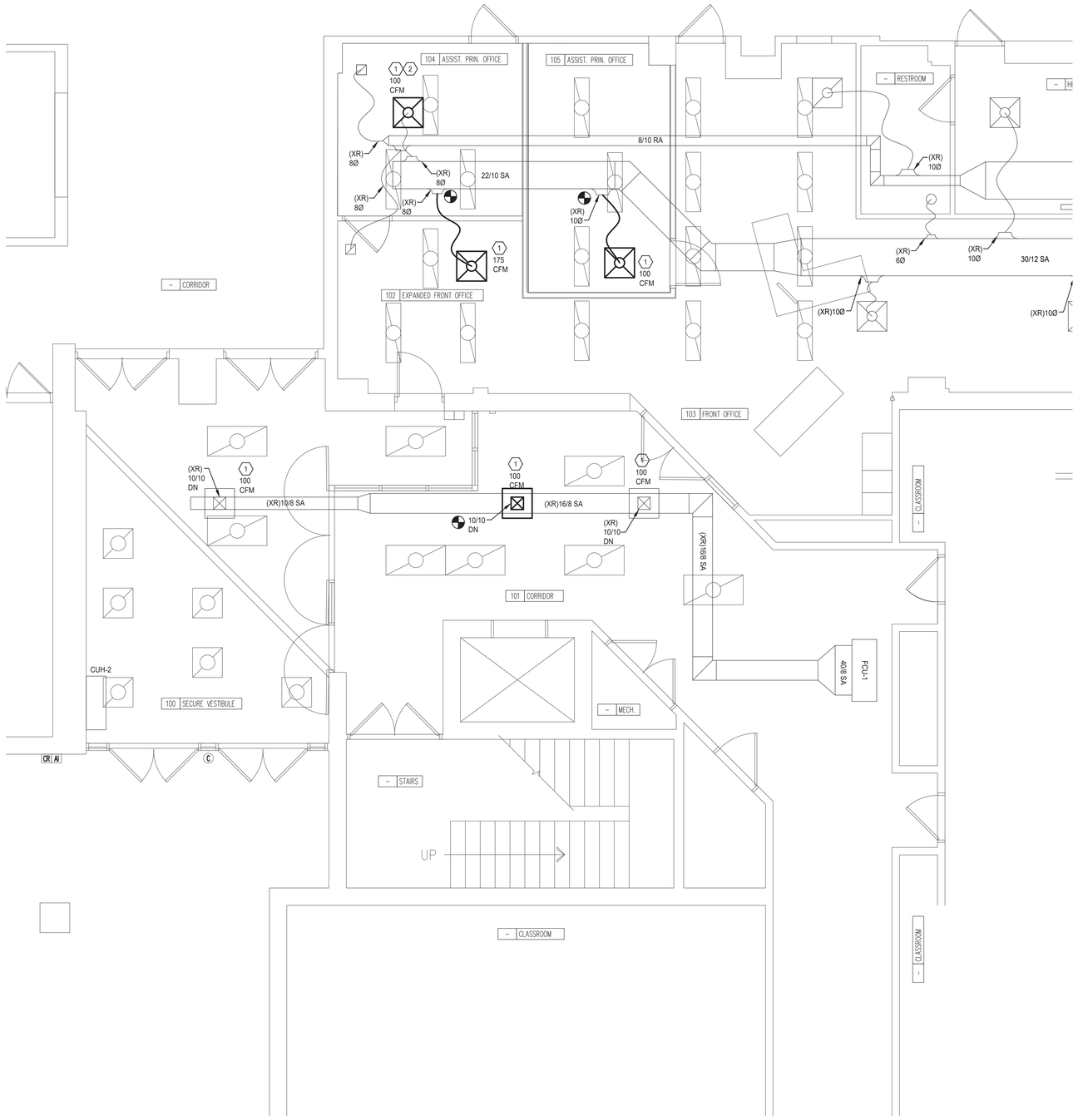
ISSUE

REV	DATE	DESCRIPTION
	08/26/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

FIRST FLOOR PLAN - DEMOLITION - MECHANICAL

M101



1 M201 **FIRST FLOOR PLAN - NEW WORK - MECHANICAL**

SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. BALANCE TO INDICATED AIRFLOW.
2. RELOCATE EXISTING CEILING DIFFUSER TO NEAREST GRID.

SPRINKLER NOTES:

G1. REVISE/EXTEND EXISTING WET SPRINKLER PIPE. MODIFY, RELOCATE PIPE, ADD HEADS AS NECESSARY TO ACCOMMODATE RENOVATION AS REQUIRED. PROVIDE SPRINKLER DRAWING TO FIRE MARSHAL, INSTALL PER NFPA 13 AND COORDINATE INSTALLATION WITH LOCAL FIRE MARSHAL. COORDINATE/VERIFY EXACT LIMITS OF AREA AFFECTED TO BE REVISED WITH ARCHITECTURAL DRAWINGS.

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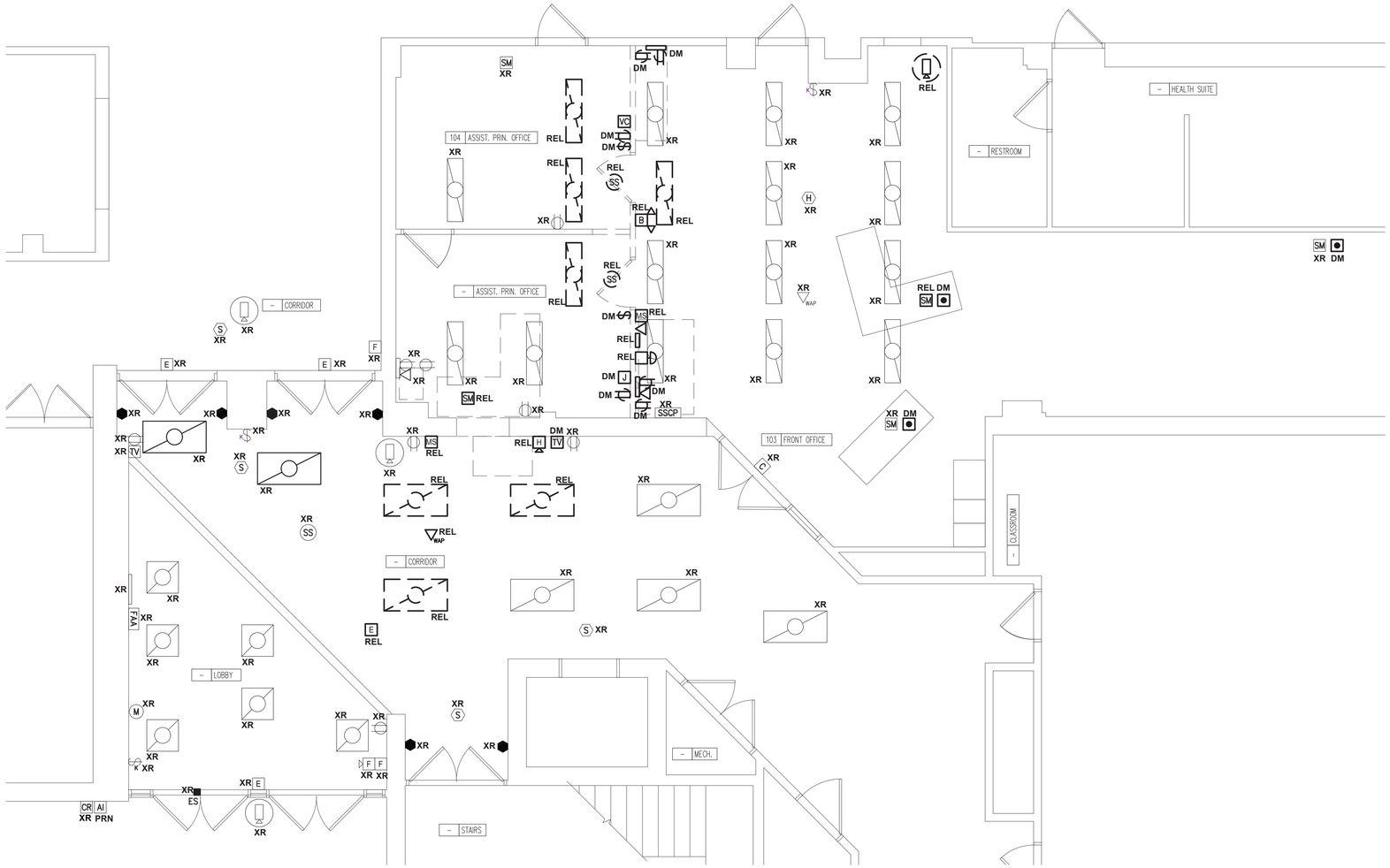
FIRST FLOOR PLAN - NEW WORK - MECHANICAL

M201



1 E101 FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL

SCALE: 1/4"=1'-0"

EXISTING CONDITIONS/DEMOLITION NOTES:

D1. CONDUITS & WIRING REQUIRED FOR THE CONTINUITY OF LIGHTING, OUTLETS, SYSTEMS AND EQUIPMENT THAT IS TO REMAIN SHALL REMAIN UNDISTURBED OR SHALL BE RECONNECTED BY THE CONTRACTOR AS REQUIRED TO MAINTAIN SERVICE. THIS WORK SHALL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.

D2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED AT THE SITE BY THE ELECTRICAL CONTRACTOR, PRIOR TO BIDS.

D3. WHERE EXISTING ELECTRICAL EQUIPMENT IS DESIGNATED TO BE REMOVED, THE EC SHALL REMOVE THE EQUIPMENT AND AND ALL ASSOCIATED WIRING AND CONDUITS BACK TO THE SERVICE POINT.

D4. WHERE EXISTING ELECTRICAL EQUIPMENT IS DESIGNATED TO BE RELOCATED, THE EC SHALL RELOCATE THE EQUIPMENT AS SHOWN ON THE PLANS AND RECONNECT THE EQUIPMENT AS REQUIRED TO MAINTAIN SERVICE. PATCH ALL OPENINGS IN THE WALL, CEILINGS, OR FLOORS CREATED BY THE DEMOLITION WORK.

D5. CONDUITS AND WIRING MADE OBSOLETE DUE TO NEW CONSTRUCTION SHALL BE REMOVED IN IT'S ENTIRETY, BACK TO THE SERVICE POINT.

D6. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR THE LIMITS OF DEMOLITION WORK.

D7. REFER TO THE MECHANICAL DRAWINGS FOR THE EXACT LOCATIONS OF THE MECHANICAL EQUIPMENT THAT WILL BE DISCONNECTED.

GENERAL PROJECT NOTES:

G1. UNLESS OTHERWISE NOTED, PROVIDE ALL EQUIPMENT SHOWN ON THE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SYMBOLS SHOWN ON THE PLANS WITH THE SYMBOL LIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INTENT OF ANY SYMBOL THAT IS SHOWN ON THE PLANS AND NOT INDICATED ON THE SYMBOL LIST WITH ELECTRICAL ENGINEER.

G2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE PROFESSIONAL IF A SYMBOL IS USED ON THE PROJECT BUT DOES NOT SHOW IN THE SYMBOL LIST PRIOR TO BID.

POWER

- NEW PANELBOARD - RECESSED
- EXISTING PANELBOARD - SURFACE
- TC — TIME CLOCK
- EMERGENCY POWER OFF PUSH BUTTON
- M — MOTOR

RECEPTACLES

- DUPLEX 125V-20A RECEPTACLE
- DD — DOUBLE DUPLEX RECEPTACLE

TELECOMMUNICATIONS

- TELEPHONE OUTLET(S)
- DATA OUTLET(S)

SECURITY & DOOR CONTROL

- SECURITY CAMERA
- SECURITY CAMERA IN BUBBLE
- SM — SECURITY MONITOR
- MS — MOTION SENSOR
- CR — CARD READER
- PUSH-BUTTON
- DC — DOOR CONTACT
- ES — ELECTRIC STRIKE
- ELR — ELECTRIC LATCH RETRACTION
- ELECTROMAGNETIC DOOR HOLDER

FIRE ALARM

- FACP — FIRE ALARM CONTROL PANEL
- F — FIRE ALARM PULL STATION
- F — FIRE ALARM STROBE - WALL MOUNTED
- F — FIRE ALARM HORN/STROBE - WM
- S — SMOKE DETECTOR - CEILING MOUNTED
- FAA — FIRE ALARM ANNUNCIATOR PANEL

AUDIO/VISUAL

- SS — SOUND SYSTEM SPEAKER CEILING MOUNTED
- C — CLOCK - WALL MOUNTED.

DENOTATIONS & ABBREVIATIONS

DD	DOUBLE DEVICE
DM	ITEM TO BE REMOVED
EC	ELECTRICAL CONTRACTOR
F	FIRE ALARM
PRN	PRESENT LOCATION/ REPLACED WITH NEW
REL	RELOCATE
RED	RELOCATED/REINSTALLED
XR	EXISTING TO REMAIN

LIGHTING

- LIGHTING FIXTURE - SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- DOWNLIGHT
- E — EXIT SIGN - DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS
- E — EXIT SIGNWITH HEADS AS INDICATED ON DRAWINGS
- REMOTE HEAD FOR BATTERY PACK
- $ — SINGLE POLE SWITCH
- $3 — 3-WAY SWITCH
- $4 — 4-WAY SWITCH
- $K — KEY SWITCH

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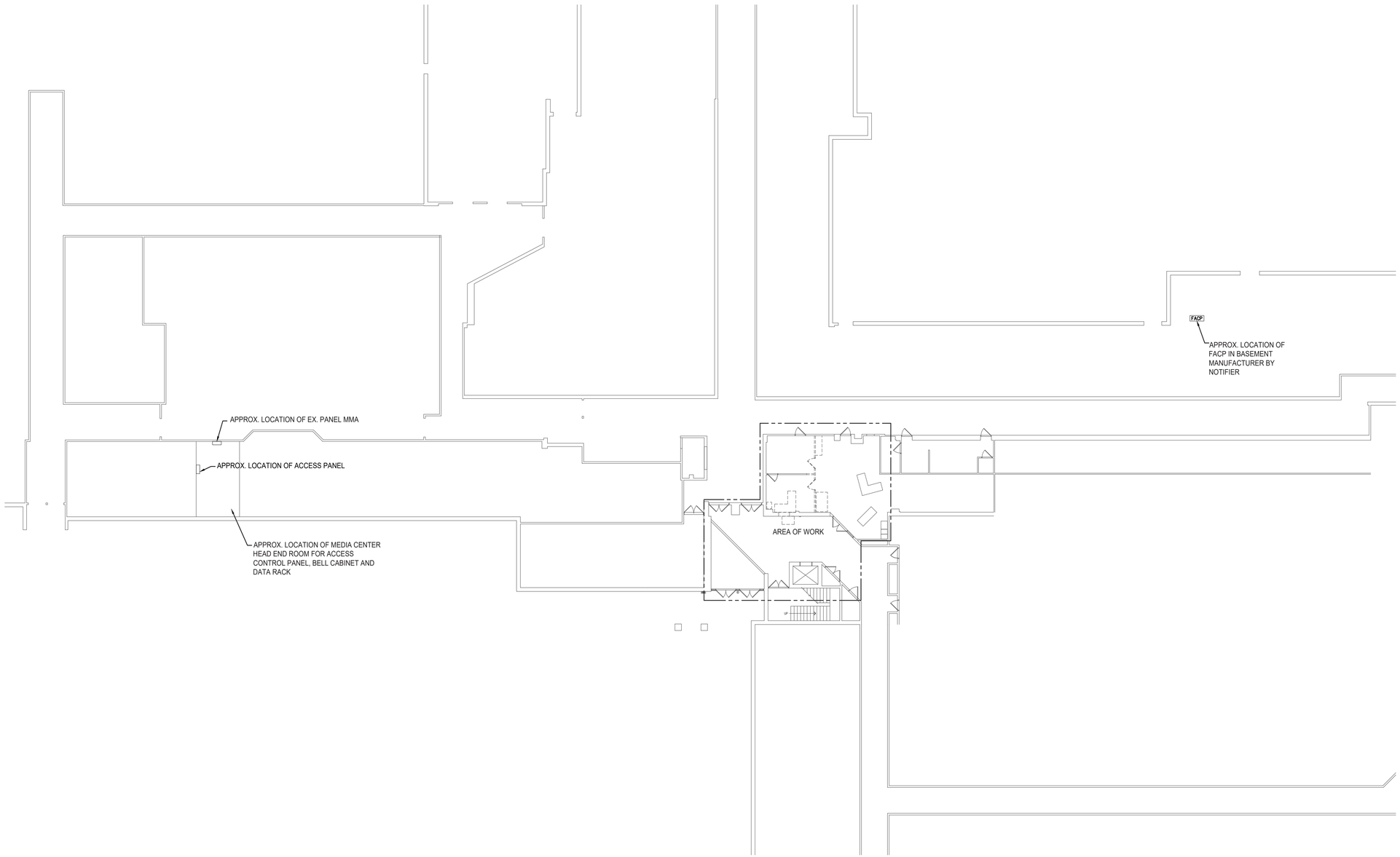
FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL

E101



1 E102 **FIRST FLOOR PLAN - REFERENCE PLAN - ELECTRICAL**
SCALE: 1/4"=1'-0"

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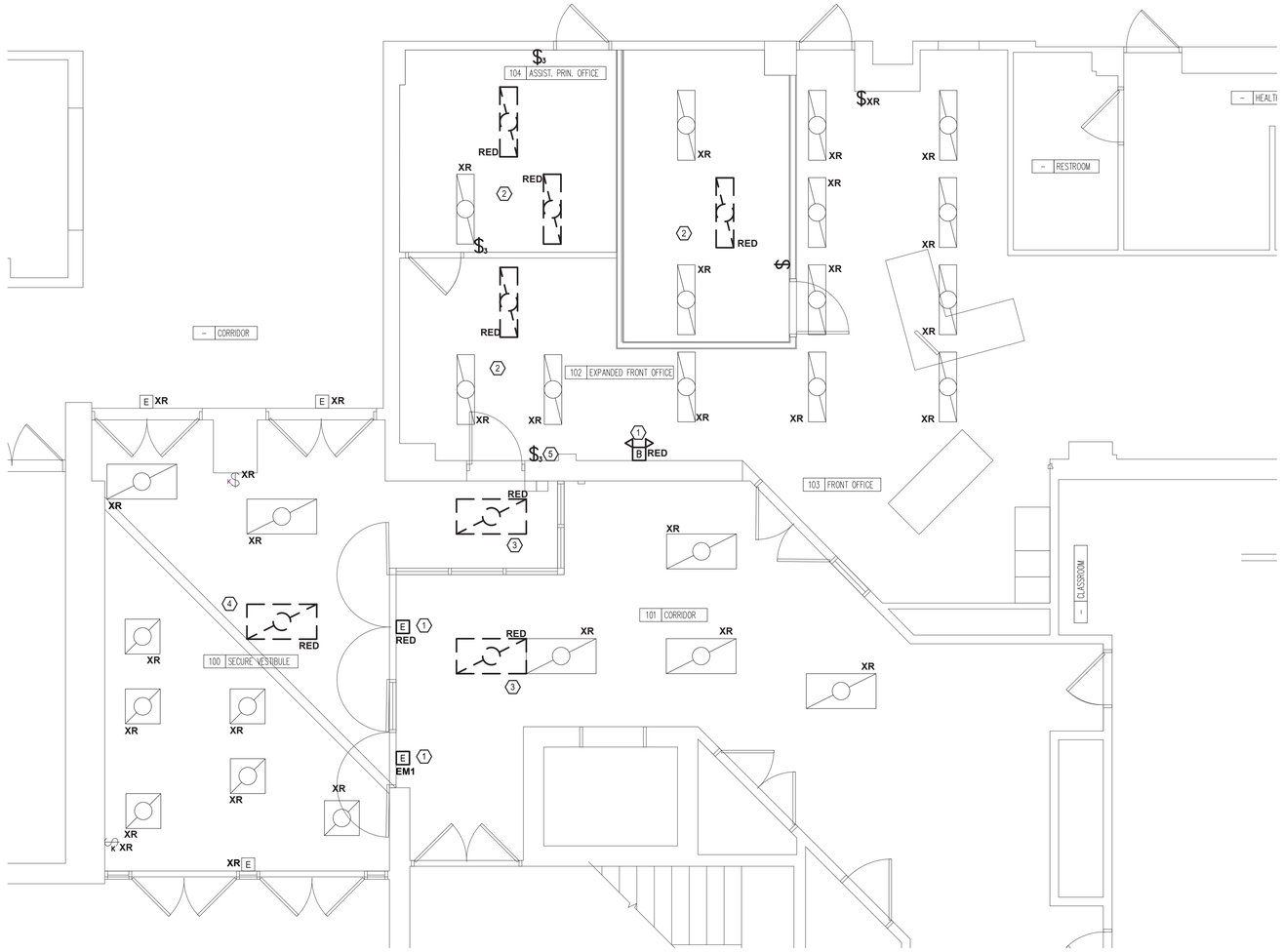
FIRST FLOOR PLAN - REFERENCE PLAN - ELECTRICAL

E102



1 E201 **FIRST FLOOR PLAN - NEW WORK - LIGHTING**
SCALE: 1/4"=1'-0"

NUMBERED NOTES

1. CONNECT TO LINE SIDE OF LOCAL CIRCUIT.
2. CONNECT TO EXISTING LIGHTING CIRCUIT.
3. CONNECT FIXTURE TO CORRIDOR CIRCUIT AND CONTROL.
4. CONNECT FIXTURE TO SECURE VESTIBULE LIGHTING CIRCUIT AND CONTROL.
5. SWITCH SHALL BE ADDED TO EXISTING CONTROL WITHIN ROOM .

LIGHTING FIXTURE SCHEDULE

MARK	NUMBER OF LAMPS AND WATTAGE	MANUFACTURE	CATALOG NUMBER	DRIVER VOLTAGE	TYPE OF MOUNTING	REMARKS
EM1	LED (.71 W)			UNV	UNV	OR APPROVED EQUAL
		LITHONIA	LQM-S-W-3-R-120/277-ELN			

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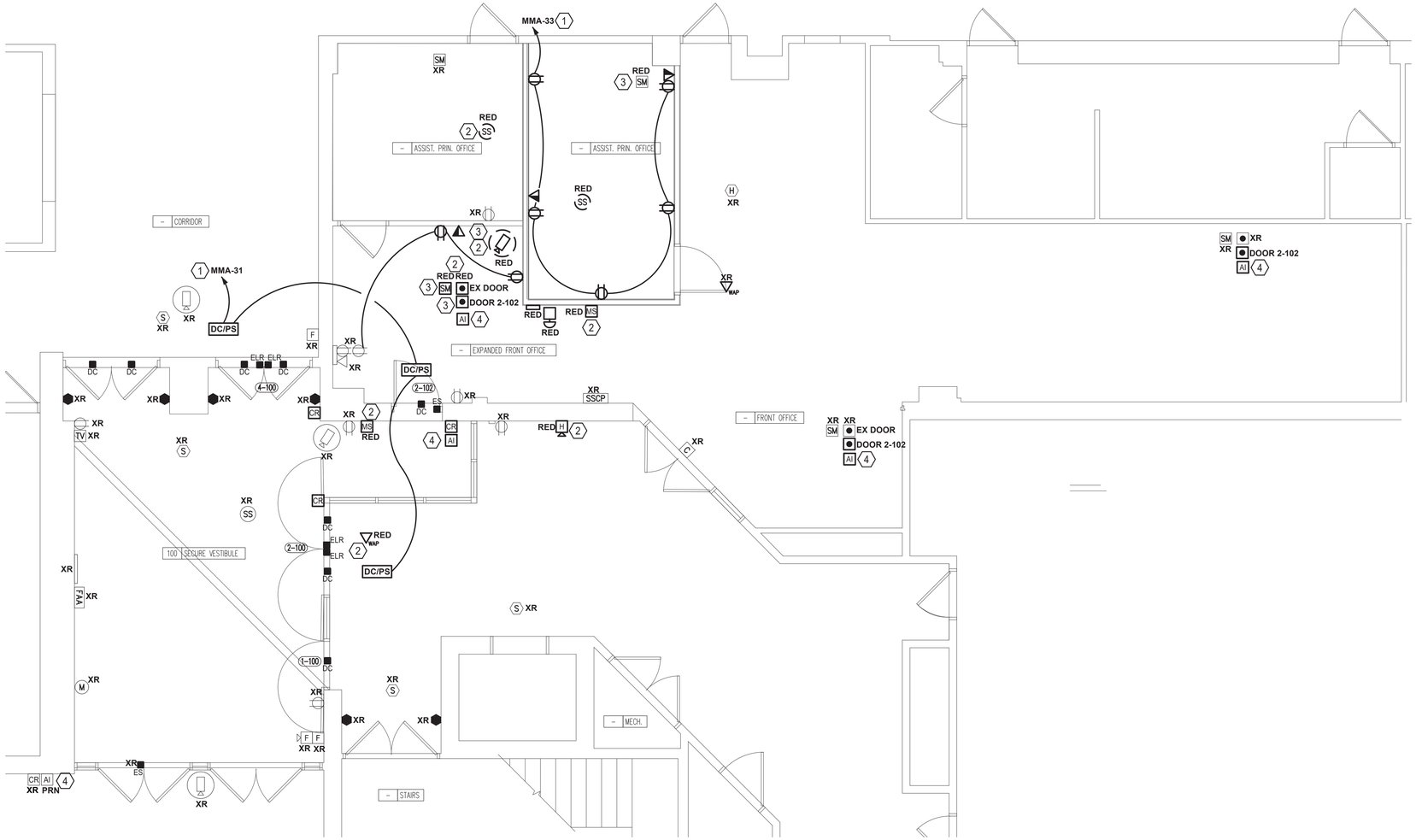
E201



1 FIRST FLOOR PLAN - NEW WORK - POWER & SYSTEMS

E301 SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. CONTRACTOR SHALL USE EXISTING SPARE 20A/1P BREAKER LOCATED IN EXISTING PANEL.
2. EXTEND CABLES/WIRES TO NEW LOCATION.
3. COORDINATE ACTUAL LOCATION IN FIELD WITH FCPS.
4. PROVIDE NEW AI PHONE SYSTEM, KB SERIES OR APPROVED EQUAL. PROVIDE MASTER STATIONS AT ALL RECEPTION LOCATIONS AS INDICATED AND NEW VIDEO DOOR STATIONS AT EXISTING EXTERIOR LOCATION AND AT NEW DOOR 2-102. INSTALLATION SHALL BE ACCORDING TO MANUFACTURERS REQUIREMENTS.

GENERAL NOTES:

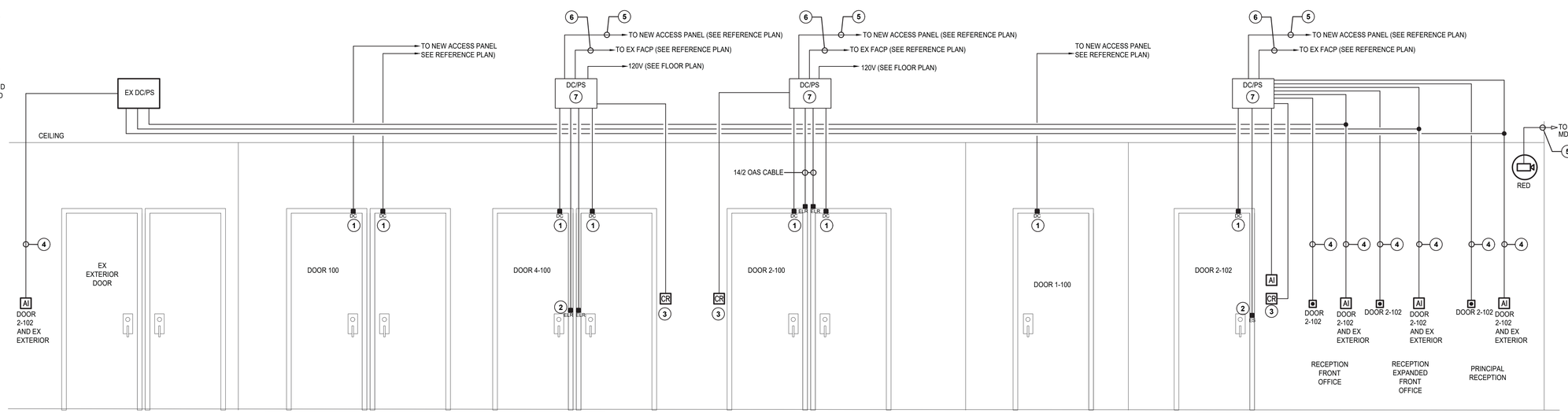
G1. CABLING MAY BE INSTALLED WITHOUT THE USE OF CONDUITS. THE CABLES SHALL BE SECURED AND BUNDLED ACCORDING TO THE LATEST CODES AND REQUIREMENTS.

G2. ANY CABLING PENETRATING WALL SHALL INCLUDE METAL SLEEVES AND SHALL BE SEALED.

G3. ON ALL CROSS CORRIDOR DOORS CONNECTED TO ACCESS SYSTEM SHALL BE RELEASED UPON FIRE ALARM ACTIVATION. COORDINATE WITH OWNER AND ARCHITECT. FIRE ALARM SYSTEM SHALL BE TESTED FOR PROPER OPERATION UPON COMPLETION OF INSTALLATION.

NOTES:

1. STUB CONDUIT INTO HEAD OF DOOR FRAME FOR CONCEALED DOOR POSITION SWITCH. PROVIDE 15/16" DIA HOLE IN HEAD OF FRAME AND PROVIDE 15/16" DIA X 1 5/8" DEEP HOLE IN TOP OF DOOR 6" FROM HANDLE SIDE EDGE. MOUNT 6" FROM EDGE OF DOOR. PROVIDE 22/2 CABLE.
2. STUB CONDUIT DOWN DOOR FRAME TO ELECTRIC STRIKE. PROVIDE 14/2 OAS CABLE
3. PROVIDE 4" X 4" X 2 1/8" DEEP BOX WITH SINGLE GANG DEVICE RING, FLUSH MOUNTED FOR CARD READER. PROVIDE 18/6 OAS SHIELDED CABLE.
4. PROVIDE 22/2 CABLE
5. CAT6 CABLE.
6. PROVIDE 18/2 CABLE.
7. PROVIDE STANLEY SECURITY LENEL DOOR CONTROLLER IN NEW PANEL CABINET IN HEAD END ROOM WITH POWER RECEPTACLE AS REQUIRED



SECURITY/ACCESS DIAGRAM

NO SCALE

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FIRST FLOOR PLAN - NEW WORK - POWER

E301

PROJECT INFORMATION

NEW SECURITY VESTIBULE RENOVATIONS FOR:

THURMONT MIDDLE SCHOOL

FREDERICK COUNTY PUBLIC SCHOOLS
408 EAST MAIN STREET
THURMONT, MARYLAND 21788

FCPS RFQ #20C2

CONTACT LIST

OWNER:
FREDERICK COUNTY PUBLIC SCHOOLS
191 SOUTH EAST STREET
FREDERICK, MD 21701
TEL. : (301)-644-5000

ARCHITECT:
PROFFITT & ASSOCIATES ARCHITECTS, PC
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GENERAL NOTES

1. BIDDERS SHALL CAREFULLY EXAMINE THE PERMIT DOCUMENTS, ACQUAINT THEMSELVES WITH ALL GOVERNING LAWS AND CODES, VISIT THE SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS BEFORE SUBMITTING BIDS.
2. ALL WORK DESCRIBED WITHIN THE CONTRACT DOCUMENTS SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, INCLUDING BUT NOT LIMITED TO, THE CURRENT BUILDING CODE, LIFE SAFETY CODE, ADAAG, AS WELL AS ORDINANCES AND REGULATIONS AND OTHER BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
3. ALL MATERIALS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WARRANTY REQUIREMENTS.
4. INDIVIDUAL SUBCONTRACTORS FOR ANY PLUMBING, ELECTRICAL, AND MECHANICAL WORK SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS, ETC., AND PERFORM ALL WORK IN CONFORMANCE TO ALL LOCAL CODES.
5. DISTURB AS SMALL AN AREA OF THE SITE AS POSSIBLE DURING CONSTRUCTION OPERATIONS; UNLESS OTHERWISE NOTED, PREPARE AND SEED DISTURBED AREAS AT THE COMPLETION OF THE PROJECT.
6. REPAIR ALL AREAS DISTURBED BY THE WORK OF THIS PROJECT, INCLUDING SUBSTRATES OR STRUCTURAL REPAIRS, AND REPAIRS TO FINISHES TO MATCH AND ALIGN WITH EXISTING FINISHES TO REMAIN OR NEW FINISHES INSTALLED.
7. THE JOB SITE IS TO BE LEFT CLEAN AND FREE FROM DEBRIS AT ALL TIMES.
8. UNLESS OTHERWISE NOTED, ALL WORK IS CONSIDERED TO BE NEW CONSTRUCTION.
9. CONTRACTOR TO PROTECT ALL EXISTING UNDERGROUND UTILITIES AND VERIFY LOCATION PRIOR TO ANY EXCAVATION.
10. CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING, BRACING, AND TAKE OTHER PRECAUTIONS NECESSARY FOR SAFETY AS REQUIRED BY CODE AND PRACTICE.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, CONCEALED WITHIN THE WALLS, FOR ATTACHMENT OF SURFACE AND/OR RECESSED MOUNTED EQUIPMENT OR ACCESSORIES, WHETHER SHOWN IN THE DRAWINGS OR NOT. BLOCKING TO BE FIRE RETARDANT.
12. CONTRACTOR SHALL SUPPLY ALL NECESSARY ANCHORS, TIES, CLIPS, HANGERS, BOLTS, AND OTHER FASTENING DEVICES AS REQUIRED BY CODE AND GOOD PRACTICE.
13. CONTRACTOR SHALL PROVIDE SEALANT AROUND WINDOWS, DOOR JAMBS AND HEADS, AND ADJACENT CONSTRUCTION.
14. PART OF THIS WORK MAY INCLUDE THE INSTALLATION AND/OR MODIFICATION OF A SPRINKLER SYSTEM IN AN EXISTING BUILDING. CONTRACTOR IS RESPONSIBLE TO CONCEAL ALL NEW PIPING WITHIN EXISTING CONSTRUCTION AND MAKE REPAIRS AS NECESSARY TO MATCH EXISTING OR NEW FINISHES.
15. PRIOR TO MODIFICATION OR ADDITION OF SPRINKLER IN EXISTING BUILDING, SUBCONTRACTOR TO CONFIRM FINAL CEILING HEIGHT WITH CONTRACTOR DUE TO JOB CONDITIONS.
16. EXISTING BUILDING INFORMATION IS BASED ON INFORMATION PROVIDED BY OTHERS AND PROFFITT & ASSOCIATES ARCHITECTS' FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO SUBMITTING SHOP DRAWINGS, AND BEFORE CONSTRUCTION AND FABRICATION OF MATERIALS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM THE INFORMATION PROVIDED IN A TIMELY MANNER.
17. DRAWING INTENT IS TO INDICATE GENERAL ARRANGEMENT, DESIGN AND INTENT OF WORK AND IS PARTIALLY DIAGRAMMATIC. IT SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS, INCLUDING CONSTRUCTION OR FABRICATION. ALL DIMENSIONS FOR BUILT-IN ITEMS SHALL BE BASED ON FIELD DIMENSIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF DIMENSIONS.
18. DIMENSIONS, NOTES, FINISHES AND FIXTURES SHOWN ON TYPICAL PLANS, SECTIONS OR DETAILS SHALL APPLY TO SIMILAR, SYMMETRICAL, OR OPPOSITE PLANS, SECTIONS OR DETAILS.
19. SEE WALL TYPE NOTES FOR ADDITIONAL INFORMATION REGARDING TYP. WALL TYPES.
20. REFER TO THE GENERAL SPECIFICATIONS.

VICINITY & LOCATION MAP

Thurmont Historical Society
Thurmont Park
ALTOGETHER
Mountain Gate
Simple Asia
McDonald's
Pizza Hut
Thurmont Library
East End Park
Rocky Ridge Rd
Frederick County Public Schools
Thurmont
Main St
Moser Rd
Hill St
Water St
Emmitsburg Rd
Frederick Rd
Scott St
Church St
Summit Ave
Hunter St
Elm St
Walnut St
Cherry St
Chestnut St
Walnut Ave
Cherry Ave
Chestnut Ave
Willis Ave
Hill St
Rice Ave
Rice St
Hill Ave
Water Ave
Moser Ave
Hill Ave
Moser Rd
Frederick Rd
Emmitsburg Rd
Rocky Ridge Rd
Thurmont Elementary School
Thurmont Middle School
Thurmont Senior High School
Thurmont Regional Airport
Catoctin Furnace Rd
Catoctin Furnace Park
Catoctin Furnace Park Rd
Hunting Creek Rd
Hunting Creek Park
Hunting Creek Park Rd
Hunting Creek Park Rd
Hunting Creek Park Rd

CODE ANALYSIS:

REFERENCE IBC 2015

IBC CONSTRUCTION CLASSIFICATION: 3B — IBC USE GROUP E: EDUCATIONAL

ALLOWABLE HEIGHT & AREA CALCULATIONS:
(PER TABLES 504.3, 504.4 & 506.2, SPRINKLERED)
ALLOWABLE AREA PERMITTED PER FLOOR: 66,811 S.F.
(43,500 S.F. + 23,311 S.F. FRONTAGE INCREASE)
ALLOWABLE BUILDING HEIGHT (ABOVE GRADE PLANE): 4 STORIES (75'-0")
ACTUAL HEIGHT & AREA CALCULATIONS:
TOTAL ACTUAL EXISTING FOOTPRINT:
FIRE AREA 1: 58,684 S.F.
FIRE AREA 2: 21,746 S.F.
TOTAL ACTUAL HEIGHT (ABOVE GRADE PLANE): 2 STORIES (32'-0")
NOTE: NO ADDITIONS OR INCREASE IN AREA OR OCCUPANT LOAD TO EXISTING BUILDING.

NOTES:

NO PROPOSED BUILDING ADDITIONS OR INCREASE IN OCCUPANT LOAD WILL RESULT FROM THE SECURITY VESTIBULE MODIFICATIONS. NO CHANGES TO EXISTING EGRESS CAPACITY OR EXISTING PLUMBING FIXTURES WILL RESULT FROM THE SECURITY VESTIBULE MODIFICATIONS.

EGRESS ANALYSIS LEGEND:

- EGRESS WIDTH
- EXIT CAPACITY (STAIRS: .3"/PERSON) (DOORS: .2"/PERSON)
- ANTICIPATED LOAD
- ROOM CAPACITY
- NUMBER OF PEOPLE
- EXIST. 2 HOUR RATED WALL
- EXIST. NON-RATED SMOKE BARRIER

BUILDING CODE REQUIREMENTS:

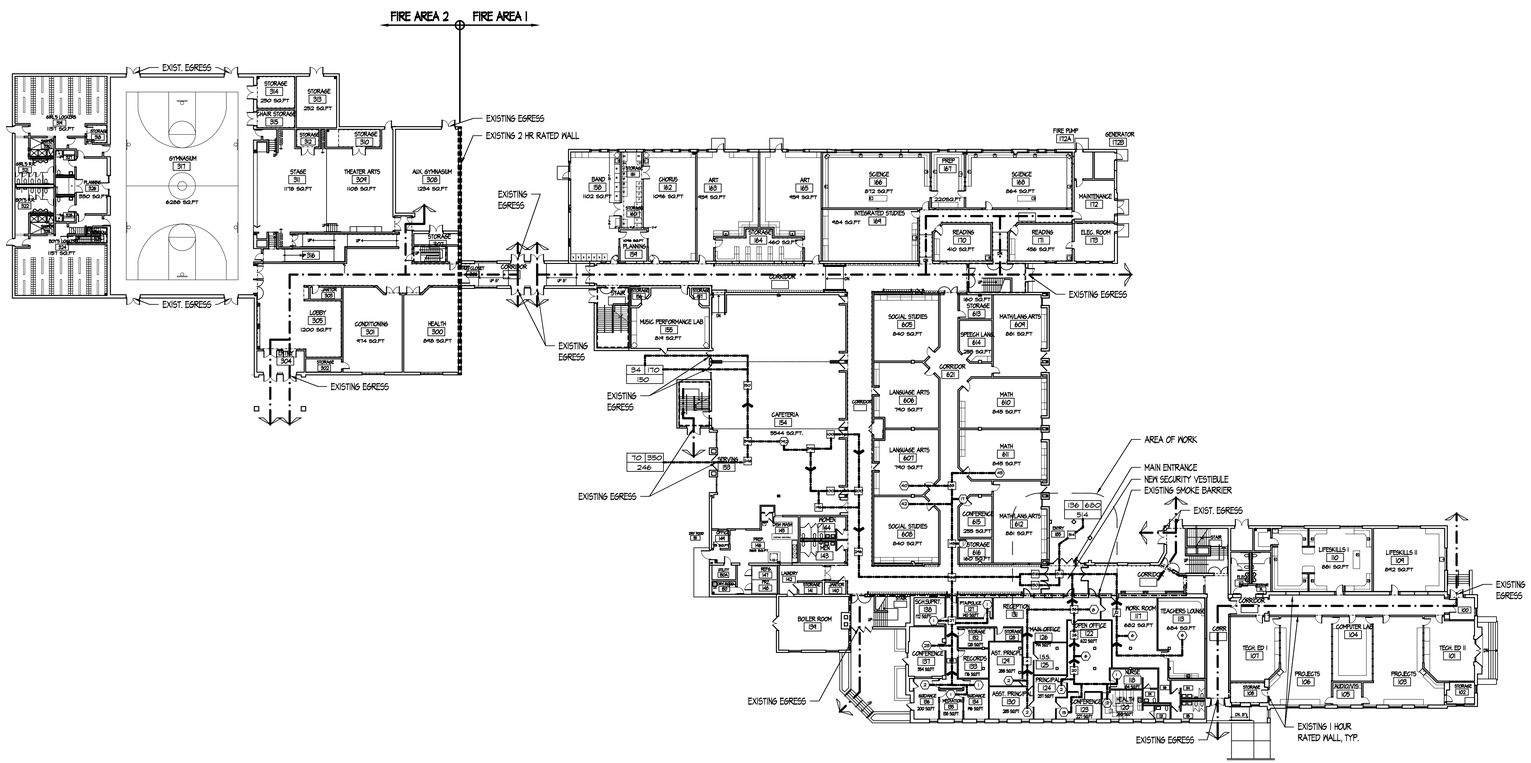
NOTE: REQUIREMENTS 'X'ED OUT ARE LESS STRINGENT. MORE STRINGENT REQUIREMENTS ARE USED.

	REQUIRED	
ITEM	IBC 2015	NFPA-101 2015
EXTERIOR WALLS (LOAD-BEARING)	PER TABLE 601 & 602: X ≥ 30' FIRE SEPARATION DIST. 0 HOURS	
EXTERIOR WALLS (NON-LOAD-BEARING)	PER TABLE 601 & 602: X ≥ 30' FIRE SEPARATION DIST. 0 HOURS	
PRIMARY STRUCTURAL FRAME	PER TABLE 601: 0 HOURS	
FLOOR CONSTRUCTION & SECONDARY MEMBERS	PER TABLE 601: 0 HOURS	
ROOF CONSTRUCTION & SECONDARY MEMBERS	PER TABLE 601: 0 HOURS	
INTERIOR WALLS (LOAD-BEARING)	PER TABLE 601: 0 HOURS	
INTERIOR WALLS (NON-LOAD-BEARING)	PER TABLE 601: 0 HOURS	
FIRE WALLS	PER TABLE 706.4, EXC A: 2 HOURS	PER SECTION 7.2.4.3: 2 HOURS
FIRE PARTITIONS	PER SECTION 708.3: 1 HOUR	PER SECTION 15.3.6 (2): NO SPECIAL REQUIREMENTS
CORRIDORS	PER TABLE 1020.1: 0 HOURS W/ SPRINKLER SYSTEM	PER SECTION 15.3.6 (2): 0 HOURS W/ SPRINKLER SYSTEM
DEAD END CORRIDORS	PER SECTION 1020.4, EXC 2: 50' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.5.2: 50' MAX W/ SPRINKLER SYSTEM
COMMON PATH OF TRAVEL	PER SECTION 1006.2.1: 75' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.5.3.1: 100' MAX W/ SPRINKLER SYSTEM
EXIT ACCESS TRAVEL	PER TABLE 1017.2: 250' MAX W/ SPRINKLER SYSTEM	PER SECTION 15.2.6.3: 200' MAX W/ SPRINKLER SYSTEM
REMOTENESS	PER SECTION 1007.1.1(2): 1/3 OF DIAG. DISTANCE	PER SECTION 7.5.1.3.3: 1/3 OF DIAG. DISTANCE
CORRIDOR WIDTH	PER SECTION 1020.2: 44" W/ CAPACITY < 100 72" W/ CAPACITY ≥ 100	PER SECTION 15.2.3.2: 72" EXIT ACCESS CORRIDORS
	PER SECTION 1005.3.2: 0.2" PER OCCUPANT	PER TABLE 7.3.3.1: 0.2" PER OCCUPANT
STAIRWAY WIDTH	PER SECTION 1011.2: 36" W/ CAPACITY < 50 44" W/ CAPACITY ≥ 50	PER TABLE 7.2.2.2.1.2(B): TOTAL CUMULATIVE OCC. LOAD: 44" W/ CAPACITY < 2000 56" W/ CAPACITY > 2000
	PER SECTION 1005.3.1: 0.3" PER OCCUPANT	PER TABLE 7.3.3.1: 0.3" PER OCCUPANT

APPLICABLE BUILDING CODES:

AUTHORITY HAVING JURISDICTION: FREDERICK COUNTY, MARYLAND

1. BUILDING CODE:	2015 INTERNATIONAL BUILDING CODE (IBC) WITH AMENDMENTS MARYLAND BUILDING REHABILITATION CODE COMAR
2. FIRE CODE:	2015 NFPA 101 LIFE SAFETY CODE (LSC) W/ AMENDMENTS 2015 NFPA 1 FIRE CODE (LSC) W/ AMENDMENTS MARYLAND STATE FIRE PREVENTION CODE
3. MECHANICAL:	2015 INTERNATIONAL MECHANICAL CODE (IMC)
4. ENERGY:	2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
5. GAS:	2015 INTERNATIONAL FUEL GAS CODE (IFGC) WITH AMENDMENTS
6. PLUMBING:	2015 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS
9. ELECTRICAL:	2014 NATIONAL ELECTRIC CODE (NEC)
10.ACCESSIBILITY:	2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (2010 STANDARDS) MARYLAND STATE ACCESSIBILITY CODE (COMAR.05.02.02)



1 CA1.1 FIRST FLOOR EGRESS FLOOR PLAN

SCALE: 1/32" = 1'-0"

32 16 0 16 32 48 64 SCALE FEET

TRUE NORTH — PLAN NORTH

NOTE: THIS EGRESS PLAN IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY TO INDICATE THE LOCATION OF ALL MAIN POINTS OF EGRESS FROM THE BUILDING'S LEVEL OF EXIT DISCHARGE. ALTHOUGH NO OCCUPANT LOAD OR EXIT CAPACITY CALCULATIONS WERE PERFORMED, NO INCREASE OR DECEASE IN OCCUPANT LOAD WILL RESULT FROM THESE MODIFICATIONS. SIMILARLY, THE IMPROVEMENTS FOR THE SECURITY VESTIBULE AT THE MAIN ENTRANCE WILL IN NO WAY COMPROMISE OR REDUCE THE EGRESS CAPACITY THROUGH THE MAIN ENTRANCE WHEN CONSIDERED AS A POINT OF EGRESS.

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FCPS RFQ #20C2

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PROJECT NO.: 15-30.05
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CODE ANALYSIS & EGRESS FLOOR PLAN

CA1.1

TYPICAL DEMOLITION GENERAL NOTES:

1. AREAS OF DEMOLITION DENOTED BY DASHED LINES.
2. THE CONTRACTOR SHALL RETURN ALL SALVAGEABLE MATERIAL AND/OR EQUIPMENT NOTED TO BE REMOVED ON SHEET A1.1 TO THE OWNER. THE OWNER SHALL STORE SALVAGEABLE MATERIAL AND/OR EQUIPMENT AT THEIR DISCRETION. THE CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGEABLE MATERIALS IN ACCORDANCE WITH OWNER'S RECOMMENDATIONS AND LOCAL ZONING CODES.
3. THE CONTRACTOR SHALL CONSULT WITH THE ARCHITECT ON ANY CONCEALED CONDITIONS UNCOVERED DURING DEMOLITION THAT IMPEDES THE EXECUTION OF THE DESIGN AS INDICATED ON THE DRAWINGS.
4. ALL AREAS OF DEMOLITION SHALL BE PATCHED OR REPAIRED AS REQUIRED.
5. COORDINATE DEMOLITION WITH PROPOSED NEW CONSTRUCTION INCLUDING CEILINGS, LIGHTS, POWER, DATA, SPRINKLER HEADS, WALLS, DOORS, FRAMES, HARDWARE, FINISHES, CONCRETE SLABS, ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE TO TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE BUILDING AT ALL TIMES AND TO PROVIDE AND BE RESPONSIBLE FOR SHORING AND BRACING REQUIRED THROUGHOUT THE CONSTRUCTION PERIOD.
7. ANY ITEMS NOT NOTED TO BE DEMOLISHED, BUT REQUIRING REMOVAL IN ORDER TO ACCOMPLISH THE REQUIRED DEMOLITION WORK, SHALL BE REINSTALLED OR REPLACED IN KIND IN LOCATION DIRECTED BY OWNER UPON COMPLETION OF THE NEW CONSTRUCTION UNLESS OTHERWISE NOTED.
8. JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. ANY AREAS DAMAGED BY THE DEMOLITION AND/OR CONSTRUCTION WORK SHALL BE REPAIRED AND/OR RECEIVE NEW SUBSTRATES, FINISHES, AND/OR MATERIALS TO MATCH THE EXISTING AFFECTED ITEMS. ANY REPAIR OR REPLACEMENT WORK SHALL BE PERFORMED TO A LEVEL OF QUALITY EQUAL TO THAT FOUND PRIOR TO BEGINNING WORK ON THIS PROJECT.
10. THE SELECTIVE DEMOLITION AS SHOWN ON THE DRAWINGS IS DIAGRAMMATIC, AND IN NO WAY ATTEMPTS TO SHOW ALL EXISTING FIXTURES, CONNECTIONS AND FITTINGS, AND OTHER MISCELLANEOUS ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING/COORDINATING ALL MISCELLANEOUS DEMOLITION AS REQUIRED DUE TO FIELD CONDITIONS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL THE CONTAINMENT OF DUST AND DEBRIS DURING THE DEMOLITION PERIOD AND SHALL OBTAIN ALL REQUIRED PERMITS AND COORDINATE WITH THE CITY BUILDING DEPARTMENT THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. DAILY SITE CLEANING WILL BE REQUIRED WITH ADDITIONAL CLEANING IF REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
12. PRIOR TO BEGINNING DEMOLITION, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A DEMOLITION PLAN OUTLINING THE DESIRED PLACEMENT OF DUMPSTERS, DUST AND DEBRIS CONTROL MEASURES AND SCHEDULE OF ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO EACH DEMOLITION ACTIVITY.
13. PROVIDE TEMPORARY COVER OR PARTITIONS TO PROTECT EXIST. BUILDING DURING CONSTRUCTION FROM EXPOSURE TO AND DAMAGE FROM THE ELEMENTS.
14. EXISTING FINISHES SPECIFICALLY NOT CALLED OUT TO BE REMOVED ARE TO REMAIN (PAINT, FLOORING, ETC.). PREPARE EXISTING SURFACES FOR APPLICATION OF NEW FINISHES AS REQUIRED BY MANUFACTURER RECOMMENDATIONS
15. SEE MECHANICAL, PLUMBING, & ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

SELECTIVE DEMOLITION NOTES:

1. REMOVE EXISTING DOOR, FRAME, GLAZING AND ASSOCIATED HARDWARE (INCLUDING HOLD OPENS, FLOOR AND WALL BUMPERS). MODIFY OPENING TO ACCOMMODATE NEW FRAME/WALL. PATCH AND REPAIR ALL ADJACENT SURFACES SHOWN TO REMAIN, UNLESS OTHERWISE NOTED.
2. REMOVE AND RELOCATE EXISTING SURFACE MOUNTED FIRE ALARM PULL STATION. SEE PROPOSED FLOOR PLANS AND ELECTRICAL DRAWINGS FOR NEW LOCATION. PATCH AND REPAIR ADJACENT SURFACES TO MATCH EXISTING CONDITIONS.
3. REMOVE & SALVAGE EXISTING DISPLAY CASE, INCLUDING GLASS SHELVES, GLASS DOORS, TRACK, AND TRIM. REPAIR & PATCH ADJ. SURFACES SHOWN TO REMAIN AND PREP TO RECEIVE NEW FINISHES. COORD. RELOCATION W/ FCPS.
4. REMOVE PORTION (UNLESS OTHERWISE NOTED) OF EXISTING MASONRY, FURRING AND GYP. BD. WALL TO ACCOMMODATE NEW DOOR OPENING AND REQ'D ADA CLEARANCES. SHORE OPENING AND INSTALL NEW STEEL LINTEL TO SUPPORT WALL ABOVE ENLARGED OPENING. PATCH AND REPAIR ADJACENT SURFACES AS REQUIRED TO MATCH EXIST. CONDITIONS.
5. REMOVE EXIST. CARPET AND PREP. SLAB TO RECEIVE NEW VCT TO MATCH EXISTING VCT IN CORRIDOR.

DEMOLITION KEY:

- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN
- WALL TO BE REMOVED
- WINDOW TO BE REMOVED
- DOOR AND FRAME TO BE REMOVED

PROPOSED KEY:

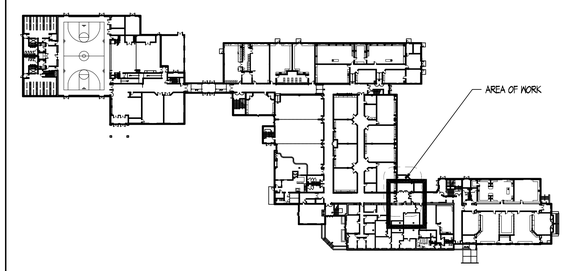
- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN
- NEW WALL
- 1-100 NEW DOOR AND FRAME
- SF-1 NEW STOREFRONT

NEW CONSTRUCTION GENERAL NOTES:

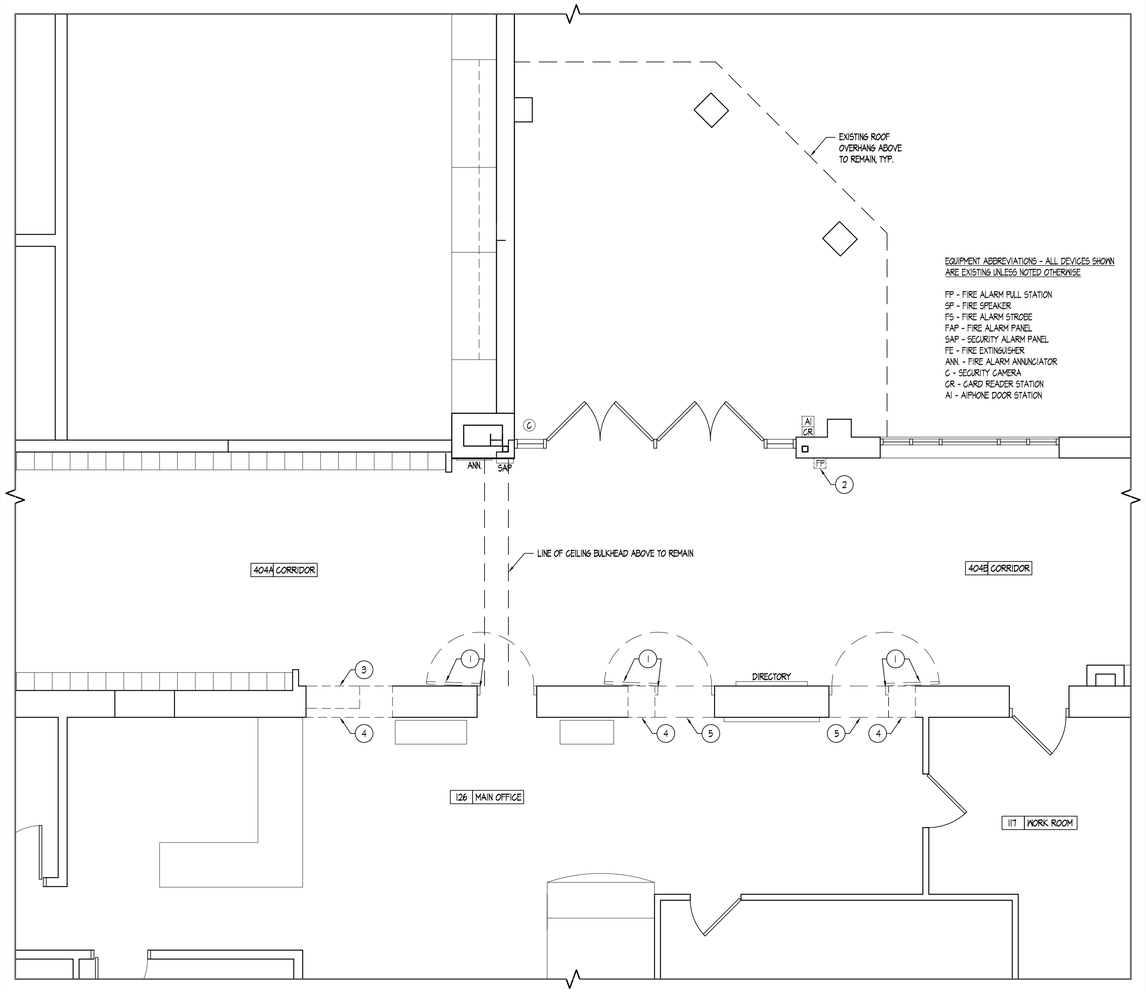
1. DIMENSIONS NOTED "CLR" (CLEAR) ARE NOT ADJUSTABLE WITHOUT APPROVAL FROM THE ARCHITECT.
2. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND EXISTING FIELD CONDITIONS, THE GENERAL CONTRACTOR SHALL IMMEDIATELY CONTACT THE ARCHITECT FOR DIRECTION.
3. ALL NEW PARTITIONS SHOWN ABUTTING TO EXISTING COLUMNS OR WALLS SHALL ALIGN WITH FACE OF EXISTING FINISHED SURFACE UNLESS OTHERWISE NOTED IN THE DRAWINGS.
4. PATCH AND FINISH EXISTING AREAS DISTURBED BY CONSTRUCTION OF NEW ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL WORKS. RESTORE AND REPAIR TO MATCH EXISTING ADJACENT AREA IN MATERIAL AND FINISH.
5. ALL PIPE AND CONDUIT PENETRATIONS THROUGH ANY FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED WITH TESTED UL RATED THROUGH PENETRATION FIRE STOP SYSTEMS BEARING THE REQUIRED RATINGS.

BUILDING KEY PLAN:

NOT TO SCALE



TRUE NORTH PLAN NORTH

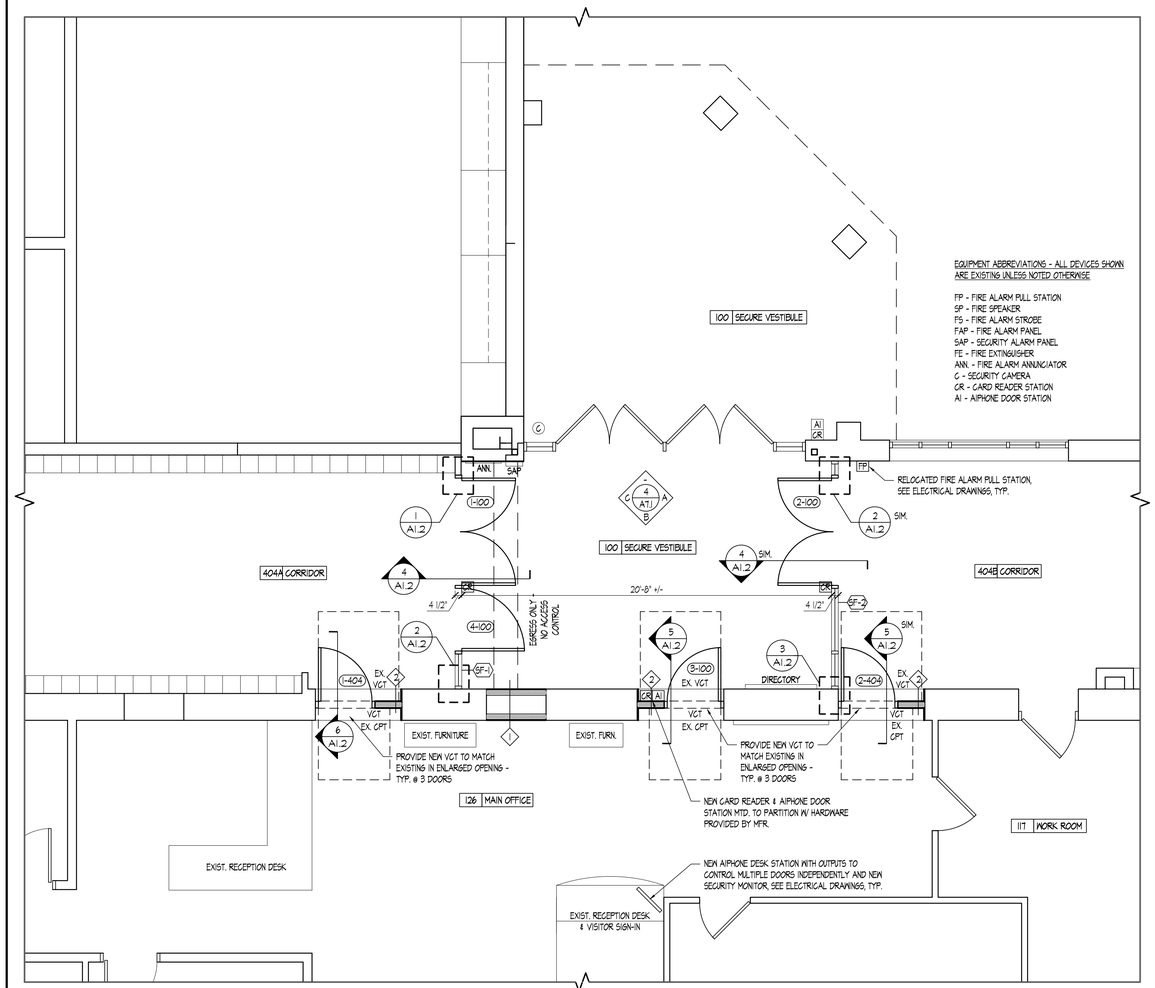


1 A1.1 EXISTING / DEMOLITION FLOOR PLAN

SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8 SCALE FEET

TRUE NORTH PLAN NORTH



2 A1.1 PROPOSED FLOOR PLAN

SCALE: 1/4" = 1'-0"

4 2 0 2 4 6 8 SCALE FEET

TRUE NORTH PLAN NORTH

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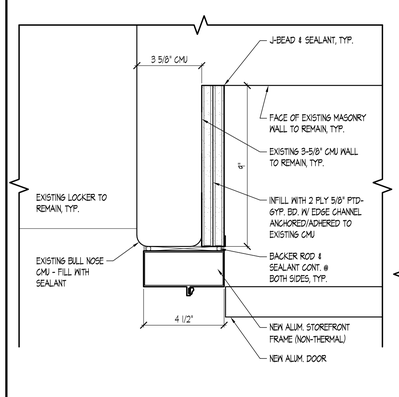
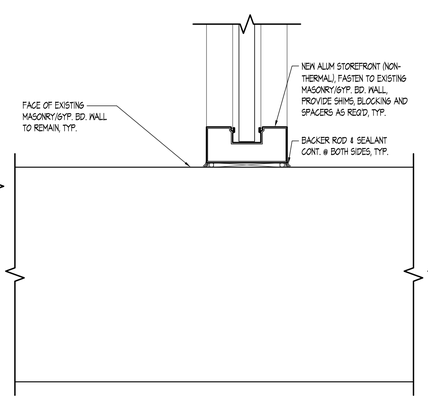
EXISTING / DEMOLITION & PROPOSED FLOOR PLANS

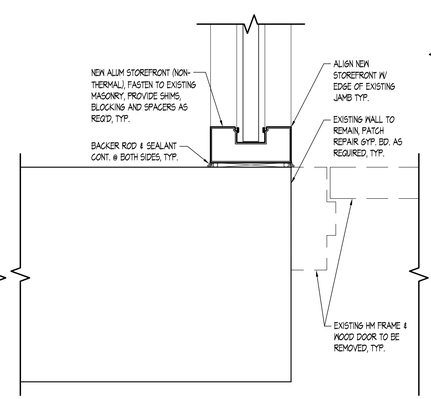
A1.1



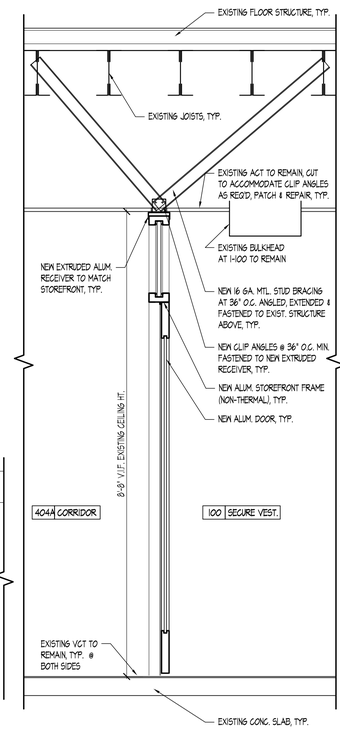
1 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"



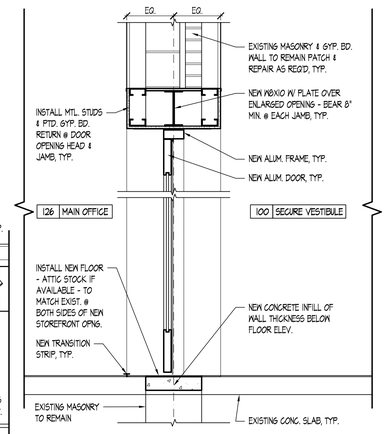
2 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"



3 A1.2 PLAN DETAIL
SCALE: 3" = 1'-0"

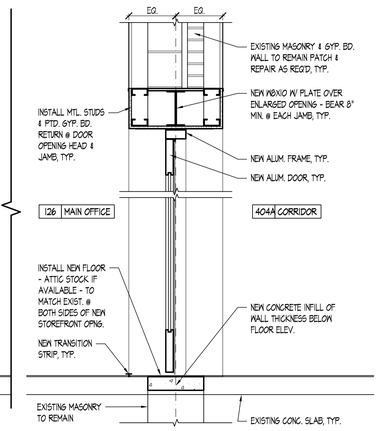


4 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"



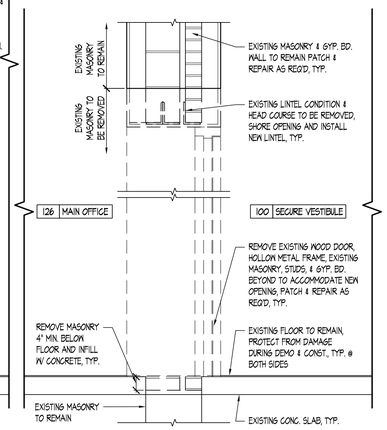
5 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"

PROPOSED WALL SECTION

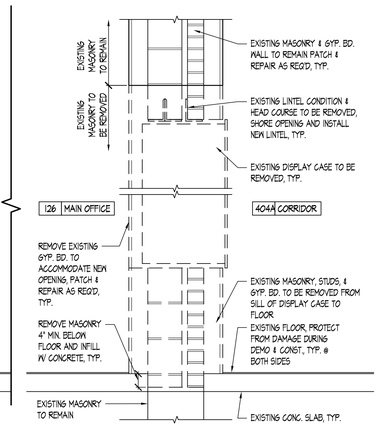


6 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"

PROPOSED WALL SECTION



EXISTING / DEMOLITION WALL SECTION



EXISTING / DEMOLITION WALL SECTION

6 A1.2 WALL SECTION
SCALE: 3/4" = 1'-0"

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PROPOSED
PLAN DETAILS
& WALL SECTIONS

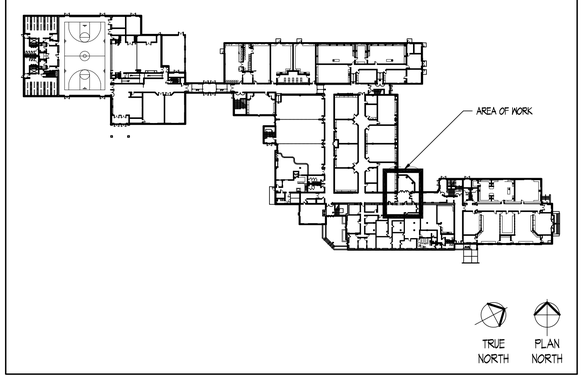
A1.2

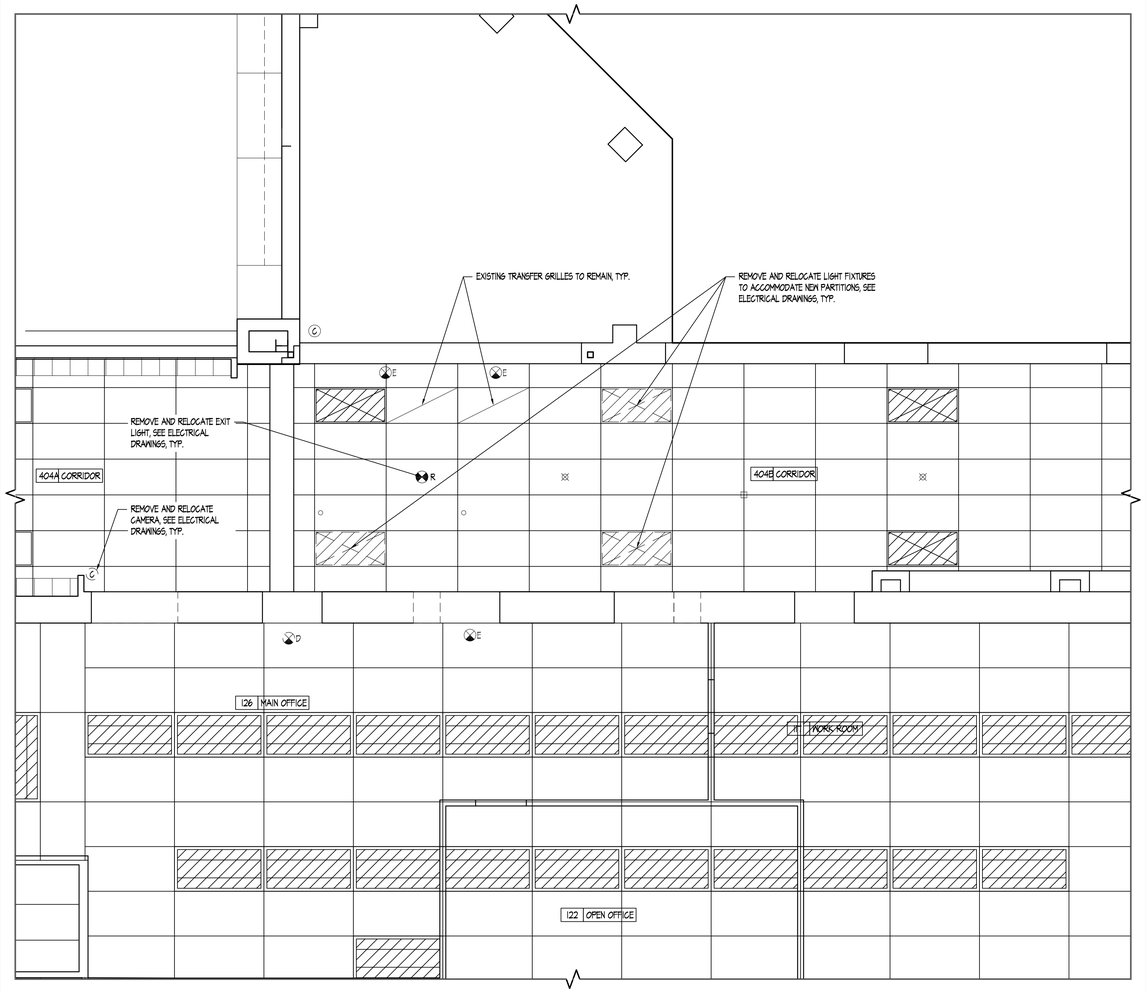
REFLECTED CEILING PLAN KEY:

	EXISTING 2'-6" x 5'-0" CEILING GRID W/ EXISTING ACOUSTICAL CEILING TILE
	EXISTING 2'-6" x 5'-0" FLUORESCENT LIGHT FIXTURE TO REMAIN
	EXISTING 2'-0" x 4'-0" CEILING GRID W/ EXISTING ACOUSTICAL CEILING TILE
	EXISTING 2'-0" x 4'-0" FLUORESCENT LIGHT FIXTURE TO REMAIN
	EXISTING 2'-0" x 4'-0" LIGHT FIXTURE TO BE REMOVED & SALVAGED FOR RE-USE
O RELOC.	SALVAGED EXISTING 2'-0" x 4'-0" LIGHT FIXTURE IN NEW LOCATION
E	EXISTING EXIT DEVICE
N	NEW EXIT DEVICE
R	RELOCATED EXIT DEVICE
	EXISTING SPRINKLER HEAD
N	NEW SPRINKLER HEAD
	EXISTING CAMERA
R	RELOCATED CAMERA

BUILDING KEY PLAN:

NOT TO SCALE



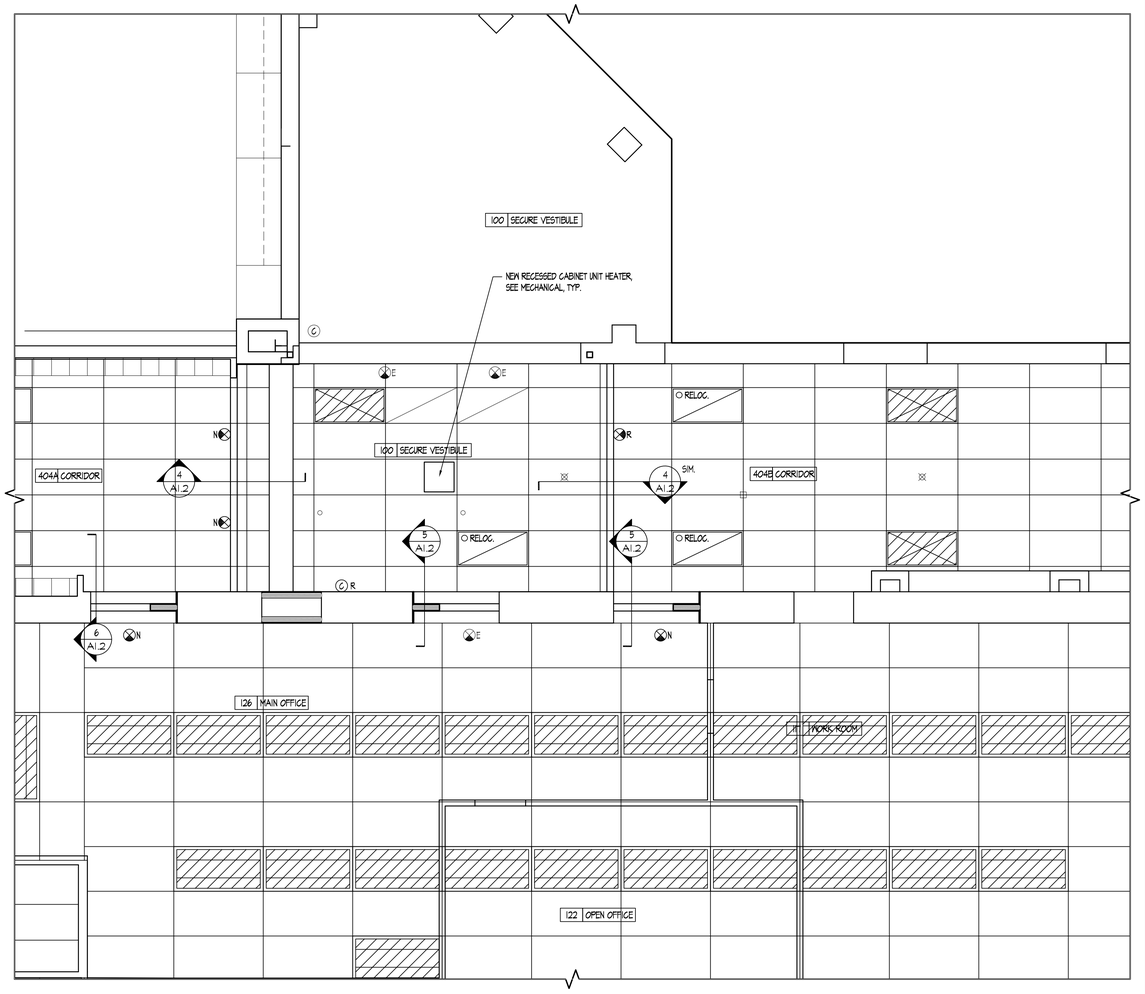


1 / A6.1 EXISTING / DEMOLITION REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET

TRUE NORTH PLAN NORTH



2 / A6.1 PROPOSED REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET

TRUE NORTH PLAN NORTH

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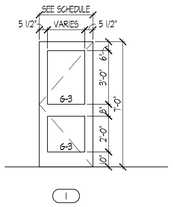
EXISTING / DEMO. & PROPOSED REFLECTED CEILING PLANS

A6.1

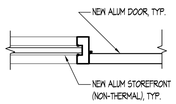


1

1 DOOR TYPES
A7.1

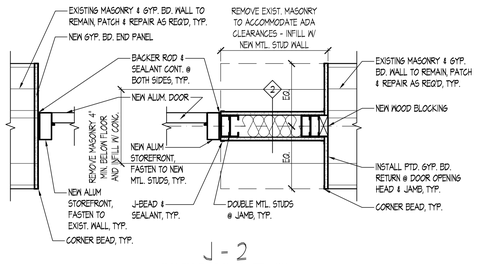
SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET



J - 1

ALUM. FRAME @ ALUM. STOREFRONT



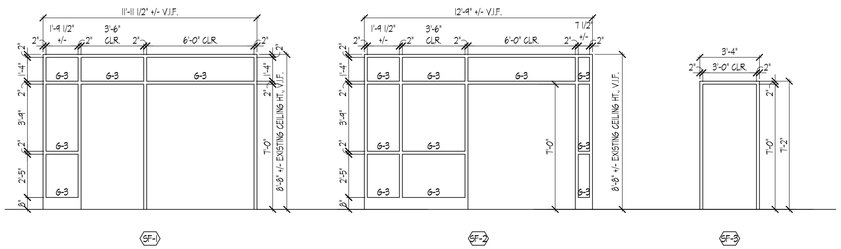
J - 2

ALUM. FRAME @ EXIST. MODIFIED WALL

2 JAMB TYPES
A7.1

SCALE: 1" = 1'-0"

SCALE 1 1/2 0 1/2 1 1-1/2 2 FEET



3 STOREFRONT TYPES
A7.1

SCALE: 1/4" = 1'-0"

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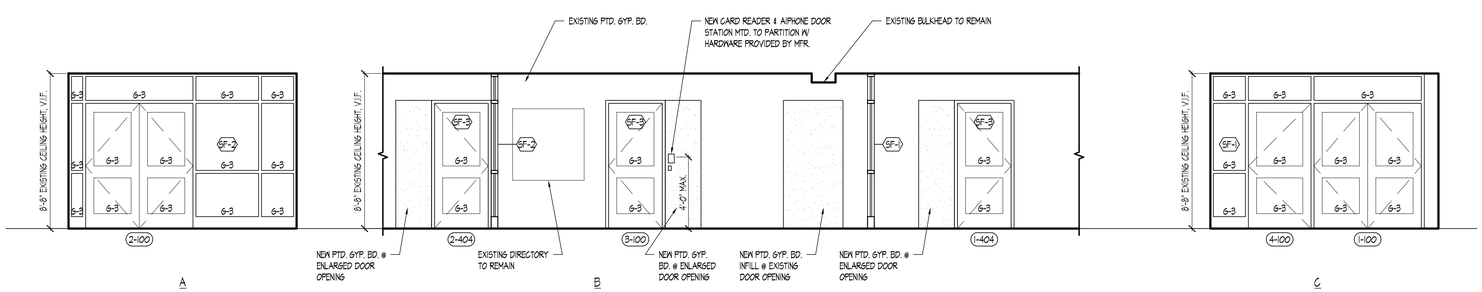

4 INTERIOR ELEVATIONS
A7.1

SCALE: 1/4" = 1'-0"

SCALE 4 2 0 2 4 6 8 FEET

DOOR SCHEDULE

OPENING NUMBER	SIZE			DOOR			FRAME			JAMB TYPE	HARDWARE SET	REMARKS
	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH			
1-100	(2) 3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-1	ALUM.	CA	1/A1.2 / J-1	HW # 1	CARDREADER
2-100	(2) 3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-2	ALUM.	CA	J - 1	HW # 1	CARDREADER
3-100	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-3	ALUM.	CA	J - 2	HW # 2	SMOKE RATED OPENING / PROVIDE CLOSER AND CARDREADER
4-100	3'-6"	7'-0"	1-3/4"	1	ALUM.	CA	SF-1	ALUM.	CA	J - 1	HW # 3	-
1-404	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-3	ALUM.	CA	J - 2	HW # 4	SMOKE RATED OPENING / PROVIDE CLOSER
2-404	3'-0"	7'-0"	1-3/4"	1	ALUM.	CA	SF-3	ALUM.	CA	J - 2	HW # 4	SMOKE RATED OPENING / PROVIDE CLOSER

CA - CLEAR ANODIZED

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOORS		WALLS								CEILING		REMARKS
				NORTH		EAST		SOUTH		WEST				
		MATERIAL	BASE	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	HEIGHT	
100	SECURE VESTIBULE	EXIST. /VCT	EXIST. / RB-1 *	EXIST.	-	SF-2 / GYP. BD.	PREFIN. / PTD-1 **	EXIST. / GYP. BD.	PTD-1 **	SF-1	PREFIN.	EXIST.	-	VCT INFILL @ NEW/MODIFIED DOOR OPENINGS * INSTALL RB-1 @ GYP. BD. INFILL 1 ** PAINT AT NEW GYP. BD.
126	MAIN OFFICE	EXIST. /VCT.	EXIST. / RB-1 *	EXIST. / GYP. BD.	PTD-1 ** / PREFIN.	EXIST.	-	EXIST.	-	EXIST.	-	EXIST.	-	VCT INFILL @ NEW/MODIFIED DOOR OPENINGS * INSTALL RB-1 @ GYP. BD. INFILL 1 ** PAINT AT NEW GYP. BD.
404A	CORRIDOR	EXIST. /VCT	EXIST. / RB-1 *	EXIST.	-	SF-1	PREFIN.	EXIST. / GYP. BD.	PTD-1 **	EXIST.	-	EXIST.	-	VCT INFILL @ NEW/MODIFIED DOOR OPENINGS * INSTALL RB-1 @ GYP. BD. INFILL 1 ** PAINT AT NEW GYP. BD.
404B	CORRIDOR	EXIST. /VCT.	EXIST. / RB-1 *	EXIST.	-	EXIST.	-	EXIST. / GYP. BD.	PTD-1 **	SF-2	PREFIN.	EXIST.	-	VCT INFILL @ NEW/MODIFIED DOOR OPENINGS * INSTALL RB-1 @ GYP. BD. INFILL 1 ** PAINT AT NEW GYP. BD.

FINISH SELECTIONS SCHEDULE

TYPE	ABBR.	FINISH	SELECTION	REMARKS
FLOORING	VCT-1	VINYL COMPOSITE TILE	SEE SPECIFICATIONS	MATCH EXISTING USING ATTIC STOCK
BASE	RB-1	RUBBER BASE	SEE SPECIFICATIONS	MATCH EXISTING ROPPE 4" BASE USING ATTIC STOCK
WALL	PTD-1	TYPICAL WALL PAINT	SEE SPECIFICATIONS	MATCH EXISTING PAINT USING ATTIC STOCK
CEILING	ACT-1	ACOUSTICAL CEILING TILE	SEE SPECIFICATIONS	MATCH EXISTING ARMSTRONG TILE USING ATTIC STOCK

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I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No. 14510
EXPIRATION DATE 03-07-2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
THURMONT MIDDLE SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
408 EAST MAIN STREET
THURMONT, MARYLAND 21788

FCPS RFQ #20C2

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ISSUE

REV	DATE	DESCRIPTION
	08/20/19	PERMIT SET
	10/04/19	BID SET

PROJECT NO.: 15-30.05
DATE: 10-09-2019

SCHEDULES & TYPES

A7.1

HVAC ABBREVIATIONS

AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
DIA	DIAMETER
DIFF	DIFFUSER
DPR	DAMPER
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELECT	ELECTRIC
ENT	ENTERING
EQUIP	EQUIPMENT
EXIST	EXISTING
GC	GENERAL CONTRACTOR
GR	GRILLE
HC	HVAC CONTRACTOR
HTG	HEATING
HZ	FREQUENCY (HERTZ)
KW	KILOWATT
LBS	POUNDS
LTG	LIGHTING
MBH	THOUSAND BTU's
MFGR	MANUFACTURER
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
%	PERCENT
PH	PHASE
QNTY	QUANTITY
RA	RETURN AIR
SA	SUPPLY AIR
SCH	SCHEDULE
SPEC	SPECIFICATION
SQ FT	SQUARE FEET
TAB	TEST, ADJUST AND BALANCE
T'STAT	THERMOSTAT
TYP	TYPICAL
V	VOLT
XR	EXISTING TO REMAIN

HVAC EQUIPMENT ABBREVIATIONS

AHU	AIR HANDLING UNIT
ECUH	ELECTRIC CABINET UNIT HEATER
FCU	FAN COIL UNIT
RHC	REHEAT COIL
UH	UNIT HEATER

HVAC SYMBOLS

(T)	THERMOSTAT
	CONNECTION POINT - NEW TO EXISTING
	DISCONNECTION POINT
(X)	NUMBERED NOTES
(X)	REVISION SEQUENCE
(S1)(2) (TAG)(THROWS) 200 AIRFLOW	GRILLE, REGISTER AND DIFFUSER TAG
	SUPPLY DIFFUSER - 4-WAY BLOW
	AIR FLOW ARROW
	CEILING MOUNTED RETURN OR EXHAUST GRILLE / REGISTER

ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT

1. GENERAL REQUIREMENTS

   A. HVAC CONTRACTOR SHALL PROVIDE MECHANICAL EQUIPMENT WITH VOLTAGES AND OTHER ELECTRICAL CHARACTERISTICS AS INDICATED ON THE DRAWINGS AND WITHIN THE SPECIFICATIONS.

   B. ALL STARTERS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, AND VARIABLE FREQUENCY DRIVES, FOR EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED UNDER DIVISION 23 AND INSTALLED UNDER DIVISION 26. FACTORY MOUNTED STARTERS, DISCONNECTS SWITCHES, AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. HVAC CONTRACTOR SHALL PROVIDE STARTERS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS AND VARIABLE FREQUENCY DRIVES IN ACCORDANCE WITH DIVISION 26.

   C. HVAC CONTRACTOR SHALL SUBMIT WIRING DIAGRAMS TO THE ARCHITECT/ENGINEER FOR APPROVAL AND PROVIDE APPROVED DIAGRAMS TO THE ELECTRICAL CONTRACTOR SO THAT THE ELECTRICAL WORK MAY BE PROPERLY ACCOMPLISHED.

   D. HVAC CONTRACTOR SHALL FULLY COOPERATE WITH THE OTHER DIVISIONS AND TRADES ON THE PROJECT, AND THEIR MANUFACTURERS, IN PROMPTLY PROVIDING THE INFORMATION REQUIRED FOR PROPER COORDINATION OF MOTOR PROTECTION, CONTROL EQUIPMENT AND WIRING, AND THE OTHER CHARACTERISTICS OF THE EQUIPMENT.

   E. IT SHALL BE THE RESPONSIBILITY OF THE HEATING AND ELECTRICAL CONTRACTORS TO CHECK FOR ADEQUACY OF SUPPLY WIRING, OVERCURRENT PROTECTION, PROPER VOLTAGE, PHASE ROTATION AND FINAL LOCATION OF EQUIPMENT PROVIDED PRIOR TO THE RUNNING OF ANY CONDUIT OR WIRING. COORDINATE WITH DIVISION 26 TO ASSURE PROPER ELECTRICAL SERVICE IS PROVIDED TO EQUIPMENT UNDER DIVISION 23.

   F. EQUIPMENT CONNECTIONS SHALL BE MADE THROUGH CONDUIT OR RACEWAYS IN ACCORDANCE WITH DIVISION 26, WITH THE EXCEPTION THAT CONNECTIONS TO MOTORS SHALL BE MADE THROUGH LIQUID TIGHT FLEXIBLE METAL CONDUIT WITH EQUIPMENT GROUNDING CONDUCTOR.

2. POWER REQUIREMENTS

   A. ALL POWER WIRING FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26 TO THE POINT OF FINAL CONNECTION (FROM THE SOURCE TO THE STARTERS, DISCONNECT SWITCHES, MCC'S OR VFD'S AND TO EQUIPMENT, MOTOR, OR OTHER CONNECTION POINT). EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, ALL POWER WIRING TO THE POINT OF FINAL CONNECTION FOR EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE ACCOMPLISHED UNDER DIVISION 26.

   B. FINAL ELECTRICAL POWER CONNECTIONS TO ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26. IN GENERAL, THE POINT OF FINAL CONNECTION SHALL BE THE TERMINAL HOUSING ON THE EQUIPMENT, MOTOR, OR AN INTERNAL JUNCTION BOX ON THE EQUIPMENT OR ITEM. IF NO JUNCTION BOX IS FURNISHED, A JUNCTION BOX SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26. WIRE LEADS OF ADEQUATE LENGTH TO ENSURE A PROPER CONNECTION AT THE FINAL LOCATION SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26.

   C. WIRING, OVERCURRENT PROTECTION DEVICES, VOLTAGE, PHASE, ROTATION AND FINAL LOCATION OF ALL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE COORDINATED WITH ALL SIMILAR DEVICES AND POWER WIRING FURNISHED AND INSTALLED UNDER DIVISION 26. COORDINATION SHALL BE ACCOMPLISHED PRIOR TO THE RUNNING OF ANY CONDUIT OR WIRING.

3. CONTROL REQUIREMENTS

   A. ALL CONTROL WIRING (LINE VOLTAGE AND/OR LOW VOLTAGE) FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. WIRING FROM THE POWER SOURCE TO ALL CONTROL PANELS, DDC CONTROL PANELS, STARTERS, OPERATOR WORK STATIONS (PC'S, PRINTERS, MONITORS, AND OTHER WORK STATION EQUIPMENT) AND OTHER CONTROL EQUIPMENT REQUIRED FOR A COMPLETE AND OPERABLE CONTROL SYSTEM SERVING MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

   B. ALL WIRING FROM CONTROL PANELS TO CONTROL DEVICES FOR MECHANICAL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATIONS. ALL CONTROL WIRING SHALL BE IN CONDUIT.

   C. UNLESS OTHERWISE NOTED, ALL TEMPERATURE CONTROL DEVICES, INSTALLED PILOT DEVICES, AND ALL ASSOCIATED PILOT CONTROL EQUIPMENT, FOR ALL EQUIPMENT PROVIDED UNDER DIVISION 23, SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

   D. ELECTRICAL CONTROL WIRING FOR CONNECTION OF TEMPERATURE CONTROLLERS, PUSH BUTTONS, INTERLOCKS IN MOTOR CONTROLLERS, PNEUMATIC SWITCHES AND LIKE ITEMS IS SPECIFIED UNDER THE CONTROL SECTION(S) IN DIVISION 23 AND INSTALLED BY DIVISION 23.

   E. ALL MOTORS, MOUNTS, REMOTE MOUNTED PUSH BUTTON CONTROLS AND ALL SPEED CONTROL SWITCHES FOR MULTI-SPEED MOTORS FOR ALL EQUIPMENT PROVIDED UNDER DIVISION 23 SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23.

PROJECT GENERAL NOTES

1. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS AND APPLICABLE CODES AND REGULATIONS.
4. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
5. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50 FT OF BOILER OR PRESSURE-REDUCING VALVES.
6. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS OF STEAM MAINS WITHIN 50 FT OF BOILER OR PRESSURE-REDUCING VALVES.
7. THE LOCATION OF EXISTING EQUIPMENT AND UTILITIES IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
8. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
9. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO THE UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
10. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
11. TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.
12. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
13. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
14. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATION.
15. WHEN MECHANICAL WORK IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDED A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
16. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
17. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
18. ALL EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
19. ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOISTS GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
20. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT SUPPORTED FROM A METAL DECK.
21. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING EQUIPMENT AND UTILITIES BEFORE COMMENCING WORK.

SHEET METAL GENERAL NOTES

1. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS WHERE SPECIFIED.
2. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNERS.
3. UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF REQUIRED.
4. SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.
5. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET.
6. LOCATE ALL MECHANICAL EQUIPMENT (FAN COIL UNITS, CABINET UNIT HEATERS, ETC.) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVES.
7. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
8. COORDINATE DIFFUSERS, REGISTER AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
9. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS AND HUMIDISTATS 42" (CENTERLINE) ABOVE THE FINISHED FLOOR. NOTIFY THE PROFESSIONAL OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.

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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No: 45511 Expiration Date: 06/03/2020

NEW SECURITY VESTIBULE RENOVATIONS FOR:
THURMONT MIDDLE SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
408 EAST MAIN STREET
THURMONT, MARYLAND 21788

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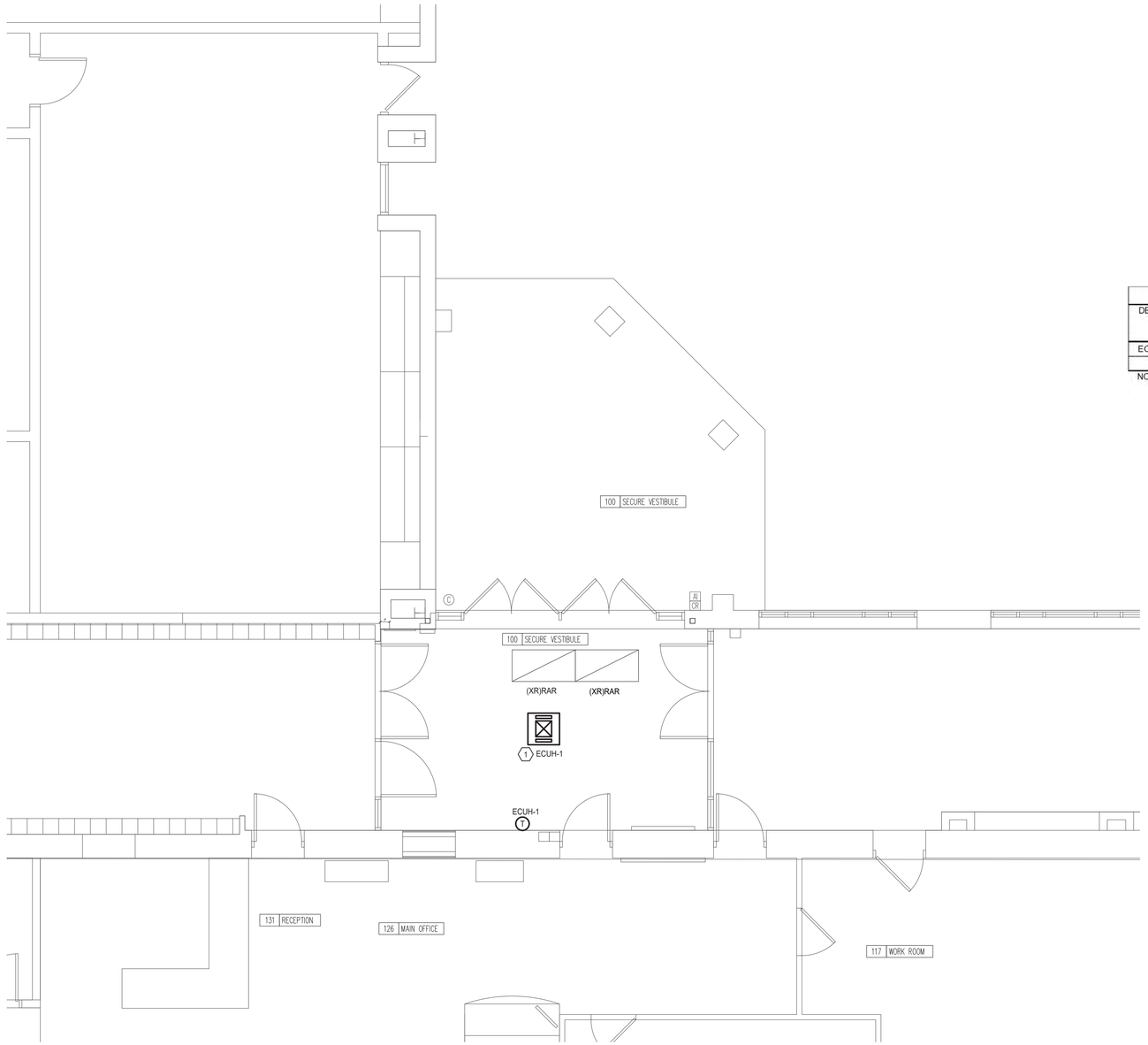
ISSUE

REV	DATE	DESCRIPTION
	08/20/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

SYMBOLS, ABBREVIATIONS, AND NOTES

M001



1 FIRST FLOOR PLAN - NEW WORK - MECHANICAL
M201 SCALE: 1/4"=1'-0"

ELECTRIC CABINET UNIT HEATER SCHEDULE

DESIG.	SERVICE	MIN. CAPACITY (MBH)	MIN. AIRFLOW (CFM)	ELECTRIC KW	ELECTRIC V/PH/HZ	ELECTRIC MCA	MANUF	MODEL
ECUH-1	100 SECURE VEST	6.8	300	2	208V/1Ø/60HZ	9.6	Q MARK	CDF548

NOTES:
1. PROVIDE ALL UNIT HEATERS WITH FACTORY PROVIDED MANUAL STARTER AND DISCONNECT SWITCH BY UNIT MANUFACTURER.
2. PROVIDE ALL UNIT HEATERS WITH FACTORY PROVIDED RECESS MOUNTING ENCLOSURE BY UNIT MANUFACTURER.

NUMBERED NOTES:

1 PROVIDE NEW ELECTRIC CABINET UNIT HEATER RECESSED MOUNT. REFER TO SCHEDULES FOR ADDITIONAL DETAILS.

SPRINKLER NOTES:

G1. REVISE/EXTEND EXISTING WET SPRINKLER PIPE. MODIFY, RELOCATE PIPE, ADD HEADS AS NECESSARY TO ACCOMMODATE RENOVATION AS REQUIRED. PROVIDE SPRINKLER DRAWING TO FIRE MARSHAL, INSTALL PER NFPA 13 AND COORDINATE INSTALLATION WITH LOCAL FIRE MARSHAL. COORDINATE/VERIFY EXACT LIMITS OF AREA AFFECTED TO BE REVISED WITH ARCHITECTURAL DRAWINGS.

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CJL Project #18-0546

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No: 45511 Expiration Date: 06/03/2020

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ISSUE

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	08/20/19	PERMIT
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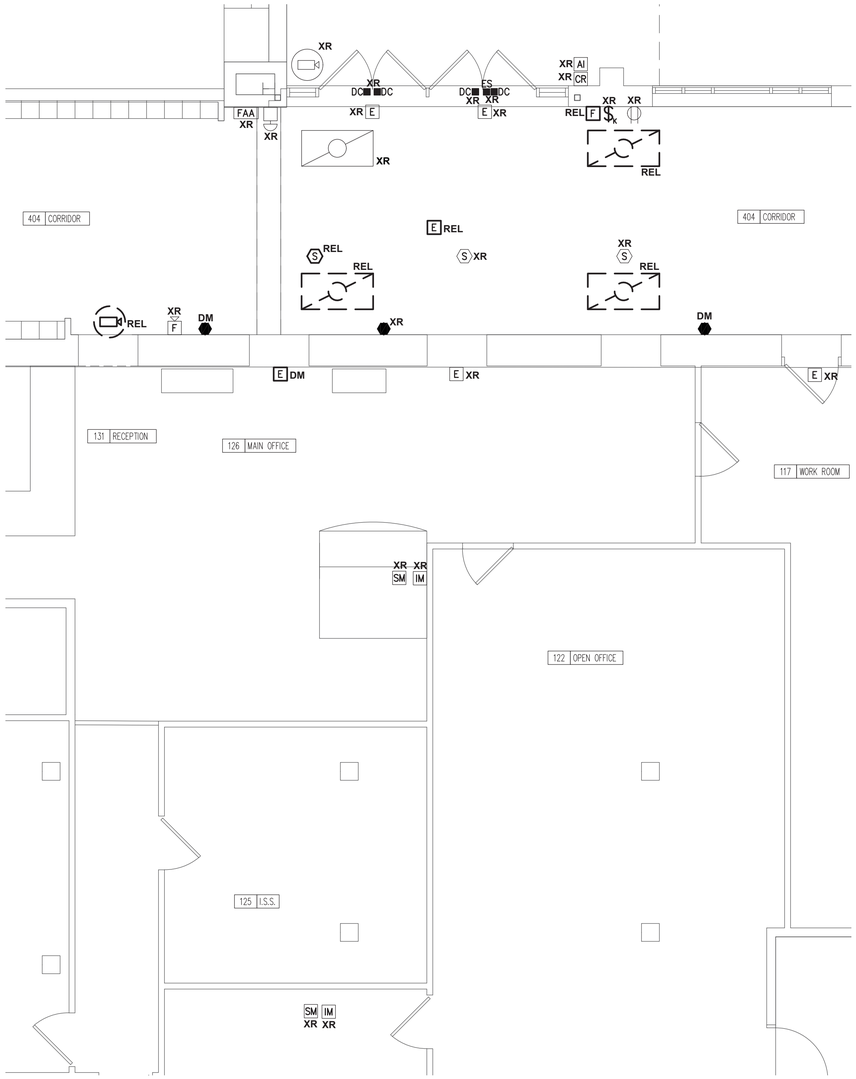
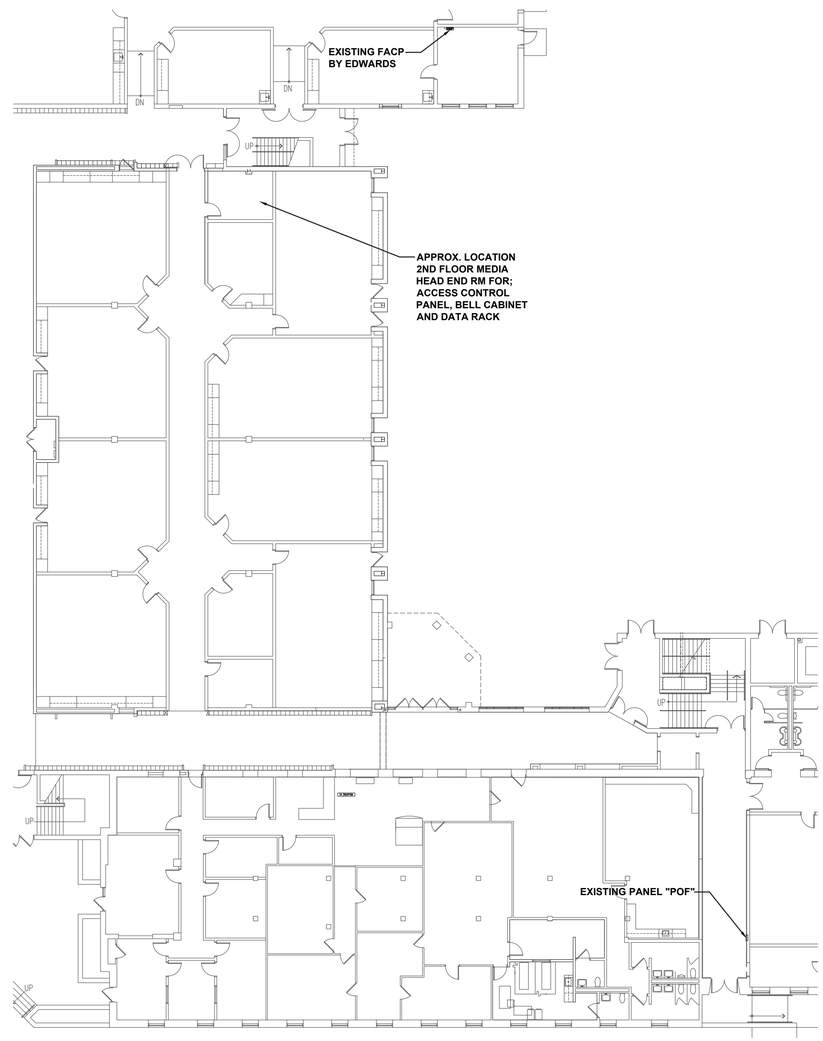
PROJECT NO.: 18-0846
DATE: 10-09-19

FIRST FLOOR PLAN - NEW WORK - MECHANICAL

M201



1 E101 **FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL**
SCALE: 1/4"=1'-0"



2 E101 **FIRST FLOOR PLAN - REFERENCE**
SCALE: 1/16"=1'-0"

EXISTING CONDITIONS/DEMOLITION NOTES:

D1. CONDUITS & WIRING REQUIRED FOR THE CONTINUITY OF LIGHTING, OUTLETS, SYSTEMS AND EQUIPMENT THAT IS TO REMAIN SHALL REMAIN UNDISTURBED OR SHALL BE RECONNECTED BY THE CONTRACTOR AS REQUIRED TO MAINTAIN SERVICE. THIS WORK SHALL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.

D2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED AT THE SITE BY THE ELECTRICAL CONTRACTOR, PRIOR TO BIDS.

D3. WHERE EXISTING ELECTRICAL EQUIPMENT IS DESIGNATED TO BE REMOVED, THE EC SHALL REMOVE THE EQUIPMENT AND AND ALL ASSOCIATED WIRING AND CONDUITS BACK TO THE SERVICE POINT.

D4. WHERE EXISTING ELECTRICAL EQUIPMENT IS DESIGNATED TO BE RELOCATED, THE EC SHALL RELOCATE THE EQUIPMENT AS SHOWN ON THE PLANS AND RECONNECT THE EQUIPMENT AS REQUIRED TO MAINTAIN SERVICE. PATCH ALL OPENINGS IN THE WALL, CEILINGS, OR FLOORS CREATED BY THE DEMOLITION WORK.

D5. CONDUITS AND WIRING MADE OBSOLETE DUE TO NEW CONSTRUCTION SHALL BE REMOVED IN IT'S ENTIRETY, BACK TO THE SERVICE POINT.

D6. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR THE LIMITS OF DEMOLITION WORK.

D7. REFER TO THE MECHANICAL DRAWINGS FOR THE EXACT LOCATIONS OF THE MECHANICAL EQUIPMENT THAT WILL BE DISCONNECTED.

GENERAL PROJECT NOTES:

G1. UNLESS OTHERWISE NOTED, PROVIDE ALL EQUIPMENT SHOWN ON THE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SYMBOLS SHOWN ON THE PLANS WITH THE SYMBOL LIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INTENT OF ANY SYMBOL THAT IS SHOWN ON THE PLANS AND NOT INDICATED ON THE SYMBOL LIST WITH ELECTRICAL ENGINEER.

G2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE PROFESSIONAL IF A SYMBOL IS USED ON THE PROJECT BUT DOES NOT SHOW IN THE SYMBOL LIST PRIOR TO BID.

POWER

- NEW PANELBOARD - RECESSED
- EXISTING PANELBOARD - SURFACE
- TC — TIME CLOCK
- EMERGENCY POWER OFF PUSH BUTTON
- M — MOTOR

RECEPTACLES

- DUPLEX 125V-20A RECEPTACLE
- DD — DOUBLE DUPLEX RECEPTACLE

TELECOMMUNICATIONS

- TELEPHONE OUTLET(S)
- DATA OUTLET(S)

SECURITY & DOOR CONTROL

- SECURITY CAMERA
- SECURITY CAMERA IN BUBBLE
- SM — SECURITY MONITOR
- MS — MOTION SENSOR
- CR — CARD READER
- PUSH-BUTTON
- DC — DOOR CONTACT
- ES — ELECTRIC STRIKE
- ELR — ELECTRIC LATCH RETRACTION
- ELECTROMAGNETIC DOOR HOLDER

FIRE ALARM

- FACP — FIRE ALARM CONTROL PANEL
- F — FIRE ALARM PULL STATION
- F — FIRE ALARM STROBE - WALL MOUNTED
- F — FIRE ALARM HORN/STROBE - WM
- S — SMOKE DETECTOR - CEILING MOUNTED
- FAA — FIRE ALARM ANNUNCIATOR PANEL

AUDIO/VISUAL

- SS — SOUND SYSTEM SPEAKER CEILING MOUNTED
- C — CLOCK - WALL MOUNTED.

DENOTATIONS & ABBREVIATIONS

DD	DOUBLE DEVICE
DM	ITEM TO BE REMOVED
EC	ELECTRICAL CONTRACTOR
F	FIRE ALARM
PRN	PRESENT LOCATION/ REPLACED WITH NEW
REL	RELOCATE
RED	RELOCATED/REINSTALLED
XR	EXISTING TO REMAIN

LIGHTING

- LIGHTING FIXTURE - SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- DOWNLIGHT
- E — EXIT SIGN - DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS
- E — EXIT SIGNWITH HEADS AS INDICATED ON DRAWINGS
- REMOTE HEAD FOR BATTERY PACK
- $ — SINGLE POLE SWITCH
- $3 — 3-WAY SWITCH
- $4 — 4-WAY SWITCH
- $K — KEY SWITCH

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NEW SECURITY VESTIBULE RENOVATIONS FOR:
THURMONT MIDDLE SCHOOL
FREDERICK COUNTY PUBLIC SCHOOLS
408 EAST MAIN STREET
THURMONT, MARYLAND 21788

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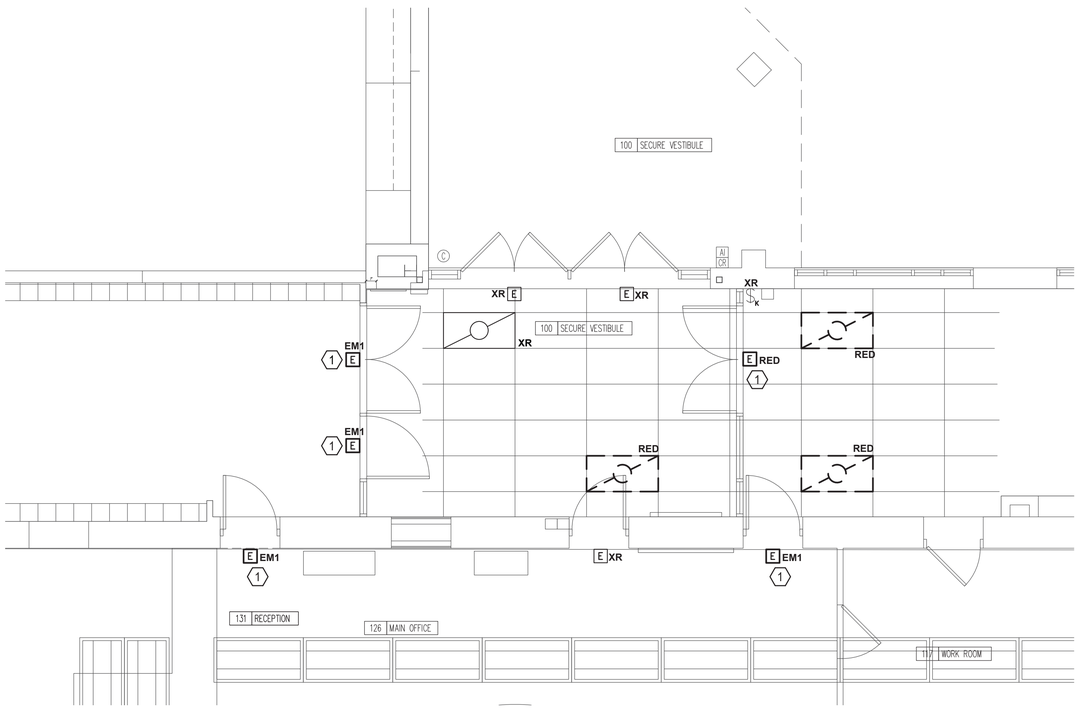
ISSUE

REV	DATE	DESCRIPTION
	08/20/19	PERMIT
	10/09/19	BID

PROJECT NO.: 18-0846
DATE: 10-09-19

FIRST FLOOR PLAN - DEMOLITION - ELECTRICAL

E101



1 / E201 FIRST FLOOR PLAN - NEW WORK - LIGHTING

SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. NEW AND RELOCATED EXIT SIGNS SHALL BE CONNECTED TO LINE SIDE OF LOCAL CIRCUIT.

LIGHTING FIXTURE SCHEDULE

MARK	NUMBER OF LAMPS AND WATTAGE	MANUFACTURE	CATALOG NUMBER	DRIVER VOLTAGE	TYPE OF MOUNTING	REMARKS
EM1	LED (.71 W)			UNV	UNV	OR APPROVED EQUAL
		LITHONIA	LQM-S-W-3-R-120/277-ELN			

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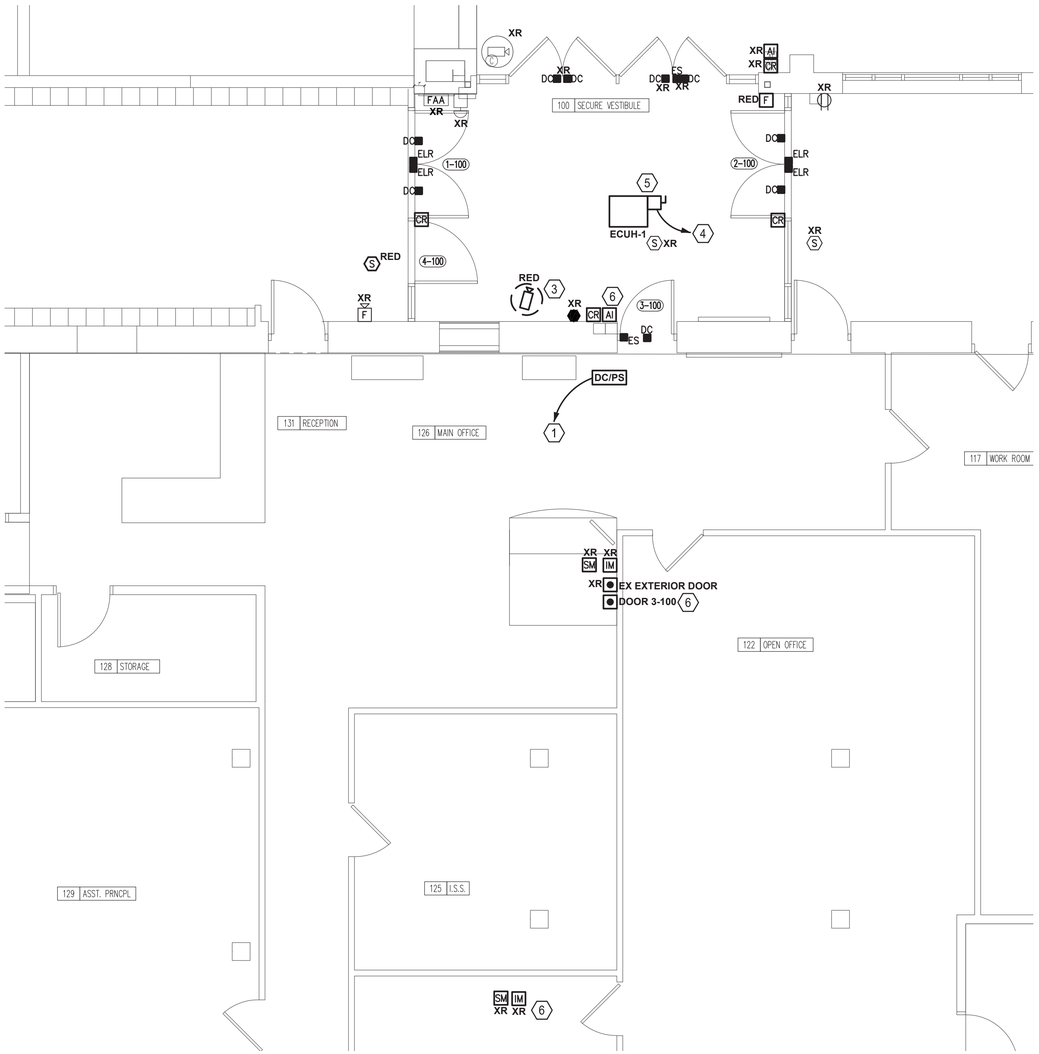
FIRST FLOOR PLAN - NEW WORK - LIGHTING

E201



1 / E301 FIRST FLOOR PLAN - NEW WORK - POWER & SYSTEMS

SCALE: 1/4"=1'-0"

NUMBERED NOTES:

1. HOMERUN TO EX PANEL "POF" USING SPARE 20A/1P BREAKER
2. EXTEND CABLES AS REQUIRED TO RECONNECT TO EXISTING SYSTEM.
3. REINSTALL CAMERA AND EXTEND CABLES AS REQUIRED.
4. TO EXTEND PANEL "POF" PROVIDE 20A/2P BREAKER.
5. DISCONNECT PROVIDED WITH UNIT. CONTRACTOR SHALL COORDINATE FINAL CONNECTIONS OF POWER CIRCUIT.
6. CONNECT NEW AI PHONE TO EXISTING AI PHONE DESK LOCATIONS.

GENERAL NOTES:

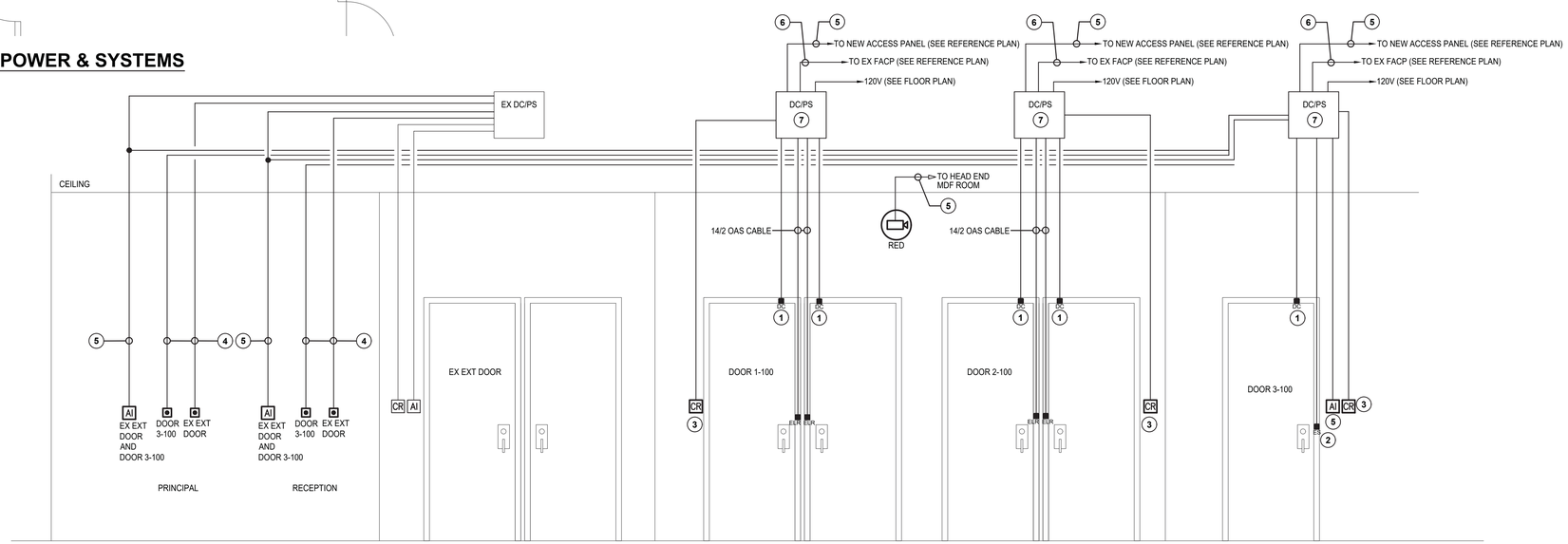
G1. CABLING MAY BE INSTALLED WITHOUT THE USE OF CONDUITS. THE CABLES SHALL BE SECURED AND BUNDLED ACCORDING TO THE LATEST CODES AND REQUIREMENTS.

G2. ANY CABLING PENETRATING WALL SHALL INCLUDE METAL SLEEVES AND SHALL BE SEALED.

G3. ON ALL CROSS CORRIDOR DOORS CONNECTED TO ACCESS SYSTEM SHALL BE RELEASED UPON FIRE ALARM ACTIVATION. COORDINATE WITH OWNER AND ARCHITECT. FIRE ALARM SYSTEM SHALL BE TESTED FOR PROPER OPERATION UPON COMPLETION OF INSTALLATION.

NOTES:

1. STUB CONDUIT INTO HEAD OF DOOR FRAME FOR CONCEALED DOOR POSITION SWITCH. PROVIDE 15/16" DIA HOLE IN HEAD OF FRAME AND PROVIDE 15/16" DIA X 1 5/8" DEEP HOLE IN TOP OF DOOR 6" FROM HANDLE SIDE EDGE. MOUNT 6" FROM EDGE OF DOOR. PROVIDE 22/2 CABLE.
2. STUB CONDUIT DOWN DOOR FRAME TO ELECTRIC STRIKE. PROVIDE 14/2 OAS CABLE
3. PROVIDE 4" X 4" X 2 1/8" DEEP BOX WITH SINGLE GANG DEVICE RING, FLUSH MOUNTED FOR CARD READER. PROVIDE 18/6 OAS SHIELDED CABLE.
4. PROVIDE 22/2 CABLE
5. CAT6 CABLE.
6. PROVIDE 18/2 CABLE.
7. PROVIDE STANLEY SECURITY LENEL DOOR CONTROLLER IN NEW PANEL CABINET AT HEAD END ROOM WITH POWER RECEPTACLE AS REQUIRED.



SECURITY/ACCESS DIAGRAM

NO SCALE

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FIRST FLOOR PLAN - NEW WORK - POWER

E301