Hilliard Civic & Cultural Arts Center

5425 CENTER STREET HILLIARD, OH 43026

PART 1 Work ONLY Read Appendix E

OWNER:

CITY OF HILLIARD
3800 Municipal Way
Hilliard, Ohio 43026
P: 614-876-7361
www.hilliardohio.gov

MECHANICAL / ELECTRICAL / PLUMBING ENGINEERING:

PRATER ENGINEERING
6130 Wilcox Road
Dublin, Ohio 43016
P: 614-766-4896
F: 614-766-2354
www.praterengineering.com

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GENERAL NOTES:

THIS PROJECT HAS BEEN DESIGNED UTILIZING THE PROVISIONS OF THE FOLLOWING CODES AND REGULATIONS:

ZONING: HILLIARD, OHIO

BUILDING: OHIO BUILDING CODE (2011 EDITION)
OHIO PLUMBING CODE (2011 EDITION)
OHIO MECHANICAL CODE (2011 EDITION)
INTERNATIONAL FUEL GAS CODE (2009 EDITION)
NATIONAL ELECTRICAL CODE (2011 EDITION, NFPA 70)
ANSI A117.1 (2009 EDITION) w/ O.B.C. CHAPTER 11 MODIFICATIONS

1. THE CONTRACTOR SHALL NOTE THAT THE ARCHITECTURAL DRAWINGS ARE ESTABLISHING A MINIMUM MATERIAL OR CONSTRUCTION METHOD STANDARD. THE GENERAL CONTRACTOR SHALL PROVIDE A 'BID' PRICE BASED ON THE SPECIFIC MATERIALS NOTED.
2. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ARCHITECT BEFORE CONTINUING WITH CONSTRUCTION.
3. GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL PERFORM THEIR WORK IN ACCORDANCE WITH ALL APPLICABLE CODES GOVERNING EACH TRADE.
4. THE CONTRACTOR SHALL MAINTAIN A CLEAN AND ORGANIZED JOB SITE ACCEPTABLE TO THE OWNER.
5. THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF WORK WITH THE OWNER REPRESENTATIVE.
6. THERE SHALL BE NO DEVIATION BY THE GENERAL CONTRACTOR FROM THE CONSTRUCTION DOCUMENTS UNLESS APPROVED IN WRITING BY THE ARCHITECT.
7. EACH CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD PRIOR TO THE INITIATION OF WORK AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONDITIONS INTERFERING WITH THE ABILITY OF THE CONTRACTOR TO COMPLETE WORK AS OUTLINED ON THE CONSTRUCTION DOCUMENTS.
8. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH OTHER TRADES. LACK OF THIS COORDINATION RESULTING IN ADDED COST TO THE CONTRACT WILL BE BORNE BY THE CONTRACTOR.
9. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE EXISTING BUILDING WATER-TIGHT DURING CONSTRUCTION.
10. THE CONTRACTOR WILL VERIFY THAT EXIT EGRESS IS MAINTAINED FOR ALL OCCUPIED AREAS OF THE BUILDING THROUGHOUT ALL PHASES OF CONSTRUCTION.
11. PLAN DIMENSIONS ARE GIVEN TO THE FACE OF STUD OR CMU FOR ALL NEW WALLS AND FACE OF EXISTING FINISH FOR ALL EXISTING WALLS TO REMAIN - UNLESS NOTED OTHERWISE.
12. THE OWNER WILL ASSUME ALL LIABILITY AND SHALL TAKE PERSONAL RESPONSIBILITY FOR ANY DECISIONS THAT THEY MAKE TO CHANGE OR ALTER THE CONSTRUCTION DOCUMENTS WITHOUT THE ARCHITECT'S WRITTEN APPROVAL.
13. PROTECT ALL EXISTING FINISHES AND MATERIALS TO REMAIN, IN ACCORDANCE WITH ACCEPTABLE TRADE PRACTICES, MANUFACTURER RECOMMENDATIONS, OR AS DIRECTED BY THE ARCHITECT.
14. PATCHING MATERIAL SHALL MATCH EXISTING ADJACENT MATERIALS AS CLOSELY AS POSSIBLE IN COLOR, PATTERNS, AND/OR TEXTURES.
15. ALL SALVAGE MATERIALS REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER. ALL NON-SALVAGE CONSTRUCTION MATERIALS AND DEBRIS FROM DEMOLITION WORK SHALL BE REMOVED FROM THE SITE AS WORK PROGRESSES, UNLESS OTHERWISE NOTED.
16. SEALANTS SHALL BE COMPATIBLE WITH ADJACENT SURFACES THAT ARE IN CONTACT. REFER TO SPECIFICATIONS FOR APPROVED MANUFATURERS AND PROCEDURES.
17. CAULK JOINTS OF DISSIMILAR EXPOSED-TO-VIEW MATERIALS AS REQUIRED BY ARCHITECT.
18. ALL DOOR HARDWARE TO BE COMPLIANT WITH THE CURRENT STATE ADOPTED ACCESSIBILITY CODE.
19. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUMBIT (2) COPIES OF MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALL PRODUCTS USED TO PERFORM THE WORK.
20. NO CONSTRUCTION SHALL OCCUR WITHOUT SHOP DRAWING APPROVAL. SHOP DRAWINGS TO BE PROVIDED TO ARCHITECT FOR REVIEW UPON BEING BEING REVIEWED AND SIGNED/DATED BY GENERAL CONTRACTOR.

CODE DATA:

USE GROUP: A1 (THEATER),
S1 (MODERATE-HAZARD STORAGE)

CONSTRUCTION TYPE: VB

MIXED USE: NON-SEPARATED MIXED USE

SPRINKLERED: THIS BUILDING IS NOT EQUIPPED WITH A FULLY AUTOMATIC SPRINKLER SYSTEM.

ACTUAL BUILDING HEIGHT: 26', 1 STORY
ALLOWABLE BUILDING HEIGHT: 40', 1 STORY

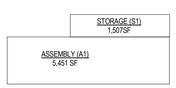
TOTAL BUILDING AREA: 6,958 SF

ALLOWABLE AREA:
TABULAR ALLOWABLE AREA: 6,000 SF
FRONTAGE INCREASE: 1,080 SF
FRONTAGE INCREASE BASED ON WEIGHTED WIDTH 28.45' FOR 281' OF 405' OF BUILDING PERIMETER.

ALLOWABLE AREA: 7,080 SF

OCCUPANTS:

	AREA	SF/OCC	OCCUPANTS
ASSEMBLY USES	3,623 SF		295
MECHANICAL	100 SF	1:300	1
FOOD PANTRY / STORAGE	1,349 SF	1:500	3
TOTAL ASSEMBLY OCCUPANTS:			299



USE PLAN

EGRESS: (CALCS INCL. ALTERNATES #4 & #5)
MULTIPURPOSE ROOM: (226 OCC)
STAIRWAYS: 67.8" REQ'D WIDTH
OTHER EGRESS: 45.2" REQ'D WIDTH
NUMBER OF EXITS 2
TOTAL ASSEMBLY AREA: (299 OCC)
OTHER EGRESS: 59.8" REQ'D WIDTH
NUMBER OF EXITS: 3

FOOD PANTRY / STORAGE: (3 OCC)
NUMBER OF EXITS: 2

COMMON PATH OF EGRESS TRAVEL (OBC 1028.8): 30' (MULTIPURPOSE ROOM)

EXIT ACCESS TRAVEL DISTANCE (OBC 1028.7): 200' (ASSEMBLY)

PLUMBING FIXTURES:

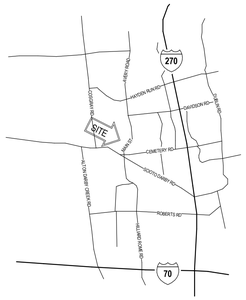
	OCCUPANTS	RATIO	MIN REQ'D	PROVIDED
WATER CLOSETS:				
MALE	150	1:125	2	3
FEMALE	150	1:65	3	3
LAVATORIES:	299	1:200	2	4
DRINKING FOUNTAINS:	299	1:500	1	1

MOP SINK: 1 REQUIRED, 2 PROVIDED

(1) EXISTING UNISEX RESTROOM EXISTING SERVING (3) OCCUPANTS IN FOOD PANTRY / STORAGE AREA.

ALTERNATES:

VICINITY PLAN:



REVISIONS:

REVISION	DATE	DESCRIPTION

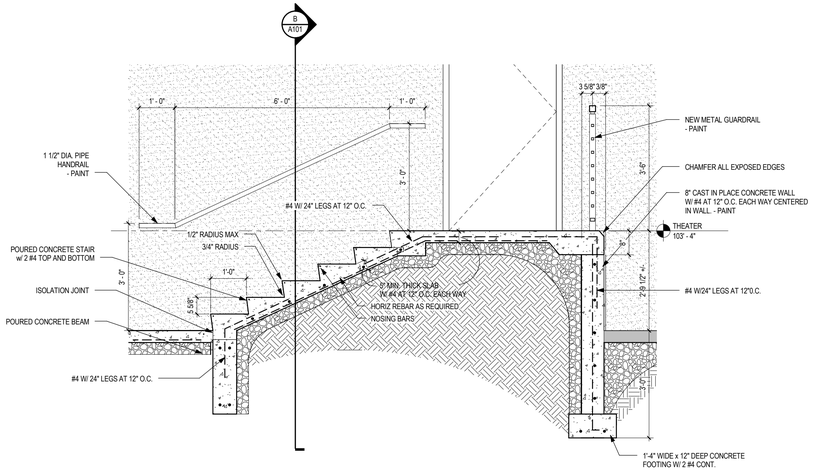
ISSUE DATE:

08/31/2015
PERMIT / BID SET

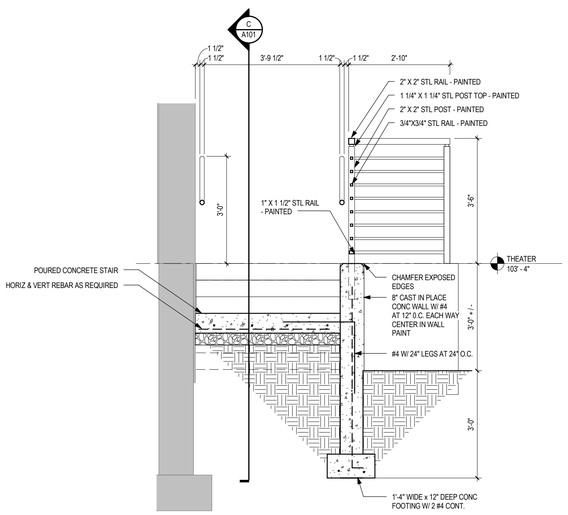
STATE OF OHIO
DAVID KERR
1115338
REGISTERED ARCHITECT
EXP 12 / 31 / 2015

PROJECT NO. 15002

15002 CITY OF HILLIARD Hilliard Civic & Cultural Arts Center ISSUE DATE: 08/31/2015



C A101 DETAIL SECTION
1/2" = 1'-0"



B A101 DETAIL SECTION
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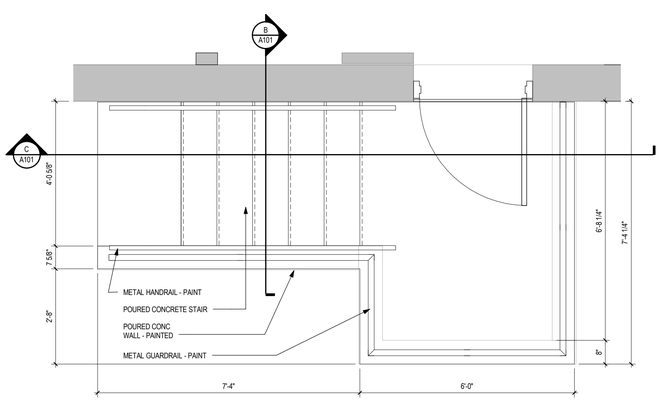
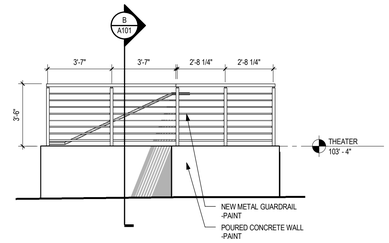
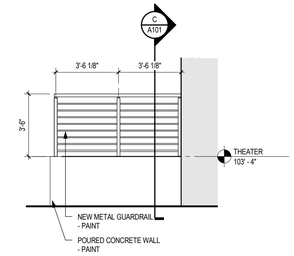


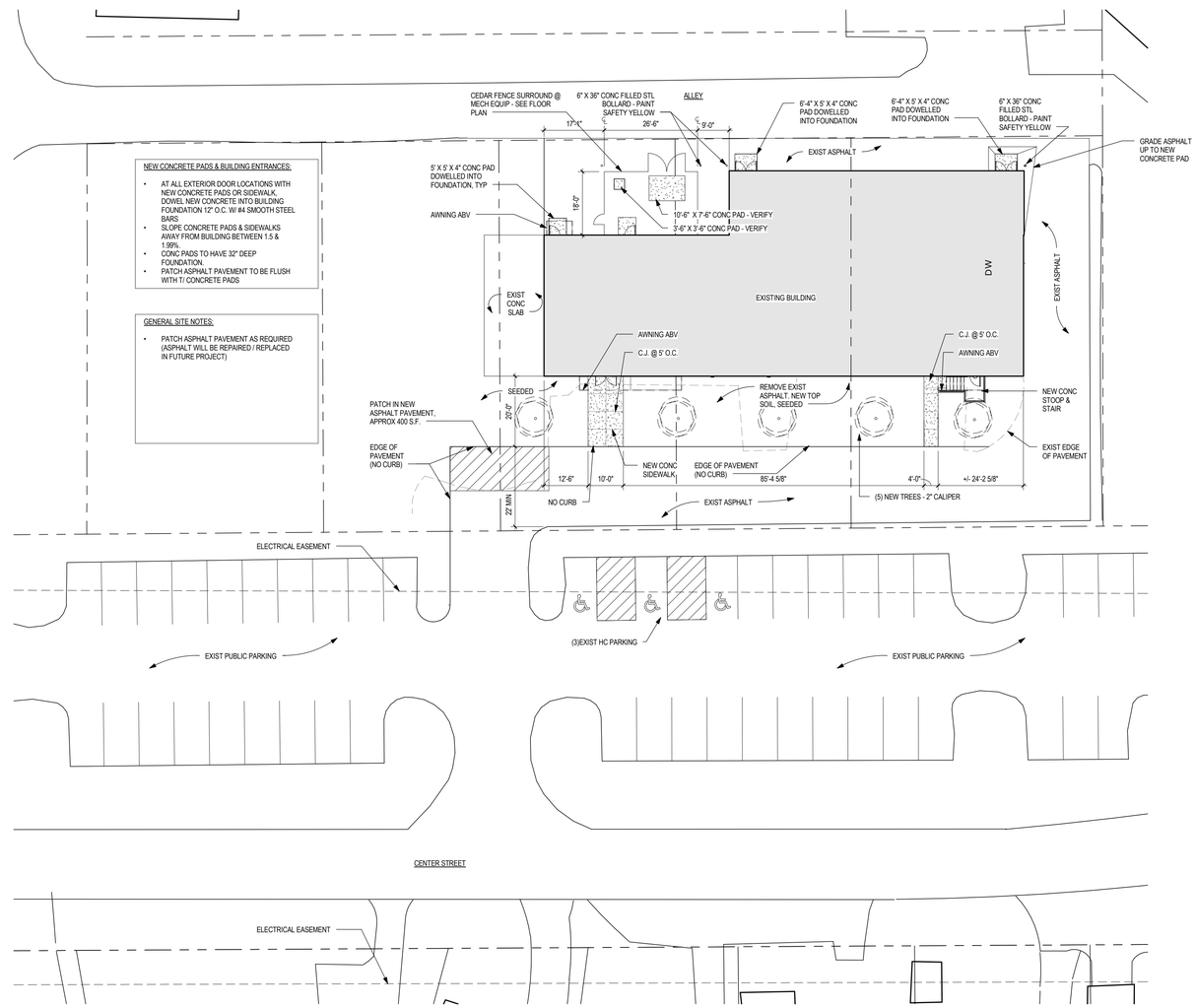
A A101 PLAN DETAIL @ NEW EXTERIOR STAIRS
1/2" = 1'-0"



D A101 ELEVATION DETAIL
1/4" = 1'-0"



E A101 ELEVATION DETAIL
1/4" = 1'-0"



1 A101 SITE PLAN
1" = 20'-0"

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CITY OF HILLIARD

5425 CENTER STREET HILLIARD, OH 43026

Project Number:	15002
Drawn By:	DK
Date:	08/31/2015

A101

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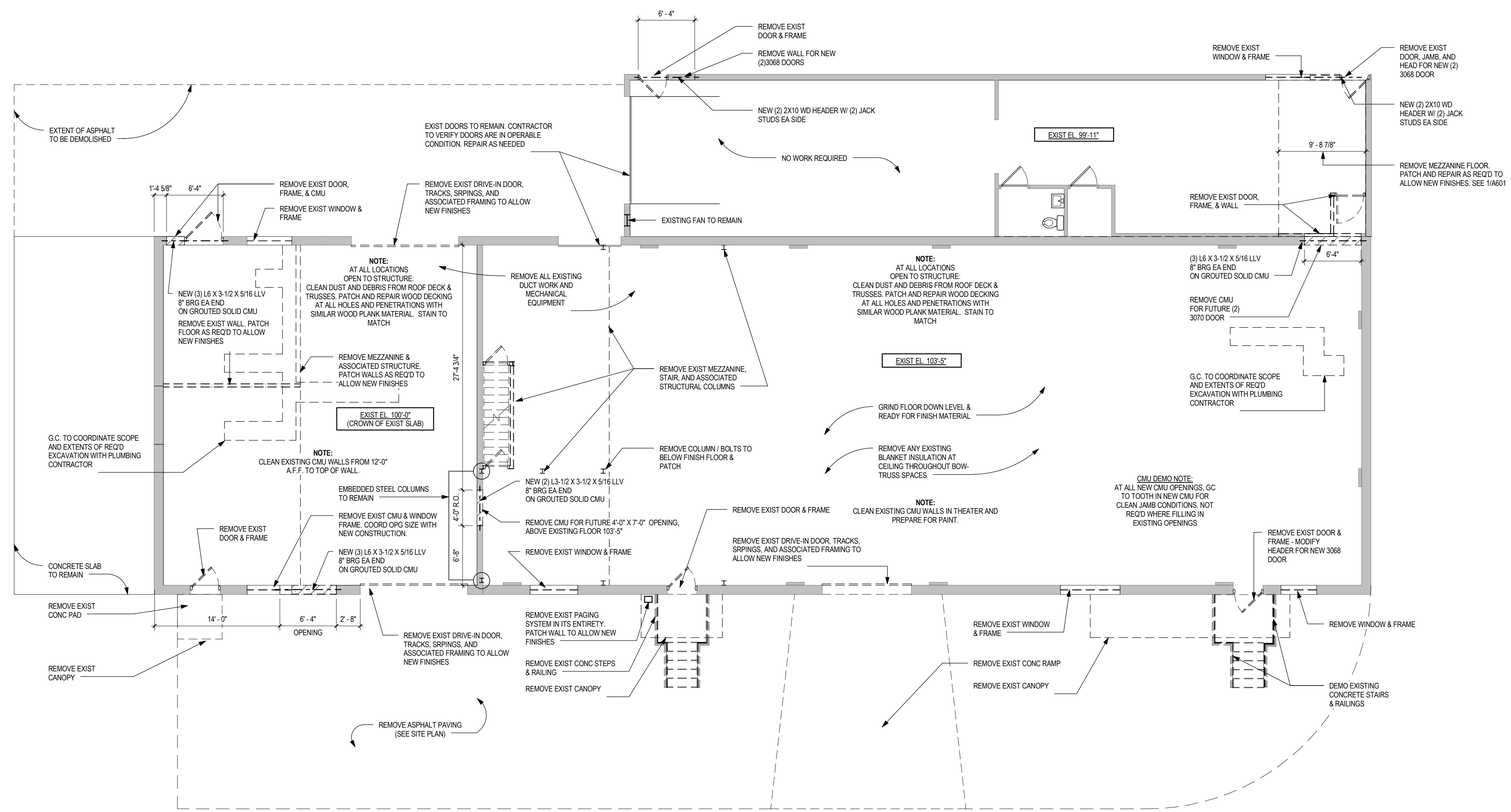

1 A201 FIRST FLOOR DEMOLITION PLAN

1/8" = 1'-0"

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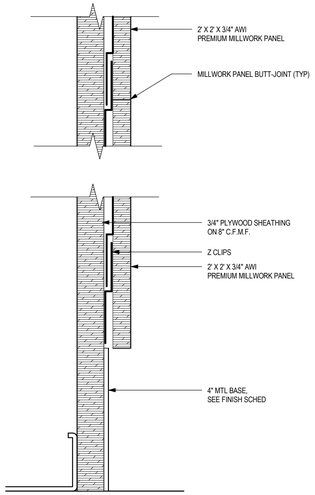
WALL SCHEDULE						
	WALL CONSTRUCTION					
TYPE	SIDE 1	CORE	SIDE 2	TERMINATION	FIRE RATING	COMMENTS
1	5/8" GYP BD	1 1/2" 22 GA MTL FURRING @ 16" O.C.	-	12'-4" A.F.F.		
2	5/8" GYP BD	3 5/8" 22 GA MTL STUDS @ 16" O.C.	-	11'-6" A.F.F.		
4	5/8" GYP BD	3 5/8" 20 GA MTL STUDS @ 16" O.C.	-	12'-4" A.F.F.		
5	5/8" GYP BD	3 5/8" 22 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	8'-6" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.
7	5/8" GYP BD	3 5/8" 20 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	12'-4" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS, MECHANICAL ROOM & THEATER SPACES.
8	5/8" GYP BD	8" 20 GA MTL STUDS @ 16" O.C.	3/4" PLYWOOD	14'-4" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.
9	5/8" GYP BD	6" 20 GA MTL STUDS @ 16" O.C.	-	12'-4" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH MECHANICAL ROOM.
10	5/8" GYP BD	6" 22 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	8'-6" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.
12	5/8" GYP BD	6" 20 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	12'-4" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH MECHANICAL ROOM.
13	5/8" GYP BD	6" 20 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	FULL HEIGHT TO BOTTOM OF TRUSSES		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.
14	5/8" GYP BD	6" 18 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	FULL HEIGHT TO UNDERSIDE OF DECK		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.
15	5/8" GYP BD	3 5/8" 22 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	11'-6" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.
17	5/8" GYP BD	6" 22 GA MTL STUDS @ 16" O.C.	5/8" GYP BD	11'-6" A.F.F.		PROVIDE 3 1/2" SOUND BATT INSULATION AT WALLS SHARED WITH RESTROOMS & THEATER SPACES.

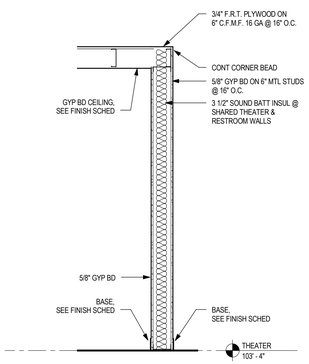
GENERAL WALL TYPE NOTES:

1. PROVIDE WATER RESISTANT GYPSUM BOARD ON PLUMBING FIXTURE WALLS
2. PROVIDE CEMENT BOARD BEHIND FRP
3. SEE FINISH PLAN FOR ADDITIONAL INFORMATION

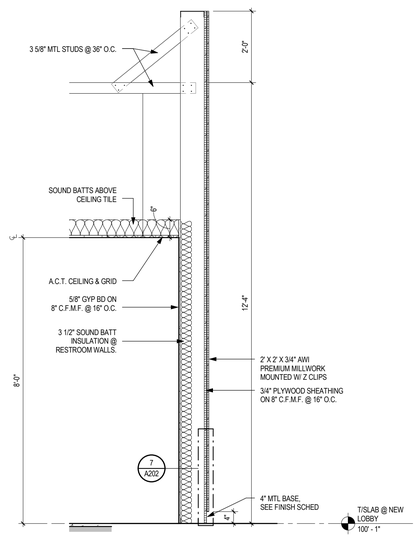


7 A202 SECTION DETAIL @ BASE
6" = 1'-0"

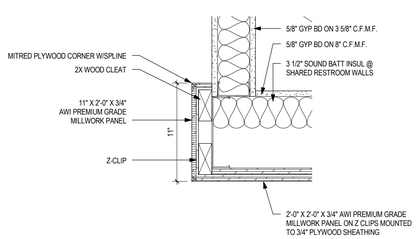
4 A202 CEILING FRAMING PLAN
1/8" = 1'-0"



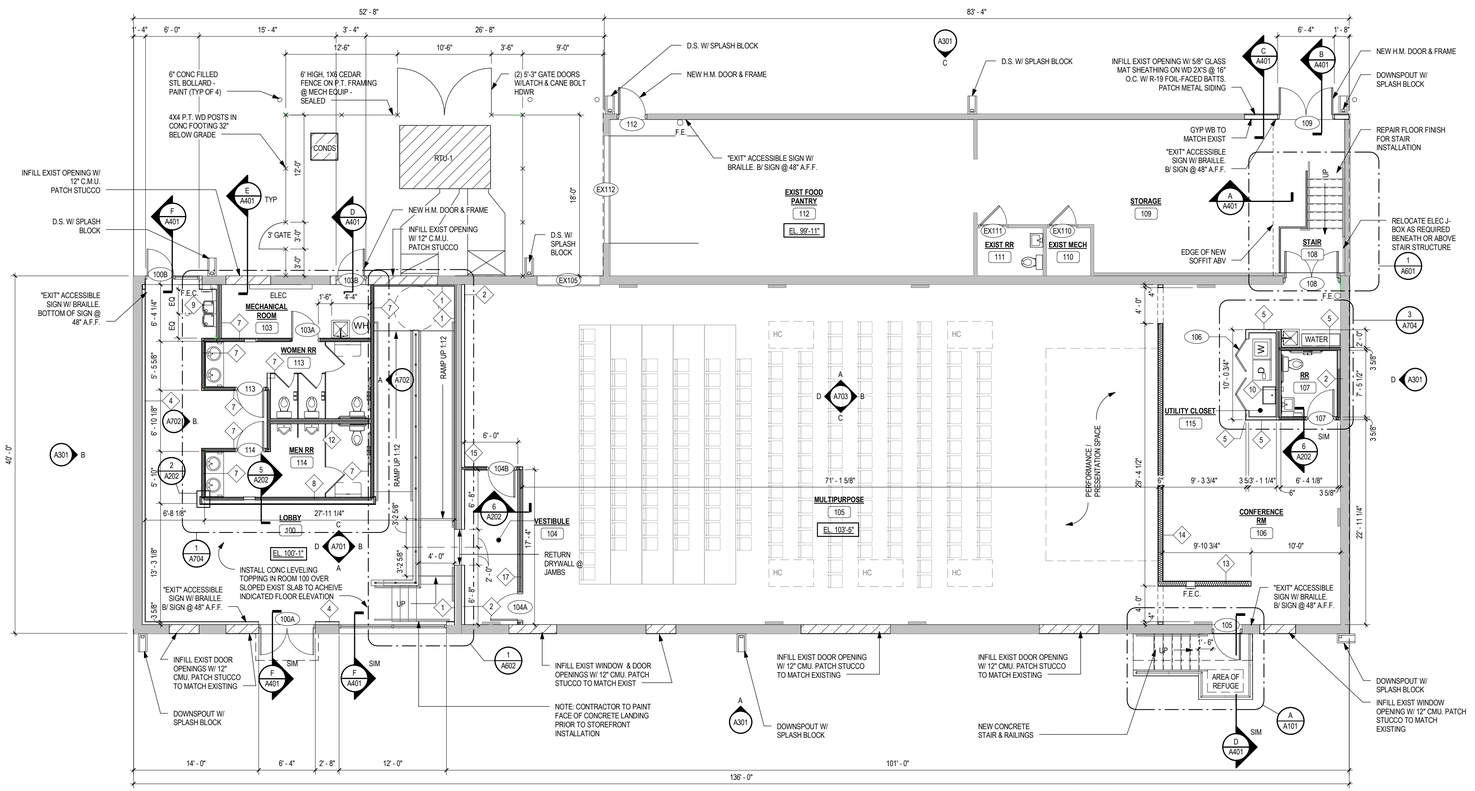
6 A202 DETAIL SECTION
1/2" = 1'-0"



5 A202 DETAIL SECTION
1/2" = 1'-0"



2 A202 PLAN DETAIL
1 1/2" = 1'-0"



1 A202 FIRST FLOOR NEW CONSTRUCTION PLAN
1/8" = 1'-0"

GENERAL NOTE:
TOPPING: SHOTBLAST OR SCARIFY EXISTING SURFACE TO CLEAN, SOUND CONCRETE. APPLY BONDING AGENT IMMEDIATLY PRIOR TO TOPPING. TOPPING SHALL BE 2" MIN THICKNESS WITH 3/8" MAX. AGGREGATE. JOINTS TO MATCH EXISTING.

PLAN NOTES:

1. ALL DIMENSIONS ARE FROM THE FINISHED FACE OF EXISTING WALL OR FROM FACE OF STUD AT NEW WALLS.
2. PROVIDE SPLASH BLOCKS AT ALL DOWNSPOUTS.
3. PROVIDE BATT INSULATION AT ALL LOCATIONS DESIGNATED ON PLANS.
4. PROVIDE WATER RESISTANT GYPSUM WALL BOARD AT ALL PLUMBING WALL LOCATIONS.
5. PROVIDE WATER RESTISTANT GYPSUM WALL BOARD BENEATH FRP AT ALL MOP SINK LOCATIONS.
6. INSTALL BLOCKING AS REQUIRED FOR ALL TOILET ACCESSORIES, FIRE EXTINGUISHERS, ART RAILS, HANDRAIL MOUNTS, AND ANY OTHER WALL MOUNTED OR RECESSED FIXTURES OR EQUIPMENT.

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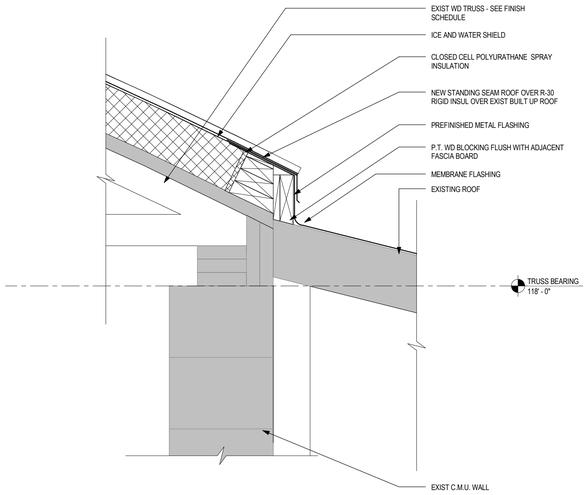
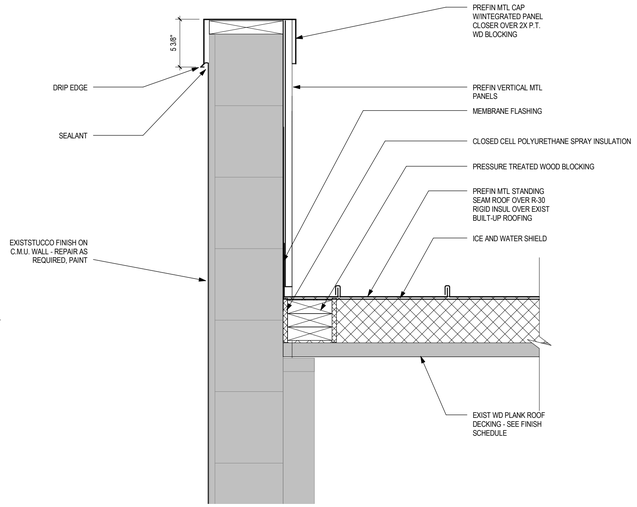
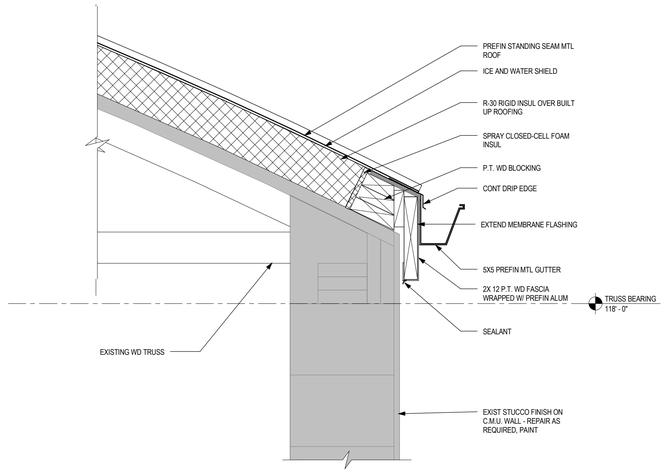
A202



4 A203 DETAIL SECTION
1 1/2" = 1'-0"



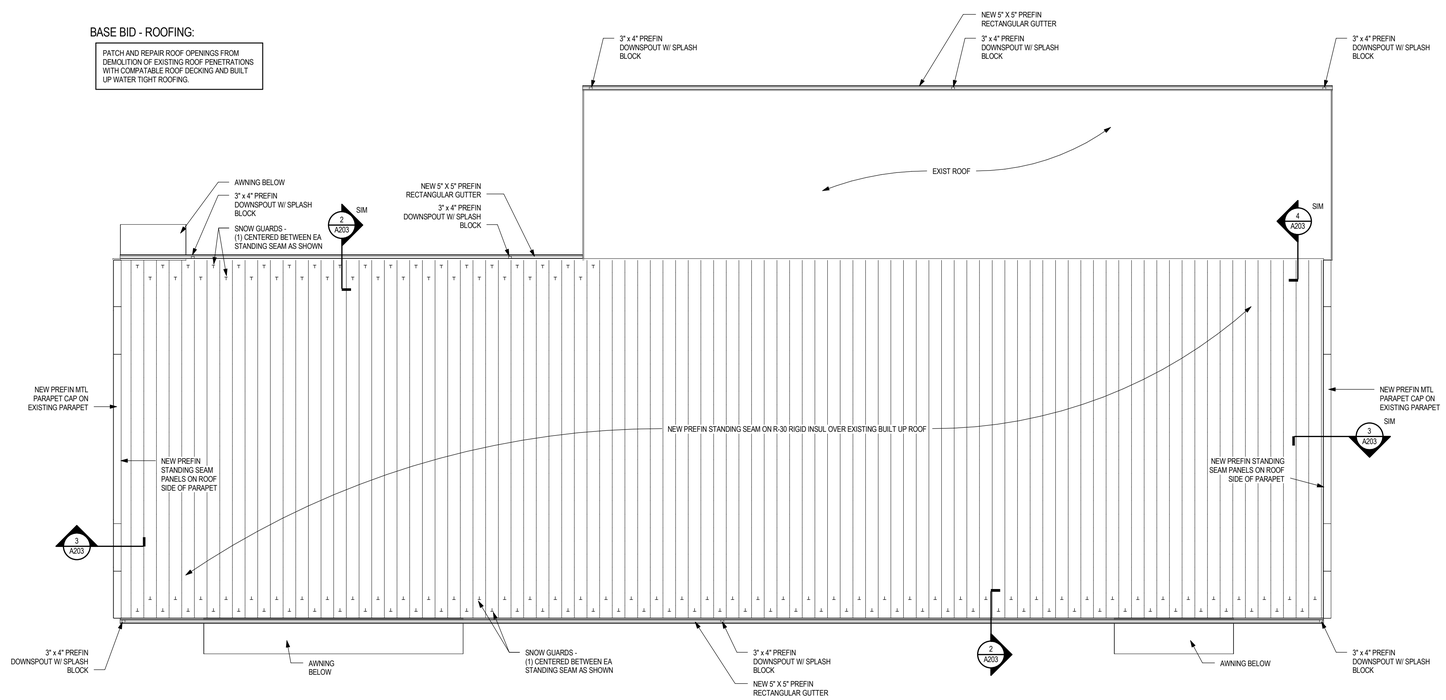
3 A203 DETAIL SECTION
1 1/2" = 1'-0"



2 A203 DETAIL SECTION
1 1/2" = 1'-0"

BASE BID - ROOFING:

PATCH AND REPAIR ROOF OPENINGS FROM DEMOLITION OF EXISTING ROOF PENETRATIONS WITH COMPATABLE ROOF DECKING AND BUILT UP WATER TIGHT ROOFING.



1 A203 ROOF PLAN
1/8" = 1'-0"

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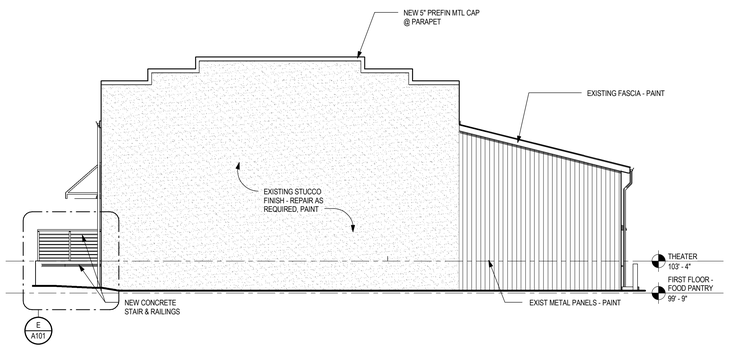
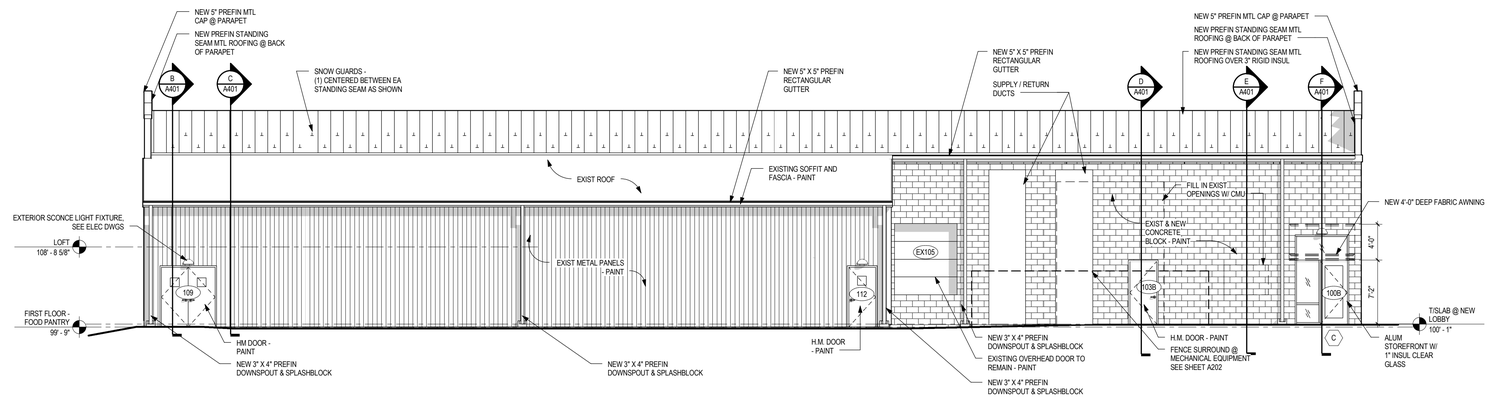
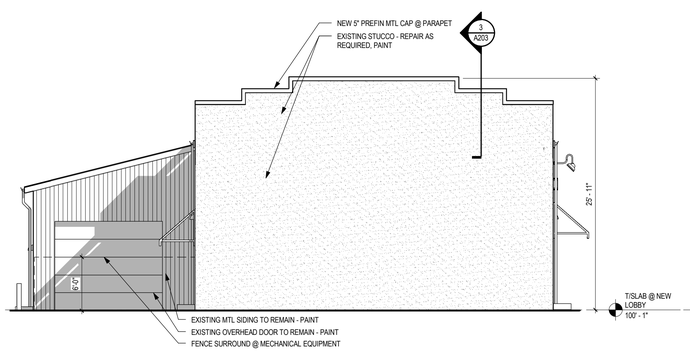


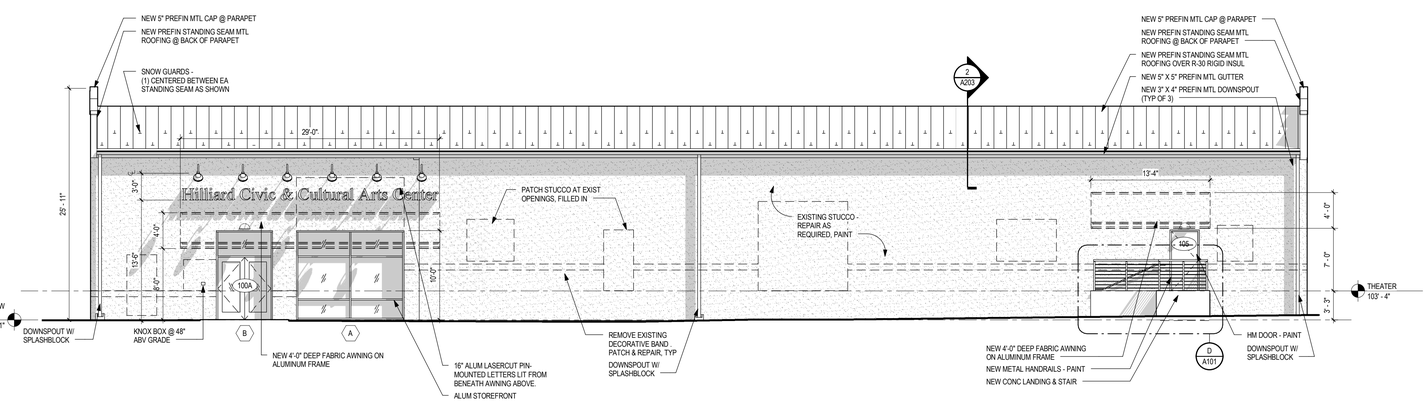
D A301 WEST ELEVATION
1/8" = 1'-0"



C A301 SOUTH ELEVATION
1/8" = 1'-0"



B A301 EAST ELEVATION
1/8" = 1'-0"



A A301 NORTH ELEVATION
1/8" = 1'-0"

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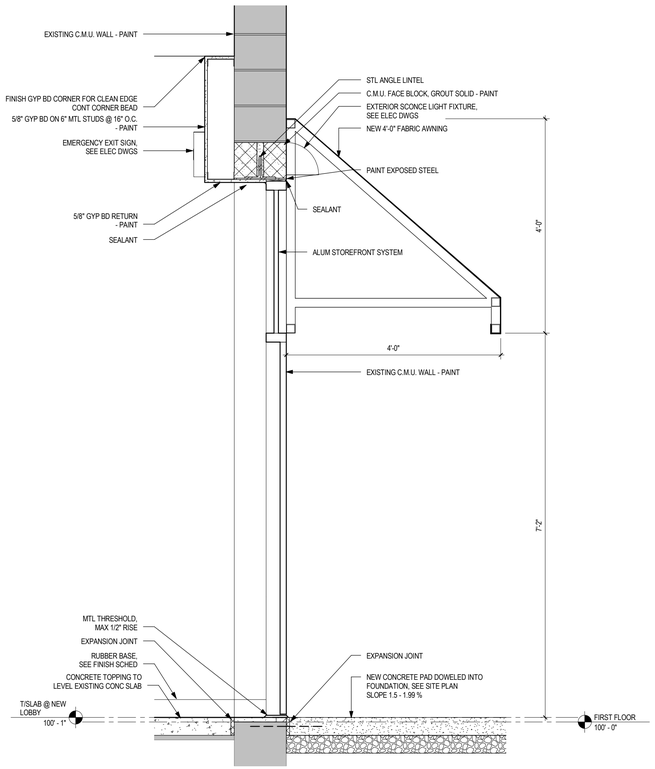
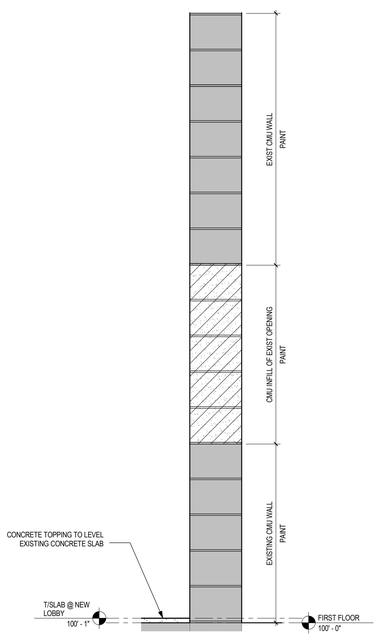
Date:	08/31/2015

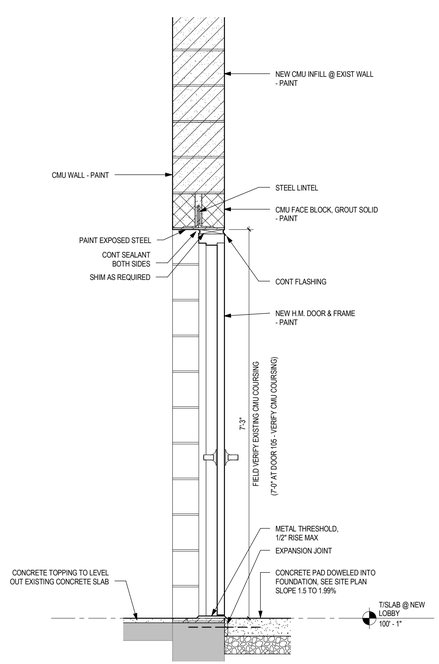
A301



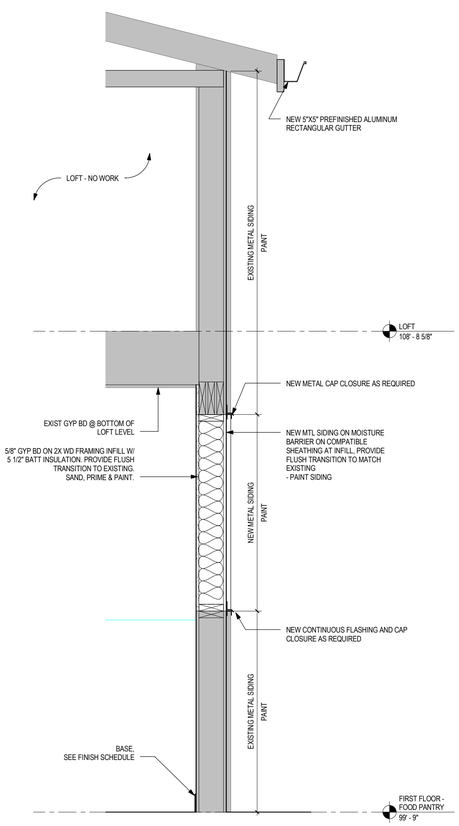
F A401 WALL SECTION
3/4" = 1'-0"



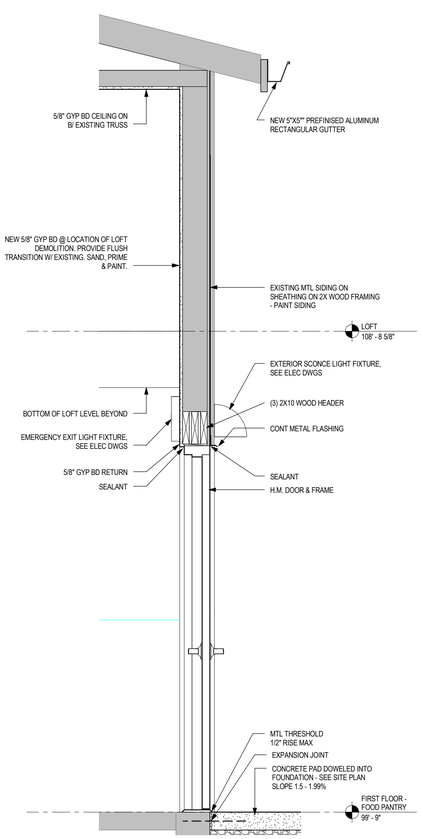
E A401 WALL SECTION
3/4" = 1'-0"



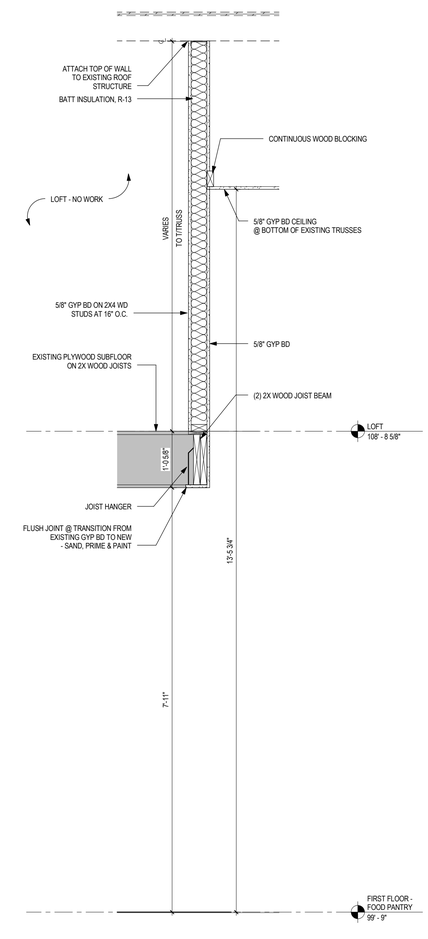
D A401 WALL SECTION
3/4" = 1'-0"



C A401 WALL SECTION
3/4" = 1'-0"



B A401 WALL SECTION
3/4" = 1'-0"



A A401 WALL SECTION
3/4" = 1'-0"

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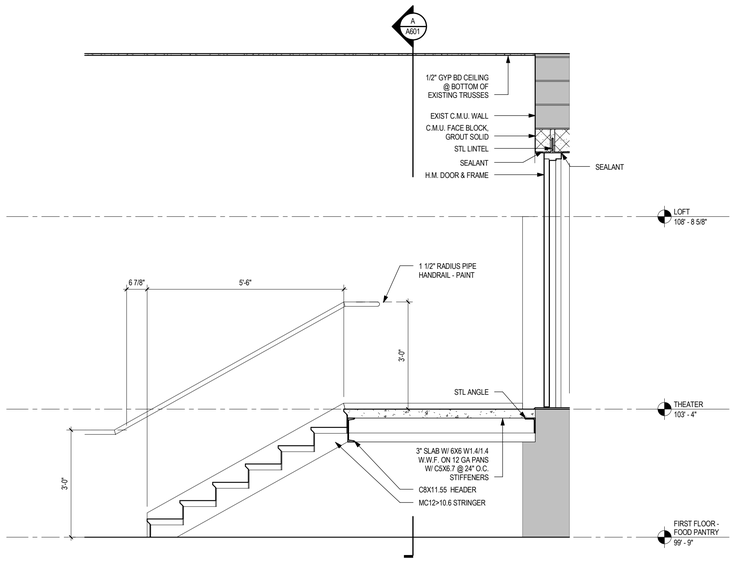
Hilliard Civic & Cultural Arts Center

CITY OF HILLIARD

5425 CENTER STREET HILLIARD, OH 43026

Project Number:	15002
Drawn By:	CH
Date:	08/31/2015

A401



C A601 DETAIL SECTION
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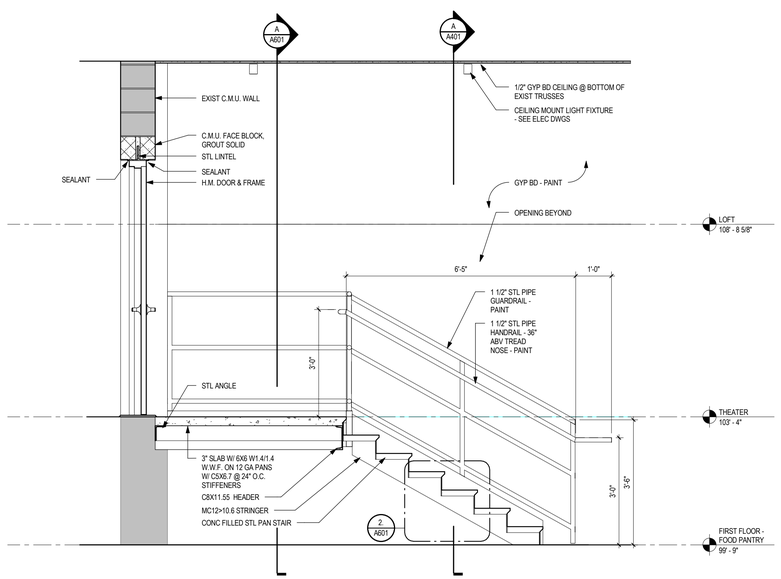

B A601 STAIR SECTION
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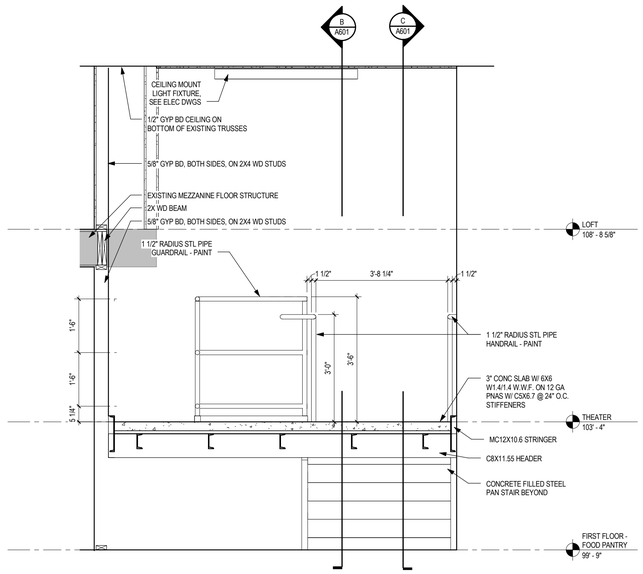

A A601 DETAIL SECTION
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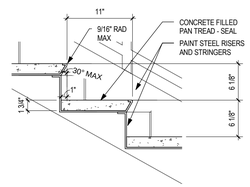
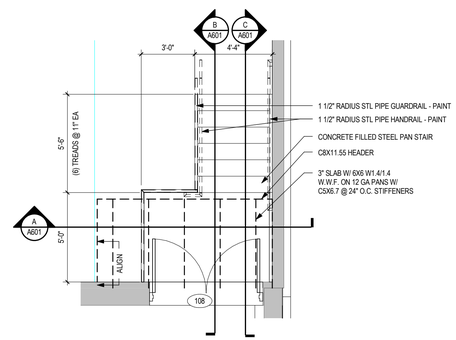


2. A601 SECTION DETAIL
1" = 1'-0"



1 A601 STAIR 108
1/4" = 1'-0"

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Project Number: 15002
Drawn By: CH
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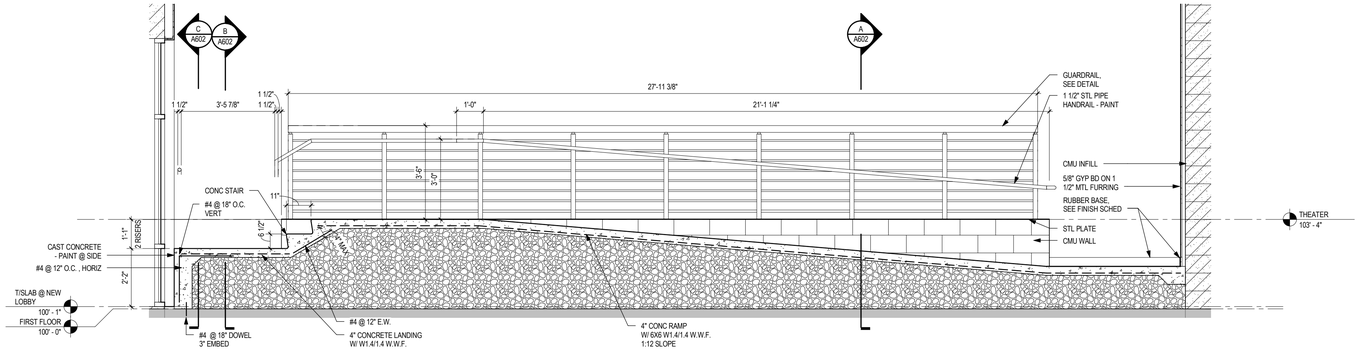
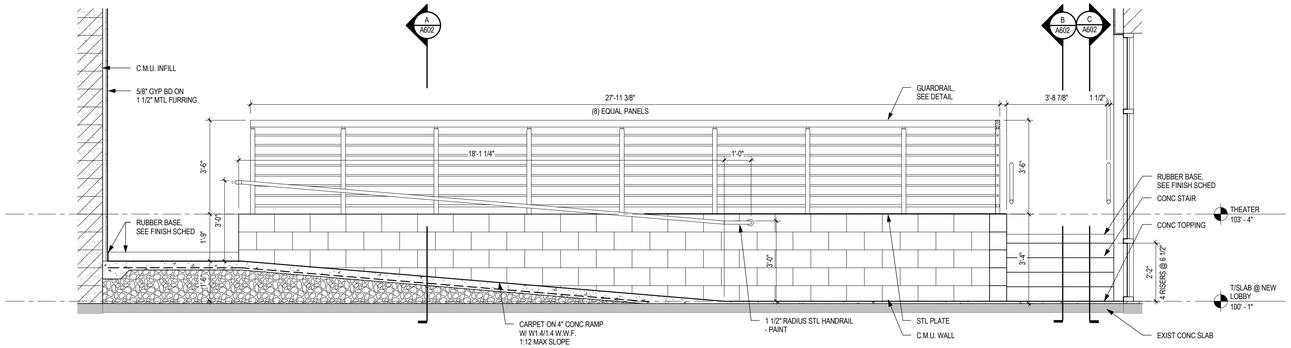


E A602 DETAIL SECTION
3/8" = 1'-0"



D A602 DETAIL SECTION
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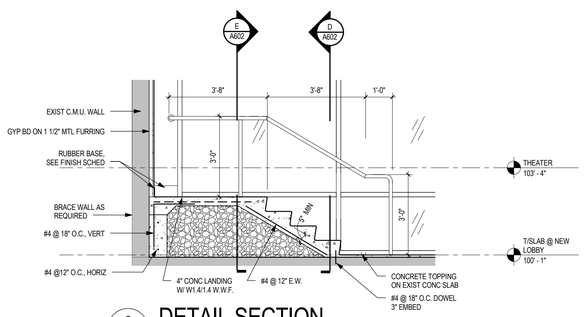

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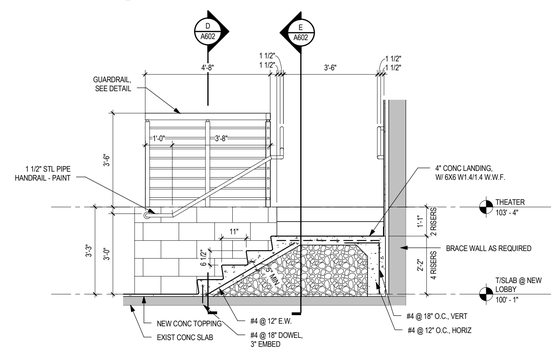

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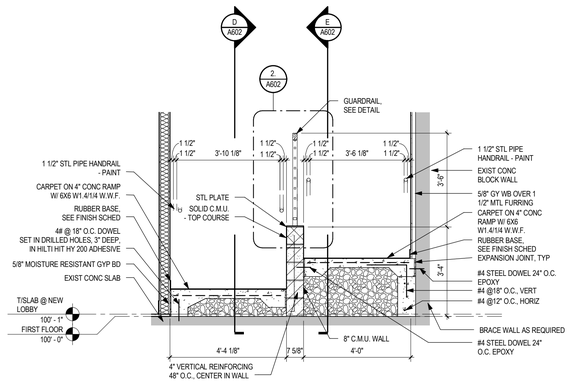

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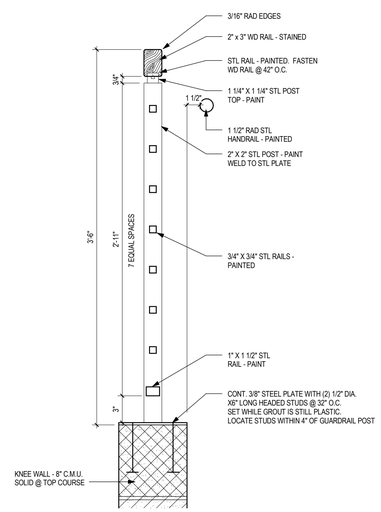
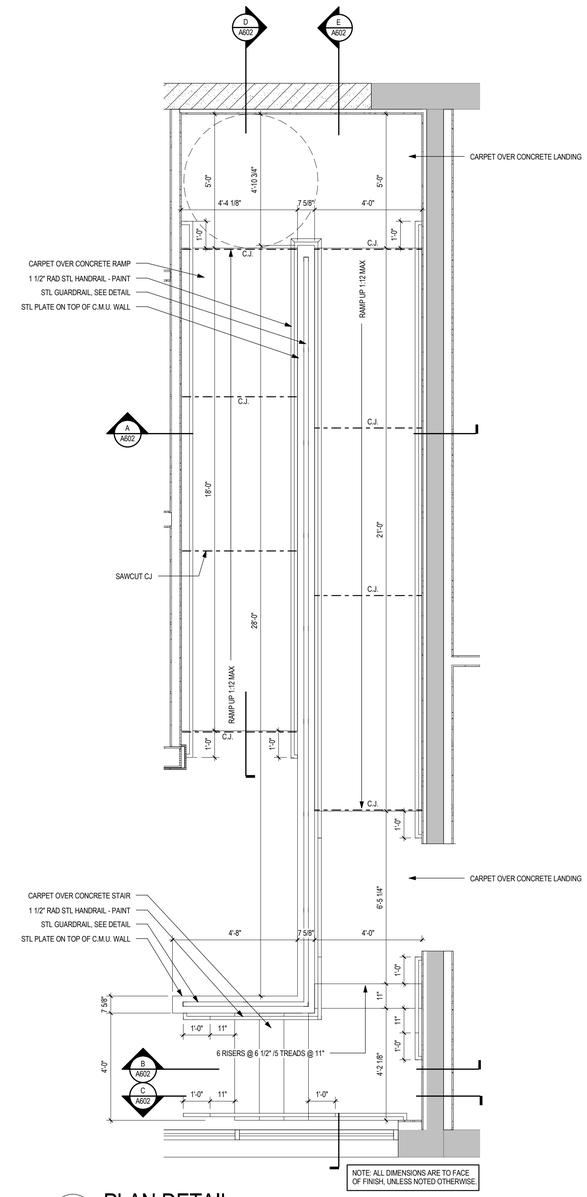


2. A602 HANDRAIL SECTION
1 1/2" = 1'-0"



1 A602 PLAN DETAIL
3/8" = 1'-0"

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Drawn By: CH
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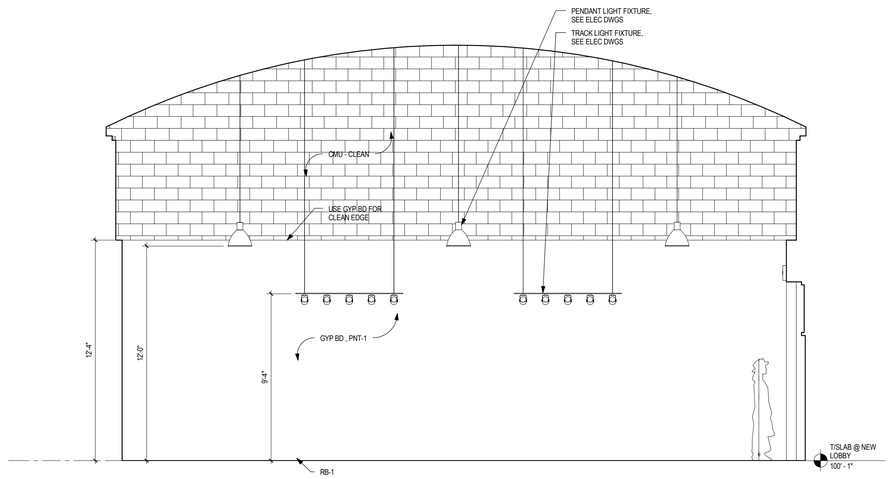
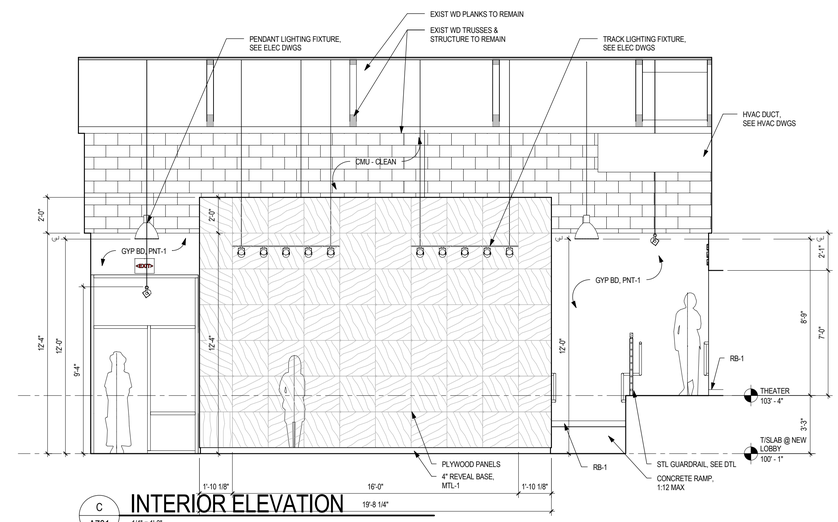
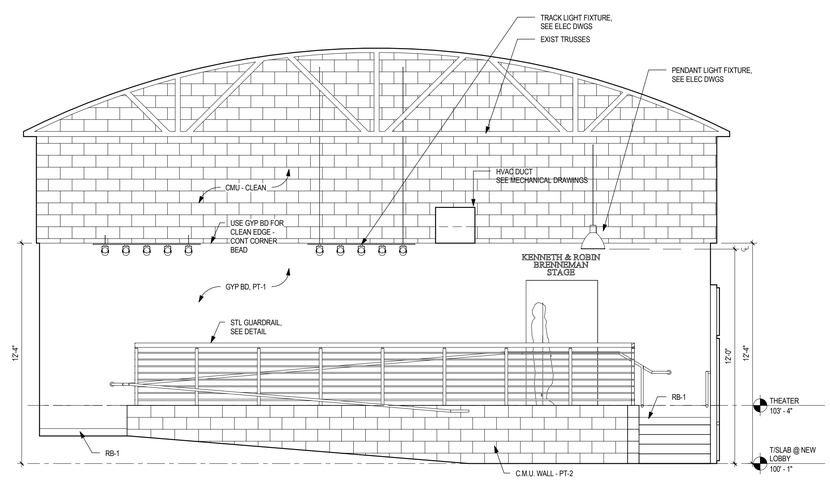


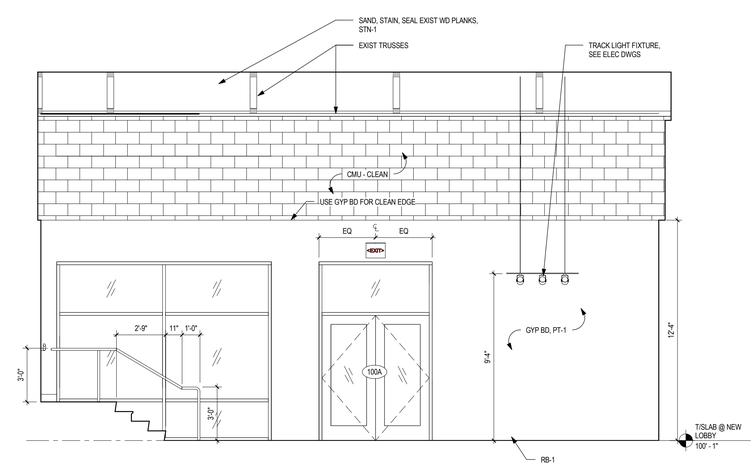
D A701 INTERIOR ELEVATION
1/4" = 1'-0"



C A701 INTERIOR ELEVATION
1/4" = 1'-0"



B A701 INTERIOR ELEVATION
1/4" = 1'-0"



A A701 INTERIOR ELEVATION
1/4" = 1'-0"

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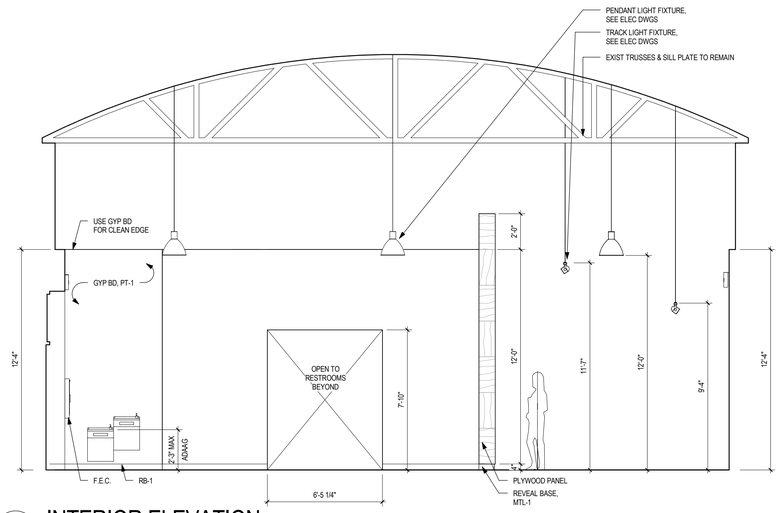
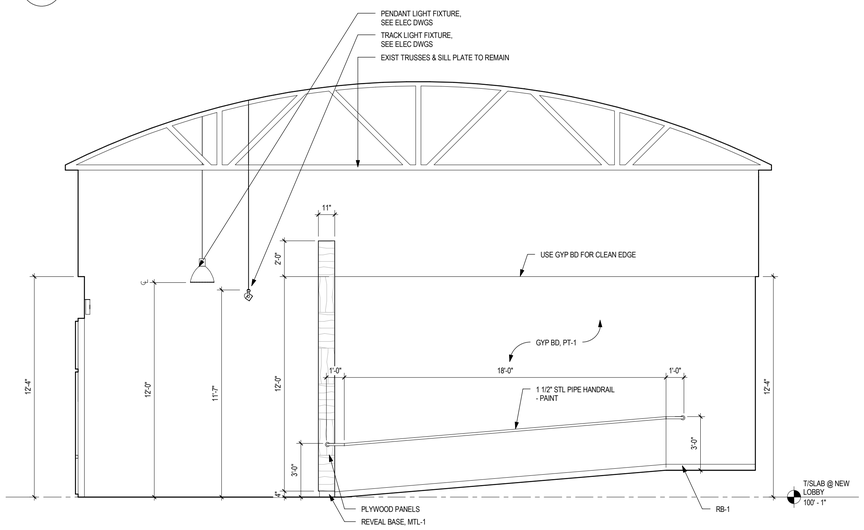
Project Number:	15002
Drawn By:	DK
Date:	08/31/2015

A701



B. A702 INTERIOR ELEVATION

1/4" = 1'-0"



A A702 INTERIOR ELEVATION

1/4" = 1'-0"

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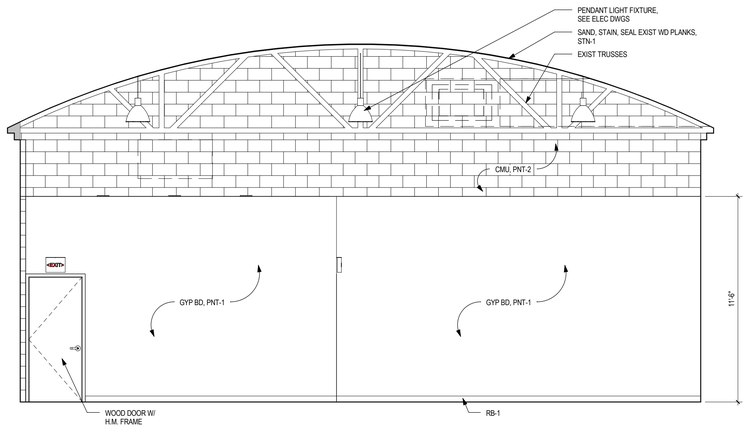
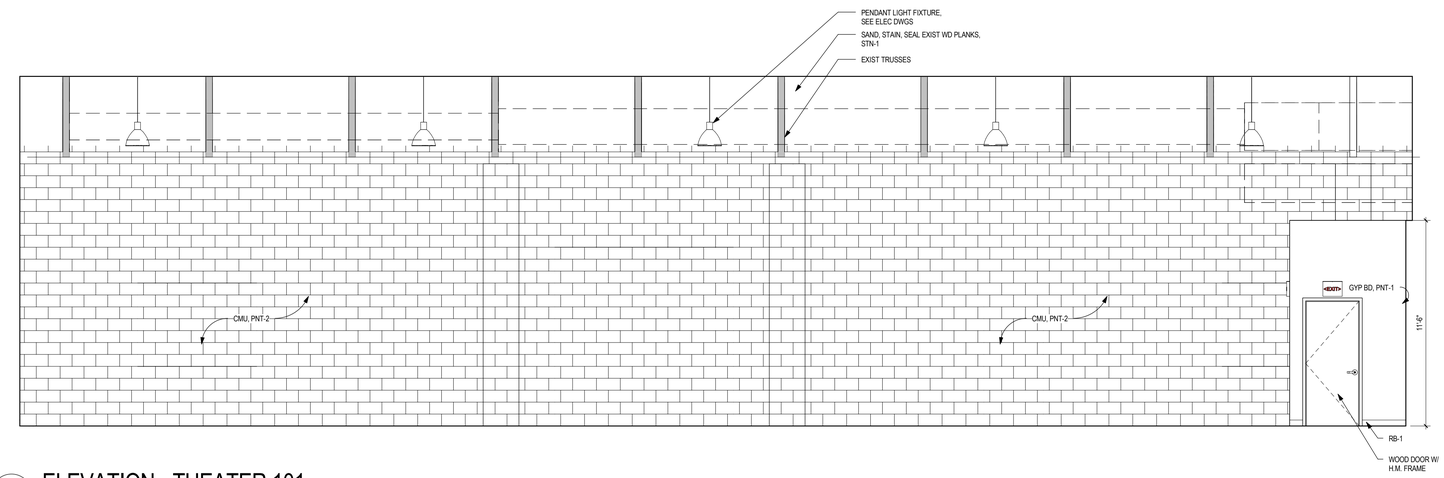


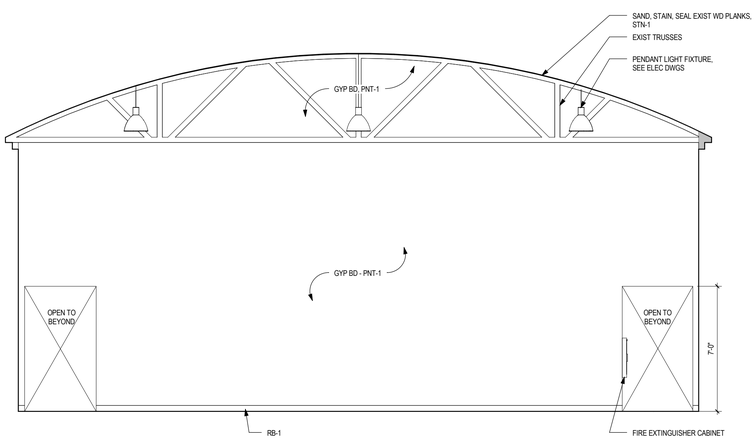
D A703 ELEVATION - THEATER 101

1/4" = 1'-0"



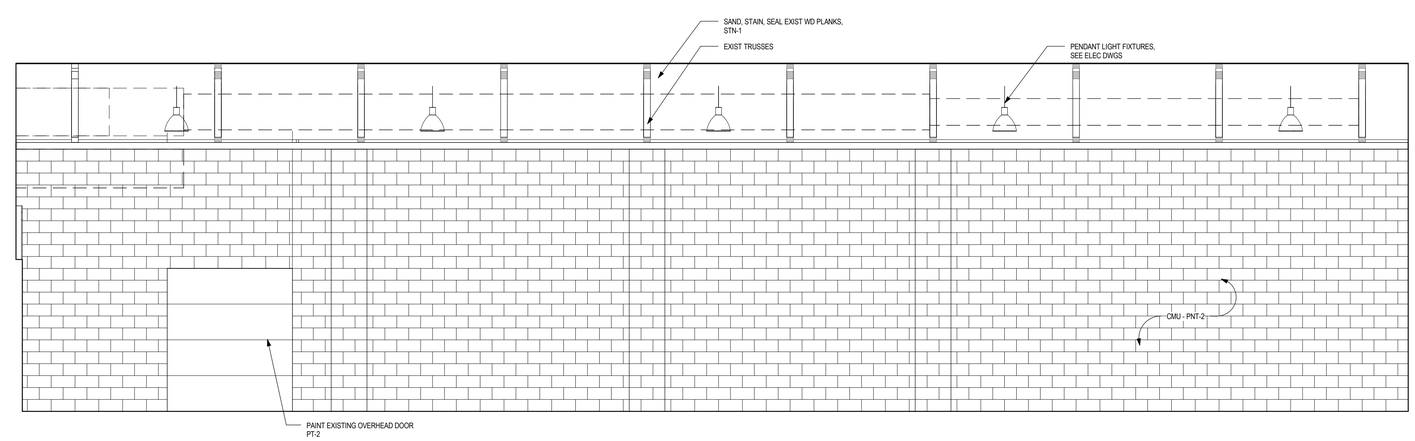
C A703 ELEVATION - THEATER 101

1/4" = 1'-0"



B A703 ELEVATION - THEATER 101

1/4" = 1'-0"



A A703 ELEVATION - THEATER 101

1/4" = 1'-0"

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Project Number: 15002
Drawn By: CH
Date: 08/31/2015

A703

TOILET ACCESSORY MOUNTING SCHEDULE

TYPE	DESCRIPTION
T-3	SOAP DISPENSER (WALL MOUNTED): 42" A.F.F. TO DISPENSER SLOT CENTERLINE
T-4	PAPER TOWEL DISPENSER WITH INTEGRAL WASTE RECEPTACLE (RECESSED): 48" A.F.F. MAX TO PAPER TOWEL OUTLET
T-6	PAPER TOWEL DISPENSER (SURFACE MOUNTED): 48" A.F.F. MAX TO PAPER TOWEL OUTLET AND CONTROLS
T-9	GRAB BAR (1 1/2" O.D. X 36" LONG): 36" A.F.F. TO T/ GRAB BAR AND 6" FROM SIDE WALL
T-10	GRAB BAR (1 1/2" O.D. X 42" LONG): 36" A.F.F. TO T/ GRAB BAR AND 12" FROM REAR WALL
T-11	GRAB BAR (1 1/2" O.D. X 18" LONG): 40" A.F.F. TO BOTTOM END CENTERLINE AND 40" FROM REAR WALL TO CENTERLINE
T-12	TOILET PAPER DISPENSER (DOUBLE ROLL): 19" A.F.F. TO ROLL CENTERLINE. 8" FROM EDGE OF WATER CLOSET TO CENTERLINE OF DISPENSER
T-13	PIPE PROTECTION BY "TRUE-BRO"
T-15	CHILD CHANGING STATION: 30" A.F.F. TO TABLE TOP
T-16	FILM BACKED SAFETY GLASS (4'-0" W. X 3'-0" H.): 40" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE
T-17	MIRROR WITHOUT SHELF (2'-0" W. X 3'-0" H.): 40" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE

NOTE: CONTRACTOR TO PROVIDE BLOCKING FOR ALL TOILET ACCESSORIES AS REQUIRED.

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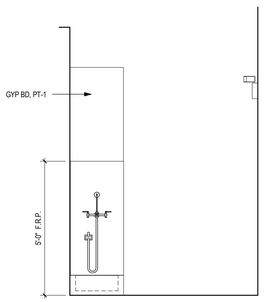
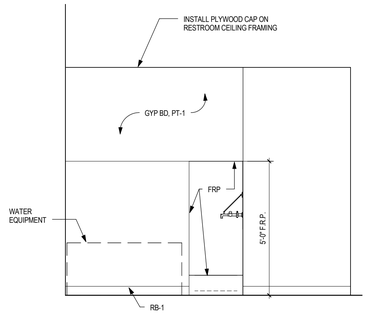
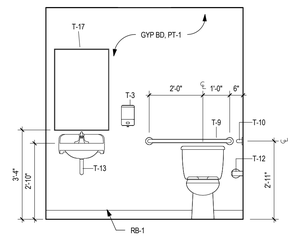


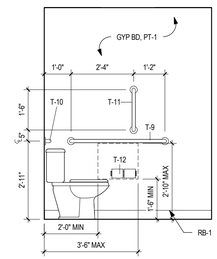
J A704 MULTIPURPOSE 105
3/8" = 1'-0"



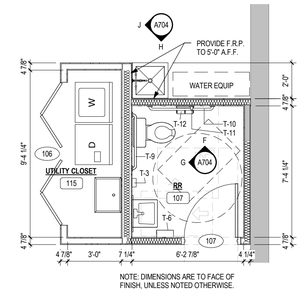
H A704 MULTIPURPOSE 105
3/8" = 1'-0"



G A704 RR 107
3/8" = 1'-0"

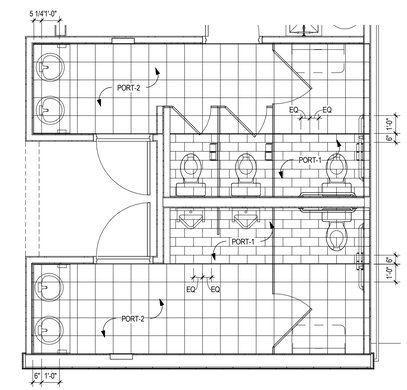


F A704 RR 107
3/8" = 1'-0"

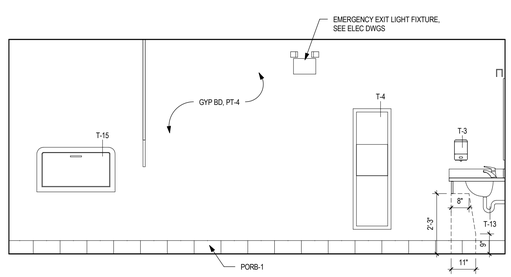


NOTE: DIMENSIONS ARE TO FACE OF FINISH, UNLESS NOTED OTHERWISE.

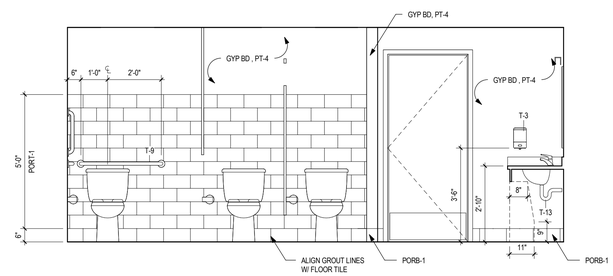
3 A704 PLAN DETAIL - RR 107
1/4" = 1'-0"



2. A704 PLAN DETAIL - FLOOR FINISHES
1/4" = 1'-0"



E A704 MEN / WOMEN RR 101 / 102
3/8" = 1'-0"



D A704 WOMEN RR 102
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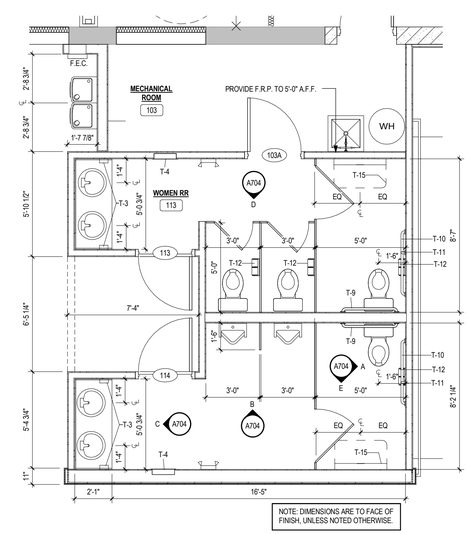
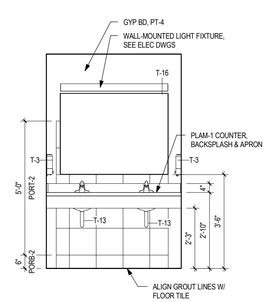
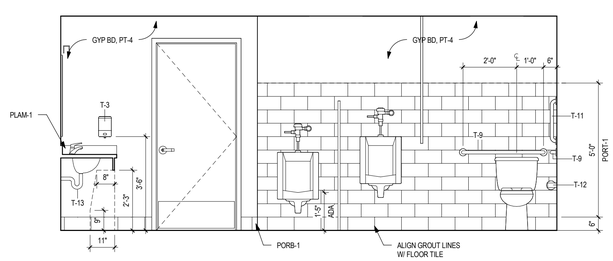


NOTE: DIMENSIONS ARE TO FACE OF FINISH, UNLESS NOTED OTHERWISE.

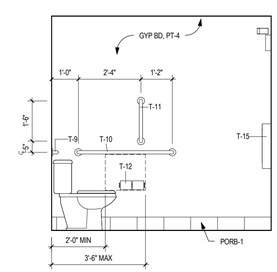
1 A704 PLAN DETAIL - RR 105 & 106
1/4" = 1'-0"



C A704 MEN / WOMEN RR 101 / 102
3/8" = 1'-0"



B A704 MEN RR 101
3/8" = 1'-0"



A A704 MEN / WOMEN RR 101 / 102
3/8" = 1'-0"

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Date: 08/31/2015

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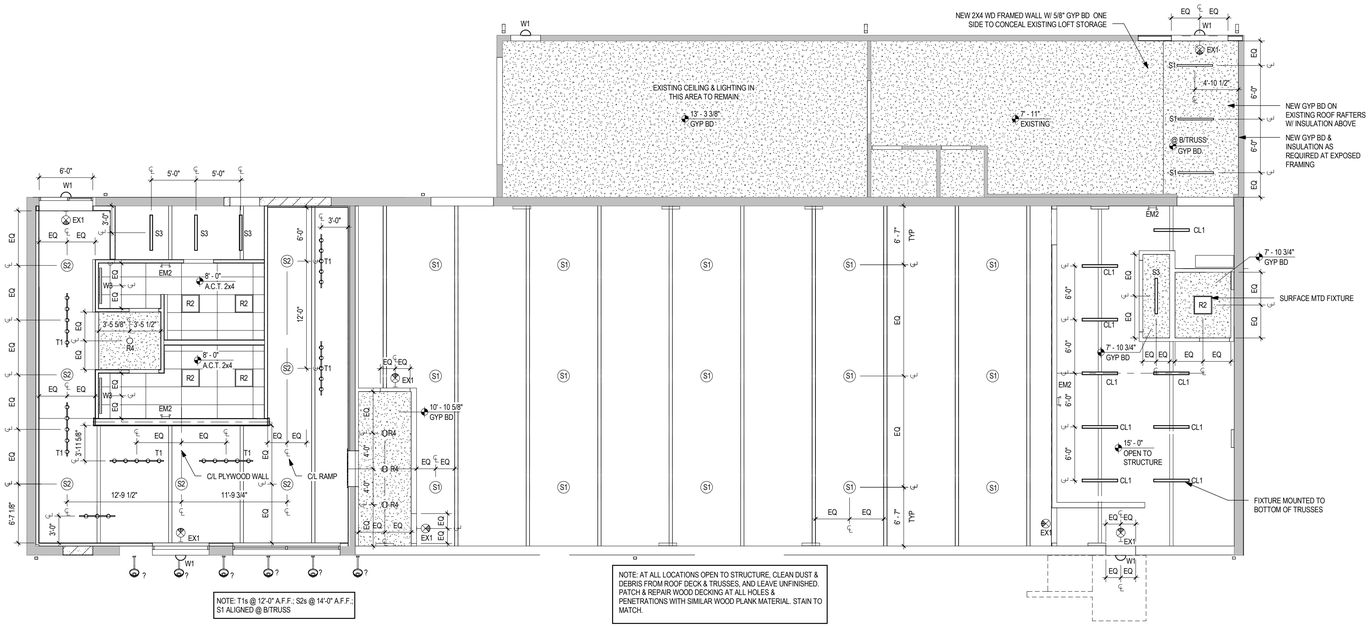
REFLECTED CEILING PLAN

GENERALLY, ONLY CEILING MOUNTED FIXTURES ARE SHOWN ON THIS PLAN. REFER TO THE ELECTRICAL LIGHTING PLANS FOR COMPLETE INFORMATION ON THE TYPE AND LOCATION OF ALL EXIT, DISCHARGE, AND EMERGENCY EGRESS FIXTURES.

- ACOUSTIC CEILING TILE & GRID
- GYPSUM BOARD CEILING
- 2X2 FLUORESCENT LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- LINEAR LIGHT FIXTURE (PENDANT, CEILING MOUNTED, OR WALL MOUNTED)
- RECESSED CEILING LIGHT FIXTURE
- TRACK LIGHT FIXTURE
- EXIT SIGN FIXTURE (CEILING MOUNTED OR WALL MOUNTED)
- WALL SCONCE LIGHT FIXTURE



1 A801 FIRST FLOOR REFLECTED CEILING PLAN

1/8" = 1'-0"

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Hilliard Civic & Cultural Arts Center

CITY OF HILLIARD

5425 CENTER STREET HILLIARD, OH 43026

Project Number: 15002
Drawn By: CH
Date: 08/31/2015

A801

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ROOM FINISH SCHEDULE

ROOM NO	ROOM NAME	FLOOR	BASE	WALLS (SUBSTRATE/FINISH) NORTH	EAST	SOUTH	WEST	CEILING MATL/FINISH	REMARKS
100	LOBBY	CPT-1	MTL-1 / RB-1	GYP BD/PT-1, CMU/PT-2	GYP BD/PT-1, CMU/PT-2	GYP BD/PT-1, CMU/PT-2	GYP BD/PT-1, CMU/PT-2	OPEN TO STRUCTURE	MTL-1 BASE @ PLYWOOD PANELS. WD PLANKS AT CEILING TO BE STRIPPED, STAINED (ST-1), & SEALED / TRUSSES & WD SILL TO BE PAINTED (PT-3)
103	MECHANICAL ROOM	CONC-1	RB-1	GYP BD/PT-1	GYP BD/PT-1	CMU/PT-2	GYP BD/PT-1	OPEN TO STRUCTURE	
104	VESTIBULE	CPT-1	RB-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-5	
105	MULTIPURPOSE	CPT-1	RB-1	CMU/PT-2	GYP BD/PT-1, CMU/PT-2	CMU/PT-2	GYP BD/PT-1	OPEN TO STRUCTURE	WD PLANKS AT CEILING TO BE STRIPPED, STAINED (ST-1), & SEALED / TRUSSES & WD SILL TO BE PAINTED (PT-3)
106	CONFERENCE RM	CONC-1	RB-1	GYP BD/PT-1	CMU/PT-2	CMU/PT-2	GYP BD/PT-1	OPEN TO STRUCTURE	WD PLANKS AT CEILING TO BE STRIPPED, STAINED (ST-1), & SEALED / TRUSSES & WD SILL TO BE PAINTED (PT-3)
107	RR	CONC-1	RB-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	A.C.T.	
108	STAIR	CONC-1	RB-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-5	FINISHES TO MATCH EXISTING IN STORAGE 109
109	STORAGE	EXIST	RB AS REQ'D	PT AS REQ'D	PT AS REQ'D	PT AS REQ'D	PT AS REQ'D	EXIST	PATCH, SAND & PAINT AS REQ'D. ANY NEW FINISHES NEEDED TO MATCH EXISTING.
110	EXIST MECH	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	
111	EXIST RR	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	
112	EXIST FOOD PANTRY	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	
113	WOMEN RR	PORT-1, PORT-2	PORB-1, PORB-2	GYP BD/PT-4, PORT-1	GYP BD/PT-4, PORT-2	GYP BD/PT-4	GYP BD/PT-4	A.C.T.	
114	MEN RR	PORT-1, PORT-2	PORB-1, PORB-2	GYP BD/PT-4	GYP BD/PT-4, PORT-2	GYP BD/PT-4, PORT-1	GYP BD/PT-4	A.C.T.	
115	UTILITY CLOSET	CONC-1	RB-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-1	GYP BD/PT-5	

ROOM FINISH LEGEND

FLOOR FINISHES:

CONC-1 SEALED CONCRETE

CPT-1 SHAW CARPET
STYLE:
COLOR:

MTL-1 BRUSHED ALUM 4" REVEAL BASE

PORB-1 DALTILE
COLOUR SCHEME GLAZED PORCELAIN
6X12 COVE BASE
DESERT GRAY B605
GROUT: 3/16" MAPEI

PORB-2 DALTILE
COLOUR SCHEME GLAZED PORCELAIN
6X12 COVE BASE
SUNBEAM B953
GROUT: 3/16" MAPEI

PORT-1 DALTILE
COLOUR SCHEME GLAZED PORCELAIN
6X12 RUNNING BOND
DESERT GRAY B605
GROUT: 3/16" MAPEI

PORT-1 DALTILE
COLOUR SCHEME GLAZED PORCELAIN
6X12 RUNNING BOND
SUNBEAM B953
GROUT: 3/16" MAPEI

RB-1 JOHNSONITE 4" RUBBER BASE
COLOR: GRAY

SURFACE FINISHES:

PLAM-1 FORMICA
ELEMENTAL CONCRETE 8830-58
MATTE FINISH
(RESTROOM COUNTERTOPS)

WALL FINISHES:

FRP-1 PANOLAM FIBERGLASS REINFORCED PLASTIC
COLOR: WHITE
(WET WALL IN CONFERENCE ROOM)

PT-1 SHERWIN WILLIAMS PAINT
COLOR:
(INTERIOR GYP BD WALLS)

PT-2 SHERWIN WILLIAMS PAINT
COLOR:
(INTERIOR CMU WALLS)

PT-3 SHERWIN WILLIAMS PAINT
COLOR:
(BOW TRUSSES & WD SILL PLATES)

PT-4 SHERWIN WILLIAMS PAINT
COLOR:
(MEN & WOMEN RESTROOMS)

PT-5 SHERWIN WILLIAMS PAINT
COLOR:
(GYP BD CEILINGS)

STN-1 MINWAX STAIN
COLOR:
FINISH:
(WD PLANK CEILING)

STN-2 MINWAX STAIN
COLOR:
FINISH:
(INTERIOR WOOD DOORS)

ROOM FINISH GENERAL NOTES

1 ALL FLOOR CARPET SHALL COMPLY WITH DOC FF-1 PILL TEST (CPSC 16 CFR 1630). CARPET IN STAIRS, EXIT PASSAGEWAYS & EXIT ACCESS CORRIDORS SHALL BE CLASS II.
2 INTERIOR WALL & CLG FINISHES SHALL MEET THE FOLLOWING MINIMUM CLASSES: STAIRS, EXIT PASSAGEWAYS: CLASS A, EXIT ACCESS CORRIDORS: CLASS A, ALL OTHER ROOMS: CLASS C.
3 RESILIENT BASE: INSTALL ON TOE KICKS AND EXPOSED END PANELS OF BASE CABINETS. STRAIGHT BASE WITH CARPET, COVED WITH ALL OTHER FLOORING.
4 A.C.T. SUSP GRID 15/16" EXP GALV STL w/ WHITE FINISH.
5 PAINT: SHERWIN-WILLIAMS. FOLLOW MFR'S INSTRUCTIONS FOR PREP. PRIMER & BASE COATS FOR GIVEN SUBSTRATE. INT MTL: PROMAR 200 LATEX EGGSHELL, EXT MTL: EXT LATEX SATIN, EXT WD: EXT LATEX SATIN, WALLS: PROMAR 200 LATEX EGGSHELL
6 SEALED CONCRETE: APPLY A SECOND COAT OF CURE & SEAL COMPOUND.
7 PAINT INTERIOR MTL DOORS & FRAMES SAME COLOR AS THE WALL UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS OR ROOM FINISH SCHEDULE.
8 WHERE IT IS NECESSARY TO CUT & PATCH EXISTING FINISHED SURFACES, PREPARE PATCHED SURFACES FOR FINISHING. FINISH TO MATCH ADJACENT SURFACES. PAINT ENTIRE PLANE OF WALL.
9 WHERE MATERIALS CHANGE AT DOOR, CENTER SEAM OF ABUTTING MATLS UNDER DOOR LEAF.
10 FLOOR FINISHES SHALL HAVE A MINIMUM STATIC COEFFICIENT OF FRICTION OF 0.6 FOR LEVEL SURFACES, AND 0.8 FOR RAMPS.
11 MORTAR FOR CERAMIC FLOOR TILE SHALL BE THIN SET TYPE. GROUT SHALL BE LATEX PORTLAND CEMENT. USE TROWELED CRACK ISOLATION MEMBRANE. USE WATERPROOF MEMBRANE IN RESTROOMS.
12 AT EXPOSED CMU WALLS NO RUBBER BASE IS REQUIRED.

DOOR SCHEDULE

DOOR NO	DOOR OPENING SIZE WIDTH	HEIGHT	DOOR TYPE	DOOR MATL FINISH	FRAME MATL FINISH	LABEL (HR)	DETAIL	HDWR SET	REMARKS
100A	6' - 0"	7' - 0"	B	ANOD ALUM / 1" INSUL GLASS	ANOD ALUM	-	8	ELECTRIC EXIT DEVICES W/ SURFACE MOUNTED VERTICAL ROD, CLOSERS, PULL, WEATHERSTRIPPING, SWEEPS	
100B	3' - 0"	7' - 0"	C	ANOD ALUM / 1" INSUL GLASS	ANOD ALUM	-	8	ELECTRIC EXIT DEVICES W/ SURFACE MOUNTED VERTICAL ROD, CLOSERS, PULL, WEATHERSTRIPPING, SWEEPS	
103A	3' - 0"	7' - 0"	E			-			
103B	3' - 0"	7' - 0"	E	H.M. - PTD	H.M. - PTD	-	6	ELECTRIC STRIKE W/ LEVER SET, CLOSER, WEATHERSTRIPPING, SWEEPS, DRIP EDGE	
104A	3' - 0"	7' - 0"	E	S.C. WD - STAIN	H.M. - PTD	-	1	EXIT DEVICES W/ CONCEALED VERTICAL ROD, LEVER TRIM W/ KEYLOCK (ENTRANCE), CLOSERS W/ HOLD OPEN	
104B	3' - 0"	7' - 0"	E	S.C. WD - STAIN	H.M. - PTD	-	1	EXIT DEVICES W/ CONCEALED VERTICAL ROD, LEVER TRIM W/ KEYLOCK (ENTRANCE), CLOSERS W/ HOLD OPEN	
105	3' - 0"	6' - 8"	E	H.M. - PTD	H.M. - PTD	-	5	ELECTRIC RIM EXIT DEVICE W/ LEVER TRIM, CLOSER, WEATHERSTRIPPING, SWEEPS, DRIP EDGE	VIEWER AT 5' A.F.F.
106	8' - 0"	7' - 0"	L						
107	3' - 0"	7' - 0"	E	S.C. WD - STAIN	H.M. - PTD	-	1	PRIVACY SET	
108	6' - 0"	7' - 0"	D	S.C. WD - STAIN	H.M. - PTD	-	2	EXIT DEVICES W/ SURFACE MOUNTED VERTICAL ROD, LEVER TRIM W/ KEYLOCK (ENTRANCE), CLOSERS	
109	6' - 0"	6' - 8"	F	H.M. - PTD	H.M. - PTD	-	6	ELECTRIC STRIKE W/ LEVER SET, CLOSER, WEATHERSTRIPPING, SWEEPS, DRIP EDGE	
112	3' - 0"	6' - 8"	G	H.M. - PTD	H.M. - PTD	-	6	ELECTRIC STRIKE, MANUAL FLUSHBOLT, LEVER TRIM ON ACTIVE LEAF ONLY, CLOSER W/ HOLD OPEN ON ACTIVE LEAF ONLY, ASTRAGAL, WEATHERSTRIPPING, SWEEPS, DRIP EDGE	
113	3' - 0"	7' - 0"	E	S.C. WD - STAIN	H.M. - PTD	-	1	PUSHPULL, CLOSER, 12" KICKPLATE	
114	3' - 0"	7' - 0"	E	S.C. WD - STAIN	H.M. - PTD	-	1	PUSHPULL, CLOSER, 12" KICKPLATE	
EX105	7' - 0"	8' - 0"	-	EXIST	EXIST	-	-	-	EXIST TO REMAIN
EX110	3' - 0"	7' - 0"	E	EXIST	EXIST	-	-	-	EXIST TO REMAIN
EX111	3' - 0"	7' - 0"	E	EXIST	EXIST	-	-	-	EXIST TO REMAIN
EX112	12' - 0"	10' - 0"	-	EXIST	EXIST	-	-	-	EXIST TO REMAIN

NOTE: FIELD VERIFY CMU COURSING & CONDITIONS AT EXISTING WALL OPENINGS. COORDINATE DOOR FRAME SIZES ACCORDINGLY.

DOOR HARDWARE NOTES

REFER TO THE DOOR SCHEDULE FOR GENERAL LOCKSET FUNCTIONS, AND WHERE CYLINDERS, ELECTRIC STRIKES, CLOSERS, PUSH-PULLS, EXIT DEVICES AND OTHER SPECIFIC HARDWARE ITEMS ARE REQUIRED. PROVIDE ADDITIONAL HARDWARE AS NOTED BELOW.

1. LOCKSETS: PROVIDE LEVER OPERATED, STANDARD COMMERCIAL DUTY CYLINDRICAL LOCKSETS AT INTERIOR DOORS, AND HEAVY DUTY LOCKSETS WITH VANDAL RESISTANT LEVERS AT EXTERIOR DOORS, UNLESS NOTED OTHERWISE IN THE DOOR SCHEDULE.

2. HINGES:
   A. PROVIDE STANDARD WEIGHT NON-FERROUS, NON-REMOVEABLE PIN (NRP) HINGES AT EXTERIOR DOORS, AND STEEL NRP HINGES AT OUTSWINGING INTERIOR CORRIDOR AND ROOM DOORS WITH LOCKS.
   B. PROVIDE BALL BEARING (BB) HINGES AT DOORS WITH CLOSERS.
   C. PROVIDE THREE HINGES AT EACH SOLID CORE WOOD OR HOLLOW METAL DOOR LEAF 7'-0" OR LESS IN HEIGHT, AND 3'-0" OR LESS IN WIDTH.
   D. PROVIDE FOUR HINGES AT EACH SOLID CORE WOOD OR HOLLOW METAL DOOR LEAF 7'-6" OR GREATER IN HEIGHT, OR 3'-4" OR GREATER IN WIDTH.
   E. PROVIDE TWO HINGES AT EACH HOLLOW CORE WOOD DOOR LEAF 7'-0" OR LESS IN HEIGHT, AND 3'-0" OR LESS IN WIDTH.

3. CLOSERS:
   A. PROVIDE SURFACE MOUNTED CLOSERS ON THE ROOM SIDE OF CORRIDOR DOORS IN CORRIDORS, LOBBIES, AND OTHER PUBLIC SPACES. MOUNT ALL CLOSERS WITH SEX BOLTS.
   B. SIZE CLOSERS TO MEET APPLICATIONS INDICATED AND COMPLY WITH ANSI A117.1 OPENING AND CLOSING REQUIREMENTS.
   C. PROVIDE CLOSERS WITH MECHANICAL HOLD-OPEN OPTION WHERE NOTED "CLOSER w/H.O."
   D. PROVIDE CLOSERS WITH INTEGRAL MECHANICAL STOP OPTION WHERE NOTED "CLOSER w/STOP."
   E. PROVIDE ELECTROMECHANICAL HOLD-OPEN CLOSERS WITH INTEGRAL SMOKE DETECTORS, TRANSFORMER, RECTIFIER AND FULL COVER WHERE NOTED "H.O. CLOSER w/DETECTOR."

4. STOPS:
   A. PROVIDE WALL MOUNTED DOOR STOPS AT EACH INTERIOR SWING DOOR UNLESS FLOOR STOPS ARE SCHEDULED. DO NOT MOUNT FLOOR STOPS WHERE THEY WILL IMPEDE TRAFFIC.
   B. PROVIDE OVERHEAD STOPS WHERE SCHEDULED.

5. INTERIOR DOUBLE DOORS:
   A. PROVIDE ONE PAIR OR MORTISED FLUSH BOLTS AND DUSTPROOF STRIKE AT INACTIVE LEAF OF NON-RATED DOORS.
   B. PROVIDE OVERLAPPING STEEL ASTRAGAL AND DOOR COORDINATOR AT INTERIOR 3-HOUR RATED DOORS.

6. SOUND CONTROL: TOILET ROOM AND MECHANICAL ROOM DOORS.
   A. PROVIDE SOUND STRIPPING AT DOOR FRAME JAMBS AND HEAD.
   B. PROVIDE SURFACE MOUNTED AUTOMATIC DOOR BOTTOM AT SILL.
   C. PROVIDE ANSI A117.1 COMPLIANT FLAT THRESHOLD WHERE DOOR BOTTOM WOULD SEAL AGAINST CARPET.

7. SMOKE CONTROL: PROVIDE THE HARDWARE BELOW AT THESE LOCATIONS. 1.)FIRE DOOR ASSEMBLIES REQUIRED TO HAVE A MINIMUM FIRE PROTECTION RATING OF 20 MINUTES WHERE LOCATED IN CORRIDOR WALLS, 2.)DOORS IN SMOKE PARTITIONS, OR 3.)DOORS IN RATED SMOKE BARRIERS.
   A. PROVIDE INTUMESCENT SMOKE STRIPPING AT DOOR STILES AND HEAD OR AT FRAME JAMBS AND HEAD.
   B. PROVIDE SURFACE MOUNTED AUTOMATIC DOOR BOTTOM AT DOOR SILL.
   C. PROVIDE ANSI A117.1 COMPLIANT FLAT THRESHOLD WHERE DOOR BOTTOM WOULD SEAL AGAINST CARPET.

8. EXTERIOR DOORS:
   A. PROVIDE RAIN DRIP AT HEAD, DOOR EXTENDER & SWEEP AT BOTTOM OF DOOR, ANSI A117.1 COMPLIANT THRESHOLD, AND WEATHERSTRIPPING (JAMBS & HEAD) AT EACH EXTERIOR HOLLOW METAL DOOR.
   B. PROVIDE ADJUSTABLE SURFACE ASTRAGALS AT EXTERIOR HOLLOW METAL DOUBLE DOORS.

9. ALUMINUM DOOR HARDWARE:
   A. THE FOLLOWING HARDWARE IS PROVIDED BY THE ALUMINUM DOOR MANUFACTURER:
      1) PUSHPULLS (EACH DOOR).
      2) CLOSERS (EACH DOOR).
      3) PIVOTS.
      4) LOCKS AND STRIKES.
      5) THRESHOLDS.
      6) FLUSH BOLTS, ONE PAIR ON INACTIVE LEAF.
      7) EXIT DEVICES (WHEN SCHEDULED).
      8) WEATHERSTRIPPING.
      9) SILL SWEEP STRIPS
      10) AND OTHER HARDWARE LISTED IN THE DOOR SCHEDULE

10. PROVIDE EXTENDED STRIKE PLATES AT WOOD DOORS.

11. PROVIDE STRIKE BOXES AT OPENINGS WHERE HOLLOW METAL FRAMES ARE NOTED TO BE GROUTED IN PLACE. VERIFY STRIKE BOXES NOT REQUIRED OR DESIRED AT OTHER LOCATIONS.

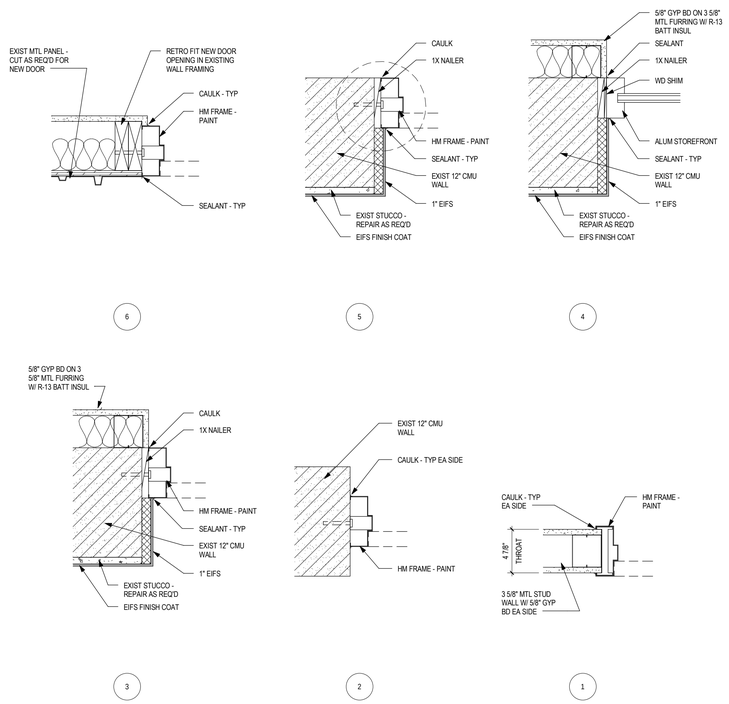
12. PROVIDE METAL, WALL MOUNTED KEY CABINET WITH "TWO TAG KEY SYSTEM" SIZED TO MEET PROJECT REQUIREMENTS PLUS 50% EXPANSION.

13. FINISHES: PROVIDE 626 SATIN CHROME FINISH OR COMPARABLE ANODIZED OR PAINTED FINISHES ON EXPOSED HARDWARE.

14. PROVIDE MOUNTED KEY CONTROL LOCK BOX AT INDICATED LOCATIONS.

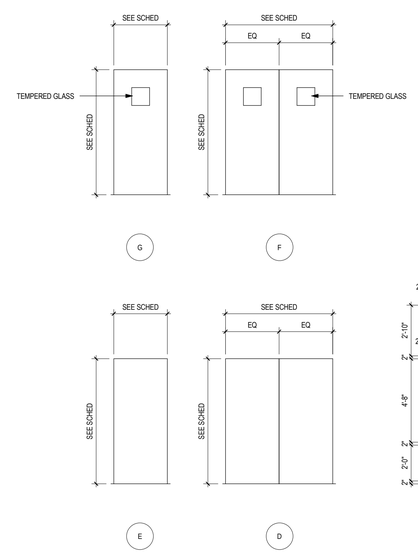
15. PROVIDE SILENCERS AT ALL INTERIOR DOORS.

16. CONTRACTOR TO HOLD SECURITY CONFERENCE WITH THE ARCHITECT, OWNER, DOOR SUPPLIER, AND THE OWNER'S SECURITY CONSULTAT PRIOR TO ORDERING DOORS AND DOOR HARDWARE.



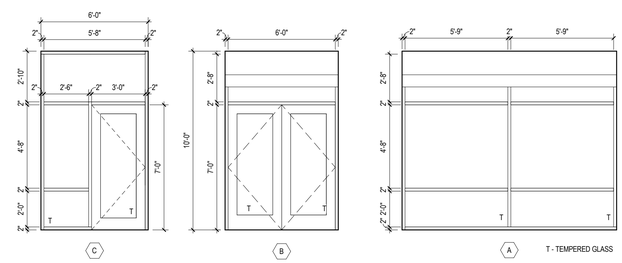
JAMB DETAILS

1 1/2" = 1'-0"



DOOR TYPES

1/4" = 1'-0"



STOREFRONT TYPES

1/4" = 1'-0"

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REGISTERED ARCHITECT
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SPECIFICATION SECTION GENERAL REQUIREMENTS

A. THE FOLLOWING APPLIES TO EACH SPECIFICATION SECTION.

B. PRODUCTS AND SUBSTITUTIONS:
1. BASIS-OF-DESIGN PRODUCT SPECIFICATIONS: SPECIFIC MANUFACTURER'S PRODUCT(S) ARE NAMED AND ACCOMPANIED BY THE WORDS "BASIS-OF-DESIGN," INCLUDING MAKE OR MODEL NUMBER OR OTHER DESIGNATION, TO ESTABLISH SIGNIFICANT QUALITIES RELATED TO TYPE, FUNCTION, DIMENSION, IN-SERVICE PERFORMANCE, PHYSICAL PROPERTIES, APPEARANCE AND OTHER CHARACTERISTICS FOR PURPOSES OF EVALUATING COMPARABLE PRODUCTS OF OTHER NAMED MANUFACTURERS.
2. SUBSTITUTIONS: CHANGES IN PRODUCTS, MATERIALS, EQUIPMENT AND METHODS OF CONSTRUCTION FROM THOSE REQUIRED BY THE CONTRACT DOCUMENTS AND PROPOSED BY CONTRACTOR.
3. SUBSTITUTION REQUESTS: SUBMIT THREE COPIES OF EACH REQUEST FOR CONSIDERATION. IDENTIFY PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED. INCLUDE SPECIFICATION SECTION NUMBER AND TITLE, AND DRAWING NUMBERS AND TITLES. AND THE FOLLOWING:
a. SUBSTITUTION REQUEST FORM: USE SUBMITTER'S LETTERHEAD.
b. DOCUMENTATION SHOWING COMPLIANCE WITH REQUIREMENTS FOR SUBSTITUTIONS INCLUDING INSTALLATION AND WARRANTY ISSUES.
c. COORDINATION INFORMATION, INCLUDING LIST OF CHANGES OR MODIFICATIONS NEEDED TO ACCOMMODATE PROPOSED SUBSTITUTION.
d. DETAILED COMPARISON OF SIGNIFICANT QUALITIES OF PROPOSED SUBSTITUTION WITH THOSE OF THE WORK SPECIFIED.
e. SAMPLES AND PRODUCT DATA, INCLUDING DRAWINGS AND DESCRIPTIONS OF PRODUCTS AND FABRICATION AND INSTALLATION PROCEDURES.
f. COMPARISON OF CONTRACTOR'S CONSTRUCTION SCHEDULE USING PROPOSED SUBSTITUTION WITH PRODUCTS SPECIFIED FOR THE WORK, INCLUDING EFFECT ON THE OVERALL CONTRACT TIME.
g. COST INFORMATION, INCLUDING A PROPOSAL OF CHANGE, IF ANY, IN THE CONTRACT SUM.
h. CONTRACTOR'S CERTIFICATION THAT PROPOSED SUBSTITUTION COMPLIES WITH REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IS APPROPRIATE FOR APPLICATIONS INDICATED.
i. CONTRACTOR'S CERTIFICATION THAT PROPOSED SUBSTITUTION IS CAPABLE OF BEING INSTALLED UNDER SHOWN CONDITIONS WITHOUT SIGNIFICANT MODIFICATION OR ADJUSTMENT TO THESE CONDITIONS (APPEARANCE, FRAMING, SUPPORT SYSTEMS, MATERIAL THICKNESS, WARRANTY ISSUES, ETC.).
j. CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME THAT MAY SUBSEQUENTLY BECOME NECESSARY BECAUSE OF PROPOSED SUBSTITUTION IT'S FAILURE TO PRODUCE INDICATED RESULTS.

C. SUBMITTALS: PROVIDE SUBMITTALS OF TYPE, EXTENT AND QUANTITY REQUIRED BY THE WORK.
1. SHOP DRAWINGS: SHOW FABRICATION, MATERIAL SPECIFICATIONS AND FINISHES, SHOP AND ERECTION DETAILS, SHOP AND FIELD WELDS, MATERIAL SCHEDULES, DIAGRAMS, POWER AND COORDINATION REQUIREMENTS, DATA AND REPORTS, AND OTHER INFORMATION FURNISHED BY THE MANUFACTURER OR SUPPLIER TO ILLUSTRATE PROPOSED MATERIAL, PRODUCT OR SYSTEM FOR THE SPECIFIC PORTION OF THE WORK. WHEN REQUIRED, PROVIDE SHOP DRAWINGS AND STRUCTURAL ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION, AND REGISTERED IN THE STATE OF THE PROJECT.
2. SAMPLES: SUBMIT SAMPLES FINISHED AS SPECIFIED AND IDENTICAL WITH THE MATERIAL PROPOSED WHICH REPRESENT THE MATERIAL, EQUIPMENT, OR WORKMANSHIP TO BE PROVIDED AND TO ESTABLISH STANDARDS BY WHICH COMPLETED WORK IS EVALUATED. WHERE VARIATIONS ARE INHERENT IN THE MATERIAL, SUBMIT SUFFICIENT UNITS TO SHOW LIMITS OF THE VARIATIONS. INCLUDE PRODUCT NAME OR NAME OF THE MANUFACTURER. SUBMIT MATERIALS IN GROUPS CONTAINING ALL ASSOCIATED ITEMS (CARPET, TILE, BASE, PAINT, ETC.) TO ALLOW INSTALLATION COORDINATION AND COLOR SELECTIONS.
3. BEGIN NO WORK REQUIRING SUBMITTALS UNTIL SUCH TIME AS SUBMITTALS HAVE BEEN REVIEWED AND/OR APPROVED BY ARCHITECT OR ENGINEER AND RETURNED.

D. QUALITY ASSURANCE:
1. PERSONNEL: PROVIDE QUALIFIED FABRICATORS, ERECTORS, WELDERS AND INSTALLERS REQUIRED TO EXECUTE THE WORK IN ACCORDANCE WITH ACCEPTED MATERIAL AND INSTALLATION STANDARDS, AND MATERIAL MANUFACTURER'S WRITTEN REQUIREMENTS.
2. TESTING AND INSPECTING: PROVIDE TESTING AND INSPECTING SERVICES REQUIRED TO VERIFY COMPLIANCE WITH REQUIREMENTS SPECIFIED OR INDICATED WITHIN THE CONTRACT DOCUMENTS OR REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. THESE SERVICES DO NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENT REQUIREMENTS.
a. TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT AGENCY QUALIFIED TO PERFORM TESTING REQUIRED.
b. PRE-INSTALLATION TESTING: PERFORM MANUFACTURER'S STANDARD TESTS FOR COMPATIBILITY AND ADHESION WITH EACH MATERIAL THAT WILL COME IN CONTACT WITH INSTALLED MATERIAL.
c. MANUFACTURER'S FIELD SERVICES: WHEN REQUIRED BY MANUFACTURER AS A CONDITION OF WARRANTY OR SERVICE, ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT FIELD-ASSEMBLED COMPONENTS AND INSTALLATION. REPORT RESULTS IN WRITING.
3. INDUSTRY STANDARDS: COMPLY WITH APPLICABLE PROVISIONS OF INDUSTRY STANDARDS FOR MATERIALS AND INSTALLATION FOR EACH PORTION OF THE WORK.
4. CODE COMPLIANCE: COMPLY WITH APPLICABLE PROVISIONS OF FEDERAL, STATE AND LOCAL CODE REQUIREMENTS FOR MATERIALS AND INSTALLATION FOR EACH PORTION OF THE WORK. CONTRACTORS ARE NOT REQUIRED TO ASCERTAIN THAT THE CONTRACT DOCUMENTS ARE IN ACCORDANCE WITH APPLICABLE LAWS, STATUTES, ORDINANCES, BUILDING CODES, AND RULES AND REGULATIONS.
5. MOCKUPS: BUILD MOCKUPS FOR EACH INDICATED TYPE OF EXPOSED MATERIAL TO DEMONSTRATE AESTHETIC EFFECTS AND SET QUALITY STANDARDS FOR FABRICATION AND INSTALLATION. BUILD MOCKUPS IN AGREED UPON SIZES AND LOCATIONS SHOWING FULL RANGE OF COLOR, TEXTURE, JOINTING AND WORKMANSHIP PROPOSED FOR THE WORK. MAKE PANELS AVAILABLE TO OTHER TRADES FOR THEIR USE. APPROVED MOCKUPS MAY NOT FORM A PORTION OF THE WORK.

E. WARRANTY: PROVIDE MANUFACTURER'S STANDARD MATERIAL AND FINISH WARRANTIES, AND INSTALLER'S WARRANTY FOR PRODUCTS INDICATED UNLESS ADDITIONAL HIGHER REQUIREMENTS ARE NOTED IN THE SPECIFIC SECTION. PROVIDE MATERIALS, SUBMITTALS AND INSPECTIONS REQUIRED TO ACHIEVE THE WARRANTY PERIOD(S) INDICATED.
1. WARRANTY PERIODS START ON DATE OF SUBSTANTIAL COMPLETION.

F. ENVIRONMENTAL AND WORK CONDITIONS:
1. WEATHER LIMITATIONS: PROCEED WITH INSTALLATION ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS AND SURFACE TEMPERATURES PERMIT MATERIALS TO BE INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND WARRANTY REQUIREMENTS.
2. INSPECT SURFACES AND VERIFY THEY ARE CLEAN, DRY AND IN ALL OTHER RESPECTS SUITABLE TO RECEIVE SPECIFIED MATERIALS OR TREATMENT. USE MATERIAL MANUFACTURER'S APPROVED CLEANING MATERIALS AND METHODS FOR SUBSTRATE AND FIELD CONDITIONS.
3. COORDINATION: COORDINATE WITH OTHER TRADES TO INSURE ADEQUATE ILLUMINATION, VENTILATION AND DUST-FREE ENVIRONMENT DURING PAINT AND FINISH APPLICATION AND DRYING. MAINTAIN TEMPERATURE AND HUMIDITY WITHIN MANUFACTURER'S RECOMMENDED TOLERANCES THROUGHOUT THE WORK.
4. PROTECTION AND CLEANING: PROVIDE CLEAN DROP CLOTHS AND OTHER PROTECTION AS REQUIRED TO PROTECT FLOORS, WALLS, DOORS, WINDOWS, AND OTHER COMPONENTS AND SURFACES FROM DAMAGE.
5. DO NOT USE STORM OR SANITARY FIXTURES, OPEN WASTE OR VENT PIPES, OR PIPES OF ANY KIND TO DISPOSE OF LIQUID OR SOLID MATERIALS OR WASTE.
6. DO NOT USE WATER CLOSETS, TUBS OR OTHER FIXTURES, CABINETS, FURNITURE ETC. AS SUPPORTS FOR PLANKING AND SHALL BE THOROUGHLY PROTECTED FROM DAMAGE AT ALL TIMES.
7. CONTROL AND MINIMIZE QUANTITY OF DIRT, MUD AND DEBRIS DEPOSITED ON ROADWAYS, STREETS AND DRIVES. REMOVED SUCH MATERIAL ON A REGULAR BASIS AND AT REQUEST OF LOCAL GOVERNING AUTHORITIES.

G. TEMPORARY FACILITIES AND CONTROLS: CONTRACTORS SHALL PROVIDE TEMPORARY FACILITIES, UTILITIES, AND CONTROLS REQUIRED BY PROJECT CONDITIONS. OBTAIN AND PAID FOR APPLICATIONS, PERMITS AND INSPECTIONS PRIOR TO INSTALLATION. INCLUDES:
1. FIELD OFFICE AND STORAGE FACILITIES.
2. TEMPORARY UTILITIES, INSTALLATION AND TESTING.
3. WASTE DISPOSAL FACILITIES AND SERVICES.
4. PROJECT IDENTIFICATION AND TEMPORARY SIGNS.
5. PROTECTION AND BARRIERS.

H. INSTALLATION:
1. FIELD CONDITIONS: FIELD VERIFY EXISTING DIMENSIONS, ELEVATIONS, CONDITIONS, ETC. OF THE WORK PRIOR TO MATERIAL FABRICATION OR INSTALLATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM THE DRAWINGS.
2. ERECT MATERIALS ACCURATELY IN LOCATIONS AND TO ELEVATIONS INDICATED AND ACCORDING TO REFERENCED SPECIFICATIONS. USE INSTRUMENTS TO CHECK ALIGNMENT AND ELEVATIONS WHEN APPLICABLE.
3. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND INSTALLATION TECHNIQUES. INSTALL MATERIAL STRAIGHT, LEVEL, PLUMB AND RIGIDLY SECURED IN POSITION WITH MANUFACTURER'S RECOMMENDED ANCHORING DEVICES.
4. ADJUST AND LUBRICATE OPERATING COMPONENTS AND HARDWARE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER OPERATION.
5. OPERATING UNITS: ENGAGE FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE AND MAINTAIN UNITS.
6. REPAIR DAMAGED FINISHES AND MATERIALS TO MATCH ORIGINAL INSTALLATION AND TO OWNER SATISFACTION. REPLACE ITEMS THAT CANNOT BE REFINISHED.

SECTION 014533 - CODE REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

A. PURSUANT TO OHIO BUILDING CODE (OBC) CHAPTER 17, SECTION 1704 "SPECIAL INSPECTIONS", THE OWNER WILL PROVIDE THIRD PARTY TESTING AND INSPECTION.
1. TESTS AND INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH NOTED OBC REQUIREMENTS, SPECIFIC REFERENCED STANDARDS, OR IN THE ABSENCE THEREOF, APPLICABLE INDUSTRY STANDARDS APPROVED BY AUTHORITIES HAVING JURISDICTION. THESE TESTS AND INSPECTIONS ARE IN ADDITION TO AND SEPARATE FROM TESTING AND INSPECTIONS PROVIDED BY THE CONTRACTOR.
2. THE GENERAL CONTRACTOR SHALL COORDINATE THE OWNER'S TESTING AND INSPECTION AGENCY'S WORK WITH THE OVERALL CONSTRUCTION SCHEDULE TO ENSURE SUFFICIENT NOTIFICATION OF OWNER'S TESTING AGENCY, AND ALLOW PROPER COMPLETION OF REQUIRED TESTING AND INSPECTIONS.
3. THIRD PARTY TESTING AND INSPECTION AGENCY: AN ESTABLISHED AND RECOGNIZED AGENCY REGULARLY ENGAGED IN CONDUCTING TESTS AND/OR FURNISHING INSPECTION SERVICES, WHEN SUCH AGENCY HAS BEEN APPROVED IN ACCORDANCE WITH THE RULES OF THE OHIO BOARD OF BUILDING STANDARDS, AND HIRED BY THE OWNER.
4. SPECIAL TESTING AND INSPECTIONS PROVIDED UNDER THIS SECTION DO NOT NEGATE OR SUPERCEDE TESTING AND INSPECTION REQUIREMENTS CONTAINED WITHIN INDIVIDUAL MATERIAL SECTIONS, OR THOSE REQUIRED BY LEGAL AUTHORITIES HAVING JURISDICTION OVER THE ENTIRE SCOPE OF THE WORK.

B. STEEL CONSTRUCTION: OBC §1704.3.
1. SPECIAL INSPECTIONS NOT REQUIRED WHERE FABRICATION PROCESSES AND WORKMAN QUALIFICATIONS COMPLY WITH OBC EXCEPTIONS 1704.3.1 AND 1704.3.2. IF FABRICATION PROCESSES AND WORKMAN QUALIFICATIONS COMPLY WITH NOTED EXCEPTIONS, OWNER'S TESTING AND INSPECTION AGENCY'S TO OBTAIN COPIES OF FABRICATION PROCESSES AND WORKMAN QUALIFICATIONS PROVIDED BY GENERAL CONTRACTOR'S SUBCONTRACTOR, AND SUBMIT THEM WITH REPORT STATING SUCH.
2. INSPECTED MATERIALS: STEEL FRAMING MEMBERS IN ACCORDANCE WITH OBC TABLE 1704.3, WELDING AND BOLTS.
3. PERFORMED INSPECTIONS: IN ACCORDANCE WITH THE FOLLOWING:
a. STEEL FRAMING MEMBERS: OBC §1704.3 AND TABLE 1704.3.
b. WELDING: OBC §1704.3.1.
c. DETAILS: OBC §1704.3.2.
d. HIGH STRENGTH BOLTS: OBC §1704.3.3 AS APPLICABLE

C. CONCRETE CONSTRUCTION: OBC §1704.4.
1. SPECIAL INSPECTIONS NOT REQUIRED FOR CONDITIONS NOTED IN OBC §1704.4.1 THRU .5. IF ANY OR ALL CONDITIONS COMPLY WITH NOTED EXCEPTIONS, OWNER'S TESTING AND INSPECTION AGENCY'S TO NOTE CONDITIONS NOT REQUIRING SPECIAL INSPECTIONS AND SUBMIT WITH REPORT STATING SUCH.
2. INSPECTED MATERIALS: CONCRETE, STEEL AND ACCESSORY MATERIALS NOTED IN OBC TABLE 1704.4, REQUIRED VERIFICATION AND INSPECTION OF CONCRETE.
3. PERFORMED INSPECTIONS: IN ACCORDANCE WITH OBC TABLE 1704.4.

D. MASONRY CONSTRUCTION: OBC §1704.5.
1. SPECIAL INSPECTIONS NOT REQUIRED FOR CONDITIONS NOTED IN OBC §1704.5.1 AND .2. IF ANY OR ALL CONDITIONS COMPLY WITH NOTED EXCEPTIONS, OWNER'S TESTING AND INSPECTION AGENCY'S TO NOTE CONDITIONS NOT REQUIRING SPECIAL INSPECTIONS AND SUBMIT WITH REPORT STATING SUCH.
2. INSPECTED MATERIALS: CONCRETE UNIT MASONRY, STEEL REINFORCEMENT AND ACCESSORY MATERIALS NOTED IN OBC TABLES 1704.5.1 AND 1704.5.3.
3. PERFORMED INSPECTIONS: IN ACCORDANCE WITH OBC TABLES 1704.5.1 AND 1704.5.3 AND AS DETERMINED BY BUILDING CLASSIFICATION, STRUCTURE OR OCCUPANCY.

E. SEE GENERAL STRUCTURAL NOTES (SHEET S0.1) FOR ADDITIONAL INFORMATION.

SECTION 017329 - CUTTING AND PATCHING

A. THIS SECTION INCLUDES PROCEDURAL REQUIREMENTS FOR CUTTING AND PATCHING.
B. STRUCTURAL ELEMENTS: DO NOT CUT AND PATCH STRUCTURAL ELEMENTS IN A MANNER THAT COULD CHANGE THEIR LOAD-CARRYING CAPACITY OR LOAD-DEFLECTION RATIO.
C. OPERATIONAL ELEMENTS: DO NOT CUT AND PATCH OPERATING ELEMENTS AND RELATED COMPONENTS IN A MANNER THAT RESULTS IN REDUCING THEIR CAPACITY TO PERFORM AS INTENDED OR THAT RESULTS IN INCREASED MAINTENANCE OR DECREASED OPERATIONAL LIFE OR SAFETY.
D. VISUAL REQUIREMENTS: DO NOT CUT AND PATCH CONSTRUCTION IN A MANNER THAT RESULTS IN VISUAL EVIDENCE OF CUTTING AND PATCHING. DO NOT CUT AND PATCH CONSTRUCTION EXPOSED ON THE EXTERIOR OR IN OCCUPIED SPACES IN A MANNER THAT WOULD, IN ARCHITECT'S OPINION, REDUCE THE BUILDING'S AESTHETIC QUALITIES. REMOVE AND REPLACE CONSTRUCTION THAT HAS BEEN CUT AND PATCHED IN A VISUALLY UNSATISFACTORY MANNER.
E. GENERAL: COMPLY WITH REQUIREMENTS SPECIFIED IN OTHER SECTIONS.
F. IN-PLACE MATERIALS: USE MATERIALS IDENTICAL TO IN-PLACE MATERIALS. FOR EXPOSED SURFACES, USE MATERIALS THAT VISUALLY MATCH IN-PLACE ADJACENT SURFACES TO THE FULLEST EXTENT POSSIBLE.
1. IF IDENTICAL MATERIALS ARE UNAVAILABLE OR CANNOT BE USED, USE MATERIALS THAT, WHEN INSTALLED, WILL MATCH THE VISUAL AND FUNCTIONAL PERFORMANCE OF IN-PLACE MATERIALS.
G. TEMPORARY SUPPORT: PROVIDE TEMPORARY SUPPORT OF WORK TO BE CUT.
H. PROTECTION: PROTECT IN-PLACE CONSTRUCTION DURING CUTTING AND PATCHING TO PREVENT DAMAGE. PROVIDE PROTECTION FROM ADVERSE WEATHER CONDITIONS FOR PORTIONS OF PROJECT THAT MIGHT BE EXPOSED DURING CUTTING AND PATCHING OPERATIONS.
I. ADJOINING AREAS: AVOID INTERFERENCE WITH USE OF ADJOINING AREAS OR INTERRUPTION OF FREE PASSAGE TO ADJOINING AREAS.
J. EXISTING UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS: WHERE EXISTING SERVICES/SYSTEMS ARE REQUIRED TO BE REMOVED, RELOCATED, OR ABANDONED, BYPASS SUCH SERVICES/SYSTEMS BEFORE CUTTING TO MINIMIZE INTERRUPTION TO OCCUPIED AREAS.
K. GENERAL: EMPLOY SKILLED WORKERS TO PERFORM CUTTING AND PATCHING. PROCEED WITH CUTTING AND PATCHING AT THE EARLIEST FEASIBLE TIME, AND COMPLETE WITHOUT DELAY.
1. CUT IN-PLACE CONSTRUCTION TO PROVIDE FOR INSTALLATION OF OTHER COMPONENTS OR PERFORMANCE OF OTHER CONSTRUCTION, AND SUBSEQUENTLY PATCH AS REQUIRED TO RESTORE SURFACES TO THEIR ORIGINAL CONDITION.
L. CUTTING: CUT IN-PLACE CONSTRUCTION BY SAWING, DRILLING, BREAKING, CHIPPING, GRINDING, AND SIMILAR OPERATIONS, INCLUDING EXCAVATION, USING METHODS LEAST LIKELY TO DAMAGE ELEMENTS RETAINED OR ADJOINING CONSTRUCTION. IF POSSIBLE, REVIEW PROPOSED PROCEDURES WITH ORIGINAL INSTALLER; COMPLY WITH ORIGINAL INSTALLER'S WRITTEN RECOMMENDATIONS.
1. IN GENERAL, USE HAND OR SMALL POWER TOOLS DESIGNED FOR SAWING AND GRINDING, NOT HAMMERING AND CHOPPING. CUT HOLES AND SLOTS AS SMALL AS POSSIBLE, NEATLY TO SIZE REQUIRED, AND WITH MINIMUM DISTURBANCE OF ADJACENT SURFACES. TEMPORARILY COVER OPENINGS WHEN NOT IN USE.
2. FINISHED SURFACES: CUT OR DRILL FROM THE EXPOSED OR FINISHED SIDE INTO CONCEALED SURFACES.
3. CONCRETE SLAB: CUT USING A CUTTING MACHINE, SUCH AS AN ABRASIVE SAW OR A DIAMOND-CORE DRILL.
4. EXCAVATING AND BACKFILLING: COMPLY WITH REQUIREMENTS IN APPLICABLE DIVISION 02 SECTIONS WHERE REQUIRED BY CUTTING AND PATCHING OPERATIONS.
5. PROCEED WITH PATCHING AFTER CONSTRUCTION OPERATIONS REQUIRING CUTTING ARE COMPLETE.
M. PATCHING: PATCH CONSTRUCTION BY FILLING, REPAIRING, REFINISHING, CLOSING UP, AND SIMILAR OPERATIONS FOLLOWING PERFORMANCE OF OTHER WORK. PATCH WITH DURABLE SEAMS THAT ARE AS INVISIBLE AS POSSIBLE. PROVIDE MATERIALS AND COMPLY WITH INSTALLATION REQUIREMENTS SPECIFIED IN OTHER SECTIONS.
1. EXPOSED FINISHES: RESTORE EXPOSED FINISHES OF PATCHED AREAS AND EXTEND FINISH RESTORATION INTO RETAINED ADJOINING CONSTRUCTION IN A MANNER THAT WILL ELIMINATE EVIDENCE OF PATCHING AND REFINISHING.
2. FLOORS AND WALLS: WHERE WALLS OR PARTITIONS THAT ARE REMOVED EXTEND ONE FINISHED AREA INTO ANOTHER, PATCH AND REPAIR FLOOR AND WALL SURFACES IN THE NEW SPACE. PROVIDE AN EVEN SURFACE OF UNIFORM FINISH, COLOR, TEXTURE, AND APPEARANCE. REMOVE IN-PLACE FLOOR AND WALL COVERINGS AND REPLACE WITH NEW MATERIALS, IF NECESSARY, TO ACHIEVE UNIFORM COLOR AND APPEARANCE.
3. CEILINGS: PATCH, REPAIR, OR REHANG IN-PLACE CEILINGS AS NECESSARY TO PROVIDE AN EVEN-PLANE SURFACE OF UNIFORM APPEARANCE.

SECTION 024119 - SELECTIVE REMOVAL

A. THIS SECTION INCLUDES THE FOLLOWING:
1. SELECTED REMOVAL OF EXISTING PAVING, GRADE AS REQUIRED AND AGGREGATE SUBBASE AS REQUIRED.
2. SELECTED REMOVAL OF EXISTING CONCRETE CURBS AND SIDEWALKS NOTED TO BE REMOVED. REPLACE DAMAGED SIDEWALKS THAT DO NOT COMPLY WITH ADAAG.
3. SELECTED CUTTING AND REMOVAL OR WALL PANELS AND Z-GIRTS FOR NEW EXTERIOR DOOR OPENINGS.
4. REMOVAL OF EXISTING INTERIOR FINISHES AND WALL PARTITIONS IN PREPARATION FOR NEW FINISHES.
5. SELECTED CUTTING AND REMOVAL OF THE EXISTING INTERIOR CONCRETE SLAB AND OTHER UNDERGROUND PLUMBING WORK AS REQUIRED.
6. COMPLETE REMOVAL OF EXISTING STEEL FRAMED MEZZANINE
7. SELECTED REMOVAL OF EXISTING WOOD FRAMED MEZZANINE.
8. SELECTED REMOVAL OF ALL MAN DOORS, SECTIONAL DOORS, AND WINDOWS.
B. CONTRACTOR TO PROVIDE REQUIRED TRASH CONTAINER AND REMOVAL SERVICES.
C. ALL DEBRIS TO BE REMOVED FROM PROPERTY AND LEGALLY DISPOSED OF IN A LICENSED CONSTRUCTION/ DEMOLITION LANDFILL.
D. UNLESS OTHERWISE INDICATED, DEMOLITION WASTE BECOMES PROPERTY OF CONTRACTOR.
E. PROTECT EXISTING PAVING, ROOFS, LANDSCAPING, AND INTERIOR AND EXTERIOR IMPROVEMENTS SCHEDULED TO REMAIN AT ALL TIMES.
F. ARRANGE DEMOLITION SCHEDULE SO AS NOT TO INTERFERE WITH ADJACENT OCCUPIED BUILDINGS. DUST AND NOISE TO BE HELD TO A MINIMUM.
G. REFER TO THE DEMOLITION DRAWINGS AND COORDINATE WITH THE OWNER FOR ALL ITEMS TO BE SALVAGED. PROVIDE TEMPORARY STORAGE FOR THESE ITEMS UNTILL THEY CAN BE RELOCATED OR RE-INSTALLED.
H. FIRE PROTECTION: PORTABLE, HAND CARRIED, UL RATED, CLASS ABC, DRY CHEMICAL FIRE EXTINGUISHERS. PROVIDE SIZE AND NUMBER REQUIRED BY PROJECT CONDITIONS.

SECTION 033000 - CAST-IN-PLACE CONCRETE

A. THIS SECTION INCLUDES THE FOLLOWING:
1. CAST-IN-PLACE CONCRETE, INCLUDING REINFORCEMENT, CONCRETE MATERIALS, MIX DESIGNS, PLACEMENT PROCEDURES, AND FINISHES.
2. UNDERSLAB VAPOR RETARDER.
3. INSTALLATION OF CAST-IN ITEMS FURNISHED UNDER OTHER SECTIONS.
4. INSTALLATION OF STRUCTURAL STEEL ANCHOR BOLTS.
5. CONCRETE WALLS, PADS, PIERS, CURBS, AND BASES REQUIRED FOR EQUIPMENT OF ALL TRADES.
6. COOPERATE WITH OTHER TRADES WHO WILL PROVIDE AND INSTALL ITEMS OF WORK (SLEEVES, PIPING, CONDUIT, INSERTS, ETC.) TO BE CAST IN THE CONCRETE. PLACE NO CONCRETE UNTIL SUCH ITEMS ARE IN PLACE.
7. INSPECTION AND TESTING SERVICES REQUIRED BY THIS SECTION PERFORMED BY AN INDEPENDENT AGENCY RETAINED BY THE OWNER (1.6.3). THIS INCLUDES SERVICES REQUIRED TO CONDUCT FIELD MATERIAL SAMPLING AND TESTING. AN AGENCY RETAINED BY THE CONTACTOR SHALL ESTABLISH MIX DESIGNS.
8. NUMBERS IN PARENTHESES (0.00) INDICATE A RELATED PARAGRAPH OF ACI 301.
9. CONCRETE SEALER.
B. THE OWNER WILL ENGAGE A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM FIELD QUALITY-CONTROL TESTING IN COMPLIANCE WITH 2007 OHIO BUILDING CODE (OBC), CHAPTER 17.
C. QUALITY ASSURANCE:
1. MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING READY-MIXED CONCRETE PRODUCTS COMPLYING WITH ASTM C 94 REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
2. COMPLY WITH ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE," INCLUDING THE FOLLOWING, UNLESS MODIFIED BY THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
a. GENERAL REQUIREMENTS, INCLUDING SUBMITTALS, QUALITY ASSURANCE, ACCEPTANCE OF STRUCTURE, AND PROTECTION OF IN-PLACE CONCRETE.
b. FORMWORK AND FORM ACCESSORIES.
c. STEEL REINFORCEMENT AND SUPPORTS.
d. CONCRETE MIXTURES.
e. HANDLING, PLACING, AND CONSTRUCTING CONCRETE.
3. COMPLY WITH FOLLOWING ADDITIONAL ACI STANDARDS:
a. ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
b. ACI 315R, MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.
c. ACI 347R, GUIDE TO FORMWORK FOR CONCRETE.
d. "PLACING REINFORCING BARS," CRSI AND WCRSI RECOMMENDED PRACTICES.
1. PROVIDE AT LEAST ONE COPY OF THE LATEST ACI FIELD REFERENCE MANUAL, SP-15, AND ONE COPY OF CRSI'S "PLACING REINFORCING BARS," IN THE FIELD OFFICE AT ALL TIMES (1.6).
D. MATERIALS:
1. FORMWORK: FURNISH FORMWORK AND FORM ACCESSORIES ACCORDING TO ACI 301.
2. STEEL REINFORCEMENT:
a. REINFORCING BARS: ASTM A 615, GRADE 60, DEFORMED.
b. PLAIN-STEEL WIRE: ASTM A 82, AS DRAWN.
c. PLAIN-STEEL WELDED WIRE FABRIC: ASTM A 185, FABRICATED FROM AS-DRAWN STEEL WIRE INTO FLAT SHEETS.
E. CONCRETE MATERIALS:
1. PORTLAND CEMENT: ASTM C 150, TYPE I. TYPE II OR III (HIGH EARLY STRENGTH) MAY BE USED ONLY WITH WRITTEN APPROVAL AND AT THE CONTRACTOR'S EXPENSE. ALL CEMENT FOR CONCRETE EXPOSED TO PUBLIC VIEW SHALL BE FROM THE SAME MILL.
2. NORMAL-WEIGHT AGGREGATE: ASTM C 33, UNIFORMLY GRADED, NOT EXCEEDING 1½" NOMINAL SIZE.
a. USE SIZE #57 (2.4.1) FOR ALL CLASSES.
b. USE LIMESTONE COARSE AGGREGATE FOR ALL SLABS AND EXTERIOR CONCRETE.
3. WATER: POTABLE, COMPLYING WITH ASTM C 94.
F. ADMIXTURES: USE OF ADMIXTURES OTHER THAN THOSE LISTED WILL BE PERMITTED ONLY WHEN APPROVED PRIOR TO BID DATE.
1. AIR-ENTRAINING ADMIXTURE: ASTM C 260.
2. FLYASH OR POZZOLANS: ASTM C618, TYPE C OR F (4.2.1.1).
3. WATER-REDUCING ADMIXTURE: CONFORM TO ASTM C 494, TYPE A OR D (4.2.1.4).
a. "EUCON WR-75" BY EUCLID CHEMICAL CO.
b. ""PLASTOCRETE 161" BY SIKA CORP.
4. MID RANGE WATER-REDUCER ADMIXTURE: ASTM C 494, TYPE F.
a. "EUCON MR" BY EUCLID CHEMICAL CO.
b. "DARACEM 55 OR 65" BY W.R. GRACE.
5. HIGH-RANGE, WATER-REDUCING ADMIXTURE (SUPERPLASTICIZER): ASTM C 494, TYPE F. OR G (4.2.1.4).
a. "EUCON 37" BY THE EUCLID CHEMICAL CO.
b. "SIKAMENT 86" BY THE SIKA CHEMICAL CORP.
6. WATER-REDUCING AND ACCELERATING ADMIXTURE: ASTM C 494, TYPE E.
a. "ACCELGUARD HE" BY EUCLID CHEMICAL CO.
b. "PLASTOCRETE 161 FL" BY SIKA CHEMICAL CO.
7. WATER-REDUCING AND RETARDING ADMIXTURE: ASTM C 494, TYPE D. (2.2.1.2).
a. "EUCON RETARDER- 75" BY EUCLID CHEMICAL CO.
b. "PLASTOCRETE 161R" BY SIKA CORP.
8. NON-CORROSIVE, NON-CHLORIDE ACCELERATOR: ASTM C 494, TYPE C OR E (4.2.1.4).
a. "ACCELGUARD 80" BY EUCLID CHEMICAL CO.
b. "PLASTOCRETE 161 HE" BY SIKA CHEMICAL CO.
c. "POLARSET" BY W.R. GRACE.
9. PROHIBITED ADMIXTURES: CALCIUM CHLORIDE, THIOCYANATES, OR ADMIXTURES CONTAINING MORE THAN 0.05% CHLORIDE IONS ARE NOT PERMITTED.
G. JOINT-FILLER STRIPS: ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER (2.2.1.4).
H. CURING AND SEALING MATERIALS: CURING MATERIALS SHALL BE COMPATIBLE WITH ADHESIVES, SETTING MATERIALS AND COATINGS APPLIED TO CONCRETE SLABS-ON-GRADE AS PROVIDED UNDER OTHER SECTIONS.
1. CURING AND SEALING COMPOUNDS: ASTM C 309 MOISTURE RETENTION, WATER-BASED MEMBRANE-FORMING LIQUID WITH MINIMUM 15% SOLIDS CONTENT.
a. "SUPER DIAMOND CLEAR VOX" OR "SUPER AQUA-CURE VOX" BY EUCLID CHEMICAL CO.
b. "MASTERKURE 200W" BY MASTER BUILDERS.
c. "SURE CURE 20E" BY KAUFMAN.
2. CURING COMPOUND: ONE (1) COAT.
3. SEALING COMPOUND: TWO (2) COATS. USE IN AREAS SCHEDULED TO RECEIVE "SEALED CONCRETE" AS A FINISHED SURFACE. MATERIAL TO BE COMPATIBLE WITH ADHESIVES PROVIDED FOR FLOOR FINISHES.
I. LIQUID SURFACE DENSIFIER AND SEALER: LIQUID APPLIED AT A RATE OF 200 FT2 / GALLON. THE FOLLOWING ARE ACCEPTABLE:
1. DIAMOND HARD BY EUCLID CHEMICAL CO.
2. ASHFORD FORMULA BY CURECRETE DISTRIBUTION.
J. BONDING MATERIALS: POLYVINYL ACETATE, RE-WETTABLE TYPE. USE ONLY IN AREAS NOT SUBJECT TO MOISTURE.
1. "EUCO-WELD" BY EUCLID CHEMICAL CO.
2. "SURE WELD" BY KAUFMAN.
3. "WELDCRETE" BY LARSEN CO.
K. JOINT FILLERS: EXTERIOR EXPOSED AREAS, TWO COMPONENT URETHANE JOINT SEALANT COMPOUND, EUCOLASTIC" BY THE EUCLID CHEMICAL CO. OR "GARDOX" BY W.R. MEADOWS.
L. CONTINGENCIES:
1. PROVIDE QUANTITY OF REINFORCING BARS NOTED ON THE STRUCTURAL DRAWINGS TO BE USED AS DIRECTED BY THE ARCHITECT. COLD BEND IN THE FIELD IF REQUIRED.
2. PROVIDE LEAN CONCRETE (CLASS III) UNDER FOUNDATIONS FOR ACCIDENTAL OVER EXCAVATION, SOFT SPOTS, AND TRENCHES.
M. CONCRETE MIXES: COMPLY WITH ACI 301 REQUIREMENTS FOR CONCRETE MIXTURES. PREPARE DESIGN MIXES, PROPORTIONED ACCORDING TO ACI 301, FOR NORMAL-WEIGHT CONCRETE DETERMINED BY EITHER LABORATORY TRIAL MIX OR FIELD TEST DATA BASES, AS FOLLOWS:

	CLASS & LOCATION	F'c COMPRESSIVE STRENGTH	MIN. CEMENT CONTENT	MAX WATER/ CEMENT RATIO	%AIR CONTENT
I	FOOTINGS, PIERS & ALL OTHER BELOW GRADE CONCRETE NOT OTHERWISE IDENTIFIED	.3000 PSI	470 LBS./C.Y.	--------	OPTIONAL
II	INTERIOR SLABS-ON-GRADE, SLABS ON METAL DECK & INTERIOR CONCRETE NOT OTHERWISE IDENTIFIED	.3500 PSI	517 LBS./C.Y.	0.45	OPTIONAL
IIA	INTERIOR SLABS-ON-GRADE WHICH RECEIVE A MOISTURE SENSITIVE FLOOR COVERING	.4000 PSI	540 LBS./C.Y.	0.45	OPTIONAL
III	EXTERIOR WALKS, STEPS, RAMPS, PAVING, APRONS, PADS, CURBS RETAINING WALLS, FENCE POSTS & OTHER EXTERIOR CONCRETE NOT OTHERWISE IDENTIFIED	.4000 PSI	564 LBS./C.Y.	0.45	5-7%
IV	BACKFILL BELOW FOOTINGS MUD SLABS	1500 PSI	376 LBS./C.Y.	--------	OPTIONAL

SECTION 042000 - UNIT MASONRY

A. THIS SECTION INCLUDES UNIT MASONRY ASSEMBLIES AND ACCESSORIES INCLUDING THE FOLLOWING:
1. STANDARD CONCRETE MASONRY UNITS.
2. MORTAR AND GROUT MATERIALS.
3. MASONRY ACCESSORIES AND FLASHING.
4. STEEL VERTICAL REINFORCING.
5. STEEL LINTELS
6. EXPOSED MASONRY SURFACE CLEANING.
B. THE OWNER WILL ENGAGE A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM FIELD QUALITY-CONTROL TESTING IN COMPLIANCE WITH OHIO BUILDING CODE (OBC), CHAPTER 17.
C. PROJECT CONDITIONS:
1. COLD-WEATHER REQUIREMENTS: DO NOT BUILD ON FROZEN SUBSTRATES. REMOVE AND REPLACE UNIT MASONRY DAMAGED BY FROST OR BY FREEZING CONDITIONS. COMPLY WITH COLD-WEATHER CONSTRUCTION REQUIREMENTS IN ACI 530.1/ASCE 6/TMS 602.
2. HOT-WEATHER REQUIREMENTS: WHEN AMBIENT TEMPERATURE EXCEEDS 100 DEG F, OR 90 DEG F WITH A WIND VELOCITY GREATER THAN 8 MPH, DO NOT SPREAD MORTAR BEDS MORE THAN 48" AHEAD OF MASONRY. SET MASONRY UNITS WITHIN ONE MINUTE OF SPREADING MORTAR.
D. STANDARD CONCRETE MASONRY UNITS: ASTM C 90, LOAD BEARING UNITS.
1. UNIT COMPRESSIVE STRENGTH: 1900-PSI MINIMUM, AVERAGE NET-AREA COMPRESSIVE STRENGTH.
2. WEIGHT CLASSIFICATION: NORMAL WEIGHT.
3. SPECIAL SHAPES: PROVIDE CORNERS, JAMBS AND OTHER SPECIAL CONDITIONS.
4. SIZE: STANDARD SIZES NOTED ON THE DRAWINGS.
5. COLOR: NATURAL GRAY, UNCOLORED.
E. MORTAR AND GROUT MATERIALS:
1. SITE MIXED MORTAR AND GROUT MATERIALS:
a. PORTLAND CEMENT: ASTM C 150, TYPE I OR II, EXCEPT TYPE III MAY BE USED FOR COLD-WEATHER CONSTRUCTION.
b. HYDRATED LIME: ASTM C 207, TYPE S.
c. MORTAR CEMENT: ASTM C 1329.
d. MORTAR AGGREGATES: ASTM C 144.
e. GROUT AGGREGATES: ASTM C 404.
f. PERMITTED ADMIXTURES: COLD-WEATHER AND WATER REPELLENT MATERIALS.
g. WATER: POTABLE, FREE OF ALKALIS, ACIDS, AND ORGANIC MATERIAL.
h. COLOR: NATURAL GRAY.
2. FACTORY MIXED MORTAR MATERIALS: NON-PIGMENTED AND PIGMENTED MORTAR WITH COLORED CEMENT FORMULATION REQUIRED TO PRODUCE THE COLOR INDICATED. PRODUCTS BY THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE.
a. BLUE CIRCLE CEMENT.
b. ESSROC MATERIALS, INC.
c. HOLCIM (US) INC.
d. LAFARGE CORP.
e. RIVERTON CORP.
f. CEMEX.
g. COLOR: NATURAL GRAY.
3. ADMIXTURES: MATERIALS MUST BE ACCEPTABLE TO MORTAR MATERIAL MANUFACTURER.
a. COLD-WEATHER ADMIXTURE: NONCHLORIDE, NONCORROSIVE, ACCELERATING ADMIXTURE COMPLYING WITH ASTM C 494, TYPE C, AND RECOMMENDED BY THE MANUFACTURER FOR USE IN MASONRY MORTAR OF COMPOSITION INDICATED. PRODUCTS BY THE FOLLOWING ARE ACCEPTABLE:
1) EUCLID CHEMICAL CO. "ACCELGUARD 80."
2) W. R. GRACE & CO. "MORSELED."
3) SONNEBORN "TRIMIX-NCA."
F. MORTAR AND GROUT MIXES: GENERAL: DO NOT USE ADMIXTURES, UNLESS OTHERWISE INDICATED. DO NOT USE CALCIUM CHLORIDE IN MORTAR OR GROUT.
1. PROPORTION SPECIFICATION FOR MASONRY MORTAR: COMPLY WITH ASTM C 270.
a. LOOSE MATERIALS MEASURED BY EITHER VOLUME OR WEIGHT. MEASUREMENT BY SHOVEL NOT PERMITTED. THE FOLLOWING MATERIAL WEIGHTS ARE ASSUMED.
1) PORTLAND CEMENT: 94 LBS./CF.
2) HYDRATED LIME: 40 LBS./CF.
3) SAND: DAMP AND LOOSE, 80 LBS./CF.
2. PROPERTY SPECIFICATION FOR MASONRY MORTAR: COMPLY WITH MANUFACTURER'S WRITTEN MIXING INSTRUCTIONS.
3. MORTAR MIXES:
a. TYPE M MORTAR: MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI. USE FOR MASONRY FOUNDATION WALLS BELOW GRADE.
b. TYPE S MORTAR: MINIMUM AVERAGE COMPRESSIVE STRENGTH AT 28 DAYS TO BE 1800 PSI. USE FOR LOAD-BEARING MASONRY, AND AT LOCATIONS NOT NOTED OTHERWISE.
c. PROVIDE NATURAL COLORED MORTAR FOR STANDARD CONCRETE UNIT MASONRY WORK.
d. NO ANTI-FREEZE ADDITIVES, EITHER LIQUID OR POWDER, OR AIR ENTRAINING ADMIXTURE SHALL BE INCORPORATED IN THE MIX TO LOWER THE FREEZING POINT OF THE MORTAR.
4. UNIT MASONRY GROUT: COMPLY WITH ASTM C 476.
a. USE GROUT OF TYPE INDICATED OR, IF NOT OTHERWISE INDICATED, OF TYPE (FINE OR COARSE) THAT WILL COMPLY WITH TABLE 1.15.1 IN ACI 530.1/ASCE 6/TMS 602 FOR DIMENSIONS OF GROUT SPACES AND POUR HEIGHT.
b. COMPRESSIVE STRENGTH: NOT LESS THAN 2000 PSI.
c. SLUMP: 8" TO 10" AS MEASURED ACCORDING TO ASTM C 143.
G. REINFORCING AND ACCESSORIES:
1. UNCOATED STEEL VERTICAL REINFORCING BARS: ASTM A 615; ASTM A 616, INCLUDING SUPPLEMENT 1; OR ASTM A 617, GRADE 60.
2. MASONRY JOINT REINFORCEMENT, ATTACHMENTS AND ACCESSORIES: PRODUCTS BY DUR-O-WALL INC FORM THE BASIS OF DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CRITERIA, AND FINISHES BY HECKMAN, AND HOHMANN & BARNARD ARE ALSO ACCEPTABLE.
a. MATERIALS: ASTM A 153, CLASS B-2, HOT-DIP GALVANIZED.
b. SINGLE WYTHE HORIZONTAL JOINT REINFORCEMENT: "TRUSS D/A 3100", PREFABRICATED GALVANIZED #9 GAUGE, PARALLEL, DEFORMED, STEEL RODS, AND A CONTINUOUS, DIAGONALLY ORIENTED, #9 GAUGE, SMOOTH STEEL CROSS ROD FORMING A TRUSS DESIGN. PROVIDE "D/A 3200 LADUR DESIGN" AT VERTICALLY REINFORCED WALLS. ASSEMBLY TO BE 1-5/8" TO 2" LESS THAN THE WALL THICKNESS IN WHICH IT IS USED. PROVIDE PREFABRICATED CORNER AND TEE UNITS.
H. STEEL LINTELS
1. PROVIDE LINTELS OVER ALL OPENINGS IN MASONRY WALLS. NOT ALL LINTELS ARE SHOWN IN THE DRAWINGS. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZES AND LOCATIONS OF OPENINGS, AND USE THE APPROPRIATE LINTEL FROM THE SCHEDULE BELOW.
2. PROVIDE ONE ANGLE FOR EACH 4" OF WALL THICKNESS, AND USE 6" MINIMUM BEARING EACH END. FOR BEAM LINTELS, STOP BOTTOM PLATE 1/8" SHORT OF JAMBS, AND USE 8" MINIMUM BEARING EACH END.

MASONRY OPENING	SECTION
TO 4'-0"	L 3-1/2 X 3-1/2 X 5/16
4'-1" TO 5'-6"	L 4 X 3-1/2 X 5/16 LLV
5'-7" TO 6'-8"	L 5 X 3-1/2 X 5/16 LLV
6-7" TO 8'-0"	L 6 X 3-1/2 X 5/16 LLV

SECTION 054000 - COLD-FORMED METAL FRAMING

A. THIS SECTION INCLUDES THE FOLLOWING COLD-FORMED METAL FRAMING COMPONENTS:
1. EXTERIOR NON-LOAD-BEARING, CURTAIN-WALL FRAMING.
2. FASTENERS AND ACCESSORIES.
3. REFER TO "GENERAL STRUCTURAL NOTES" ON STRUCTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
B. PERFORMANCE REQUIREMENTS:
1. STRUCTURAL PERFORMANCE: PROVIDE COLD-FORMED METAL FRAMING CAPABLE OF WITHSTANDING DESIGN LOADS WITHOUT DEFLECTIONS GREATER THAN THE FOLLOWING:
a. EXTERIOR NON-LOAD-BEARING, CURTAIN-WALL FRAMING: LIMIT DEFLECTION TO L/360.
2. REFERENCE STANDARDS: DESIGNS TO BE IN FULL COMPLIANCE WITH 2007 OHIO BUILDING CODE (OBC), CHAPTER 16, STRUCTURAL DESIGN AND LOADS INDICATED ON STRUCTURAL DRAWINGS.
C. QUALITY ASSURANCE:
1. COMPLY WITH AISI'S "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" FOR CALCULATING STRUCTURAL CHARACTERISTICS OF COLD-FORMED METAL FRAMING.
2. MILL CERTIFICATES SIGNED BY STEEL SHEET PRODUCER OR TEST REPORTS FROM A QUALIFIED INDEPENDENT TESTING AGENCY.
3. WELDING: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO AWS D1.1, "STRUCTURAL WELDING CODE--STEEL," AND AWS D1.3, "STRUCTURAL WELDING CODE--SHEET STEEL."
4. INSTALLATION REQUIREMENTS: COMPLY WITH ASTM C1007, "STANDARD SPECIFICATION FOR INSTALLATION OF LOAD BEARING (TRANSVERSE AND AXIAL) STEEL STUDS AND RELATED ACCESSORIES".
D. COLD FORMED METAL FRAMING COMPONENTS BY DIETRICH INDUSTRIES, INC. FORM THE BASIS-OF-DESIGN. PRODUCTS HAVING COMPARABLE MATERIALS, STRUCTURAL PROPERTIES AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
1. AEGIS METAL FRAMING, LLC.
2. CLARK STEEL FRAMING INDUSTRIES.
3. MARINOWARE.
4. UNITED METAL PRODUCTS, INC.
E. MATERIALS:
1. MEMBER STYLE: "CSJ", UNLESS NOTED OTHERWISE.
2. STEEL SHEET:
a. 18 GAUGE AND LIGHTER COMPONENTS: COMMERCIAL QUALITY STEEL SHEET, ASTM 653, FY = 33 KSI, MINIMUM.
b. 16 GAUGE AND HEAVIER COMPONENTS: STRUCTURAL QUALITY STEEL SHEET, ASTM A653, FY = 50 KSI.
c. TRACK AND BRIDGING COMPONENTS: COMMERCIAL QUALITY STEEL SHEET, ASTM A653, FY = 33 KSI.
d. FINISH: GALVANIZED, WITH PROTECTIVE ZINC COATING COMPLYING WITH ASTM A525, MINIMUM G60 COATING.
3. FRAMING MEMBERS:
a. STUDS: MANUFACTURER'S STANDARD STEEL PUNCHED AND UNPUNCHED STUDS, OF WEB DEPTHS AND GAUGES INDICATED, WITH STIFFENED FLANGES, COMPLYING WITH ASTM C 955.
b. TRACK AND BRIDGING COMPONENTS: COMMERCIAL QUALITY STEEL SHEET, ASTM A653, FY = 33 KSI. MANUFACTURER'S STANDARD U-SHAPED STEEL TRACK, UNPUNCHED, WITH STRAIGHT FLANGES, FLANGE WIDTH, AND MINIMUM UNCOATED-STEEL THICKNESS MATCHING STEEL STUDS.
F. ACCESSORIES AND MISCELLANEOUS MATERIALS:
1. FABRICATE STEEL-FRAMING ACCESSORIES OF THE SAME MATERIAL AND FINISH USED FOR FRAMING MEMBERS, WITH MINIMUM YIELD STRENGTH OF 33,000 PSI, OF MANUFACTURER'S STANDARD THICKNESS AND CONFIGURATION, UNLESS OTHERWISE INDICATED.
a. FLAT STRAPPING.
b. ANGLES, PLATES, SHEETS.
c. SLIDE CLIPS.
d. WEB STIFFENERS.
e. BRIDGING/SPACER BARS.
f. CUSTOM BRAKE-FORMED SHAPES.
2. STEEL SHAPES AND CLIPS: ASTM A 36, ZINC COATED BY HOT-DIP PROCESS ACCORDING TO ASTM A 123.
3. VERTICAL DEFLECTION CLIPS: "VERTICLIP" AND "DRIFTCLIP" SERIES BY THE STEEL NETWORK (888-474-4876) FORMS THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CRITERIA AND FINISHES BY METAL-LITE AND FRAMING COMPONENT MANUFACTURER ARE ALSO ACCEPTABLE.
4. EXPANSION ANCHORS: FABRICATED FROM CORROSION-RESISTANT MATERIALS, WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 5 TIMES DESIGN LOAD, AS DETERMINED BY TESTING PER ASTM E 488 CONDUCTED BY A QUALIFIED INDEPENDENT TESTING AGENCY.
5. POWER-ACTUATED ANCHORS: FASTENER SYSTEM OF TYPE SUITABLE FOR APPLICATION INDICATED, FABRICATED FROM CORROSION-RESISTANT MATERIALS, WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 10 TIMES DESIGN LOAD, AS DETERMINED BY TESTING PER ASTM E 1190 CONDUCTED BY A QUALIFIED INDEPENDENT TESTING AGENCY.
6. MECHANICAL FASTENERS: CORROSION-RESISTANT-COATED, SELF-DRILLING, SELF-THREADING STEEL DRILL SCREWS COMPLYING WITH ASTM C1002. PROVIDE GALVANIZED COATED, PLATED OR OIL-PHOSPHATE COATED FASTENERS COMPLYING WITH ASTM B 633 AT EXTERIOR WALL AND ROOF FRAMING APPLICATIONS.
7. GALVANIZING REPAIR PAINT: SSPC-PAINT 20.
G. FABRICATION: FRAMING COMPONENTS MAY BE PREASSEMBLED INTO PANELS PRIOR TO ERECTING.
1. FABRICATE PANELS SQUARE, WITH COMPONENTS ATTACHED IN A MANNER TO PREVENT RACKING OR DISTORTION.
2. WELDING: WELDING PERMITTED ON 18 GAUGE OR HEAVIER MATERIAL ONLY.
a. SPECIFY WELDING CONFIGURATION AND SIZE ON THE STRUCTURAL CALCULATION SUBMITTAL.
b. QUALIFY WELDING OPERATORS IN ACCORDANCE WITH SECTION 6.0 OF AWS D.1.3.
c. TOUCH UP ALL WELDS WITH ZINC-RICH PAINT IN COMPLIANCE WITH ASTM A 780.

SECTION 055000 - METAL FABRICATIONS

A. THIS SECTION INCLUDES THE FOLLOWING:
1. CONCRETE FILLED METAL BOLLARDS.
2. INTERIOR STEEL STAIRS, HANDRAILS AND GUARDRAILS.
B. QUALITY ASSURANCE:
1. STAIR AND GUARD RAIL SYSTEM DESIGN, FABRICATION, AND INSTALLATION: COMPLY WITH OHIO BUILDING CODE (OBC) SECTION 1607.
2. HANDRAILS AND GUARDS:
a. A UNIFORM LOAD OF 50 LBS. PER LINEAL FOOT APPLIED IN ANY DIRECTION AT THE TOP OF THE RAIL. LOADS TRANSFERRED THROUGH SUPPORTS TO STRINGERS.
b. A SINGLE CONCENTRATED LOAD OF 200 LBS. APPLIED AT ANY POINT AND IN ANY DIRECTION ALONG THE TOP RAILING MEMBER. LOADS TRANSFERRED THROUGH SUPPORTS TO STRINGERS.
c. INTERMEDIATE RAILS: A HORIZONTALLY APPLIED NORMAL LOAD OF 50 LBS. APPLIED ON A ONE SQUARE FOOT AREA AT ANY POINT IN THE SYSTEM.
d. THE CONCENTRATED AND UNIFORM LOADING CONDITIONS NOTED IN 2.A. AND 2.B. ABOVE NEED NOT BE ASSUMED TO ACT CONCURRENTLY.
e. THE REACTIONS DUE TO THE LOADING IN 2.C. ABOVE ARE NOT REQUIRED TO BE SUPERIMPOSED WITH THOSE FROM 2.A. AND 2.B. ABOVE.
3. TREADS AND LANDINGS:
a. UNIFORM: 100 LBS PER SQUARE FOOT.
b. CONCENTRATED: 300 LBS PER SQUARE FOOT OVER 4" SQUARE AREA AT TREADS.
4. STAIR FRAMING AND HAND AND GUARD RAILING: MATERIALS, DESIGNS, AND INSTALLATION CAPABLE OF WITHSTANDING STRESSES RESULTING FROM STAIR AND RAILING LOADS SPECIFIED ABOVE.
5. TREAD, RISER, AND HANDRAIL DESIGN AND INSTALLATION: COMPLY WITH THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITIES GUIDELINES (ADAAG), SECTION 4.9 - STAIRS AS APPLICABLE.
6. FIELD MEASUREMENTS: VERIFY REQUIRED DIMENSIONS BY FIELD MEASUREMENT PRIOR TO FABRICATION.
C. METALS:
1. METAL SURFACES: PROVIDE MATERIALS WITH SMOOTH, FLAT SURFACES WITHOUT BLEMISHES.
2. FERROUS METALS:
a. STEEL PLATES, SHAPES AND BARS: ASTM A 36, FY = 36 KSI CARBON STEEL.
b. STEEL PIPE: ASTM A 53, STANDARD WEIGHT (SCHEDULE 40), UNLESS ANOTHER WEIGHT IS INDICATED OR REQUIRED BY STRUCTURAL LOADS.
D. FASTENERS:
1. SELECT FASTENERS FOR TYPE, SIZE, LENGTH, GRADE AND CLASS REQUIRED BY FIELD CONDITIONS.
2. NONHIGH-STRENGTH BOLTS, NUTS, AND WASHERS: ASTM A 307, GRADE A; CARBON-STEEL, HEX-HEAD BOLTS; CARBON-STEEL NUTS; AND FLAT, UNHARDENED STEEL WASHERS, UNCOATED.
3. HIGH-STRENGTH BOLTS, NUTS, AND WASHERS: ASTM A 325 OR A 490 TYPE 1, HEAVY HEX STEEL STRUCTURAL BOLTS, HEAVY HEX CARBON-STEEL NUTS, AND HARDENED CARBON-STEEL WASHERS, UNCOATED.
4. FINISH: HOT-DIP ZINC COATING, ASTM A 153, CLASS C.
E. MISCELLANEOUS MATERIALS:
1. CONCRETE MATERIALS AND PROPERTIES: COMPLY WITH REQUIREMENTS IN DIVISION 03 "CAST-IN-PLACE CONCRETE" FOR NORMAL-WEIGHT, AIR-ENTRAINED, READY-MIX CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH NOTED, UNLESS OTHERWISE INDICATED. EXTERIOR LOCATIONS: 4000 PSI.
2. WOOD TOP RAIL: WHITE OAK, STAINED AND SEALED (3 COATS POLYUERTHANE)
F. FABRICATION:
1. PREASSEMBLE ITEMS IN THE SHOP TO GREATEST EXTENT POSSIBLE. USE CONNECTIONS THAT MAINTAIN STRUCTURAL VALUE OF JOINED PIECES.
2. CUT, DRILL, AND PUNCH METALS CLEANLY AND ACCURATELY. REMOVE BURRS AND EASE EDGES. REMOVE SHARP OR ROUGH AREAS ON EXPOSED SURFACES.
3. WELD CORNERS AND SEAMS CONTINUOUSLY. USE MATERIALS AND METHODS THAT MINIMIZE DISTORTION AND DEVELOP STRENGTH AND CORROSION RESISTANCE OF BASE METALS. OBTAIN FUSION WITHOUT UNDERCUT OR OVERLAP. REMOVE WELDING FLUX IMMEDIATELY. FINISH EXPOSED WELDS SMOOTH AND BLENDED.
4. FORM EXPOSED CONNECTIONS WITH HAIRLINE JOINTS, FLUSH AND SMOOTH, USING CONCEALED FASTENERS WHERE POSSIBLE. LOCATE JOINTS WHERE LEAST CONSPICUOUS.
5. FABRICATE SEAMS AND OTHER CONNECTIONS THAT WILL BE EXPOSED TO WEATHER IN A MANNER TO EXCLUDE WATER. PROVIDE WEEP HOLES WHERE WATER MAY ACCUMULATE.
6. WHERE UNITS ARE INDICATED TO BE CAST INTO CONCRETE OR BUILT INTO MASONRY, EQUIP WITH INTEGRALLY WELDED STEEL STRAP ANCHORS, NOT LESS THAN 24" O.C.
G. PIPE RAILINGS: DESIGN AND FABRICATE RAILING SYSTEM TO SUPPORT LOADS NOTED IN PARAGRAPH 2.3 ABOVE.
1. MATERIALS: STEEL PIPE, SCHEDULE 40, SIZES AND DESIGNS INDICATED.
2. PROVIDE HORIZONTAL RAILING EXTENSIONS AS REQUIRED.
3. END CLOSURES: 3/16" STEEL PLATE WELDED IN PLACE OR PREFABRICATED FITTING WITH FLUSH FINISH TO RAILING.
4. WELD TO STEEL STRINGERS AT METAL STAIRS.
5. JOINTS WELDED AND GROUND SMOOTH.
6. PROVIDE PIPE RAILINGS SHOP PRIMED.
H. INTERIOR STEEL FRAMED STAIRS: DESIGN AND FABRICATE STAIR SYSTEM TO SUPPORT LOADS NOTED IN PARAGRAPH B ABOVE.
1. FABRICATE UNITS SO THAT BOLTS AND OTHER FASTENERS DO NOT APPEAR ON FINISHED SURFACES. MAKE JOINTS TRUE AND TIGHT, AND CONNECTIONS BETWEEN PARTS LIGHTPROOF TIGHT. PROVIDE CONTINUOUS WELDS, GROUND SMOOTH WHERE EXPOSED.
2. CONSTRUCT STAIR UNITS TO CONFORM TO SIZES AND ARRANGEMENTS INDICATED. PROVIDE METAL FRAMING, STRUTS, CLIPS, BRACKETS, BEARING PLATES, LANDING SUPPORTS AND OTHER COMPONENTS FOR THE SUPPORT OF STAIRS.
3. PROVIDE BRACKETS AND BEARING SURFACES REQUIRED TO ANCHOR AND CONTAIN STAIRS ON SUPPORTING STRUCTURES.
4. FABRICATE STRINGERS OF STRUCTURAL STEEL CHANNELS. PROVIDE CLOSURES FOR EXPOSED ENDS OF STRINGERS
5. TREADS AND RISERS: PROVIDE CLOSED RISERS AND PAN_TYPE TREADS FOR FIELD CONCRETE FILL. WELD STEEL SUPPORTING BRACKETS TO STRINGERS AND TREADS TO BRACKETS.
I. METAL BOLLARDS: FABRICATE FROM SCHEDULE 40 STEEL PIPE, TYPE E OR S, GRADE B.
1. SIZE: DIAMETER AS INDICATED, REFER TO THE DRAWINGS FOR LENGTH.
2. FINISH: PRIMED, FINISH PAINTED IN FIELD.

SECTION 061000 - ROUGH CARPENTRY

A. THIS SECTION INCLUDES THE FOLLOWING:
1. WOOD SUPPORTS, BLOCKING, NAILERS, FURRING, AND GROUNDS.
2. GYPSUM WALL SHEATHING.
3. MISCELLANEOUS WALL NAILERS AND CONCEALED BLOCKING.
4. WOOD FRAMING ANCHORS, FASTENERS AND ACCESSORIES.
5. HANDICAPPED PARKING SIGNS AND POSTS.
6. TEMPORARY WEATHER PROTECTION (IF REQUIRED).
B. DIMENSION LUMBER: OF GRADES INDICATED ACCORDING TO THE AMERICAN LUMBER STANDARDS COMMITTEE NATIONAL GRADING RULE PROVISIONS OF THE GRADING AGENCY INDICATED.
1. FACTORY MARK EACH PIECE OF LUMBER WITH GRADE STAMP OF GRADING AGENCY.
2. FOR EXPOSED LUMBER INDICATED TO RECEIVE STAINED OR NATURAL FINISH, MARK GRADE STAMP ON END OR BACK OF EACH PIECE.
3. PROVIDE DRESSED LUMBER, S4S, UNLESS OTHERWISE INDICATED.
4. PROVIDE DRY LUMBER WITH 19 PERCENT MAXIMUM MOISTURE CONTENT AT TIME OF DRESSING FOR 2" NOMINAL THICKNESS OR LESS, UNLESS OTHERWISE INDICATED.
5. NON-LOAD-BEARING INTERIOR FRAMING: CONSTRUCTION, STUD, OR NO. 2 GRADE AND ANY OF THE FOLLOWING SPECIES:
a. MIXED SOUTHERN PINE; SPIB.
b. EASTERN SOFTWOODS; NELMA.
c. NORTHERN SPECIES; NLGA.
d. WESTERN WOODS; WCLIB OR WWPA.
6. LOAD-BEARING INTERIOR AND EXTERIOR FRAMING: NO.1/NO. 2 SPRUCE-PINE-FIR; NELMA, NLGA, WCLIB, OR WWPA.
7. PROVIDE PRESERVATIVE MATERIALS WHERE INDICATED OR REQUIRED.
C. SHEATHING:
1. GLASS-MAT GYPSUM WALL SHEATHING: "DENS-GLASS GOLD EXTERIOR GUARD" BY G-P GYPSUM CORP.
a. PANELS: WATER-RESISTANT TREATED GYPSUM CORE WITH GLASS MATS BOTH SIDES AND LONG EDGES, AND COMPLYING WITH ASTM C 1177.
b. TYPE AND THICKNESS: REGULAR, "TYPE X", 5/8" THICK.
c. EDGE TREATMENT: SQUARE.
d. MOLD AND MILDEW RESISTANCE: TESTED IN ACCORDANCE WITH ASTM D 3273.
e. FASTENERS: NON_CORROSIVE. TYPE, SIZE, LENGTH AND SPACING RECOMMENDED BY SHEATHING MANUFACTURER FOR APPLICATION INDICATED.
f. NAILS: 11-GAUGE, HOT-DIP GALVANIZED STEEL WITH 7/16" HEAD.
g. SCREWS:
1) HEAVY GAUGE STEEL: TYPE S-12, BUGLE HEAD, SELF-TAPPING, RUST-RESISTANT, FINE THREAD.
2) LIGHT GAUGE METAL FRAMING OR FURRING: TYPE S, BUGLE HEAD, RUST-RESISTANT, SHARP POINT, FINE THREAD.
3) METAL OR WOOD FRAMING: WAFER HEAD, RUST-RESISTANT, TYPE S-12 DRILL, OR TYPE W RUST-RESISTANT, BUGLE HEAD, COARSE THREAD, SHARP POINT FOR WOOD.
h. JOINT TAPE: 2" WIDE, 10 X 10 GLASS MESH TAPE.
i. SEALANTS AND CAULK: COMPARABLE MATERIALS BY OTHER MANUFACTURERS MUST BE APPROVED BY SHEATHING MANUFACTURER.
1) DOW CORNING 795 OR PECORA 895.
2) BORDEN HPPG ELMER'S SILICONIZED ACRYLIC LATEX CAULK; PECORA AC-20 ACRYLIC LATEX SEALANT; GE SILICONE SILPRUF SEALANT; OR TREMCO DYMONIC.

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Hilliard Civic & Cultural Arts Center
5425 CENTER STREET HILLIARD, OH 43026
CITY OF HILLIARD

Project Number: 15002
Drawn By: DK
Date: 08/31/2015

A901

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D. WOOD-PRESERVATIVE-TREATMENT MATERIALS: PRESERVATIVE TREATMENT MATERIALS "ALKALINE COPPER QUATERNARY (ACQ)" BY CHEMICAL SPECIALTIES, INC. FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PROPERTIES AND PERFORMANCE BY OSMOSE, INC ARE ALSO ACCEPTABLE. PRODUCTS CONTAINING ARSENIC AND CHROMIUM NOT PERMITTED.
1. MATERIAL: "PRESERVE", STANDARD ARSENIC- AND CHROMIUM-FREE ACQ WOOD PRESERVATIVE.
2. STANDARDS: COMPLY WITH THE FOLLOWING AWPA STANDARD USE CATEGORIES:
a. UC3A: EXTERIOR ABOVE GROUND, COATED.
b. UC3B: EXTERIOR ABOVE GROUND, FINISHED.
c. UC4A: EXTERIOR GROUND OR FRESHWATER CONTACT.
3. MATERIALS TO BE TREATED: LUMBER: NOMINAL 2" THICK, CONSTRUCTION, STUD, OR NO. 2. GRADE DIMENSION LUMBER.
4. APPLICATION: TREAT ITEMS INDICATED ON DRAWINGS, AND THE FOLLOWING:
a. WOOD CANTS, NAILERS, BLOCKING, STRIPPING, AND SIMILAR MEMBERS IN CONNECTION WITH ROOFING, FLASHING.
b. WOOD SILLS, BLOCKING, FURRING, AND SIMILAR CONCEALED MEMBERS IN CONTACT WITH MASONRY OR CONCRETE.
c. WOOD FRAMING MEMBERS LESS THAN 18" ABOVE GRADE.
d. WOOD FLOOR PLATES THAT ARE INSTALLED OVER CONCRETE SLABS DIRECTLY IN CONTACT WITH EARTH. KILN-DRY MATERIAL AFTER TREATMENT TO MAXIMUM MOISTURE CONTENT OF 19 PERCENT FOR LUMBER AND 15 PERCENT FOR PLYWOOD.

E. FASTENERS: MATERIAL, TYPE, SIZE AND LENGTH AS REQUIRED BY INSTALLATION CONDITIONS.
1. WHERE ROUGH CARPENTRY IS EXPOSED TO WEATHER, IN GROUND CONTACT, OR IN AREA OF HIGH RELATIVE HUMIDITY, PROVIDE FASTENERS WITH HOT-DIP ZINC COATING COMPLYING WITH ASTM A 153 OR OF TYPE 304 STAINLESS STEEL.
2. POWER-DRIVEN FASTENERS: CABO NER-272.
3. BOLTS: STEEL BOLTS COMPLYING WITH ASTM A 307, GRADE A; WITH ASTM A 563 HEX NUTS AND, WHERE INDICATED, FLAT WASHERS.
4. PRESSURE-TREATED WOOD:
a. HOT-DIP GALVANIZED: CONFORM TO ASTM-A153 (HOT-DIP FASTENER PRODUCTS) AND ASTM-A653 (COATING DESIGNATION G-185 FOR HOT-DIP CONNECTOR AND SHEET PRODUCTS).
b. STAINLESS STEEL: TYPE 304 OR 316.
c. ALUMINUM: NOT PERMITTED FOR USE WITH ACQ (ALKALINE COPPER QUATERNARY) PRESSURE-TREATED WOOD

F. METAL FRAMING ANCHORS:
1. PREENGINEERED PRODUCTS BY SIMPSON STRONG-TIE CO. FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, STRUCTURAL PROPERTIES AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
a. ALPINE ENGINEERED PRODUCTS, INC.
b. CLEVELAND STEEL SPECIALTY CO.
c. HARLEN METAL PRODUCTS, INC.
d. KC METALS PRODUCTS, INC.
e. SILVER METAL PRODUCTS, INC.
f. SOUTHEASTERN METALS MANUFACTURING CO., INC.
g. UNITED STEEL PRODUCTS CO., INC.
2. MATERIALS: STEEL SHEET COMPLYING WITH ASTM A 625, ASTM A653 AND ASTM A1011 WITH NOTED HOT-DIP, ZINC-COATED COATING DESIGNATION OR STAINLESS STEEL AS NOTED FOR SPECIFIC APPLICATION.
a. EXTERIOR, PRESERVATIVE TREATED WOOD, DRY APPLICATIONS: "ZMAX" G185 HOT-DIP, ZINC-COATED.
3. FASTENERS: COMPLY WITH TYPE, SIZE, LENGTH AND QUANTITY REQUIRED FOR EACH ANCHOR TYPE AS STATED BY ANCHOR MANUFACTURER. FASTENER MATERIAL TO MEET OR EXCEED FRAMING ANCHOR MATERIAL REQUIREMENTS.
4. ALLOWABLE DESIGN LOADS: MEET OR EXCEED THOSE INDICATED PER MANUFACTURER'S PUBLISHED VALUES DETERMINED FROM EMPIRICAL DATA OR BY RATIONAL ENGINEERING ANALYSIS AND DEMONSTRATED BY COMPREHENSIVE TESTING PERFORMED BY A QUALIFIED INDEPENDENT TESTING AGENCY.
5. REFER TO DRAWINGS FOR SPECIFIC PRODUCTS REQUIRED.

SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK

A. THIS SECTION INCLUDES INTERIOR WOODWORK FOR THE FOLLOWING APPLICATIONS:
1. PLASTIC-LAMINATE CABINETS, COUNTERTOPS AND SHELVING.
2. ACCESSORIES.
3. INTERIOR ARCHITECTURAL WOODWORK INCLUDES WOOD FURRING, BLOCKING, SHIMS, AND HANGING STRIPS, UNLESS CONCEALED WITHIN OTHER CONSTRUCTION BEFORE WOODWORK INSTALLATION.
4. INTERIOR ARCHITECTURAL WOODWORK FINISHED UNDER DIVISION 09 "PAINTING ".

B. QUALITY ASSURANCE:
1. INSTALLER QUALIFICATIONS: FABRICATOR OF WOODWORK.
2. QUALITY STANDARD: UNLESS OTHERWISE INDICATED, COMPLY WITH AWI'S "ARCHITECTURAL WOODWORK QUALITY STANDARDS", EIGHTH EDITION, FOR CUSTOM GRADES OF INTERIOR ARCHITECTURAL WOODWORK, CONSTRUCTION, FINISHES, AND OTHER REQUIREMENTS.
a. PROVIDE AWI CERTIFICATION LABELS OR COMPLIANCE CERTIFICATE INDICATING THAT WOODWORK COMPLIES WITH REQUIREMENTS OF GRADES SPECIFIED.
b. LUMBER AND PLYWOOD MATERIALS: AWI QUALITY STANDARDS.
1) SECTION 100: LUMBER GRADES.
2) SECTION 200: PLYWOOD AND PARTICLEBOARD GRADES.
3) PROVIDE LUMBER SURFACED FOUR SIDES (S4S) AND WORKED TO PATTERNS SHOWN.
4) MOISTURE CONTENT: PROVIDE MATERIALS KILN-DRIED TO MOISTURE CONTENT COMPLYING WITH SECTION 100-S-3.
c. FABRICATIONS:
1) SECTION 300, STANDING AND RUNNING TRIM.
2) SECTION 400, ARCHITECTURAL CABINETS.
3) SECTION 600, CLOSET AND UTILITY SHELVING.
4) SECTION 1700, INSTALLATION.

C. MATERIALS:
1. PLASTIC LAMINATE SHELVING: PROVIDE LAMINATE ON ALL EXPOSED SIDES AND TOP.
2. HIGH-PRESSURE DECORATIVE LAMINATE: NEMA LD 3. PRODUCTS BY THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE:
a. FORMICA CORPORATION.
b. INTERNATIONAL PAPER.
c. LAMINART.
d. PIONEER PLASTICS CORP.
e. WESTINGHOUSE ELECTRIC CORP.
f. WILSONART INTERNATIONAL, INC
3. CABINET LINER: MELAMINE IMPREGNATED SURFACE PAPERS OVER DOUBLE TOP COATED, PHENOLIC RESIN IMPREGNATED KRAFT PAPER CORE SHEETS.
4. THERMOSET DECORATIVE OVERLAY: PARTICLEBOARD OR MEDIUM-DENSITY FIBERBOARD WITH SURFACE OF THERMALLY FUSED, MELAMINE-IMPREGNATED DECORATIVE PAPER COMPLYING WITH LMA SAT-1.
5. FURRING, BLOCKING, SHIMS, AND HANGING STRIPS: SOFTWOOD OR HARDWOOD LUMBER, KILN-DRIED TO LESS THAN 15 PERCENT MOISTURE CONTENT.
6. LAMINATE ADHESIVES: CS 35 TYPE II WATER-RESISTANT TYPE AS RECOMMENDED BY PLASTIC LAMINATE MANUFACTURER. PROVIDE CS 35 TYPE I WATERPROOF TYPE AT COUNTERTOPS CONTAINING SINKS OR LAVATORIES.

D. PLASTIC-LAMINATE COUNTERTOPS:
1. HIGH-PRESSURE DECORATIVE LAMINATE GRADE: HGS, 0.048" THICK.
2. EDGE TREATMENT: SAME AS LAMINATE ON HORIZONTAL SURFACES, SQUARE PROFILE.
3. CORE MATERIAL:
a. AT NON-SINK LOCATIONS: MEDIUM DENSITY PARTICLEBOARD OR FIBERBOARD.
b. AT SINK LOCATIONS: PARTICLEBOARD MADE WITH EXTERIOR GLUE OR EXTERIOR-GRADE PLYWOOD.
4. COLORS, PATTERNS AND FINISHES: AS SELECTED FROM MANUFACTURER'S STANDARD PALETTE OF COLORS AND PATTERNS.

E. FABRICATION: COMPLETE FABRICATION TO MAXIMUM EXTENT POSSIBLE BEFORE SHIPMENT TO PROJECT SITE. WHERE NECESSARY FOR FITTING AT SITE, PROVIDE ALLOWANCE FOR SCRIBING, TRIMMING, AND FITTING.
1. INTERIOR WOODWORK GRADE: CUSTOM COMPLYING WITH THE REFERENCED QUALITY STANDARD.
2. SHOP CUT OPENINGS TO MAXIMUM EXTENT POSSIBLE. SAND EDGES OF CUTOUTS TO REMOVE SPLINTERS AND BURRS.
3. SEAL EDGES OF OPENINGS IN COUNTERTOPS WITH A COAT OF VARNISH.
4. FOR TRIM ITEMS WIDER THAN AVAILABLE LUMBER, USE VENEERED CONSTRUCTION. DO NOT GLUE FOR WIDTH.
5. BACKOUT OR GROOVE BACKS OF FLAT TRIM MEMBERS AND KERF BACKS OF OTHER WIDE, FLAT MEMBERS, EXCEPT FOR MEMBERS WITH ENDS EXPOSED IN FINISHED WORK.

SECTION 072100 - THERMAL INSULATION

A. THIS SECTION INCLUDES THE FOLLOWING:
1. CONCEALED BUILDING INSULATION.
2. FIBERGLASS BATT INSULATION IN INTERIOR WALLS FOR ACOUSTIC ISOLATION.
3. VAPOR RETARDERS.

B. MINERAL-FIBER BLANKET INSULATION: GLASS FIBER BLANKETS OR BATTS BY CERTAINTEED, KNAUF, MANVILLE, OR OWENS-CORNING. SIZES AS INDICATED.
1. UNFACED: ASTM C 665, TYPE I, CLASS A AND PASSING ASTM E 136 FOR COMBUSTION CHARACTERISTICS.
2. FOIL FACED: ASTM C 665, TYPE III, CLASS A.
a. FOIL_FACING PERMS: MAXIMUM 0.50.

C. POLYETHYLENE VAPOR RETARDER: ASTM D 4397, 6 MILS THICK, WITH MAXIMUM PERMEANCE RATING OF 0.13 PERM.
1. VAPOR-RETARDER TAPE: PRESSURE-SENSITIVE TAPE OF TYPE RECOMMENDED BY VAPOR-RETARDER MANUFACTURER FOR SEALING JOINTS AND PENETRATIONS IN VAPOR RETARDER.

SECTION 074110 - METAL ROOF PANELS

A. THIS SECTION INCLUDES THE FOLLOWING:
1. FACTORY-FORMED AND FIELD-ASSEMBLED, NONSTRUCTURAL, CONCEALED FASTENER, STANDING-SEAM METAL ROOF PANELS.
2. METAL COPING PANELS.
3. FLASHING, TRIM AND SEALANTS.
4. GUTTERS AND DOWNSPOUTS AT METAL ROOF AREAS.
5. ACCESSORIES.
6. MANUFACTURER'S REPRESENTATIVE PERIODIC AND FINAL INSPECTIONS.

B. WIND-UPLIFT RESISTANCE: COMPLY WITH FM I-90 FOR WIND-UPLIFT RESISTANCE CLASS INDICATED.

C. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE AND COMPLY WITH PROJECT REQUIREMENTS. NOTIFY PARTICIPANTS AT LEAST FIVE (5) WORKING DAYS BEFORE CONFERENCE.

D. MANUFACTURER'S REPRESENTATIVE: CONDUCT PERIODIC INSPECTIONS TO REVIEW INSTALLATION PROCEDURES, AND SATISFY INSTALLATION AND WARRANTY REQUIREMENTS.

E. FACTORY FABRICATED, CONCEALED FASTENER METAL ROOFING PANELS BY DMI FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PANEL PROFILES, PERFORMANCE CHARACTERISTICS AND COLORS BY MANUFACTURERS LISTED ARE ALSO ACCEPTABLE.
1. AEP/SPAN.
2. MBCI.

F. STANDING-SEAM PANELS: STANDING SEAMS INCORPORATE A CONTINUOUS ENGINEERED INTERLOCKING CONNECTION WITH FACTORY APPLIED SEALANTS AND CONCEALED ANCHOR CLIPS THAT PREVENTS THE PASSAGE OF WATER.
1. SYSTEM NAME: "CURVED RADIUS DOUBLE LOCK CR-DL1517".
2. SEAM TYPE: MECHANICALLY SEAMED
3. MATERIAL: 24 GAUGE (.024") GALVALUME ALUMINUM-ZINC ALLOY COATED STEEL GRADE C MEETING ASTM A792.
a. EXTERIOR FINISH: 70% KYNAR 500 OR HYLAR 5000 FLUOROCARBON COATING WITH TOP SIDE DRY FILM THICKNESS OF 1.1 +/-.01 MIL DRY FILM THICKNESS AND WASH COAT AND PRIMER OF .04 +/- .01 MIL TOTAL DRY FILM THICKNESS ON REVERSE SIDE.
b. COLOR: SELECTED FROM MANUFACTURER'S STANDARD PALETTE (TSR>.25).
c. PANEL PROTECTION: STRIPPABLE FILM APPLIED TO PANEL TOPSIDE. FILM REMOVED DURING INSTALLATION.
4. SEAM HEIGHT: 1½".
5. MAJOR-RIB SPACING: 17" O.C.
6. UPLIFT RATING: UL 90.
7. FLASHING: STANDARD AND CUSTOM EXPOSED FLASHINGS OF THE SAME MATERIAL AND FINISH AS ROOF PANELS. INCLUDES:
a. WRAPPED FASCIAS.
b. DRIP EDGES.
c. CLOSED HIPS AND RIDGES.
d. VENTED RIDGES.
e. VALLEYS.
f. RAKES AND EAVES.
g. RAKE WALL FLASHING AND COUNTERFLASHING.
h. CLOSED APRONS AT VERTICAL WALLS.
i. VENTED APRONS AT VERTICAL WALLS.
j. PEAKS.
k. MISCELLANEOUS TRIM AND FLASHINGS
l. EXPANSION JOINTS.
8. SEALANTS:
a. FACTORY APPLIED: SEAM SEALANT, NON-CURING BUTYL DESIGNED FOR METAL TO METAL CONNECTION IN CONCEALED JOINTS.
b. FIELD APPLIED: BUTYL BASED SEALANT AND/OR TAPE AS RECOMMENDED BY SYSTEM MANUFACTURER, AND COMPATIBLE WITH EPDM ROOFING MATERIALS.
9. CLIPS: FIXED OR FLOATING TYPE TO ACCOMMODATE THERMAL MOVEMENT AS SELECTED BY SYSTEM MANUFACTURER. INCLUDES CLEATS, PRESSURE PLATES AND ACCESSORIES REQUIRED FOR WEATHERTIGHT INSTALLATION.
10. FASTENERS: TYPE, SIZE AND SPACING AS DETERMINED BY SYSTEM MANUFACTURER.
a. EXPOSED SCREW FASTENERS: 300 SERIES ALLOY STAINLESS STEEL WITH INTEGRALLY BONDED NEOPRENE WASHERS OR ZINC ALUMINUM CAST HEAD COVERS WITH INTEGRAL NEOPRENE GASKETS.
b. EXPOSED POP RIVETS: STAINLESS STEEL, RIVET AND MANDREL, SELF PLUGGING TYPE. EXPOSED POP RIVETS PAINTED TO MATCH THE METAL ROOF SYSTEM.
c. CONCEALED FASTENERS FOR ANCHOR CLIPS AND FLASHING ATTACHMENT: AS SELECTED BY SYSTEM MANUFACTURER.
d. EXPOSED FASTENERS NOT PERMITTED EXCEPT TO FASTEN FLASHING, AT FIXING POINTS, OR AS INDICATED ON THE SHOP DRAWINGS.

G. FACTORY-APPLIED SEALANTS: SEAM SEALANT, NON-CURING BUTYL DESIGNED FOR METAL TO METAL CONNECTION IN CONCEALED JOINTS.

H. CLIPS: FIXED OR FLOATING TYPE TO ACCOMMODATE THERMAL MOVEMENT AS SELECTED BY SYSTEM MANUFACTURER.
1. INCLUDE CLEATS, PRESSURE PLATES, AND ACCESSORIES REQUIRED FOR WEATHERTIGHT INSTALLATION.

I. FASTENERS: TYPE, SIZE AND SPACING AS DETERMINED BY SYSTEM MANUFACTURER.
1. EXPOSED SCREW FASTENERS: 300 SERIES ALLOY STAINLESS STEEL WITH INTEGRALLY BONDED NEOPRENE WASHERS OR ZINC ALUMINUM CAST HEAD COVERS WITH INTEGRAL NEOPRENE GASKETS.
2. EXPOSED POP RIVETS: STAINLESS STEEL, RIVET AND MANDREL, SELF PLUGGING TYPE. EXPOSED POP RIVETS PAINTED TO MATCH THE METAL ROOF SYSTEM.
3. CONCEALED FASTENERS FOR ANCHOR CLIPS AND FLASHING ATTACHMENT: AS SELECTED BY SYSTEM MANUFACTURER.
4. EXPOSED FASTENERS NOT PERMITTED EXCEPT TO FASTEN FLASHING, AT FIXING POINTS, OR AS INDICATED ON THE SHOP DRAWINGS.

J. BITUMINOUS COATING: COLD-APPLIED ASPHALT MASTIC, SSPC-PAINT 12, COMPOUNDED FOR 15-MIL (0.4-mm) DRY FILM THICKNESS PER COAT. PROVIDE INERT-TYPE NONCORROSIVE COMPOUND FREE OF ASBESTOS FIBERS, SULFUR COMPONENTS, AND OTHER DELETERIOUS IMPURITIES.

K. PANEL SEALANTS:
1. SEALANT TAPE: PRESSURE-SENSITIVE, GRAY POLYISOBUTYLENE COMPOUND SEALANT TAPE WITH RELEASE-PAPER BACKING; ½" (13 mm) WIDE AND 1/8" (3 mm) THICK.
2. JOINT SEALANT: ASTM C 920; AS RECOMMENDED IN WRITING BY METAL ROOF PANEL MANUFACTURER.
3. BUTYL-RUBBER-BASED, SOLVENT-RELEASE SEALANT: ASTM C 1311.

L. FELT UNDERLAYMENT: ASTM D 226, TYPE II (NO. 30), ASPHALT-SATURATED ORGANIC FELT, NONPERFORATED.

M. SELF-ADHERING UNDERLAYMENT: "ULTRA" BY GRACE CONSTRUCTION PRODUCTS. PRODUCTS WITH COMPARABLE MATERIALS AND PERFORMANCE CHARACTERISTICS APPROVED BY METAL ROOFING MANUFACTURER ARE ALSO ACCEPTABLE.
1. COMPOSITION: BUTYL RUBBER BASED ADHESIVE BACKED BY LAYER OF HIGH DENSITY CROSS LAMINATED POLYETHYLENE.
2. THICKNESS: 30 MILS.

N. ROOF INSULATION: MATERIAL SELECTION AT CONTRACTOR'S OPTION. SELECTED MATERIALS MUST COMPLY WITH MEMBRANE MANUFACTURER'S REQUIREMENTS FOR SYSTEM INSTALLATION, AND PROVIDE WARRANTY.
1. EXTRUDED POLYSTYRENE BOARDS:
a. "CARLISLE SURE-SEAL EXTRUDED POLYSTYRENE", CLOSED-CELL STRUCTURAL BOARD
1) R-VALUE: 6.0 PER INCH THICKNESS.
2) COMPRESSIVE STRENGTHS: 25 PSI.
b. "OWENS-CORNING FOAMULAR THERMAPINK", CLOSED-CELL STRUCTURED BOARD
1) R-VALUE: 5.0 PER INCH THICKNESS.
2) COMPRESSIVE STRENGTHS: 25 PSI.
c. "DOW STYROFOAM DECKMATE PLUS", CLOSED-CELL STRUCTURED BOARD
1) R-VALUE: 5.0 PER INCH THICKNESS.
2) COMPRESSIVE STRENGTHS: 25 PSI.
2. PROVIDE ADDITIONAL MATERIALS (SEPARATOR SHEETS, COVER BOARDS, ETC) REQUIRED TO INSTALL ROOF MEMBRANE OVER SELECTED INSULATION MATERIALS.
3. MATERIALS MUST COMPLY WITH FM STANDARD 4450/4470 WHERE INSTALLED OVER METAL DECK.
4. ADJUST INSULATION THICKNESS REQUIRED TO MEET INDICATED R-VALUE BASED ON SELECTED MATERIALS R-VALUE.

O. SNOW GUARDS: PAINTED CAST ALUMINUM MODEL 11-A BY ZALESKI SNOW GUARDS. PRODUCTS WITH COMPARABLE MATERIALS, DESIGNS AND FINISHES BY OTHER MANUFACTURERS MAY BE SUBMITTED THE ARCHITECT NO LATER THAN TEN DAYS PRIOR TO THE BID DATE.
1. FINISH: 70% KYNAR 500 OR HYLAR 5000 FLUOROCARBON COATING.
2. COLOR: MATCH METAL ROOFING.
3. ATTACHMENT: SEALANT ADHESIVE AS RECOMMENDED BY MANUFACTURER. MECHANICAL ATTACHMENT THROUGH METAL ROOF NOT PERMITTED.
4. PRIMER: SEALANT ADHESIVE MANUFACTURER'S STANDARD.

P. GUTTERS (AT METAL ROOF EAVES): MATERIALS AND FINISH TO MATCH ROOFING.
1. BOX PROFILE SIMILAR TO SMACNA FIG. 1-2, STYLE A.
2. SPACER STRAPS: 1/8" X 1" FLAT STOCK AT 3'-0" O.C.
3. DROPS: FABRICATED TO SEAL AT GUTTER PENETRATION AND NEST INSIDE DOWNSPOUT, SIMILAR TO SMACNA FIG. 1-24C, RECTANGULAR.
4. STRAINER: GALVANIZED STEEL, SIMILAR TO SMACNA FIG. 1-24D, RECTANGULAR.

Q. DOWNSPOUTS: MATERIALS AND FINISH TO MATCH ROOFING.
1. RECTANGULAR: SIMILAR TO SMACNA FIG. 1-32B.
a. HANGERS: 1/16" X 1" "U" SHAPED FABRICATIONS SIMILAR TO SMACNA FIG. 1-35A AND SPACED AT 10' O.C. MAXIMUM.

R. SPLASHBLOCKS: PRECAST CONCRETE, 12"W X 24"L.

SECTION 076200 - SHEET METAL FLASHING AND TRIM

A. THIS SECTION INCLUDES THE FOLLOWING:
1. FORMED ROOF DRAINAGE SYSTEMS.
2. FORMED STEEP-SLOPE ROOF FLASHING AND TRIM.
3. MISCELLANEOUS FLASHINGS.

B. QUALITY ASSURANCE:
1. SHEET METAL FLASHING AND TRIM STANDARD: COMPLY WITH SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL, SIXTH EDITION." CONFORM TO DIMENSIONS AND PROFILES SHOWN UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.

C. SHEET METALS:
1. ALUMINUM SHEET: ASTM B 209, ALLOY 3003, 3004, 3105, OR 5005, TEMPER SUITABLE FOR FORMING AND STRUCTURAL PERFORMANCE REQUIRED, BUT NOT LESS THAN H14, FINISHED AS FOLLOWS:
a. HIGH-PERFORMANCE ORGANIC FINISH: TWO-COAT, THERMOCURED SYSTEM CONTAINING NOT LESS THAN 70 PERCENT POLYVINYLIDENE FLUORIDE RESIN BY WEIGHT; COMPLYING WITH AAMA 2604. COLOR: SELECTED FROM MANUFACTURER'S STANDARD PALETTE.
2. ZINC-COATED (GALVANIZED) STEEL SHEET: ASTM A 653, G90 COATING DESIGNATION; STRUCTURAL QUALITY, MILL PHOSPHATIZED FOR FIELD PAINTING.

D. MISCELLANEOUS MATERIALS: PROVIDE MATERIALS AND TYPES OF FASTENERS, SOLDER, WELDING RODS, PROTECTIVE COATINGS, SEPARATORS, SEALANTS, AND OTHER MISCELLANEOUS ITEMS AS REQUIRED FOR COMPLETE SHEET METAL FLASHING AND TRIM INSTALLATION.
1. FASTENERS: WOOD SCREWS, ANNULAR THREADED NAILS, SELF-TAPPING SCREWS, SELF-LOCKING RIVETS AND BOLTS, AND OTHER SUITABLE FASTENERS DESIGNED TO WITHSTAND DESIGN LOADS.
a. EXPOSED FASTENERS: HEADS MATCHING COLOR OF SHEET METAL BY MEANS OF PLASTIC CAPS OR FACTORY-APPLIED COATING.
b. FASTENERS FOR FLASHING AND TRIM: BLIND FASTENERS OR SELF-DRILLING SCREWS, GASKETED, WITH HEX WASHER HEAD.
c. BLIND FASTENERS: HIGH-STRENGTH ALUMINUM OR STAINLESS-STEEL RIVETS.
2. SEALING TAPE: PRESSURE-SENSITIVE, 100 PERCENT SOLIDS, POLYISOBUTYLENE COMPOUND SEALING TAPE WITH RELEASE-PAPER BACKING. PROVIDE PERMANENTLY ELASTIC, NONSAG, NONTOXIC, NONSTAINING TAPE.
3. ELASTOMERIC SEALANT: ASTM C 920, ELASTOMERIC POLYURETHANE OR POLYSULFIDE POLYMER SEALANT; OF TYPE, GRADE, CLASS, AND USE CLASSIFICATIONS REQUIRED TO SEAL JOINTS IN SHEET METAL FLASHING AND TRIM AND REMAIN WATERTIGHT.
4. BUTYL SEALANT: ASTM C 1311, SINGLE-COMPONENT, SOLVENT-RELEASE BUTYL RUBBER SEALANT, POLYISOBUTYLENE PLASTICIZED, HEAVY BODIED FOR HOOKED-TYPE EXPANSION JOINTS WITH LIMITED MOVEMENT.
5. BITUMINOUS COATING: COLD-APPLIED ASPHALT MASTIC, SSPC-PAINT 12, COMPOUNDED FOR 15-MIL DRY FILM THICKNESS PER COAT.

E. FABRICATION:
1. GENERAL: CUSTOM FABRICATE SHEET METAL FLASHING AND TRIM TO COMPLY WITH RECOMMENDATIONS IN SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" THAT APPLY TO DESIGN, DIMENSIONS, METAL, AND OTHER CHARACTERISTICS OF ITEM INDICATED. SHOP FABRICATE ITEMS WHERE PRACTICABLE. OBTAIN FIELD MEASUREMENTS FOR ACCURATE FIT BEFORE SHOP FABRICATION.
2. FABRICATE SHEET METAL FLASHING AND TRIM WITHOUT EXCESSIVE OIL CANNING, BUCKLING, AND TOOL MARKS AND TRUE TO LINE AND LEVELS INDICATED, WITH EXPOSED EDGES FOLDED BACK TO FORM HEMS.
a. SEAMS FOR ALUMINUM: FABRICATE NONMOVING SEAMS WITH FLAT-LOCK SEAMS. FORM SEAMS AND SEAL WITH EPOXY SEAM SEALER. RIVET JOINTS FOR ADDITIONAL STRENGTH.
b. SEAMS FOR OTHER THAN ALUMINUM: FABRICATE NONMOVING SEAMS IN ACCESSORIES WITH FLAT-LOCK SEAMS. TIN EDGES TO BE SEAMED, FORM SEAMS AND SOLDER.
3. SEALED JOINTS: FORM NONEXPANSION BUT MOVABLE JOINTS IN METAL TO ACCOMMODATE ELASTOMERIC SEALANT TO COMPLY WITH SMACNA RECOMMENDATIONS.
4. EXPANSION PROVISIONS: WHERE LAPPED OR BAYONET-TYPE EXPANSION PROVISIONS IN THE WORK CANNOT BE USED, FORM EXPANSION JOINTS OF INTERMESHING HOOKED FLANGES, NOT LESS THAN 1" DEEP, FILLED WITH ELASTOMERIC OR BUTYL SEALANT CONCEALED WITHIN JOINTS.
5. CONCEAL FASTENERS AND EXPANSION PROVISIONS WHERE POSSIBLE ON EXPOSED-TO-VIEW SHEET METAL FLASHING AND TRIM, UNLESS OTHERWISE INDICATED.
6. FABRICATE CLEATS AND ATTACHMENT DEVICES FROM SAME MATERIAL AS ACCESSORY BEING ANCHORED OR FROM COMPATIBLE, NONCORROSIVE METAL, AND IN THICKNESS NOT LESS THAN THAT OF METAL BEING SECURED.

SECTION 079200 - JOINT SEALANTS

A. THIS SECTION INCLUDES JOINT SEALANTS FOR THE FOLLOWING APPLICATIONS, INCLUDING THOSE SPECIFIED BY REFERENCE TO THIS SECTION:
1. EXTERIOR JOINTS IN VERTICAL SURFACES AND HORIZONTAL NONTRAFFIC SURFACES.
2. EXTERIOR JOINTS IN HORIZONTAL TRAFFIC SURFACES.
3. INTERIOR JOINTS IN VERTICAL SURFACES AND HORIZONTAL NONTRAFFIC SURFACES.
4. INTERIOR JOINTS IN HORIZONTAL TRAFFIC SURFACES.
5. SEE DIVISION 08 "GLAZING" FOR GLAZING SEALANTS.
6. SEE DIVISION 09 "GYPSUM BOARD" FOR ACOUSTICAL JOINT SEALANTS.

B. THE FOLLOWING SECTIONS CONTAIN ADDITIONAL SEALANT AND CAULKING REQUIREMENTS THAT ARE WITHIN THEIR SPECIFIC SECTION AND NOT WITHIN THE SCOPE OF THIS SECTION.
1. DIVISION 03: "CAST-IN-PLACE CONCRETE".
2. DIVISION 06: "INTERIOR ARCHITECTURAL WOODWORK".
3. DIVISION 07: "FLASHING AND SHEET METAL".
4. DIVISION 09: "CERAMIC TILE".
5. DIVISION 09: "RESILIENT FLOOR TILE".
6. DIVISION 09: "RESILIENT WALL BASE AND ACCESSORIES".
7. DIVISION 32: "CONCRETE PAVEMENT".

C. APPLICABLE STANDARDS: ASTM C 920.
1. TYPE: IDENTIFIES SEALANT PRODUCTS AS PREPACKAGES OR JOBSITE MIXED.
a. TYPE S: PRODUCTS PREPACKAGED WITH NO JOBSITE MIXING REQUIRED.
b. TYPE M: PRODUCTS FURNISHED IN TWO OR MORE PARTS FOR JOBSITE MIXING.
2. GRADE: IDENTIFIES THE FLOW CHARACTERISTICS OF THE SEALANT PRODUCTS.
a. GRADE P: PRODUCTS WITH SUFFICIENT FLOW TO FILL JOINTS IN HORIZONTAL SURFACES AND REMAIN LEVEL AND SMOOTH AT TEMPERATURES AS LOW AS 40 DEG F.
b. GRADE NS: PRODUCTS SUITABLE FOR INSTALLATION IN VERTICAL SURFACES WITHOUT SAGGING AT TEMPERATURES BETWEEN 40 AND 120 DEG F.
3. CLASS: IDENTIFIES SEALANT PRODUCTS ACCORDING TO TESTED CAPABILITIES TO REMAIN ADHERED TO GIVEN JOINT SUBSTRATES WITHOUT COHESIVE FAILURE. A MEASUREMENT OF MOVEMENT CAPABILITY.
a. CLASSES: 12½, 25, 35, 50 AND 100/50. NUMBERS INDICATE PERCENTAGE OF MOVEMENT CAPABILITY.
4. USE: IDENTIFIES SEALANT PRODUCT'S USES RELATED TO EXPOSURE AND SUBSTRATES.
a. T: SURFACES SUBJECT TO VEHICULAR AND PEDESTRIAN TRAFFIC.
b. NT: SURFACES NOT SUBJECT TO VEHICULAR AND PEDESTRIAN TRAFFIC.
c. I: SUBMERGED CONTINUOUSLY IN LIQUIDS
d. M: MORTAR SUBSTRATES.
e. A: ALUMINUM SUBSTRATES.
f. G: GLASS SUBSTRATES.
g. O: OTHER SUBSTRATES THAN M, A AND G.
5. PERFORMANCE REQUIREMENTS: PROVIDE ELASTOMERIC JOINT SEALANTS THAT ESTABLISH AND MAINTAIN WATERTIGHT AND AIRTIGHT CONTINUOUS JOINT SEALS WITHOUT STAINING OR DETERIORATING JOINT SUBSTRATES.

D. QUALITY ASSURANCE:
1. PRECONSTRUCTION COMPATIBILITY AND ADHESION TESTING: SUBMIT SAMPLES OF MATERIALS THAT WILL CONTACT OR AFFECT JOINT SEALANTS TO JOINT-SEALANT MANUFACTURERS FOR TESTING ACCORDING TO MANUFACTURER'S STANDARD TEST METHOD TO DETERMINE WHETHER PRIMING AND OTHER SPECIFIC JOINT PREPARATION TECHNIQUES ARE REQUIRED TO OBTAIN RAPID, OPTIMUM ADHESION OF JOINT SEALANTS TO JOINT SUBSTRATES.
2. PRECONSTRUCTION FIELD-ADHESION TESTING: BEFORE INSTALLING ELASTOMERIC SEALANTS, FIELD TEST THEIR ADHESION TO PROJECT JOINT SUBSTRATES ACCORDING TO THE METHOD IN ASTM C 1193 THAT IS APPROPRIATE FOR THE TYPES OF PROJECT JOINTS.
3. APPLICATOR QUALIFICATIONS: TRAINED AND APPROVED APPLICATOR WITH AT LEAST THREE YEARS EXPERIENCE IN INSTALLING MATERIALS OF TYPES SPECIFIED AND HAVING SUCCESSFULLY COMPLETED AT LEAST THREE PROJECTS OF SIMILAR SCOPE AND COMPLEXITY.
a. APPLICATOR TO DESIGNATE A SINGLE INDIVIDUAL AS PROJECT FOREMAN WHO WILL BE ON SITE AT ALL TIMES DURING INSTALLATION.
4. SINGLE SOURCE RESPONSIBILITY: TO THE EXTENT POSSIBLE, OBTAIN JOINT SEALANTS FROM SINGLE MANUFACTURER FOR EACH DIFFERENT PRODUCT REQUIRED TO ENSURE COMPATIBILITY.

E. SEALANT AND CAULKING AND PRODUCTS BY TREMCO FORM THE BASIS-OF-DESIGN UNLESS NOTED OTHERWISE. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CRITERIA AND COLORS BY BOSTIK FINDLEY, DOW CORNING CORP., GE SILICONES, PECORA CORP., POLYSPEC CORP., SIKA, SONNEBORN AND W. R. MEADOWS ARE ACCEPTABLE.

F. MATERIALS, GENERAL:
1. COMPATIBILITY: PROVIDE JOINT SEALANTS, BACKINGS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY SEALANT MANUFACTURER, BASED ON TESTING AND FIELD EXPERIENCE.
2. COLORS OF EXPOSED JOINT SEALANTS: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE. PROVIDE STANDARD COLORS THAT GENERALLY MATCH ADJACENT MATERIALS.
3. ELASTOMERIC SEALANTS: COMPLY WITH ASTM C 920 AND OTHER REQUIREMENTS INDICATED FOR EACH LIQUID-APPLIED CHEMICALLY CURING SEALANT SPECIFIED, INCLUDING THOSE REFERENCING ASTM C 920 CLASSIFICATIONS FOR TYPE, GRADE, CLASS, AND USES RELATED TO EXPOSURE AND JOINT SUBSTRATES.
4. STAIN-TEST-RESPONSE CHARACTERISTICS: WHERE ELASTOMERIC SEALANTS ARE SPECIFIED TO BE NONSTAINING TO POROUS SUBSTRATES, PROVIDE PRODUCTS THAT HAVE UNDERGONE TESTING ACCORDING TO ASTM C 1248 AND HAVE NOT STAINED POROUS JOINT SUBSTRATES INDICATED FOR PROJECT.

G. EXTERIOR WALL MOVEMENT JOINTS: "DYMERIC 240", MULTI-COMPONENT OLIGOMERIC POLYURETHANE.
1. APPLICABLE STANDARDS: ASTM C920.
a. TYPE: M.
b. GRADE: NS.
c. CLASS: 25.
d. USE: NT, M, A AND O.
2. APPLICATIONS:
a. MASONRY WALL EXPANSION AND CONTROL JOINTS.
b. METAL AND ALUMINUM DOOR AND WINDOW FRAMES.
c. EIFS JOINTS.

H. EXTERIOR SLAB MOVEMENT JOINTS: "VULKEM 45", TWO PART, SELF-LEVELING POLYURETHANE.
1. APPLICABLE STANDARDS: ASTM C920.
a. TYPE: M.
b. GRADE: P.
c. CLASS: 25.
d. USE: T, M, A AND O.
2. APPLICATIONS:
a. CONCRETE SIDEWALKS AND PAVING.

I. INTERIOR WALL NON-MOVEMENT JOINTS: "TREMFLEX 834", SILICONIZED ACRYLIC LATEX, PAINTABLE.
1. APPLICABLE STANDARDS: ASTM C-834.
a. TYPE: S.
b. GRADE: NS.
c. CLASS: 12½.
d. USE: NT, M, A, AND O.
2. APPLICATIONS:
a. WHERE GYPSUM BOARD ABUTS MASONRY OR CONCRETE.
b. WHERE HOLLOW METAL AND ALUMINUM DOOR FRAMES, AND WINDOW FRAMES ABUT FINISHED SURFACES.
c. AT VOIDS BETWEEN WALL AND CEILING SURFACES AND APPLIED MATERIALS INCLUDING TRIM, DOOR FRAMES, MILLWORK, ETC.

J. INTERIOR WALL MOVEMENT JOINTS (CONTROL JOINTS): "VULKEM 116", ONE-PART POLYURETHANE.
1. APPLICABLE STANDARDS: ASTM C920.
a. TYPE: S.
b. GRADE: NS.
c. CLASS: 25.
d. USE: NT, T, M, A AND O.
2. APPLICATIONS:
a. WALL CONTROL JOINTS.
b. MASONRY WALL CONTROL JOINTS.
c. METAL AND ALUMINUM DOOR AND WINDOW FRAMES.

K. INTERIOR SANITARY JOINTS: "TREMSIL 600", ONE COMPONENT SILICONE.
1. WHERE BACKSPLASHES ABUT WALLS AND COUNTERTOPS.
2. WHERE PLUMBING FIXTURES ABUT FINISH WALL AND FLOOR SURFACES AND COUNTERTOPS.

L. JOINT-SEALANT BACKING: PROVIDE SEALANT BACKINGS OF MATERIAL AND TYPE THAT ARE NONSTAINING; ARE COMPATIBLE WITH JOINT SUBSTRATES, SEALANTS, PRIMERS, AND OTHER JOINT FILLERS; AND ARE APPROVED FOR APPLICATIONS INDICATED BY SEALANT MANUFACTURER BASED ON FIELD EXPERIENCE AND LABORATORY TESTING.
1. CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, AS APPROVED IN WRITING BY JOINT-SEALANT MANUFACTURER FOR JOINT APPLICATION INDICATED, AND OF SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE TO PRODUCING OPTIMUM SEALANT PERFORMANCE.
a. TYPE C, CLOSED-CELL MATERIAL WITH A SURFACE SKIN.
b. TYPE O, OPEN-CELL MATERIAL.
c. TYPE B, BICELLULAR MATERIAL WITH A SURFACE SKIN.
2. ELASTOMERIC TUBING SEALANT BACKINGS: NEOPRENE, BUTYL, EPDM, OR SILICONE TUBING COMPLYING WITH ASTM D 1056, NONABSORBENT TO WATER AND GAS, AND CAPABLE OF REMAINING RESILIENT AT TEMPERATURES DOWN TO MINUS 26 DEG F. PROVIDE PRODUCTS WITH LOW COMPRESSION SET AND OF SIZE AND SHAPE TO PROVIDE A SECONDARY SEAL, TO CONTROL SEALANT DEPTH, AND TO OTHERWISE CONTRIBUTE TO OPTIMUM SEALANT PERFORMANCE.
3. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT WHERE SUCH ADHESION WOULD RESULT IN SEALANT FAILURE. PROVIDE SELF-ADHESIVE TAPE WHERE APPLICABLE.

M. MISCELLANEOUS MATERIALS:
1. PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANT-SUBSTRATE TESTS AND FIELD TESTS.
2. CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING MATERIALS, FREE OF OILY RESIDUES OR OTHER SUBSTANCES CAPABLE OF STAINING OR HARMING JOINT SUBSTRATES AND ADJACENT NONPOROUS SURFACES IN ANY WAY, AND FORMULATED TO PROMOTE OPTIMUM ADHESION OF SEALANTS TO JOINT SUBSTRATES.
3. MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND SURFACES ADJACENT TO JOINTS.

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

A. SECTION INCLUDES: STANDARD HOLLOW METAL DOORS AND FRAMES.
1. EXTERIOR DOORS.
2. EXTERIOR AND INTERIOR DOOR FRAMES.
3. INTERIOR NON-INSULATED DOORS.
4. ACCESSORIES.

B. HOLLOW METAL DOORS AND FRAMES BY STEELCRAFT FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE DESIGNS, MATERIALS, PERFORMANCE CHARACTERISTICS AND FINISHES BY
1. AMWELD BUILDING PRODUCTS, INC., CECO DOOR PRODUCTS, CURRIES CO., KEWANEE CORP., MESKER DOOR, INC., PIONEER INDUSTRIES INC. AND REPUBLIC BUILDERS PRODUCTS ARE ALSO ACCEPTABLE:

C. EXTERIOR FLUSH DOORS: MODEL LW-16, SDI LEVEL III, MODEL 1, 1-3/4" THICK, WITH 16 GAUGE, A60 GALVANIZED STEEL FACE SHEETS, WELDED AND FILLED EDGE SEAMS, AND 1-1/2 LBS. DENSITY POLYURETHANE INSULATED CORE.
1. FULL FLUSH DESIGN: STYLE F.
2. PROVIDE TOP EDGE CLOSED WITH 16 GAUGE STEEL INVERTED CLOSURE CHANNEL WELDED IN PLACE WITH THE WEB FLUSH WITH THE DOOR TOP. PLASTIC FILLERS NOT ACCEPTABLE.
3. HARDWARE REINFORCEMENT: ANSI/SDI A250.6.
4. FINISH: FACTORY APPLIED BAKED ON RUST INHIBITING PRIMER IN ACCORDANCE WITH ANSI A250.10.

D. INTERIOR FLUSH DOORS: MODEL LW-18, SDI LEVEL I, MODEL 1, 1-3/4" THICK, WITH 18 GAUGE STEEL FACE SHEETS, WELDED AND FILLED EDGE SEAMS, AND RESIN IMPREGNATED KRAFT PAPER HONEYCOMB CORE.
1. FULL FLUSH DESIGN: STYLE F.

E. DOOR FRAMES: "FLUSH (F)" AND "MULTIPLE USE (MU)" DOUBLE RABBET PROFILE, COLD ROLLED STEEL, WITH 2" FACE.
1. PROVIDE 4" HEAD AND SILL SECTIONS WHERE INDICATED.
2. INTERIOR DOORS: 18 GAUGE.
a. DOOR FRAMES: KD.
b. DOOR FRAMES WITH BORROWED LIGHTS: WELDED.
3. EXTERIOR: 16 GAUGE STEEL, GALVANIZED G90, WELDED.
4. DOOR SILENCERS: THREE SILENCERS ON SINGLE-DOOR FRAMES AND TWO SILENCERS ON DOUBLE-DOOR FRAMES.
5. SUPPORTS AND ANCHORS: NOT LESS THAN 0.042" THICK ZINC-COATED STEEL SHEET.
6. INSERTS, BOLTS, AND FASTENERS: MANUFACTURER'S STANDARD UNITS. ZINC-COAT ITEMS THAT ARE TO BE BUILT INTO EXTERIOR WALLS ACCORDING TO ASTM A 153, CLASS C OR D AS APPLICABLE.
7. HARDWARE REINFORCEMENT: ANSI/SDI A250.6.
8. FINISH: FACTORY APPLIED BAKED ON RUST INHIBITING PRIMER IN ACCORDANCE WITH ANSI A250.10.

F. FRAME ANCHORS:
1. JAMB ANCHORS:
a. STUD-WALL TYPE: DESIGNED TO ENGAGE STUD, WELDED TO BACK OF FRAMES; NOT LESS THAN 0.042" THICK.
b. COMPRESSION TYPE FOR DRYWALL SLIP-ON FRAMES: ADJUSTABLE COMPRESSION ANCHORS.
2. FLOOR ANCHORS: FORMED FROM SAME MATERIAL AS FRAMES, NOT LESS THAN 0.042" THICK, AND AS FOLLOWS:
a. MONOLITHIC CONCRETE SLABS: CLIP-TYPE ANCHORS, WITH TWO HOLES TO RECEIVE FASTENERS.
b. SEPARATE TOPPING CONCRETE SLABS: ADJUSTABLE-TYPE ANCHORS WITH EXTENSION CLIPS, ALLOWING NOT LESS THAN 2" HEIGHT ADJUSTMENT. TERMINATE BOTTOM OF FRAMES AT FINISH FLOOR SURFACE.

G. MATERIALS:
1. COLD-ROLLED STEEL SHEET: ASTM A 1008, CS, TYPE B; SUITABLE FOR EXPOSED APPLICATIONS.
2. HOT-ROLLED STEEL SHEET: ASTM A 1011, CS, TYPE B.
3. METALLIC-COATED STEEL SHEET: ASTM A 653, COMMERCIAL STEEL (CS), TYPE B; WITH MINIMUM G60 METALLIC COATING.
4. FRAME ANCHORS: ASTM A 591, COMMERCIAL STEEL (CS), 40Z COATING DESIGNATION; MILL PHOSPHATIZED.
a. FOR ANCHORS BUILT INTO EXTERIOR WALLS, STEEL SHEET COMPLYING WITH ASTM A 1008 OR ASTM A 1011, HOT-DIP GALVANIZED ACCORDING TO ASTM A 153, CLASS B.
5. INSERTS, BOLTS, AND FASTENERS: HOT-DIP GALVANIZED ACCORDING TO ASTM A 153.
6. GROUT: ASTM C 476, EXCEPT WITH A MAXIMUM SLUMP OF 4", AS MEASURED ACCORDING TO ASTM C 143.
7. GLAZING: REFER TO SECTION 08800 "GLAZING."
8. BITUMINOUS COATING: COLD-APPLIED ASPHALT MASTIC, SSPC-PAINT 12, COMPOUNDED FOR 15-MIL DRY FILM THICKNESS PER COAT.

SECTION 081416 - FLUSH WOOD DOORS

A. THIS SECTION INCLUDES FLUSH SOLID CORE WOOD DOORS WITH WOOD-VENEER FACES.

B. QUALITY ASSURANCE: IN ADDITION TO REQUIREMENTS SPECIFIED, COMPLY WITH WDMA I.S.1-A, "ARCHITECTURAL WOOD FLUSH DOORS."

C. FLUSH DOORS BY EGGERS INDUSTRIES FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE DESIGNS, MATERIALS, PERFORMANCE CRITERIA AND FINISHES BY ALGOMA HARDWOODS, INC., BUELL DOOR CO. INC., CHAPPELL DOOR CO., GRAHAM, IDEAL ARCHITECTURAL DOORS & PLYWOOD, MARSHFIELD DOOR SYS, INC., AND OSHKOSH ARCHITECTURAL DOOR CO. ARE ALSO ACCEPTABLE:

D. DOORS FOR TRANSPARENT FINISH: INTERIOR SOLID CORE DOORS, NON-RATED.
1. MODEL: "MASTER FLUSH - PARTICLEBOARD".
2. CONSTRUCTION: FIVE PLY, 1-3/4" THICK WITH BONDED PARTICLEBOARD CORE AND MATCHING HARDWOOD BANDED EDGES, TOP AND BOTTOM.
3. VENEER GRADE: PREMIUM, WITH GRADE A FACES.
4. SPECIES AND CUT: WHITE OAK, PLAIN SLICED.
5. ASSEMBLY OF VENEER LEAVES ON DOOR FACES: SLIP MATCH.
6. FINISH: CONTRACTOR'S OPTION.
a. FIELD STAIN AND FINISH UNDER SECTION 09912 "PAINTING".
b. FACTORY APPLIED STAIN AND "GARDALL II" FINISH SYSTEM. SYSTEM'S PERFORMANCE TO MEET OR EXCEED AWI SYSTEM TR6 POLYURETHANE. STAIN COLOR SELECTED FROM MANUFACTURER'S STANDARD COLORS.

SECTION 084110 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

A. THIS SECTION INCLUDES STANDARD STEEL DOOR FRAMES.
1. EXTERIOR ALUMINUM-FRAMED STOREFRONTS.
2. EXTERIOR MANUAL-SWING ALUMINUM DOORS AND HARDWARE.
3. CAULKING AND SEALANTS WITHIN FRAMING SYSTEMS.
4. FASTENERS AND ACCESSORIES.

B. ALUMINUM ENTRANCE FRAMING SYSTEMS AND DOORS BY KAWNEER FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, OPERATIONAL AND PERFORMANCE CHARACTERISTICS, AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
1. ARCH ALUMINUM & GLASS CO., INC.
2. EFCO CORPORATION.
3. TUBELITE ARCHITECTURAL SYSTEMS.
4. U.S. ALUMINUM.
5. VISTAWALL ARCHITECTURAL PRODUCTS.
6. YKK AP AMERICA INC.

C. EXTERIOR ENTRANCE AND FIXED WINDOW FRAMING: "TRIFAB VG 451T" FOR 1" GLAZING, THERMALLY BROKEN, WITH GLASS IN THE CENTER PLANE.
1. SIZE: 2" X 4½".
2. FINISH: ANODIZED. COLOR TO BE SELECTED MANUFACTURER'S STANDARD COLORS.

D. FRAMING MEMBERS: MANUFACTURER'S STANDARD EXTRUDED-ALUMINUM, THERMALLY BROKEN FRAMING MEMBERS OF THICKNESS REQUIRED AND REINFORCED AS REQUIRED TO SUPPORT IMPOSED LOADS.

E. BRACKETS AND REINFORCEMENTS: MANUFACTURER'S STANDARD HIGH-STRENGTH ALUMINUM WITH NONSTAINING, NONFERROUS SHIMS FOR ALIGNING SYSTEM COMPONENTS.

F. FASTENERS AND ACCESSORIES: MANUFACTURER'S STANDARD CORROSION-RESISTANT, NONSTAINING, NONBLEEDING FASTENERS AND ACCESSORIES COMPATIBLE WITH ADJACENT MATERIALS.
1. WHERE FASTENERS ARE SUBJECT TO LOOSENING OR TURNING OUT FROM THERMAL AND STRUCTURAL MOVEMENTS, WIND LOADS, OR VIBRATION, USE SELF-LOCKING DEVICES.
2. REINFORCE MEMBERS AS REQUIRED TO RECEIVE FASTENER THREADS.
3. USE EXPOSED FASTENERS WITH COUNTERSUNK PHILLIPS SCREW HEADS FINISHED TO MATCH FRAMING SYSTEM.

G. CONCRETE AND MASONRY INSERTS: HOT-DIP GALVANIZED CAST-IRON, MALLEABLE-IRON, OR STEEL INSERTS COMPLYING WITH ASTM A 123 OR ASTM A 153 REQUIREMENTS.

H. WINDOW TRIM AND CLOSURES, AND PIER PANELS: 6063-T5 ALUMINUM BREAK METAL, FABRICATED TO SHAPES SHOWN. FINISH: MATCH FRAMING.
1. PROVIDE .062" PIER PANELS IN ONE FULL-HEIGHT PIECE.

I. FLASHING: MANUFACTURER'S STANDARD CORROSION-RESISTANT, NONSTAINING, NONBLEEDING FLASHING COMPATIBLE WITH ADJACENT MATERIALS. FORM EXPOSED FLASHING FROM SHEET ALUMINUM FINISHED TO MATCH FRAMING AND OF SUFFICIENT THICKNESS TO MAINTAIN A FLAT APPEARANCE WITHOUT VISIBLE DEFLECTION.
1. SILL FLASHING: CONTINUOUS "Z" OR "L" SHAPED, MATERIALS WITH FINISHES TO MATCH ADJACENT FRAMING.

J. FRAMING SYSTEM GASKETS AND SEALANTS: MANUFACTURER'S STANDARD RECOMMENDED BY MANUFACTURER FOR JOINT TYPE.

K. FRAMING INTERNAL REINFORCEMENT: PROVIDE ADDITIONAL INTERNAL STEEL FRAMING OR COMPONENTS TO INSURE MAXIMUM DESIGN STRESSES IN STEEL OR ALUMINUM ARE NOT EXCEEDED.

L. DOORS: MANUFACTURER'S STANDARD GLAZED DOORS FOR MANUAL SWING OPERATION.

M. DOORS: 1-3/4" THICK GLAZED DOORS WITH MINIMUM 0.125" THICK, EXTRUDED TUBULAR RAIL AND STILE MEMBERS, MECHANICALLY FASTENED CORNERS WITH REINFORCING BRACKETS THAT ARE DEEP PENETRATION AND FILLET WELDED OR THAT INCORPORATE CONCEALED TIE-RODS, AND WITH SNAP-ON EXTRUDED-ALUMINUM GLAZING STOPS AND PREFORMED GASKETS.
1. STILE DESIGN: "350 SERIES", MEDIUM, 3½" MAXIMUM WIDTH.
2. FINISH: SELECTED FROM MANUFACTURER'S STANDARD PALETTE.
3. GLAZING STOPS AND GASKETS: BEVELED SNAP-ON, EXTRUDED-ALUMINUM STOPS AND PREFORMED GASKETS.
a. PROVIDE GLAZING POCKETS FOR GLASS THICKNESSES INDICATED.
b. PROVIDE NONREMOVABLE GLAZING STOPS ON OUTSIDE OF DOOR.
4. CORNER CONSTRUCTION: MECHANICAL FASTENINGS AND SIGMA DEEP AND FILLET WELDS.

N. HARDWARE: PROVIDED BY DOOR MANUFACTURER UNLESS NOTED OTHERWISE.
1. PUSH/PULL: STYLE CO9/CO9 BOTH SIDES, EACH DOOR. FINISH: MATCH FRAMING.
2. CLOSER (EACH DOOR): SURFACE MOUNTED, SINGLE ACTING, NORTON 1605 BC WITH ADJUSTABLE OPENING FORCE, SWEEP PERIOD AND BACK-CHECK, AND FULL COVER. FINISH: PAINTED TO MATCH FRAMING.
3. PIVOTS: OFFSET TYPE, TOP AND BOTTOM, SINGLE ACTING.
4. EXIT DEVICES, DOUBLE DOOR, ELECTRIC: VON DUPRIN "3527A SURFACE MOUNTED VERTICAL ROD EXIT DEVICE", TOUCH BAR, CLEAR ANODIZED WITH EXTERIOR PULL AND NIGHT LATCH CYLINDER. DEVICE DE-ACTIVATED OR "DOGGED" WITH CYLINDER KEY OR ALLEN SCREW.
a. COORDINATE ELECTRIC OPTIONS WITH OWNER'S SECURITY CONSULTANT.
5. THRESHOLD: SINGLE ACTING DOOR TYPE, 69-139, 1/2" HIGH. UNDER EXTERIOR DOORS ONLY.
6. WEATHER STRIPPING: MANUFACTURER'S STANDARD REPLACEABLE COMPONENTS.
a. SINGLE DOORS: "SEALAIR" SYSTEM COMPRISED OF THERMOPLASTIC ELASTOMER WEATHERING ON A TUBULAR SHAPE WITH A SEMI-RIGID POLYMERIC BACKING.
b. PAIRS OF DOORS: MEETING STILES EQUIPPED WITH ADJUSTABLE ASTRAGAL UTILIZING WOOL PILE WITH POLYMERIC FIN.
c. SILL SWEEP STRIPS: TPO BLADE GASKET SWEEP STRIP IN AN ALUMINUM EXTRUSION APPLIED TO THE INTERIOR EXPOSED SURFACE OF THE BOTTOM RAIL WITH CONCEALED FASTENERS. (NECESSARY TO MEET SPECIFIED PERFORMANCE TESTS.)

O. DOOR CONSTRUCTION: EXTRUDED-ALUMINUM TUBULAR RAIL AND STILE MEMBERS. MECHANICALLY FASTEN CORNERS WITH REINFORCING BRACKETS THAT ARE DEEP PENETRATION AND FILLET WELDED OR THAT INCORPORATE CONCEALED TIE RODS.
1. THERMAL CONSTRUCTION: HIGH-PERFORMANCE PLASTIC CONNECTORS SEPARATE ALUMINUM MEMBERS EXPOSED TO THE EXTERIOR FROM MEMBERS EXPOSED TO THE INTERIOR.

P. GLAZING: AS SPECIFIED IN SECTION 08800 "GLAZING."

Q. GLAZING GASKETS: MANUFACTURER'S STANDARD COMPRESSION TYPES, REPLACEABLE, MOLDED OR EXTRUDED, THAT MAINTAIN UNIFORM PRESSURE AND WATERTIGHT SEAL.

R. SPACERS AND SETTING BLOCKS: MANUFACTURER'S STANDARD ELASTOMERIC TYPES.

S. BOND-BREAKER TAPE: MANUFACTURER'S STANDARD TFE-FLUOROCARBON OR POLYETHYLENE MATERIAL TO WHICH SEALANTS WILL NOT DEVELOP ADHESION.

T. GLAZING SEALANTS: FOR STRUCTURAL-SEALANT-GLAZED SYSTEMS, AS RECOMMENDED BY MANUFACTURER FOR JOINT TYPE AND AS FOLLOWS:
1. WEATHERSEAL SEALANT: ASTM C 920 FOR TYPE S, GRADE NS, CLASS 25, USES NT, G, A, AND O; NEUTRAL-CURING SILICONE FORMULATION COMPATIBLE WITH STRUCTURAL SEALANT AND OTHER SYSTEM COMPONENTS WITH WHICH IT COMES IN CONTACT.
2. COLOR: MATCHING STRUCTURAL SEALANT.

SECTION 087111 - DOOR HARDWARE

A. THIS SECTION INCLUDES THE FOLLOWING:
1. COMMERCIAL DOOR HARDWARE.
2. ACCESSORIES.
3. FOLLOW-UP MAINTENANCE SERVICE.

B. QUALITY ASSURANCE:
1. INSTALLER QUALIFICATIONS: AN EMPLOYER OF WORKERS TRAINED AND APPROVED BY LOCK MANUFACTURER.
a. INSTALLER'S RESPONSIBILITIES INCLUDE SUPPLYING AND INSTALLING DOOR HARDWARE AND PROVIDING A QUALIFIED ARCHITECTURAL HARDWARE CONSULTANT AVAILABLE DURING THE COURSE OF THE WORK TO CONSULT WITH CONTRACTOR, ARCHITECT, AND OWNER ABOUT DOOR HARDWARE AND KEYING.
2. ARCHITECTURAL HARDWARE CONSULTANT QUALIFICATIONS: A PERSON WHO IS CURRENTLY CERTIFIED BY DHI AS AN ARCHITECTURAL HARDWARE CONSULTANT AND WHO IS EXPERIENCED IN PROVIDING CONSULTING SERVICES FOR DOOR HARDWARE INSTALLATIONS THAT ARE COMPARABLE IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT.
3. HARDWARE STANDARDS COMPLIANCE: MEET OR EXCEED STATE AND LOCAL CODE REQUIREMENTS, AND COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA), SECTION 4.13, DOORS.
4. KEYING CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE WITH OWNER. INCORPORATE KEYING CONFERENCE DECISIONS INTO FINAL KEYING SCHEDULE AFTER REVIEWING DOOR HARDWARE KEYING SYSTEM.
a. LOCKS AND CYLINDERS MASTER KEYED TO NEW SYSTEM.
b. KEYS: AT JOB COMPLETION, DELIVER TO THE OWNER TWO (2) SETS OF KEYS FOR EACH LOCKSET AND CYLINDER FILED IN KEY CABINET WITH KEYS PROPERLY TAGGED, INDEXED AND READY FOR USE.
5. INSTALLATION INSPECTIONS: HARDWARE SUPPLIER TO VISIT THE JOB DURING INSTALLATION PERIOD AND FOLLOWING COMPLETION FOR FINAL INSPECTION AND ADJUSTMENTS.

C. COORDINATION: DISTRIBUTE DOOR HARDWARE TEMPLATES FOR DOORS, FRAMES, AND OTHER WORK SPECIFIED TO BE FACTORY PREPARED FOR INSTALLING DOOR HARDWARE. CHECK SHOP DRAWINGS OF OTHER WORK TO CONFIRM THAT ADEQUATE PROVISIONS ARE MADE FOR LOCATING AND INSTALLING DOOR HARDWARE TO COMPLY WITH INDICATED REQUIREMENTS.

D. SCHEDULED DOOR HARDWARE: PROVIDE DOOR HARDWARE FOR EACH DOOR TO COMPLY WITH REQUIREMENTS IN THIS SECTION, AND DOOR HARDWARE SETS INDICATED IN THIS SECTION.
1. DOOR HARDWARE SETS: PROVIDE QUANTITY, ITEM, SIZE, FINISH OR COLOR INDICATED, AND PRODUCTS EQUIVALENT IN FUNCTION AND COMPARABLE IN QUALITY TO NAMED PRODUCTS.
2. DESIGNATIONS: REQUIREMENTS FOR DESIGN, GRADE, FUNCTION, FINISH, SIZE, AND OTHER DISTINCTIVE QUALITIES OF EACH TYPE OF DOOR HARDWARE ARE INDICATED IN THIS SECTION. PRODUCTS ARE IDENTIFIED BY USING DOOR HARDWARE DESIGNATIONS, AS FOLLOWS:
a. NAMED MANUFACTURER'S PRODUCTS: MANUFACTURER AND PRODUCT NAMED FOR EACH DOOR HARDWARE ITEM INDICATED ESTABLISHES THE BASIS-OF-DESIGN FOR THAT PRODUCT. MANUFACTURERS WITH COMPARABLE DESIGNS, GRADES, MATERIALS, OPERATIONAL CHARACTERISTICS AND FINISHES BY THOSE LISTED AFTER THE BASIS-OF-DESIGN MANUFACTURER ARE ALSO ACCEPTABLE.

E. STANDARD HINGES: HINGES BY HAGER FORM THE BASIS-OF-DESIGN PRODUCTS. BALDWIN, BOMMER, MCKINNEY, STANLEY OR MATCH EXISTING.
1. STANDARDS:
a. BUTTS AND HINGES: BHMA A156.1.
b. TEMPLATE HINGE DIMENSIONS: BHMA A156.7.
2. HINGES: FULL MORTISE TYPE.
a. EXTERIOR DOORS: MODEL 1191, FIVE KNUCKLE, TWO BALL BEARING, STAINLESS STEEL WITH NONRISING, NONREMOVABLE STAINLESS STEEL PIN WITH BUTTON TIP AND PLUG, ANSI A5133.
b. INTERIOR DOORS: MODEL 1279 FIVE KNUCKLE, STEEL WITH REMOVABLE STEEL PIN AND BUTTON PIN AND PLUG, ANSI A8133. PROVIDE NONREMOVABLE PINS ON HINGES ON OUTSWINGING DOORS WITH LOCKS.
c. PROVIDE BALL BEARING (BB) HINGES AT DOORS WITH CLOSERS AND WHERE SCHEDULED.
d. SIZE: 4½" X 4½", UNLESS NOTED OTHERWISE.
e. FINISH: 626 SATIN CHROME.
3. FASTENERS: COMPLY WITH THE FOLLOWING:
a. MACHINE SCREWS: FOR METAL DOORS AND FRAMES. INSTALL INTO DRILLED AND TAPPED HOLES.
b. WOOD SCREWS: FOR WOOD DOORS AND FRAMES.
c. THREADED-TO-THE-HEAD WOOD SCREWS: FOR FIRE-RATED WOOD DOORS.
d. SCREWS: PHILLIPS FLAT-HEAD MACHINE SCREWS (DRILLED AND TAPPED HOLES) FOR METAL DOORS AND WOOD SCREWS FOR WOOD DOORS AND FRAMES. FINISH SCREW HEADS TO MATCH SURFACE OF HINGES.

F. BORED LOCKS AND LATCHES: BORED LOCKS AND LATCHES BY SCHLAGE COMMERCIAL LOCK DIVISION FORM THE BASIS-OF-DESIGN PRODUCT. BEST ACCESS SYSTEMS, DORMA, FALCON, SARGENT, YALE OR MATCH EXISTING.
1. BORED LOCKS: GRADE 1 UNLESS GRADE 2 IS INDICATED.
a. EXTERIOR DOORS: "ND SERIES ATHENS" WITH LEVER AND "VANDALGARD" TO DISENGAGE OUTSIDE SPINDLE FROM LATCH WHEN IN LOCKED CONDITION, GRADE 1 OR MATCH EXISTING.
b. INTERIOR DOORS: "AL SERIES NEPTUNE" WITH LEVER, GRADE 2. OR MATCH EXISTING.
c. DUMMY TRIM: MATCH LEVER LOCK TRIM AND ESCUTCHEONS.
d. LATCH BOLT: STEEL, ½" THROW, DEADLOCKING ON KEYED AND EXTERIOR FUNCTIONS. COMPLY WITH LABELED FIRE DOOR REQUIREMENTS.
e. BACKSET: 2-3/4", UNLESS OTHERWISE INDICATED.
f. CYLINDER: NO. 23-065, 6-PIN CONVENTIONAL (STANDARD), SOLID BRASS.
g. SMALL FORMAT INTERCHANGEABLE CORE: "EVEREST B FAMILY RESTRICTED" KEYWAY CORES. COMPATIBLE WITH BEST, FALCON AND OTHER SMALL FORMAT INTERCHANGEABLE CORES.
h. KEYING: 6-PIN EVEREST C123 KEYWAY, STANDARD, WITH TWO NICKEL SILVER KEYS PER LOCK.
i. FINISH: 626 SATIN CHROME.
2. STRIKES: LOCK MANUFACTURER'S STANDARD FOR DOOR AND FRAME TYPE, AND INSTALLATION REQUIREMENTS. PROVIDE CURVED LIP EXTENDED TO PROTECT FRAME. FINISH: MATCH LOCKS.
3. LOCK CYLINDERS: SAME MANUFACTURER AS FOR LOCKS AND LATCHES NOTED ABOVE. MATCH EXISTING.
a. HIGH-SECURITY: HIGH SECURITY CYLINDERS. BHMA A156.30, GRADE 1, M, MECHANICAL.
4. KEYING SYSTEM: FACTORY REGISTERED, COMPLYING WITH GUIDELINES IN BHMA A156.28, APPENDIX A. INCORPORATE DECISIONS MADE IN KEYING CONFERENCE INTO GRAND MASTER KEY SYSTEM.
5. KEYS: NICKEL SILVER, PERMANENTLY INSCRIBED WITH A VISUAL KEY CONTROL NUMBER AND INCLUDING THE NOTATION "DO NOT DUPLICATE."
a. QUANTITY: PROVIDE TWO (2) KEYS FOR EACH LOCK AND CYLINDER PROVIDED UNDER THIS SECTION.
b. PROVIDE FIVE (5) GRAND MASTER KEYS.
c. PROVIDE THREE (3) CYLINDER CHANGE KEYS.

G. KEY CONTROL SYSTEM: KEY CONTROL CABINET BY LUND EQUIPMENT CO., INC. FORMS THE BASIS-OF-DESIGN PRODUCT. KEY CONTROL SYSTEMS, INC., TELKEE, YALE OR MATCH EXISTING.
1. CONTROL CABINET:
a. MODEL: "1200 SERIES" WITH "TWO TAG KEY SYSTEM", WALL-MOUNTED.
b. SIZE: MEET PROJECT REQUIREMENTS PLUS 50% EXPANSION.
c. CABINET: 18 GAUGE OFFICE FURNITURE STEEL WITH ELECTRICAL WELDED CONSTRUCTION AND BAKED-ENAMEL FINISH.
d. DOOR: STANDARD DOOR WITH CONTINUOUS PIANO HINGE AND KEYED CYLINDER LOCK.
e. KEY TAG SYSTEM: CONSECUTIVELY NUMBERED PANEL HOOKS AND COLORED TAGS WITH METAL KEY CONNECTORS. PROVIDE FIVE TAGS PER HOOK.
f. ACCESSORIES: DOOR INDEX POCKET AND "BOOK INDEX NO.511-B".

H. CLOSERS: SURFACE-MOUNTED CLOSERS BY DORMA FORM THE BASIS-OF-DESIGN PRODUCTS. LCN, NORTON, RIXSON, SARGENT, YALE OR MATCH EXISTING.
1. SURFACE-MOUNTED CLOSERS: PROVIDE GRADE 1 UNLESS GRADE 2 IS INDICATED. PROVIDE TYPE OF ARM REQUIRED FOR CLOSER TO BE LOCATED ON NON-PUBLIC SIDE OF DOOR, UNLESS OTHERWISE INDICATED.
2. EXTERIOR DOORS: "MODEL 8916", ANSI A156.4 GRADE 1, NON-HANDED WITH FULL METAL COVER AND FOLLOWING FIELD ADJUSTMENTS:
a. HYDRAULIC BACKCHECK AT APPROXIMATELY 65 DEGREES.
b. TWO INDEPENDENT, NONCRITICAL ADJUSTMENT VALVES CONTROLLING SWEEP AND LATCH CLOSING SPEEDS.
c. SPRING POWER FROM SIZE 1 TO 6 FOR BARRIER-FREE REQUIREMENTS.
d. FASTENERS: SEX NUTS WITH MACHINE SCREWS.
e. FINISH: AL (BHMA 689, SPRAYED).
3. INTERIOR DOORS (NONRATED): "MODEL 8616" ANSI A156.4 GRADE 1, U.L. LISTED, BARRIER-FREE COMPLIANT, NON-HANDED WITH FULL METAL COVER AND FOLLOWING FIELD ADJUSTMENTS:
a. HYDRAULIC BACKCHECK AT APPROXIMATELY 70 DEGREES.
b. TWO INDEPENDENT, NONCRITICAL ADJUSTMENT VALVES CONTROLLING SWEEP AND LATCH CLOSING SPEEDS.
c. SPRING POWER FROM SIZE 1 TO 6 FOR BARRIER-FREE REQUIREMENTS.
d. FASTENERS: SEX NUTS WITH MACHINE SCREWS.
e. FINISH: AL (BHMA 689, SPRAYED).
4. OPTIONS: PROVIDE INTEGRAL, MECHANICAL HOLD-OPEN (H.O.) FUNCTION WHERE SCHEDULED. HOLD-OPEN FUNCTION ENGAGED AND DISENGAGED THROUGH NORMAL DOOR OPERATION WITHOUT THE USE OF TOOLS.
5. ACCESSIBILITY REQUIREMENTS: COMPLY WITH THE FOLLOWING MAXIMUM OPENING-FORCE REQUIREMENTS:
a. INTERIOR, HINGED DOORS: 5 LBF APPLIED PERPENDICULAR TO DOOR.
b. DOOR CLOSERS FOR MEANS OF EGRESS DOORS: COMPLY WITH NFPA 101. DOOR CLOSERS SHALL NOT REQUIRE MORE THAN 30 LBF TO SET DOOR IN MOTION AND NOT MORE THAN 15 LBF TO OPEN DOOR TO MINIMUM REQUIRED WIDTH.
6. SIZE OF UNITS: UNLESS OTHERWISE INDICATED, COMPLY WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS FOR SIZE OF DOOR CLOSERS DEPENDING ON SIZE OF DOOR, EXPOSURE TO WEATHER, AND ANTICIPATED FREQUENCY OF USE. PROVIDE FACTORY-SIZED CLOSERS, ADJUSTABLE TO MEET FIELD CONDITIONS AND REQUIREMENTS FOR OPENING FORCE.

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Hilliard Civic & Cultural Arts Center
5425 CENTER STREET HILLIARD, OH 43026
CITY OF HILLIARD

Project Number: 15002
Drawn By: DK
Date: 08/31/2015

A902

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I. STOPS: STOPS BY IVES FORM THE BASIS-OF-DESIGN PRODUCTS. BALDWIN, DORMA, ROCKWOOD, TRIMCO OR MATCH EXISTING.
   1. STOPS: BHMA A156.16 GRADE 1 UNLESS GRADE 2 IS INDICATED.
   2. FLOOR STOPS: “MODEL FS436 OR FS 438” WITH DOME BUMPER. PROVIDE MODEL REQUIRED BY INSTALLATION CONDITIONS.
   3. WALL STOPS: “MODEL WS406CCV” WITH CONCAVE BUMPER.
   4. MATERIALS: STAINLESS STEEL.
   5. FINISH: 626 SATIN CHROME.
   6. PROVIDE WALL STOPS FOR DOORS UNLESS FLOOR OR OTHER TYPE STOPS ARE SCHEDULED OR INDICATED. DO NOT MOUNT FLOOR STOPS WHERE THEY WILL IMPEDE TRAFFIC. WHERE FLOOR OR WALL STOPS ARE NOT APPROPRIATE, PROVIDE OVERHEAD HOLDERS.

J. DOOR VIEWER: ROCKWOOD #620
   1. FINISH: BRIGHT CHROME

K. DOOR GASKETING AND THRESHOLDS: DOOR GASKETS AND THRESHOLDS BY REESE ENTERPRISES, INC. (RE) FORM THE BASIS-OF-DESIGN PRODUCTS. NATIONAL GUARD, PEMKO, ZERO OR MATCH EXISTING.
   1. STANDARDS: COMPLY WITH BHMA A156.22 FOR GASKETS, AND BHMA A156.21FOR THRESHOLDS.

L. DOOR GASKETING: PROVIDE AT BOTH JAMBS AND HEAD.
   1. WEATHERSTRIP: “MODEL 779C” WITH POLYURETHANE BULB SEAL AT SIDES AND HEAD.
   2. SOUNDSTRIP:
      a. JAMBS AND HEAD: “MODEL 788A” WITH ALUMINUM MILL FINISH.
      b. DOOR SWEEP: “MODEL 810C” WITH VINYL SWEEP AND CLEAR ANODIZED ALUMINUM FINISH.
   3. DOOR THRESHOLD, EXTENDER AND CAP:
      a. THRESHOLD: MODEL S483AV, MILL FINISH ALUMINUM, ½” HIGH MAXIMUM PER ADA.
      b. DOOR EXTENDER: MODEL DB597AP.
      c. DOOR CAP: MODEL R199A, MILL FINISH ALUMINUM.
      d. LENGTHS REQUIRED BY INSTALLATION CONDITIONS.

M. KEY CONTROL LOCK BOX BY KNOX CO.
   1. LOCK BOX: HINGED-DOOR “SERIES 3200 KNOX BOX”.
   2. MOUNTING: RECESS MOUNTED.
   3. CAPACITY: 10 KEYS OR ACCESS CARDS.
   4. LOCK: UL LISTED, DOUBLE-ACTION ROTATING TUMBLERS WITH HARDENED STEEL PINS ACCESSED BY BIASED CUT KEY. PROVIDE FIVE KEYS PER UNIT.
   5. OPTIONS:
      a. SWITCHES: ALARM TAMPER SWITCHES (UL LISTED).
      b. MOUNTING KIT: 3200 RECESSED MOUNTING KIT (RMK).
   6. FINISH: TGIC POLYESTER POWDER COAT FINISH. COLOR: ALUMINUM.

N. ELECTRONIC ACCESS CONTROLS BY OWNER'S SECURITY CONTRACTOR FORM THE BASIS-OF-DESIGN. PROVIDE COMPLETE WORKING ACCESS CONTROL SYSTEM WITH ALL REQUIRED COMPONETS TO SATISFY THE OWNER AND THE OHIO BUILDING CODE FOR EGRESS REQUIREMENTS. PROVIDE SEPARATE BID SHEET ATTACHED TO BID FOR ALL ELECTRONIC ACCESS CONTROLS TO BE PROVIDED PER EACH HARDWARE SET.
   1. ELECTRIC STRIKES.
   2. CARD READERS.
   3. MAGNETIC LOCKS.
   4. POWER SUPPLY.
   5. BATTERIES.
   6. PUSHBUTTON ACCESS AND RELEASE DEVICES FOR EGRESS.

O. EXIT DEVICES
   1. RIM EXIT DEVICE
      a. VON DUPRIN 35A SERIES
   2. EXIT DEVICE WITH SURFACE MOUNTED VERTICAL ROD
      a. VON DUPRIN 3527A SERIES
   3. EXIT DEVICE WITH CONCELAED VERTICAL ROD:
      a. VON DUPRIN 3547A SERIES
   4. PROVIDE F-SERIES AT ALL FIRE-RATED DOORS
   5. PROVIDE ELECTRIC COMPONENTS AS SPECIFIED ON THE DRAWINGS
   6. COORDINATE EXIT DEVICES WITH BALANCE OF DOOR HARDWARE AND OWNER'S SECURITY CONSULTANT.

P. HARDWARE SETS:
   1. REFER TO DRAWINGS.

SECTION 088000 - GLAZING

A. THIS SECTION INCLUDES GLAZING FOR THE FOLLOWING PRODUCTS AND APPLICATIONS, INCLUDING THOSE SPECIFIED IN OTHER SECTIONS WHERE GLAZING REQUIREMENTS ARE SPECIFIED BY REFERENCE TO THIS SECTION:
   1. STOREFRONT WINDOWS.

B. DEFINITIONS:
   1. INTERSPACE: SPACE BETWEEN LITES OF AN INSULATING-GLASS UNIT THAT CONTAINS DEHYDRATED AIR OR A SPECIFIED GAS.
   2. DETERIORATION OF COATED GLASS: DEFECTS DEVELOPED FROM NORMAL USE THAT ARE ATTRIBUTED TO THE MANUFACTURING PROCESS AND NOT TO CAUSES OTHER THAN GLASS BREAKAGE AND PRACTICES FOR MAINTAINING AND CLEANING COATED GLASS CONTRARY TO MANUFACTURER'S WRITTEN INSTRUCTIONS. DEFECTS INCLUDE PEELING, CRACKING, AND OTHER INDICATIONS OF DETERIORATION IN METALLIC COATING.
   3. DETERIORATION OF INSULATING GLASS: FAILURE OF HERMETIC SEAL UNDER NORMAL USE THAT IS ATTRIBUTED TO THE MANUFACTURING PROCESS AND NOT TO CAUSES OTHER THAN GLASS BREAKAGE AND PRACTICES FOR MAINTAINING AND CLEANING INSULATING GLASS CONTRARY TO MANUFACTURER'S WRITTEN INSTRUCTIONS. EVIDENCE OF FAILURE IS THE OBSTRUCTION OF VISION BY DUST, MOISTURE, OR FILM ON INTERIOR SURFACES OF GLASS.
   4. DETERIORATION OF LAMINATED GLASS: DEFECTS DEVELOPED FROM NORMAL USE THAT ARE ATTRIBUTED TO THE MANUFACTURING PROCESS AND NOT TO CAUSES OTHER THAN GLASS BREAKAGE AND PRACTICES FOR MAINTAINING AND CLEANING LAMINATED GLASS CONTRARY TO MANUFACTURER'S WRITTEN INSTRUCTIONS. DEFECTS INCLUDE EDGE SEPARATION, DELAMINATION MATERIALLY OBSTRUCTING VISION THROUGH GLASS, AND BLEMISHES EXCEEDING THOSE ALLOWED BY REFERENCED LAMINATED-GLASS STANDARD.

C. QUALITY ASSURANCE:
   1. PRECONSTRUCTION ADHESION AND COMPATIBILITY TESTING: SUBMIT TO ELASTOMERIC GLAZING SEALANT MANUFACTURERS, FOR TESTING ACCORDING TO ASTM C 1087, SAMPLES OF EACH GLAZING MATERIAL TYPE, TAPE SEALANT, GASKET, GLAZING ACCESSORY, AND GLASS-FRAMING MEMBER THAT WILL CONTACT OR AFFECT ELASTOMERIC GLAZING SEALANTS:
   2. SAFETY GLAZING PRODUCTS: COMPLY WITH TESTING REQUIREMENTS IN 16 CFR 1201.
   3. GLAZING PUBLICATIONS: COMPLY WITH PUBLISHED RECOMMENDATIONS OF GLASS PRODUCT MANUFACTURERS AND ORGANIZATIONS BELOW, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED. REFER TO THESE PUBLICATIONS FOR GLAZING TERMS NOT OTHERWISE DEFINED IN THIS SECTION OR IN REFERENCED STANDARDS.
      a. GANA PUBLICATIONS: GANA LAMINATED DIVISION'S “LAMINATED GLASS DESIGN GUIDE” AND GANA'S “GLAZING MANUAL.”
      b. IGMA PUBLICATION FOR INSULATING GLASS: SIGMA TM-3000, “GLAZING GUIDELINES FOR SEALED INSULATING GLASS UNITS.”
   4. INSULATING-GLASS CERTIFICATION PROGRAM: PERMANENTLY MARKED EITHER ON SPACERS OR ON AT LEAST ONE COMPONENT LITE OF UNITS WITH APPROPRIATE CERTIFICATION LABEL OF THE INSULATING GLASS CERTIFICATION COUNCIL OR THE ASSOCIATED LABORATORIES, INC.

D. CLEAR GLASS PRODUCTS BY PITTSBURGH PLATE GLASS FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIAL CHARACTERISTICS, OPERATIONAL CHARACTERISTICS AND COLORS BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. AFDG, INC.
   2. CARDINAL IG.
   3. GUARDIAN INDUSTRIES.
   4. LIBBY-OWENS-FORD.
   5. VIRACON.

E. CLEAR INSULATED GLASS: “SOLARBAN” 60, LOW-E COATED, 1” THICK. MATCH EXISTING.
   1. VISIBLE LIGHT TRANSMITTANCE: 70%.
   2. WINTER NIGHTTIME U-VALUE: 0.29.
   3. SHADING COEFFICIENT: 0.44.
   4. LIGHT TO SOLAR GAIN RATIO (LSG): 1.85.
   5. PROVIDE BOTH LITES TEMPERED WHERE INDICATED.

F. CLEAR INTERIOR GLASS: ANNEALED FLOAT GLASS, ¼” THICKNESS.
   1. PROVIDE TEMPERED OR LAMINATED SAFETY GLASS WHERE INDICATED.

G. GLASS MATERIALS:
   1. INSULATING-GLASS UNITS, GENERAL: FACTORY-ASSEMBLED UNITS CONSISTING OF SEALED LITES OF GLASS SEPARATED BY A DEHYDRATED INTERSPACE, AND COMPLYING WITH ASTM E 774 FOR CLASS CBA UNITS AND WITH REQUIREMENTS SPECIFIED IN THIS ARTICLE AND IN PART 2 “INSULATING-GLASS UNITS” ARTICLE.
      a. PROVIDE KIND HS (HEAT-STRENGTHENED) FLOAT GLASS IN PLACE OF ANNEALED GLASS WHERE NEEDED TO RESIST THERMAL STRESSES INDUCED BY DIFFERENTIAL SHADING OF INDIVIDUAL GLASS LITES AND TO COMPLY WITH GLASS DESIGN REQUIREMENTS SPECIFIED IN PART 1 “PERFORMANCE REQUIREMENTS” ARTICLE.
      b. OVERALL UNIT THICKNESS AND THICKNESS OF EACH LITE: DIMENSIONS INDICATED FOR INSULATING-GLASS UNITS ARE NOMINAL AND THE OVERALL THICKNESSES OF UNITS ARE MEASURED PERPENDICULARLY FROM OUTER SURFACES OF GLASS LITES AT UNITIT'SS EDGE.
      c. SEALING SYSTEM: DUAL SEAL.
      d. SPACER SPECIFICATIONS: MANUFACTURER'S STANDARD SPACER MATERIAL AND CONSTRUCTION COMPLYING WITH THE FOLLOWING REQUIREMENTS:
         1) SPACER MATERIAL: ALUMINUM WITH MILL OR CLEAR ANODIC FINISH.
         2) CORNER CONSTRUCTION: MANUFACTURER'S STANDARD CORNER CONSTRUCTION.
   2. LAMINATED GLASS: ASTM C 1172, AND COMPLYING WITH OTHER REQUIREMENTS SPECIFIED AND WITH THE FOLLOWING:
      a. INTERLAYER: POLYVINYL BUTYRAL OF THICKNESS INDICATED WITH A PROVEN RECORD OF NO TENDENCY TO BUBBLE, DISCOLOR, OR LOSE PHYSICAL AND MECHANICAL PROPERTIES AFTER LAMINATING GLASS LITES AND INSTALLATION.
   3. HEAT-TREATED FLOAT GLASS: ASTM C 1048; TYPE I (TRANSPARENT FLAT GLASS); QUALITY-Q3; OF CLASS, KIND, AND CONDITION INDICATED.
      a. FABRICATION PROCESS: BY HORIZONTAL (ROLLER-HEARTH) PROCESS WITH ROLL-WAVE DISTORTION PARALLEL TO BOTTOM EDGE OF GLASS AS INSTALLED, UNLESS OTHERWISE INDICATED.
      b. PROVIDE KIND HS (HEAT-STRENGTHENED) FLOAT GLASS IN PLACE OF ANNEALED FLOAT GLASS WHERE NEEDED TO RESIST THERMAL STRESSES INDUCED BY DIFFERENTIAL SHADING OF INDIVIDUAL GLASS LITES AND TO COMPLY WITH GLASS DESIGN REQUIREMENTS SPECIFIED IN PART 1 “PERFORMANCE REQUIREMENTS” ARTICLE.
      c. FOR UNCOATED GLASS, COMPLY WITH REQUIREMENTS FOR CONDITION A.
      d. FOR COATED VISION GLASS, COMPLY WITH REQUIREMENTS FOR CONDITION C (OTHER UNCOATED GLASS).
      e. PROVIDE KIND FT (FULLY TEMPERED) FLOAT GLASS IN PLACE OF ANNEALED OR KIND HS (HEAT-STRENGTHENED) FLOAT GLASS WHERE SAFETY GLASS IS INDICATED.

H. GLAZING GASKETS:
   1. DENSE COMPRESSION GASKETS: MOLDED OR EXTRUDED GASKETS OF MATERIAL INDICATED BELOW, COMPLYING WITH STANDARDS REFERENCED WITH NAME OF ELASTOMER INDICATED BELOW, AND OF PROFILE AND HARDNESS REQUIRED TO MAINTAIN WATERTIGHT SEAL:
      a. NEOPRENE, ASTM C 864.
      b. EPDM, ASTM C 864.
      c. SILICONE, ASTM C 1115.
      d. THERMOPLASTIC POLYOLEFIN RUBBER, ASTM C 1115.
   2. SOFT COMPRESSION GASKETS: EXTRUDED OR MOLDED, CLOSED-CELL, INTEGRAL-SKINNED GASKETS OF MATERIAL INDICATED BELOW; COMPLYING WITH ASTM C 509, TYPE II, BLACK; AND OF PROFILE AND HARDNESS REQUIRED TO MAINTAIN WATERTIGHT SEAL:
      a. NEOPRENE, EPDM, SILICONE OR THERMOPLASTIC POLYOLEFIN RUBBER.

I. GLAZING SEALANTS: PROVIDE PRODUCTS OF TYPE INDICATED, COMPLYING WITH THE FOLLOWING REQUIREMENTS:
   1. COMPATIBILITY: SELECT GLAZING SEALANTS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH OTHER MATERIALS THEY WILL CONTACT, INCLUDING GLASS PRODUCTS, SEALS OF INSULATING-GLASS UNITS, AND GLAZING CHANNEL SUBSTRATES, UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY SEALANT MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.
   2. SUITABILITY: COMPLY WITH SEALANT AND GLASS MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SELECTING GLAZING SEALANTS SUITABLE FOR APPLICATIONS INDICATED AND FOR CONDITIONS EXISTING AT TIME OF INSTALLATION.
   3. COLORS OF EXPOSED GLAZING SEALANTS: SELECTED FROM MANUFACTURER'S FULL RANGE.

J. ELASTOMERIC GLAZING SEALANTS: COMPLY WITH ASTM C 920 AND OTHER REQUIREMENTS INDICATED FOR EACH LIQUID-APPLIED CHEMICALLY CURING SEALANT SPECIFIED, INCLUDING THOSE REFERENCING ASTM C 920 CLASSIFICATIONS FOR TYPE, GRADE, CLASS, AND USES RELATED TO EXPOSURE AND JOINT SUBSTRATES. PRODUCTS BY THE FOLLOWING MANUFACTURERS:
   1. LOW-MODULUS NONACID-CURING SILICONE: WITH ADDITIONAL MOVEMENT CAPABILITY OF 100 PERCENT MOVEMENT IN EXTENSION AND 50 PERCENT MOVEMENT IN COMPRESSION WHEN TESTED FOR ADHESION AND COHESION UNDER MAXIMUM CYCLIC MOVEMENT PER ASTM C 719.
      a. DOW CORNING; 790.
      b. GE SILICONES; SILPRUF OR ULTRAPRUF SCS2300.
      c. NUCO INDUSTRIES, INC.; HIFLEX 331 OR NUFLEX 309.
      d. OHIO SEALANTS, INC.; VP 275.
      e. PECORA CORPORATION; 864.
      f. POLYMERIC SYSTEMS, INC.; PSI-641.
      g. SONNEBORN; OMNISEAL.
   2. MEDIUM-MODULUS NEUTRAL-CURING SILICONE GLAZING SEALANT:
      a. DOW CORNING; 791 OR 795.
      b. NUCO INDUSTRIES, INC.; HIFLEX 393.
      c. POLYMERIC SYSTEMS, INC.; PSI-631.
      d. SCHNEE-MOREHEAD, INC.; SM5731 OR SM5733 POLY-GLAZE.
      e. TREMCO; SPECTREM 2 OR TREMSIL 600.
   3. MEDIUM-MODULUS NEUTRAL-CURING SILICONE: WITH ADDITIONAL MOVEMENT CAPABILITY OF 50 PERCENT MOVEMENT IN EXTENSION AND 50 PERCENT MOVEMENT IN COMPRESSION WHEN TESTED FOR ADHESION AND COHESION UNDER MAXIMUM CYCLIC MOVEMENT PER ASTM C 719.
      a. DOW CORNING; 756 H.P.
      b. GE SILICONES; SILGLAZE II.
      c. PECORA CORPORATION; 895.

K. MISCELLANEOUS GLAZING MATERIALS: PROVIDE PRODUCTS OF MATERIAL, SIZE, AND SHAPE COMPLYING WITH REFERENCED GLAZING STANDARD, REQUIREMENTS OF MANUFACTURERS OF GLASS AND OTHER GLAZING MATERIALS FOR APPLICATION INDICATED, AND WITH A PROVEN RECORD OF COMPATIBILITY WITH SURFACES CONTACTED IN INSTALLATION.
   1. CLEANERS, PRIMERS, AND SEALERS: TYPES RECOMMENDED BY SEALANT OR GASKET MANUFACTURER.
   2. SETTING BLOCKS: ELASTOMERIC MATERIAL WITH A SHORE, TYPE A DUROMETER HARDNESS OF 85, PLUS OR MINUS 5.
   3. SPACERS: ELASTOMERIC BLOCKS OR CONTINUOUS EXTRUSIONS WITH A SHORE, TYPE A DUROMETER HARDNESS REQUIRED BY GLASS MANUFACTURER TO MAINTAIN GLASS LITES IN PLACE FOR INSTALLATION INDICATED.
   4. EDGE BLOCKS: ELASTOMERIC MATERIAL OF HARDNESS NEEDED TO LIMIT GLASS LATERAL MOVEMENT (SIDE WALKING).
   5. CYLINDRICAL GLAZING SEALANT BACKING: ASTM C 1330, TYPE O (OPEN-CELL MATERIAL), OF SIZE AND DENSITY TO CONTROL GLAZING SEALANT DEPTH AND OTHERWISE PRODUCE OPTIMUM GLAZING SEALANT PERFORMANCE.
   6. BACK-BEDDING MASTIC GLAZING TAPES: PREFORMED, BUTYL-BASED ELASTOMERIC TAPE WITH A SOLIDS CONTENT OF 100 PERCENT; NONSTAINING AND NONMIGRATING IN CONTACT WITH NONPOROUS SURFACES; WITH OR WITHOUT SPACER ROD AS RECOMMENDED IN WRITING BY TAPE AND GLASS MANUFACTURERS FOR APPLICATION INDICATED; PACKAGED ON ROLLS WITH A RELEASE PAPER BACKING; AND COMPLYING WITH ASTM C 1281 AND AAMA 800 FOR PRODUCTS INDICATED BELOW:
      a. AAMA 804.3 TAPE, WHERE INDICATED.
      b. AAMA 806.3 TAPE, FOR GLAZING APPLICATIONS IN WHICH TAPE IS SUBJECT TO CONTINUOUS PRESSURE.
      c. AAMA 807.3 TAPE, FOR GLAZING APPLICATIONS IN WHICH TAPE IS NOT SUBJECT TO CONTINUOUS PRESSURE.
   7. EXPANDED CELLULAR GLAZING TAPES: CLOSED-CELL, PVC FOAM TAPES; FACTORY COATED WITH ADHESIVE ON BOTH SURFACES; PACKAGED ON ROLLS WITH RELEASE LINER PROTECTING ADHESIVE; AND COMPLYING WITH AAMA 800 FOR THE FOLLOWING TYPES:
      a. TYPE 1, FOR GLAZING APPLICATIONS IN WHICH TAPE ACTS AS THE PRIMARY SEALANT.
      b. TYPE 2, FOR GLAZING APPLICATIONS IN WHICH TAPE IS USED IN COMBINATION WITH A FULL BEAD OF LIQUID SEALANT.

SECTION 088300 - MIRRORS

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. ANNEALED MONOLITHIC, FILM-BACKED SAFETY GLASS MIRRORS.
   2. MOUNTING ACCESSORIES.

B. GLAZING PUBLICATIONS:
   1. COMPLY WITH GANA'S "GLAZING MANUAL" AND GANA MIRROR DIVISION'S "MIRRORS, HANDLE WITH EXTREME CARE: TIPS FOR THE PROFESSIONAL ON THE CARE AND HANDLING OF MIRRORS" UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.
   2. GLAZING PUBLICATIONS: COMPLY WITH PUBLISHED RECOMMENDATIONS IN GABA'S "GLAZING MANUAL," UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.

C. SILVERED MIRRORED GLASS BY AMERICAN MIRROR COMPANY, INC. FORMS THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS AND PERFORMANCE CHARACTERISTICS BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. CAROLINA MIRROR COMPANY.
   2. DONISI MIRROR COMPANY.
   3. GARDNER GLASS PRODUCTS.
   4. GILDED MIRRORS, INC.
   5. LENOIR MIRROR COMPANY.
   6. STROUPE MIRROR CO., INC.
   7. SUNSHINE MIRROR.
   8. VIRGINIA MIRROR CO., INC.
   9. VVP AMERICA, INC.
   10. WALKER GLASS CO., LTD.

D. SILVERED MIRRORED GLASS:
   1. ANNEALED MONOLITHIC GLASS: ¼" THICKNESS, CLEAR, ASTM C 1036, TYPE I (TRANSPARENT FLAT GLASS), QUALITY-Q3; CLASS 1.
   2. SILVERING: SUCCESSIVE LAYERS OF CHEMICALLY DEPOSITED SILVER, ELECTRICALLY OR CHEMICALLY DEPOSITED COPPER, AND MANUFACTURER'S STANDARD ORGANIC PROTECTIVE COATING APPLIED TO SECOND GLASS SURFACE TO PRODUCE COATING SYSTEM COMPLYING WITH FS DD-M-411.

E. FABRICATION:
   1. MIRRORED GLASS EDGE TREATMENT: ROUNDED POLISHED. SEAL EDGES AFTER EDGE TREATMENT TO PREVENT CHEMICAL OR ATMOSPHERIC PENETRATION OF GLASS COATING.
   2. FACTORY FABRICATE: PERFORM EDGE TREATMENT AND SEALING IN FACTORY IMMEDIATELY AFTER CUTTING TO FINAL SIZES.

F. SETTING BLOCKS: ELASTOMERIC MATERIAL WITH A TYPE A SHORE DUROMETER HARDNESS OF 85, PLUS OR MINUS 5.

G. EDGE SEALER: COATING COMPATIBLE WITH GLASS COATING AND APPROVED BY MIRROR MANUFACTURER FOR USE IN PROTECTING AGAINST SILVER DETERIORATION AT MIRRORED GLASS EDGES.

H. MIRROR BACKING TAPES: "1MT CATEGORY ONE TAPE" BY C.R. LAURENCE CO. EQUAL PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBMITTED FOR REVIEW TO THE ARCHITECT NO LATER THAN TEN (10) DAYS PRIOR TO THE BID DATE.
   1. MATERIAL: IMPACT RESISTANT WHITE PLASTIC FILM MIRROR SAFETY BACKING WITH ACRYLIC PRESSURE-SENSITIVE ADHESIVE. WIDTH AS REQUIRED BY INSTALLATION CONDITIONS.
   2. COMPLIANCE: MEETS TEST SPECIFICATIONS IN ACCORDANCE WITH ASTM D-1709-67 TO BE IN COMPLIANCE WITH ANSI Z97.1 1975 UCB.
   3. USE FILM BACKING COMPATIBLE WITH MIRROR BACKING PAINT AS CERTIFIED BY MIRROR MANUFACTURER.

I. MIRROR MASTIC: AN ADHESIVE SETTING COMPOUND, PRODUCED SPECIFICALLY FOR SETTING MIRRORS AND CERTIFIED BY BOTH MIRROR MANUFACTURER AND MASTIC MANUFACTURER AS COMPATIBLE WITH GLASS COATING AND SUBSTRATES ON WHICH MIRRORS WILL BE INSTALLED. PRODUCTS BY THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE:
   1. GUNTHER MIRROR MASTICS.
   2. PALMER PRODUCTS CORPORATION.

J. MIRROR MOUNTING HARDWARE ASSEMBLIES BY C. R. LAURENCE CO. INC. FORMS THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CHARACTERISTICS AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. SOMMER & MACA INDUSTRIES, INC.

K. MIRROR MOUNTING HARDWARE ASSEMBLIES:
   1. BOTTOM TRIM: "CRL FHA TYPE "J" CHANNEL" WITH RAISED CENTER CHANNEL RIB TO PREVENT MOISTURE FROM BEING TRAPPED IN THE CHANNEL. HOLDS MIRROR 1/8" FROM WALL.
      a. HEIGHT: 3/4".
      b. EXPOSED FACE: 5/16".
      c. MATERIAL: EXTRUDED ALUMINUM WITH SATIN ANODIZED FINISH.
   2. MIRROR TOP CLIPS: "CRL SLOTTED ROUND LIP MIRROR CLIPS" CHROME PLATED STEEL "J" CLIPS INSTALLED AT TOP 1/4 POINTS.

L. FASTENERS: FABRICATED OF SAME BASIC METAL AND ALLOY AS FASTENED METAL AND MATCHING IT IN FINISHED COLOR AND TEXTURE WHERE FASTENERS ARE EXPOSED.

M. ANCHORS AND INSERTS: PROVIDE DEVICES AS REQUIRED FOR MIRROR HARDWARE INSTALLATION. PROVIDE TOOTHED OR LEAD-SHIELD EXPANSION-BOLT DEVICES FOR DRILLED-IN-PLACE ANCHORS. PROVIDE GALVANIZED ANCHORS AND INSERTS FOR APPLICATIONS ON INSIDE FACE OF EXTERIOR WALLS AND WHERE INDICATED.

N. MIRROR SIZES: TO SUIT PROJECT CONDITIONS, AND BEFORE TEMPERING, CUT MIRRORS TO FINAL SIZES AND SHAPES.

O. MIRROR EDGE TREATMENT: ROUNDED POLISHED EDGE.
   1. SEAL EDGES OF MIRRORS AFTER EDGE TREATMENT TO PREVENT CHEMICAL OR ATMOSPHERIC PENETRATION OF GLASS COATING.
   2. REQUIRE MIRROR MANUFACTURER TO PERFORM EDGE TREATMENT AND SEALING IN FACTORY IMMEDIATELY AFTER CUTTING TO FINAL SIZES.

P. FILM-BACKED SAFETY MIRRORS: APPLY FILM BACKING WITH PRESSURE-SENSITIVE ADHESIVE COATING OVER MIRROR BACKING PAINT AS RECOMMENDED IN WRITING BY FILM-BACKING MANUFACTURER TO PRODUCE A SURFACE FREE OF BUBBLES, BLISTERS, AND OTHER IMPERFECTIONS. USE ADHESIVES AND FILM BACKING COMPATIBLE WITH MIRROR BACKING PAINT AS CERTIFIED BY MIRROR MANUFACTURER.

Q. MIRROR MASTIC: CUTOUT AND REMOVE MAT BACKING AT MASTIC APPLICATION LOCATIONS.

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

A. THIS SECTION INCLUDES NON-LOAD-BEARING STEEL FRAMING MEMBERS FOR THE FOLLOWING APPLICATIONS:
   1. INTERIOR FRAMING SYSTEMS INCLUDING SUPPORTS FOR PARTITIONS, WALLS, FRAMED AND SUSPENDED SOFFITS AND CEILINGS, AND FURRING.
   2. ACCESSORIES.
   3. LOAD-BEARING STEEL FRAMING MEMBERS PROVIDED UNDER DIVISION 05 “COLD-FORMED METAL FRAMING”.

B. QUALITY ASSURANCE:
   1. SOUND TRANSMISSION CHARACTERISTICS: FOR STC-RATED ASSEMBLIES THAT INCORPORATE NON-LOAD-BEARING STEEL FRAMING, PROVIDE MATERIALS AND CONSTRUCTION IDENTICAL TO THOSE TESTED IN ASSEMBLY INDICATED ACCORDING TO ASTM E 90 AND CLASSIFIED ACCORDING TO ASTM E 413 BY AN INDEPENDENT TESTING AGENCY.

C. METAL FRAMING SYSTEM PERFORMANCE REQUIREMENTS: FABRICATE AND INSTALL METAL FRAMING SYSTEMS AS INDICATED BUT NOT LESS THAN THAT REQUIRED TO COMPLY WITH ASTM C754 UNDER THE FOLLOWING CONDITIONS:
   1. INTERIOR WALL LATERAL LOAD: 5 PSF.
   2. STANDARD SYSTEMS: MAXIMUM DEFLECTION OF L/240 OF PARTITION HEIGHT.
   3. INTERIOR SUSPENDED CEILINGS AND SOFFITS: MAXIMUM DEFLECTION OF L/360 OF DISTANCE BETWEEN SUPPORTS.
   4. TOP OF WALL BRACING: PROVIDE VERTICAL OR HORIZONTAL DIAGONAL BRACING AT TOPS OF WALLS THAT DO NOT EXTEND TO DECK OR STRUCTURE ABOVE. BRACING MEMBERS TO BE ADEQUATE IN SIZE AND SPACING TO PROPERLY BRACE WALL UNDER NOTED LOADING CONDITIONS.

D. NON-LOAD BEARING METAL FRAMING COMPONENTS BY DIETRICH METAL FRAMING FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, THICKNESSES, PERFORMANCE CHARACTERISTICS AND ACCESSORIES BY LISTED MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. CLARK STEEL FRAMING INDUSTRIES.
   2. MARINO\WARE.

E. PARTITION AND SOFFIT FRAMING: C-STUDS “BIG D” DRYWALL STUDS.
   1. FRAMING MEMBERS, GENERAL: COMPLY WITH ASTM C 754 FOR CONDITIONS INDICATED.
   2. MATERIALS: COLD FORMED GALVANIZED 33 KSI STEEL SHEET. MINIMUM BASE METAL THICKNESS:
      a. DESIGNATION: 16 GAUGE, 0.0538” SHEET THICKNESS.
      b. DESIGNATION: 20 GAUGE, 0.0329” SHEET THICKNESS.
      c. DESIGNATION: 22 GAUGE, 0.0269” SHEET THICKNESS.
      d. DESIGNATION: 25 GAUGE, 0.0179” SHEET THICKNESS.
   3. PROTECTIVE COATING: INTERIOR APPLICATIONS, ASTM A 653, G40 HOT-DIP GALVANIZED ZINC COATING.
   4. MATERIAL GAUGES: PROVIDE MINIMUM MATERIAL GAUGES AS INDICATED. PROVIDE HEAVIER GAUGE MATERIALS IN COMPLIANCE WITH MANUFACTURER'S SPAN TABLES FOR GIVEN MEMBER DEPTHS, HEIGHTS AND SPANS FOR FRAMING CONDITIONS AT EACH LOCATION.
   5. STEEL STUDS AND RUNNERS: METAL COMPLYING WITH ASTM C 645, 25 GAUGE (MINIMUM) IN DEPTHS INDICATED.
      a. FLANGES: EQUAL LENGTHS, 1¼” HIGH, UNHEMMED.
   6. FURRING CHANNELS: COLD FORMED GALVANIZED STEEL SHEET, HAT SHAPED, 25 GAUGE MINIMUM.
      a. DEPTH: 7/8” AND 1½”.
   7. Z-SHAPED FURRING CHANNELS: 25 GAUGE MINIMUM, GALVANIZED STEEL WITH SLOTTED OR NONSLOTTED WEB, FACE FLANGE OF 1¼”, WALL ATTACHMENT FLANGE OF 3/4” AND DEPTH REQUIRED TO FIT INSULATION THICKNESS INDICATED.

F. FRAMING COMPONENT ACCESSORIES: PROVIDE THE FOLLOWING ACCESSORIES AS REQUIRED FOR A COMPLETE SYSTEM.
   1. LATERAL WALL BRIDGING: “U CHANNEL”, COLD FORMED GALVANIZED STEEL SHEET, 16 GAUGE MINIMUM. DEPTHS: 3/4”, 1½”, 2”, OR 2½” AS INSTALLATION CONDITIONS REQUIRE.
   2. CLIP ANGLES: “CLIP ANGLE (AC)” WITH 90°ANGLE FABRICATED FROM 14 AND 16 GAUGE GALVANIZED STEEL. PROVIDE SIZES AND GAUGES REQUIRED FOR GIVEN FOR FRAMING CONDITIONS AT EACH LOCATION.
   3. FLAT STRAPS AND BACKING PLATES: “BACKING STRIP” 16 GAUGE (MINIMUM) GALVANIZED STEEL SHEET FOR BLOCKING AND BRACING IN LENGTHS AND WIDTHS REQUIRED FOR GIVEN FOR FRAMING CONDITIONS AT EACH LOCATION.
      a. BACKING PLATE: 4” AND 6” WIDE BY LENGTHS TO SUIT SIZE OF ITEMS TO BE ATTACHED AND BRACING REQUIRED.
   4. CONTINUOUS ANGLES: 90°ANGLES FABRICATED FROM 26 THROUGH 14 GAUGE GALVANIZED STEEL. PROVIDE SIZES, LENGTHS AND GAUGES REQUIRED FOR GIVEN FOR FRAMING CONDITIONS AT EACH LOCATION.
   5. METAL FRAMING FASTENERS: TYPE, MATERIAL, SIZE, LENGTH, CORROSION RESISTANCE, HOLDING POWER, AND OTHER PROPERTIES REQUIRED TO FASTEN STEEL MEMBERS TO SUBSTRATES.
      a. METAL FRAMING COMPONENT FASTENERS: STEEL SELF-DRILLING, SELF-TAPPING SCREWS COMPLYING WITH ASTM C 1002; GALVANIZED COATING, PLATED OR OIL-PHOSPHATE COATED COMPLYING WITH ASTM B 633 FOR REQUIRED CORROSION RESISTANCE.
      b. ANCHORS: SELF-DRILLING OR EXPANSION TYPE, FABRICATED FROM CORROSION-RESISTANT MATERIALS WITH HOLES OR LOOPS FOR ATTACHING HANGER WIRES AND CAPABLE OF SUSTAINING, WITHOUT FAILURE, A LOAD EQUAL TO FIVE (5) TIMES THAT IMPOSED BY CONSTRUCTION AS DETERMINED BY TESTING ACCORDING TO ASTM E488 BY A QUALIFIED INDEPENDENT TESTING AGENCY.
      c. POWDER-ACTUATED FASTENERS: SUITABLE FOR APPLICATION INDICATED, FABRICATED FORM CORROSION-RESISTANT MATERIALS, WITH CLIPS OR OTHER DEVICES FOR ATTACHING HANGERS OF TYPE INDICATED, AND CAPABLE OF SUSTAINING, WITHOUT FAILURE, A LOAD EQUAL TO TEN (10) TIMES THAT IMPOSED BY CONSTRUCTION AS DETERMINED BY TESTING ACCORDING TO ASTM E 1190 BY A QUALIFIED INDEPENDENT TESTING AGENCY.
   6. TOUCH-UP PAINT: “ZRC 221” CONTAINING 92-PERCENT METALLIC ZINC BY ZRC WORLDWIDE.

G. CEILING AND SOFFIT FRAMING SYSTEMS: UNLESS SPECIFICALLY REQUIRED FOR ADJACENT CONSTRUCTION OR NOTED OTHERWISE, SELECTION OF FRAMING SYSTEM AT CONTRACTOR'S OPTION. PROVIDE MATERIAL SPACING, DEPTHS AND GAUGES REQUIRED FOR GIVEN FRAMING CONDITIONS AT EACH LOCATION IN COMPLIANCE WITH MANUFACTURER'S SPAN AND LOAD REQUIREMENTS.
   1. SUSPENDED CEILING AND SOFFIT FRAMING: INTERIOR AND EXTERIOR LOCATIONS.
      a. CARRYING CHANNELS: 16 GAUGE COLD-ROLLED, COMMERCIAL-STEEL SHEET WITH MINIMUM ½” WIDE FLANGE.
         1) PROVIDE BLACK ASPHALTUM PAINTED MATERIALS AT INTERIOR LOCATIONS.
         2) PROVIDE GALVANIZED MATERIALS AT EXTERIOR LOCATIONS.
      b. FURRING CHANNELS: 25 GAUGE (MINIMUM) ROLL-FORMED GALVANIZED STEEL HAT-SHAPED SECTIONS.
      c. METAL FURRING CHANNEL CLIPS: “METAL FURRING CHANNEL CLIPS”, FORMED GALVANIZED WIRE, USED TO ATTACH METAL FURRING CHANNELS TO CARRYING CHANNELS.
      d. HANGER WIRE: ASTM A 641, CLASS 1 ZINC COATING, SOFT TEMPER, 8 GAUGE (MINIMUM) GALVANIZED STEEL FOR HANGING CARRYING CHANNELS.
      e. TIE WIRE: ASTM A 641, CLASS 1 ZINC COATING, SOFT TEMPER, 18 GAUGE GALVANIZED SOFT ANNEALED STEEL WIRE.
   2. GRID SUSPENSION SYSTEM FOR INTERIOR CEILINGS AND SOFFITS: PRE-ENGINEERED “DRYWALL SUSPENSION SYSTEM” BY USG INTERIORS, INC FORMS THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS AND PERFORMANCE CRITERIA BY ARMSTRONG WORLD INDUSTRIES, INC. AND CHICAGO METALLIC CORP. ARE ALSO ACCEPTABLE.
      a. SYSTEM: DIRECT-HUNG SYSTEM COMPOSED OF MAIN BEAMS AND CROSS-FURRING MEMBERS THAT INTERLOCK. INCLUDES ALL ACCESSORIES.
      b. COMPONENTS:
         1) STEEL: COMMERCIAL QUALITY, COLD ROLLED AND HOT DIPPED GALVANIZED.
         2) MAIN TEES, CROSS MEMBERS AND WALL MOLDINGS: FIRE-RATED MEMBERS WITH KNURLED FACES. PROVIDE CURVED COMPONENTS WHERE INDICATED OR REQUIRED.
         3) FURRING CHANNELS: “DGCL-4”, 7/8” HIGH X 48” LONG WITH 1½” FACE.
      c. ACCESSORIES:
         1) TRANSITION, SPLICE AND WALL ATTACHMENT CLIPS.
         2) TRIM FOR LIGHT FIXTURES, ACCESS DOORS, AND HVAC CEILING GRILLES.
         3) HANGER WIRE: 12 GAUGE, GALVANIZED.
         4) TIE WIRE: 18 GAUGE, GALVANIZED.
         5) MISCELLANEOUS FASTENERS AND COMPONENTS REQUIRED FOR COMPLETE SYSTEM.
   3. METAL FRAMING COMPONENTS: GALVANIZED METAL STUD FRAMING COMPONENTS OF PROPER DEPTH AND GAUGE. COMPLY WITH REQUIREMENTS LISTED IN THIS SECTION AND/OR DIVISION 05 “COLD FORMED METAL FRAMING”.

H. HANGER ATTACHMENTS:
   1. ANCHORS: FABRICATED FROM CORROSION-RESISTANT MATERIALS WITH HOLES OR LOOPS FOR ATTACHING HANGER WIRES AND CAPABLE OF SUSTAINING, WITHOUT FAILURE, A LOAD EQUAL TO 5 TIMES THAT IMPOSED BY CONSTRUCTION AS DETERMINED BY TESTING ACCORDING TO ASTM E 488 BY A QUALIFIED INDEPENDENT TESTING AGENCY.
      a. TYPE: POST INSTALLED, CHEMICAL OR EXPANSION ANCHORS.
   2. POWDER-ACTUATED FASTENERS: SUITABLE FOR APPLICATION INDICATED, FABRICATED FROM CORROSION-RESISTANT MATERIALS, WITH CLIPS OR OTHER DEVICES FOR ATTACHING HANGERS OF TYPE INDICATED, AND CAPABLE OF SUSTAINING, WITHOUT FAILURE, A LOAD EQUAL TO 10 TIMES THAT IMPOSED BY CONSTRUCTION AS DETERMINED BY TESTING ACCORDING TO ASTM E 1190 BY A QUALIFIED INDEPENDENT TESTING AGENCY.

I. ISOLATION STRIP AT EXTERIOR WALLS: PROVIDE ONE OF THE FOLLOWING:
   1. ASPHALT-SATURATED ORGANIC FELT: ASTM D 226, TYPE I (NO. 15 ASPHALT FELT), NON-PERFORATED.
   2. FOAM GASKET: ADHESIVE-BACKED, CLOSED-CELL VINYL FOAM STRIPS THAT ALLOW FASTENER PENETRATION WITHOUT FOAM DISPLACEMENT, 1/8” THICK, IN WIDTH TO SUIT STEEL STUD SIZE.

SECTION 092400 - PORTLAND CEMENT PLASTERING REPAIRS

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. EXTERIOR PORTLAND CEMENT PLASTERWORK (STUCCO) REPAIRS.
   2. ACCESSORIES.

B. PROJECT CONDITIONS:
   1. ENVIORMENTAL REQUIREMENTS:
      a. COLD WEATHER:
         1) DO NOT USE FROZEN MATERIALS OR MATERIALS THAT HAVE BEEN PREVIOUSLY FROZEN.
         2) DO NOT APPLY CEMENT PLASTER TO FROZEN SURFACES OR SURFACES CONTAINING FROST.
         3) APPLY PLASTER WHEN AMBIENT TEMPERATURE IS 40 DEG F. AND RISING, AND REMAINING SO FOR A MINIMUM 24 HOURS THEREAFTER.
      b. HOT WEATHER:
         1) PROTECT CEMENT PLASTER FROM UNEVEN AND EXCESSIVE EVAPORATION DURING HOT, WINDY, OR DRY WEATHER. PROVIDE POTABLE WATER SPRAY MIST AND COVER WITH SINGLE SHEET OF CLEAR POLYETHYLENE PLASTIC. MAINTAIN PROTECTION.
         2) AVOID APPLICATION IN DIRECT SUNLIGHT.

C. PLASTER MATERIALS
   1. PORTLAND CEMENT: ASTM C 150, TYPE I.
   2. LIME: ASTM C 206, TYPE S; OR ASTM C 207, TYPE S.
   3. SAND AGGREGATE: ASTM C 897.
      a. COLOR FOR JOB-MIXED FINISH COATS: WHITE.
   4. WATER: CLEAN, POTABLE AND FREE OF SUBSTANCES CAPABLE OF AFFECTING PLASTER SET OR OF DAMAGING PLASTER, LATH, OR ACCESSORIES.
   5. READY-MIXED FINISH-COAT PLASTER: MILL-MIXED PORTLAND CEMENT, AGGREGATES, COLORING AGENTS, AND PROPRIETARY INGREDIENTS BY FOLLOWING MANUFACTURERS ARE ACCEPTABLE.
      a. CALIFORNIA STUCCO PRODUCTS CORP.
      b. CHEMREX.
      c. FLORIDA STUCCO CORP.
      d. HIGHLAND STUCCO & LIME PRODUCTS, INC.
      e. UNITED STATES GYPSUM CO.
      f. TEXTURE: “FINE”.
      g. COLOR: SELECTED FROM MANUFACTURER'S FULL RANGE.

D. PLASTER MIXES
   1. GENERAL: COMPLY WITH ASTM C 926 FOR APPLICATIONS INDICATED. MIX PROPORTIONS BY VOLUME.
   2. PORTLAND CEMENT BASE-COAT MIXES:
      a. OVER METAL LATH: SCRATCH AND BROWN COATS FOR THREE-COAT PLASTERWORK AS FOLLOWS:
         1) SCRATCH COAT:
            a) 1 PART PORTLAND CEMENT (95 LB. BAG).
            b) 1 PART AIR_ENTRAINED HYDRATED LIME, TYPE S (50 LB. BAG).
            c) 3.5 TO 6 CUBIC FEET AGGREGATE PER PART OF CEMENTITIOUS MATERIAL.
            d) 1.5 TO 2.5 POUNDS OF ½” CHOPPED FIBER.
         2) BROWN COAT:
            a) 1 PART PORTLAND CEMENT (95 LB. BAG).
            b) 1 PART AIR_ENTRAINED HYDRATED LIME, TYPE S (50 LB. BAG).
            c) 3.6 TO 7 CUBIC FEET AGGREGATE PER PART OF CEMENTITIOUS MATERIAL.
            d) 1.5 TO 2.5 POUNDS OF ½” CHOPPED FIBER.
      b. FIBERS: ADD FIBER TO BASE-COAT MIXES AFTER INGREDIENTS HAVE MIXED AT LEAST TWO MINUTES. COMPLY WITH FIBER MANUFACTURER'S WRITTEN INSTRUCTIONS FOR FIBER QUANTITIES IN MIXES, BUT DO NOT EXCEED 1 LB OF FIBER/CU. FT. OF CEMENTITIOUS MATERIALS. REDUCE AGGREGATE QUANTITIES ACCORDINGLY TO MAINTAIN WORKABILITY.
   3. PORTLAND CEMENT JOB-MIXED FINISH-COAT MIXES:
      a. 1 PART WATERPROOF PORTLAND CEMENT (95 LB. BAG).
      b. 1 PART AIR ENTRAINED LIME (50 LB. BAG).
      c. 3 PARTS WHITE SILICA SAND (100 LBS. EACH).
      d. COLOR ADDITIVE AS REQUIRED TO ACHIEVE SELECTED COLOR.
   4. FACTORY-PREPARED FINISH-COAT MIXES: FOR READY-MIXED FINISH-COAT PLASTERS, COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

E. ACCESSORIES
   1. GENERAL: COMPLY WITH ASTM C 1063 AND COORDINATE DEPTH OF TRIM AND ACCESSORIES WITH THICKNESSES AND NUMBER OF PLASTER COATS REQUIRED.
   2. PLASTIC TRIM: NOT PERMITTED.

F. MISCELLANEOUS MATERIALS
   1. BONDING COMPOUND: ASTM C 932.
   2. FASTENERS FOR ATTACHING METAL LATH TO SUBSTRATES: COMPLYING WITH ASTM C 1063.

SECTION 092900 - GYPSUM BOARD

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. INTERIOR GYPSUM BOARD.
   2. EXTERIOR GYPSUM SOFFIT PANELS.
   3. ACCESSORIES AND FINISHING MATERIALS.

B. QUALITY ASSURANCE:
   1. STC-RATED ASSEMBLIES: FOR STC-RATED ASSEMBLIES, PROVIDE MATERIALS AND CONSTRUCTION IDENTICAL TO THOSE TESTED IN ASSEMBLY INDICATED ACCORDING TO ASTM E 90 AND CLASSIFIED ACCORDING TO ASTM E 413 BY AN INDEPENDENT TESTING AGENCY.
   2. GYPSUM MATERIALS AND INSTALLATION TO COMPLY WITH THE FOLLOWING GYPSUM ASSOCIATION PUBLICATIONS.
      a. GA-214, RECOMMENDED LEVELS OF GYPSUM BOARD FINISH.
      b. GA-216, APPLICATION AND FINISHING OF GYPSUM BOARD.
      c. GA-226, APPLICATION OF GYPSUM BOARD TO CURVED SURFACES.
      d. GA-235, GYPSUM BOARD TYPICAL MECHANICAL AND PHYSICAL PROPERTIES.
      e. GA-801, HANDLING GYPSUM BOARD.

C. INTERIOR GYPSUM BOARD AND ACCESSORIES BY UNITED STATES GYPSUM (USG) FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIAL CHARACTERISTICS, RATINGS, AND FINISHES BY LISTED MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. AMERICAN GYPSUM CO.
   2. BPB AMERICA INC.
   3. G-P GYPSUM.
   4. LAFARGE NORTH AMERICA INC.
   5. NATIONAL GYPSUM COMPANY.
   6. TEMPLE.

D. GYPSUM WALLBOARD: ASTM C 36, WITH LONG EDGES TAPERED. PROVIDE THICKNESS INDICATED.
   1. REGULAR TYPE: “SHEETROCK BRAND GYPSUM PANELS”, AT INTERIOR NON-RATED PARTITIONS AND SOFFITS.
   2. FIRE-RATED PANELS: “SHEETROCK FIRECODE (TYPE X) AND FIRECODE C CORES PANELS” AT INTERIOR RATED PARTITIONS, SOFFITS, AND CEILINGS.
   3. WATER-RESISTANT PANELS: ASTM C 630, “FIBEROCK BRAND AQUA-TOUGH PANELS”, AT INTERIOR JANITOR ROOM WALLS, RESTROOM “WET” WALLS, AND WALLS TO RECEIVE CERAMIC TILE. PROVIDE TYPE X FIRE-RESISTANT TYPE WHERE REQUIRED TO MEET RATED ASSEMBLY REQUIREMENTS.
   4. MOLD RESISTANT PANELS: “SHEETROCK BRAND HUMITEK GYPSUM PANELS”, WITH MOISTURE AND MOLD-RESISTANT GYPSUM CORE ENCASED IN MOISTURE RESISTANT PAPERS, AT ALL INTERIOR SURFACES OF EXTERIOR WALLS.
   5. INTERIOR CEILING PANELS: “SHEETROCK BRAND INTERIOR GYPSUM CEILING BOARD”, ½” THICK AT NON-RATED CEILINGS.
   6. THICKNESSES: AS INDICATED.
   7. PANEL SIZE, GENERAL: PROVIDE IN MAXIMUM LENGTHS AND WIDTHS AVAILABLE THAT WILL MINIMIZE JOINTS IN EACH AREA AND CORRESPOND WITH SUPPORT SYSTEM INDICATED.

E. INTERIOR TRIM ACCESSORIES: ASTM C 1047, GALVANIZED STEEL. EXPOSED AND PLASTIC TRIM NOT PERMITTED. COMPARABLE PRODUCTS BY METAL FRAMING MANUFACTURER ARE ALSO ACCEPTABLE.
   1. PROVIDE SIZES TO MATCH GYPSUM PANEL THICKNESS AT INSTALLATION CONDITIONS.
   2. CORNERBEAD: “DUR-A-BEAD CORNER BEAD” NO. 103, ALL-METAL, GALVANIZED STEEL REINFORCEMENT WITH 1¼” X 1¼” FLANGE WIDTH. USE AT STANDARD 90° OUTSIDE CORNERS UNLESS OTHERWISE INDICATED.
   3. J-BEAD: NO. 200-A, J-SHAPED GALVANIZED STEEL CASING.
   4. L-BEAD: NO. 200-B, L-SHAPED GALVANIZED STEEL CASING.
   5. EXPANSION (CONTROL) JOINT: “ZINC CONTROL JOINT NO. 093”, ROLL-FORMED ZINC WITH TAPE-PROTECTED OPENING ¼” WIDE X 7/16” DEEP.
   6. FLEXIBLE CORNER TRIM: “SHEETROCK BRAND FLEX METAL TAPE (FLEX TAPE)” WITH TWO 7/16” WIDE GALVANIZED RUST-RESISTANT STEEL STRIPS WITH 1/16” GAP BETWEEN THE STRIPS. FORM TO FIT INSIDE OR OUTSIDE ANGLES GREATER OR LESS THAN 90°. PROVIDE WIDTH TO SUIT APPLICATION.

F. PAPER FACED TRIM ACCESSORIES: PAPER FACED TRIM ACCESSORIES BY DRYWALL SYSTEMS INTERNATIONAL. PRODUCTS WITH COMPARABLE PERFORMANCE CHARACTERISTICS BY DIETRICH METAL FRAMING AND U.S.G. CORP. ARE ACCEPTABLE.
   1. PAPER FACED TRIM ACCESSORIES: “NO-COAT PAPER FACED TRIMS”, LATEX SATURATED PAPERBOARD LAMINATED TO PROPRIETARY COPOLYMER PLASTIC AND PAPER JOINT TAPE.
   2. FIXED TRIMS:
      a. “ULTRACORNER”, 90 DEG. WITH 2¼” FLANGES.
      b. “L-TRIM SMARTSERIES”, 90 DEG. EDGE TRIM WITH ½” X 1-7/8” FLANGES.
   3. FLEXIBLE TRIMS:
      a. “ULTRAFLEX”, ANGLES OF ANY DEGREE WITH 2¼” FLANGES.
      b. “ULTRAFLEX LITE”, ANGLES OF ANY DEGREE WITH 2-5/8” FLANGES.
      c. “90 DEGREE SOLID SMARTSERIES” WITH 1-7/8” FLANGES.
      d. “FAST-FLEX SMARTSERIES” WITH 1-7/16” FLANGES.
      e. “ZOOMA-FLEX” WITH 2-5/32” FLANGES.

G. EXTERIOR TRIM ACCESSORIES: ASTM C 1047.
   1. MATERIAL: HOT-DIP GALVANIZED STEEL SHEET OR ROLLED ZINC. PLASTIC NOT PERMITTED.
   2. SHAPES:
      a. CORNERBEAD.
      b. LC-BEAD: J-SHAPED; EXPOSED LONG FLANGE RECEIVES JOINT COMPOUND.
      c. EXPANSION (CONTROL) JOINT: ONE-PIECE, ROLLED ZINC WITH V-SHAPED SLOT AND REMOVABLE STRIP COVERING SLOT OPENING.

H. INTERIOR JOINT TREATMENT MATERIALS: COMPLY WITH ASTM C 475.
   1. JOINT COMPOUND FOR INTERIOR GYPSUM WALLBOARD: READY-MIXED, NON-ASBESTOS, MATERIALS FOR EACH COAT THAT IS COMPATIBLE WITH OTHER COMPOUNDS APPLIED ON PREVIOUS OR FOR SUCCESSIVE COATS.
      a. PREFILLING: AT OPEN JOINTS, BEVELED PANEL EDGES, AND DAMAGED SURFACE AREAS, USE SETTING-TYPE TAPING COMPOUND.
      b. EMBEDDING AND FIRST COAT: FOR EMBEDDING TAPE AND FIRST COAT ON JOINTS, FLANGES OF TRIM ACCESSORIES, AND FASTENERS, USE “SHEETROCK TAPING JOINT COMPOUND READY-MIXED”, OR “SHEETROCK ALL PURPOSE JOINT COMPOUND READY-MIXED”.
      c. FILL COAT: FOR SECOND COAT, USE “SHEETROCK TOPPING JOINT COMPOUND READY-MIXED”, OR “SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND READY-MIXED (PLUS 3)”.
      d. FINISH COAT: FOR THIRD COAT, USE “SHEETROCK TOPPING JOINT COMPOUND READY-MIXED”, “SHEETROCK ALL PURPOSE JOINT COMPOUND READY-MIXED”, OR “SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND READY-MIXED (PLUS 3)”.
      e. LAMINATING ADHESIVE: ASTM C 475, “SHEETROCK TAPING JOINT COMPOUND READY-MIXED”, OR “SHEETROCK ALL PURPOSE JOINT COMPOUND READY MIXED” JOINT COMPOUND.
   2. JOINT TAPE: “SHEETROCK BRAND JOINT TAPE”, CROSS-FIBERED PAPER, OR “SHEETROCK BRAND FIBERGLASS DRYWALL TAPE” SELF-ADHESIVE, WITH CROSS-FIBERGLASS CONSTRUCTION.

I. JOINT COMPOUND FOR EXTERIOR APPLICATIONS: USE SETTING-TYPE TAPING COMPOUND AND SETTING-TYPE, SANDABLE TOPPING COMPOUND.

J. AUXILIARY MATERIALS: PROVIDE AUXILIARY MATERIALS THAT COMPLY WITH REFERENCED INSTALLATION STANDARDS AND MANUFACTURER'S WRITTEN RECOMMENDATIONS.
   1. STEEL DRILL SCREWS: ASTM C 1002, UNLESS OTHERWISE INDICATED.
      a. USE SCREWS COMPLYING WITH ASTM C 954 FOR FASTENING PANELS TO STEEL MEMBERS FROM 0.033” TO 0.112” THICK.
   2. ACOUSTICAL SEALANT: “SHEETROCK BRAND ACOUSTICAL SEALANT”, HIGHLY ELASTIC, WATER-BASED CAULKING FOR SOUND-RATED PARTITION AND CEILING SYSTEMS WHERE INDICATED. PRODUCTS WITH COMPARABLE MATERIALS AND PERFORMANCE CRITERIA BY OHIO SEALANTS, INC., PECORA CORP., AND TREMCO, INC. ARE ALSO ACCEPTABLE.
      a. NON-BLEEDING AND STAINING.
      b. SURFACE BURNING CHARACTERISTICS:
         1) FLAME SPREAD: 0.
         2) SMOKE DEVELOPED 0.
         3) COMPLIES WITH ASTM C919 AND ASTM C834.

SECTION 093100 - CERAMIC TILE

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. CERAMIC FLOOR AND WALL TILE.
   2. CRACK-SUPPRESSION MEMBRANE.
   3. METAL EDGE STRIPS.
   4. TILE SETTING MATERIALS AND ACCESSORIES.
   5. REFER TO DRAWINGS FOR ADDITIONAL REQUIREMENTS.

B. CERAMIC TILE: BY MANUFACTURERS AS LISTED ON THE DRAWINGS FORM THE BASIS-OF-DESIGN. NO SUBSTITUTIONS ARE PERMITTED.

C. SETTING AND GROUTING MATERIALS BY MAPEI CORP. FORMS THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS AND PERFORMANCE CHARACTERISTICS, COLORS AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. ATLAS MINERALS & CHEMICALS, INC.
   2. BOIARDI PRODUCTS CORP.
   3. BONSAL, W. R., CO.
   4. BOSTIK.
   5. CUSTOM BUILDING PRODUCTS.
   6. LATICRETE INTERNATIONAL INC.
   7. SOUTHERN GROUTS & MORTARS, INC.
   8. SUMMITVILLE TILES, INC.
   9. TEC SPECIALTY PRODUCTS INC.

D. TROWELABLE UNDERLAYMENTS AND PATCHING COMPOUNDS: LATEX-MODIFIED, PORTLAND CEMENT-BASED FORMULATIONS BY MAPEI CORP., OR PROVIDED OR APPROVED BY MANUFACTURER OF TILE-SETTING MATERIALS.

E. CRACK-SUPPRESSION MEMBRANES: MANUFACTURER'S STANDARD PRODUCT COMPLYING WITH ANSI A118.10. SELECT FROM THE FOLLOWING.
   1. CHLORINATED-POLYETHYLENE-SHEET PRODUCT: "NOBLESEAL TS" BY THE NOBLE COMPANY. NONPLASTICIZED, CHLORINATED POLYETHYLENE FACED ON BOTH SIDES WITH NONWOVEN POLYESTER FABRIC, 0.030" NOMINAL THICKNESS.
   2. POLYETHYLENE-SHEET PRODUCT: "KERDI" BY SCHLUTER SYSTEMS L.P. POLYETHYLENE FACED ON BOTH SIDES WITH FLEECE WEBBING, 0.008" NOMINAL THICKNESS.
   3. FABRIC-REINFORCED, MODIFIED-BITUMINOUS SHEET PRODUCT: "STRATAFLEX" BY PRODUCT: NATIONAL APPLIED CONSTRUCTION PRODUCTS, INC. SBS-MODIFIED-BITUMINOUS SHEET WITH WOVEN REINFORCEMENT FACING, 0.040" NOMINAL THICKNESS.
   4. FABRIC-REINFORCED, FLUID-APPLIED PRODUCT: LIQUID-LATEX RUBBER WITH FABRIC REINFORCEMENT. PRODUCTS BY THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE.
      a. CUSTOM BUILDING PRODUCTS, "TROWEL & SEAL WATERPROOFING AND ANTI-FRACTURE MEMBRANE".
      b. LATICRETE INTERNATIONAL INC., "LATICRETE 9235 WATERPROOF MEMBRANE".
      c. MAPEI CORPORATION, "PRP M19".
      d. SUMMITVILLE TILES, INC., "S-9000".

F. ELASTOMERIC SEALANTS: ELASTOMERIC SEALANTS OF BASE POLYMER AND CHARACTERISTICS INDICATED THAT COMPLY WITH APPLICABLE REQUIREMENTS IN DIVISION 7 SECTION "JOINT SEALANTS."
   1. ONE-PART, MILDEW-RESISTANT SILICONE, NON-TRAFFIC AREAS: ASTM C 920; TYPE S; GRADE NS; CLASS 25; USES NT, G, A, AND, AS APPLICABLE TO NONPOROUS JOINT SUBSTRATES INDICATED, O; FORMULATED WITH FUNGICIDE, INTENDED FOR IN-SERVICE EXPOSURES OF HIGH HUMIDITY AND EXTREME TEMPERATURES. PRODUCTS BY THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE.
      a. DOW CORNING CORPORATION, "DOW CORNING 786".
      b. GE SILICONES, "SANITARY 1700".
      c. PECORA CORPORATION, "PECORA 898 SANITARY SILICONE SEALANT".
      d. TREMCO, INC., "TREMSIL 600 WHITE".
   2. MULTIPART, POURABLE URETHANE SEALANT FOR USE T: ASTM C 920; TYPE M; GRADE P; CLASS 25; USES T, M, A, AND, AS APPLICABLE TO JOINT SUBSTRATES INDICATED, O. PRODUCTS BY THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE.
      a. BOSTIK, "CHEM-CALK 550".
      b. MAMECO INTERNATIONAL, INC., "VULKEM 45".
      c. PECORA CORPORATION, "NR-200 UREXPAN".
      d. TREMCO, INC., "THC-900".

G. JOINT-SEALANT BACKING AND ACCESSORIES:
   1. GENERAL: MATERIAL AND TYPE THAT ARE NONSTAINING; ARE COMPATIBLE WITH JOINT SUBSTRATES, SEALANTS, PRIMERS, AND OTHER JOINT FILLERS; AND ARE APPROVED FOR APPLICATIONS INDICATED BY SEALANT MANUFACTURER BASED ON FIELD EXPERIENCE AND LABORATORY TESTING.
   2. CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, ANY OF THE INDICATED TYPES, AS APPROVED IN WRITING BY JOINT-SEALANT MANUFACTURER FOR JOINT APPLICATION INDICATED, AND OF SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE TO PRODUCING OPTIMUM SEALANT PERFORMANCE:
      a. TYPE C: CLOSED-CELL MATERIAL WITH A SURFACE SKIN.
      b. TYPE O: OPEN-CELL MATERIAL.
      c. TYPE B: BICELLULAR MATERIAL WITH A SURFACE SKIN.
   3. ELASTOMERIC TUBING SEALANT BACKINGS: NEOPRENE, BUTYL, TPO, OR SILICONE TUBING COMPLYING WITH ASTM D 1056, NONABSORBENT TO WATER AND GAS, AND CAPABLE OF REMAINING RESILIENT AT TEMPERATURES DOWN TO MINUS 26 DEG F. PROVIDE PRODUCTS WITH LOW COMPRESSION SET AND OF SIZE AND SHAPE TO PROVIDE A SECONDARY SEAL, TO CONTROL SEALANT DEPTH, AND TO OTHERWISE CONTRIBUTE TO OPTIMUM SEALANT PERFORMANCE.
   4. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT WHERE SUCH ADHESION WOULD RESULT IN SEALANT FAILURE. PROVIDE SELF-ADHESIVE TAPE WHERE APPLICABLE.
   5. PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANT-SUBSTRATE TESTS AND FIELD TESTS.
   6. CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING MATERIALS, FREE OF OILY RESIDUES OR OTHER SUBSTANCES CAPABLE OF STAINING OR HARMING JOINT SUBSTRATES AND ADJACENT NONPOROUS SURFACES IN ANY WAY, AND FORMULATED TO PROMOTE OPTIMUM ADHESION OF SEALANTS TO JOINT SUBSTRATES.
   7. MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND SURFACES ADJACENT TO JOINTS.

H. METAL EDGE STRIPS: METAL EDGE AND TRIM STRIPS BY SCHLUTER SYSTEMS L.P. FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE DESIGNS, MATERIALS, PERFORMANCE CHARACTERISTICS AND FINISHES BY OTHER MANUFACTURERS MAY BE SUBMITTED TO THE ARCHITECT FOR REVIEW NO LATER THAN TEN DAYS PRIOR TO THE BID DATE.
   1. TRANSITIONS: TILE TO CONCRETE FLOORING, "RENO-RAMP", SIZE AS REQUIRED BY INSTALLATION CONDITIONS.
   2. FINISH: SATIN ANODIZED ALUMINUM.

SECTION 095123 - ACOUSTICAL TILE CEILINGS

A. THIS SECTION INCLUDES ACOUSTICAL TILES AND CONCEALED SUSPENSION SYSTEMS FOR CEILINGS.

B. QUALITY ASSURANCE:
   1. ACOUSTICAL TILE STANDARD: COMPLY WITH ASTM E 1264.
   2. METAL SUSPENSION SYSTEM STANDARD: COMPLY WITH ASTM C 635.

C. FIRE-TEST-RESPONSE CHARACTERISTICS:
   1. SURFACE-BURNING CHARACTERISTICS: ACOUSTICAL TILES COMPLYING WITH ASTM E 1264 FOR CLASS A MATERIALS, WHEN TESTED PER ASTM E 84.
   2. SMOKE-DEVELOPED INDEX: 450 OR LESS.

D. ACOUSTICAL CEILING TILES AND SUSPENSION SYSTEMS: REFER TO ROOM FINISH SCHEDULE ON THE DRAWINGS. NO SUBSTITUTIONS PERMITTED.

E. SUSPENSION SYSTEM: WHITE 15/16” PRELUDE EXPOSED TEE.

F. WIRE HANGERS, BRACES, AND TIES: ZINC-COATED CARBON-STEEL WIRE; ASTM A 641, CLASS 1 ZINC COATING, SOFT TEMPER.
   1. SIZE: SELECT WIRE DIAMETER SO IT'S STRESSED AT THREE (3) TIMES HANGER DESIGN LOAD (ASTM C 635, TABLE 1, “DIRECT HUNG”) WILL BE LESS THAN YIELD STRESS OF WIRE, BUT PROVIDE NOT LESS THAN 0.106” DIAMETER WIRE.

G. METAL EDGE MOLDINGS AND TRIM: MANUFACTURER'S STANDARD TYPE AND PROFILE MOLDINGS FOR EDGES AND PENETRATIONS THAT COMPLY WITH SEISMIC DESIGN REQUIREMENTS; FORMED FROM SHEET METAL OF SAME MATERIAL, FINISH AND COLOR AS THAT USED FOR EXPOSED FLANGES OF SUSPENSION SYSTEM RUNNERS.
   1. PROVIDE FLUSH GRID DETAIL AT TEE TO TEE INTERSECTIONS.

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CITY OF HILLIARD

Project Number: 15002
Drawn By: DK
Date: 08/31/2015

A903

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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. WALL BASE.
   2. RESILIENT MOLDINGS AND ACCESSORIES.
   3. SUBSTRATE PREPARATION AND TESTING.
   4. INSTALLATION MATERIALS.
B. RESILIENT WALL BASE: REFER TO ROOM FINISH SCHEDULE ON THE DRAWINGS. NO SUBSTITUTIONS PERMITTED.
   1. STYLE: COVE (WITH TOP-SET TOE) AND STRAIGHT (TOELESS).
   2. MINIMUM THICKNESS: 0.125".
   3. HEIGHT: 4", 6", REFER TO THE FINISH SCHEDULE ON THE DRAWINGS.
   4. LENGTHS: COILS IN MANUFACTURER'S STANDARD LENGTH.
   5. INSIDE AND OUTSIDE CORNERS: JOB FORMED. PRE-MOLDED CORNERS ONLY PERMITTED WHERE PROPER ANCHORAGE CANNOT BE OBTAINED.
   6. SURFACE: SMOOTH.
   7. COLORS: SELECTED FROM MANUFACTURER'S STANDARD PALETTE.
C. FIRE-TEST-RESPONSE CHARACTERISTICS: CRITICAL RADIANT FLUX CLASSIFICATION CLASS I, NOT LESS THAN 0.45 W/SQ. CM PER ASTM E 648.
D. RESILIENT MOLDINGS AND ACCESSORIES BY JOHNSONITE FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE SIZE, MATERIAL, PERFORMANCE CHARACTERISTICS, AND COLORS BY THE FOLLOWING ARE ALSO ACCEPTABLE.
   1. BURKEMERCER.
   2. FLEXCO.
   3. ROPPE.
E. RESILIENT MOLDINGS AND ACCESSORIES:
   1. VCT TO EXPOSED CONCRETE REDUCERS: RRS-XX-C.
   2. VCT TO CARPET: CRS SERIES, HEIGHT AS REQUIRED BY CARPETING MATERIALS.
   3. CARPET TO VCT OR EXPOSED CONCRETE REDUCERS: EG-XX SERIES.
   4. COLORS: SELECTED FROM MANUFACTURER'S STANDARD PALETTE.
F. TROWELABLE LEVELING AND PATCHING COMPOUNDS: PRODUCTS BY TEC INC. EQUAL PRODUCTS BY BOSTIC, AND MAPEI OR COMPARABLE MATERIALS RECOMMENDED BY FLOORING MANUFACTURER FOR APPLICATIONS INDICATED ARE ALSO ACCEPTABLE.
   1. MATERIAL: VERSAPATCH, LATEX MODIFIED PATCH AND LEVELING COMPOUND.
   2. ADDITIVE: PATCH ADDITIVE 861.
   3. PRIMER: PRIMER.
G. PRIMERS, SEALERS AND ADHESIVES: WATER-RESISTANT TYPE RECOMMENDED BY MANUFACTURER TO SUIT RESILIENT PRODUCTS AND SUBSTRATE CONDITIONS INDICATED.

SECTION 096519 - RESILIENT TILE FLOORING

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. VINYL COMPOSITION TILE (VCT).
   2. ACCESSORIES.
   3. FLOOR PREPARATION AND TESTING.
   4. INITIAL MAINTENANCE AFTER INSTALLATION.
B. VINYL COMPOSITION TILE AND ACCESSORIES: REFER TO ROOM FINISH SCHEDULE ON THE DRAWINGS.
C. TROWELABLE LEVELING AND PATCHING COMPOUNDS: PRODUCTS BY TEC INC. EQUAL PRODUCTS BY BOSTIC, AND MAPEI OR COMPARABLE MATERIALS RECOMMENDED BY FLOORING MANUFACTURER FOR APPLICATIONS INDICATED ARE ALSO ACCEPTABLE.
   1. MATERIAL: VERSAPATCH, LATEX MODIFIED PATCH AND LEVELING COMPOUND.
   2. ADDITIVE: PATCH ADDITIVE 861.
   3. PRIMER: PRIMER.
D. PRIMERS, SEALERS AND ADHESIVES: WATER-RESISTANT TYPE RECOMMENDED BY FLOORING MANUFACTURER TO SUIT RESILIENT PRODUCTS AND SUBSTRATE CONDITIONS INDICATED.
E. CLEANING, STRIPING AND FLOOR POLISH SOLUTIONS: TILE MANUFACTURERS RECOMMENDED PRODUCTS FOR SELECTED FLOORING.

SECTION 096816 - SHEET OR TILE CARPETING

A. THIS SECTION INCLUDES FLOOR CARPET AND THE FOLLOWING:
   1. FLOOR PREPARATION AND TESTING.
   2. INSTALLATION MATERIALS.
B. QUALITY ASSURANCE:
   1. INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO IS CERTIFIED BY THE FLOOR COVERING INSTALLATION BOARD OR WHO CAN DEMONSTRATE COMPLIANCE WITH ITS CERTIFICATION PROGRAM REQUIREMENTS.
   2. ALL CARPETING TO COMPLY WITH AMERICANS WITH DISABILITIES ACT (ADA), SECTION 4.5.3, AND HAVE A MAXIMUM PILE THICKNESS OF ½".
   3. SPECIFIC FLOOR PREPARATION AND INSTALLATION INSTRUCTIONS: COMPLY WITH CARPET AND RUG INSTITUTE STANDARD FOR INSTALLATION OF COMMERCIAL CARPET (CRI 104).
C. CARPET: REFER TO ROOM FINISH SCHEDULE ON THE DRAWINGS.
D. TROWELABLE LEVELING AND PATCHING COMPOUNDS: UNDERLAYMENT PRODUCTS BY TEC INC. COMPARABLE PRODUCTS BY BOSTIK AND MAPEI, OR MATERIALS RECOMMENDED BY CARPET MANUFACTURER ARE ALSO ACCEPTABLE.
   1. MATERIAL: VERSAPATCH, LATEX MODIFIED PATCH AND LEVELING COMPOUND.
   2. ADDITIVE: PATCH ADDITIVE 861.
   3. PRIMER: PRIMER.
E. ADHESIVES: WATER-RESISTANT, MILDEW-RESISTANT, NONSTAINING TYPE TO SUIT PRODUCTS AND SUBFLOOR CONDITIONS INDICATED, THAT COMPLIES WITH FLAMMABILITY REQUIREMENTS FOR INSTALLED CARPET AND IS RECOMMENDED OR PROVIDED BY CARPET MANUFACTURER.
F. SEAM ADHESIVE FOR SHEET CARPETING: HOT-MELT ADHESIVE TAPE OR SIMILAR PRODUCT RECOMMENDED BY CARPET MANUFACTURER FOR SEALING AND TAPING SEAMS AND BUTTING CUT EDGES AT BACKING TO FORM SECURE SEAMS AND TO PREVENT PILE LOSS AT SEAMS.

SECTION 099100 - PAINTING

A. THIS SECTION INCLUDES SURFACE PREPARATION AND THE APPLICATION OF PAINT SYSTEMS ON INDICATED EXTERIOR AND INTERIOR SUBSTRATES, AND THE FOLLOWING:
   1. SURFACE PREPARATION, PRIMING, AND FINISH COATS SPECIFIED IN THIS SECTION ARE IN ADDITION TO SHOP PRIMING AND SURFACE TREATMENT SPECIFIED IN OTHER SECTIONS.
B. UNDER DIVISION 06 "EXTERIOR ARCHITECTURAL WOODWORK", THAT CONTRACTOR HAS THE OPTION TO PRE-STAIN (ONE COAT) NOTED WOOD TRIM AND SIDING PRIOR TO INSTALLATION IN ACCORDANCE WITH REQUIREMENTS OF THIS SECTION. THE FINAL COAT(S) SHALL BE FIELD-APPLIED UNDER THIS SECTION AFTER MATERIAL INSTALLATION. COORDINATE REQUIRED FINISH WORK OF THIS SECTION WITH FINISH WORK, IF ANY, PROVIDED UNDER DIVISION 06 "EXTERIOR ARCHITECTURAL WOODWORK".
C. QUALITY ASSURANCE:
   1. INSTALLATION: INSTALLATION BY SKILLED COMMERCIAL PAINTERS WITH NOT LESS THAN FIVE (5) YEARS OF CONTINUOUS EXPERIENCE WITH MATERIALS EQUAL IN QUALITY ON PROJECTS OF COMPARABLE SCOPE. A SATISFACTORY CREW OF QUALIFIED PAINTERS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE WORK.
   2. MPI STANDARDS:
      a. PRODUCTS: COMPLYING WITH MPI STANDARDS INDICATED AND LISTED IN "MPI APPROVED PRODUCTS LIST."
      b. PREPARATION AND WORKMANSHIP: COMPLY WITH REQUIREMENTS IN "MPI ARCHITECTURAL PAINTING SPECIFICATION MANUAL" FOR PRODUCTS AND PAINT SYSTEMS INDICATED.
D. PAINT AND STAIN PRODUCTS BY SHERWIN-WILLIAMS, EXCEPT AS OTHERWISE NOTED, FORM THE BASIS-OF-DESIGN. PRODUCTS OF COMPARABLE MATERIALS, DRY FILM THICKNESS AND CONTAINING EQUIVALENT SOLIDS BY VOLUME CONTENT BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. BENJAMIN MOORE & CO.
   2. CORONADO PAINT COMPANY.
   3. ICI DULUX PAINTS.
   4. PORTER PAINTS.
   5. PPG INDUSTRIES, INC.
E. ALL PAINT AND STAIN PRODUCTS MUST MEET THE STATE OF OHIO EPA VOC REGULATIONS FOR PAINTS AND COATINGS.
F. EXTERIOR METAL WORK: INCLUDES HOLLOW METAL DOORS, METAL STAIRS, PIPE HAND AND GUARD RAILS, LINTELS, BOLLARDS, EXPOSED FLASHING, VENTS, EXHAUSTS, AIR INTAKES AND HATCHES, UTILITY METERS, PIPES AND CONDUITS, AND MISCELLANEOUS METALS REQUIRING FINISH TREATMENT.
   1. 1 COAT ALL SURFACE ENAMEL OIL PRIMER @ 2.0 MILS.
   2. 2 COATS A-100 EXTERIOR LATEX GLOSS @ 1.3 MILS.
G. EXTERIOR GALVANIZED STEEL: INCLUDING HOLLOW METAL DOOR FRAMES, LINTELS, GUTTERS, DOWNSPOUTS AND SCUPPERS, DUMPSTER GATE FRAME AND POSTS, METAL HAT VENTS, AND EXPOSED UNFINISHED FLASHING AND VENTS.
   1. 1 COAT ALL SURFACE ENAMEL LATEX PRIMER @ 2.5 MILS.
   2. 2 COATS A-100 EXTERIOR LATEX GLOSS @ 1.3 MILS.
H. EXTERIOR STANDARD CONCRETE MASONRY UNITS: PAINTED FINISH (NEW AND EXISTING).
   1. 1 COAT PREPRITE BLOCK FILLER @ 8.0 MILS. (SPOT PRIME EXISTING WHERE REQUIRED)
   2. 2 COATS A-100 EXTERIOR LATEX SATIN @ 1.3 MILS.
I. EXTERIOR CONCRETE WALLS: PAINTED FINISH.
   1. 1 COAT LOXON MASONRY PRIMER @ 3.6 MILS.
   2. 2 COATS A-100 EXTERIOR LATEX SATIN @ 1.3 MILS.
J. EXTERIOR WOOD: PAINTED FINISH. INCLUDES SOFFITS, SIDING AND TRIM, DOORS.
   1. 1 COAT A-100 EXTERIOR OIL PRIMER @ 2.3 MILS.
   2. 2 COATS A-100 EXTERIOR LATEX SATIN @ 1.3 MILS.
K. EXTERIOR DECORATIVE STEEL: PAINTED FINISH. INCLUDES METAL RAILINGS.
   1. 1 COAT RECOATABLE EPOXY PRIMER (PROVIDED UNDER SECTIONS 05120 AND 05500).
   2. 2 COATS HI-SOLIDS POLYURETHANE @ 3.0 MILS.
L. EXTERIOR DECORATIVE METAL RAILINGS AND BALUSTERS: PAINTED FINISH. PRODUCTS BY TNEMEC. EQUAL PRODUCTS BY PRATT & LAMBERT AND SHERWIN-WILLIAMS ARE ALSO ACCEPTABLE.
   (FIRST TWO COATS SHOP APPLIED, BALANCE FIELD APPLIED).
   1. 1 SHOP PRIMER COAT SERIES 90G-97 TNEME-ZINC @ 2.5-3.5. MILS.
   2. 1 SHOP INTERMEDIATE COAT SERIES 27 TYPOXY @ 2.5-4.0 MILS.
   3. 1 FIELD FINISH COAT SERIES 73 ENDURA-SHIELD @ 2.0-4.0 MILS.
   4. 1 FIELD CLEAR COAT SERIES 76 SATIN ENDURA-CLEAR @ 1.5-2.0 MILS.
M. EXTERIOR PLASTIC: INCLUDING CONDUIT RISERS AND EXPOSED RAIN DRAINAGE SYSTEM PIPING AND FITTINGS.
   1. 1 COAT DTM ACRYLIC PRIMER/FINISH @ 2.5 MILS.
   2. 1 COAT DTM ACRYLIC GLOSS COATING @ 2.5 MILS.
N. INTERIOR METAL WORK: PAINTED FINISH. INCLUDES HOLLOW METAL DOORS AND FRAMES, WOOD AND HOLLOW METAL DOOR VISION FRAMES, STAIR STRUCTURE, RISERS, HANDRAILS AND GUARDRAILS, BALUSTERS AND RAILINGS, , ACCESS PANELS, REGISTERS AND GRILLES, AND MISCELLANEOUS METALS REQUIRING FINISH TREATMENT. PRIMER MAY BE OMITTED WHEN APPROVED SAMPLES PROVIDE FULL COVERAGE OF SHOP PRIMER WITH 2 COATS OF FINISH ENAMEL.
   1. 1 COAT DTM ACRYLIC PRIMER/FINISH @ 2.5 MILS.
   2. 2 COATS PRO-MAR 200 LATEX SEMI-GLOSS @ 1.3 MILS.
O. INTERIOR GYPSUM BOARD: STANDARD PAINTED FINISH. INCLUDES WALLS, SOFFITS AND CEILINGS.
   1. 1 COAT PREPRITE 200 LATEX PRIMER @ 1.1 MILS.
   2. 2 COATS PRO-MAR 200 INTERIOR LATEX EG-SHEL @ 1.6 MILS.
P. INTERIOR NEW AND EXISTING STANDARD CONCRETE MASONRY UNITS: PAINTED FINISH.
   1. 1 COAT PREPRITE BLOCK FILLER @ 8.0 MILS.
   2. 2 COATS PRO-MAR 200 INTERIOR LATEX EG-SHEL @ 1.6 MILS.
Q. INTERIOR WOOD: PAINTED FINISH. INCLUDES DOOR, BASE, WALL AND CEILING TRIM, DOORS FRAMES, SHELVING, AND TELEPHONE, DATA AND ELECTRICAL PANEL BACKER BOARDS.
   1. 1 COAT PREPRITE CLASSIC LATEX PRIMER @ 1.6 MILS.
   2. 2 COATS PRO-MAR 200 INTERIOR ALKYD EG-SHEL @ 1.8 MILS.
R. INTERIOR WOOD: TRANSPARENT STAINED FINISH. INCLUDES DOORS, EXIST CEILING PLANKS, AND GUARDRAILS
   1. 1 COAT WOOD CLASSICS OIL STAIN.
   2. 1 COAT WOOD CLASSICS OIL BASE VARNISH GLOSS @ 1.3 MILS.
   3. 1 COAT WOOD CLASSICS OIL BASE VARNISH SATIN @ 1.3 MILS.
S. INTERIOR EXPOSED METAL: PAINTED FINISH. INCLUDES STEEL BEAMS, COLUMNS, BAR JOIST, WALL AND ROOF BRACING, MISCELLANEOUS FRAMING, METAL DECK, AND EXPOSED MECHANICAL AND ELECTRICAL PIPING, BOXES, CONDUIT, DUCTWORK AND THEIR SUPPORTING SYSTEMS
   1. 1 COAT KEM BOND HS @ 2.0-5.0 MILS. (STEEL)
   2. 1 COAT DTM WASH PRIMER @ 0.7-1.3 MILS (ALUMINUM)
   3. 1 COAT GALVITE HS @ 3.0-4.5 MILS. (GALVANIZED SURFACES)
   4. 2 COATS SUPER SAVE-LITE SEMI-GLOSS (DRYFALL) @ 4.0 MILS.
T. INTERIOR EXISTING SURFACES: PAINTED FINISH.
   1. SPOT PRIME AS REQUIRED.
   2. 2 COATS PAINT AS SCHEDULED FOR NEW WORK.

SECTION 099850 - SANITARY WALL PANELS

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. SANITARY WALL PANELS.
   2. ADHESIVES, SEALANT AND TRIM.
   3. ACCESSORIES.
B. SANITARY WALL PANELS BY CRANE KEMLITE FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CHARACTERISTICS, COLORS AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. GLASTEEL.
   2. LASCO.
   3. SEQUENTIA.
C. WALL PANELS:
   1. TYPE 1: GLASBORD-P WITH SURFASEAL.
      a. UL CLASSIFICATION: CLASS C. SMOKE DEVELOPED: 450 OR LOWER.
      b. TEXTURE: EMBOSSED.
      c. THICKNESS: .09".
      d. COLOR: WHITE
D. ACCESSORIES:
   1. TRIM AND CAP: MATCH PANEL COLOR.
   2. FASTENERS: MANUFACTURER'S "NYLON DRIVE RIVETS". MATCH PANEL COLOR.
   3. ADHESIVE: KEMLITE MULTI-PURPOSE CONSTRUCTION ADHESIVE 101.
   4. SEALANT: KEMLITE SILICON CONSTRUCTION SEALANT 255.

SECTION 101400 - SIGNAGE

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. WALL MOUNTED RESTROOM SIGNS AND ACCESSORIES.
   2. WALL MOUNTED EGRESS SIGNS AND ACCESSORIES.
   3. WALL MOUNTED OCCUPANT LOAD SIGNS AND ACCESSORIES.
B. REGULATORY REQUIREMENTS:
   1. COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND WITH CODE PROVISIONS AS ADOPTED BY AUTHORITIES HAVING JURISDICTION.
      a. CHARACTER PROPORTIONS: LETTERS AND NUMBERS WITH A WIDTH-TO-HEIGHT RATIO BETWEEN 3:5 AND 1:1, AND A STROKE-WIDTH-TO-HEIGHT RATIO BETWEEN 1:5 AND 1:10.
      b. CHARACTER HEIGHT: MINIMUM 5/8", MAXIMUM 2". MINIMUM 3" AT OVERHEAD SIGNS (80" ABOVE FINISH FLOOR).
      c. RAISED AND BRAILLE CHARACTERS AND SYMBOLS: LETTERS AND NUMERALS RAISED 1/32", UPPER CASE SANS SERIF TYPE, AND ACCOMPANIED WITH GRADE 2 RAISED BRAILLE CHARACTERS. PROVIDE PICTOGRAMS WITH THE EQUIVALENT WRITTEN DESCRIPTION PLACED DIRECTLY BELOW THE SYMBOL. BORDER DIMENSION OF PICTOGRAM MINIMUM 6" IN HEIGHT.
      d. FINISH AND CONTRAST: CHARACTERS AND SIGN BACKGROUND WITH AN EGGSHELL, MATTE, OR OTHER NON-GLARE FINISH. CHARACTERS AND SYMBOLS WITH A CONTRAST RATIO OF 70% OR BETTER WITH THEIR BACKGROUND.
      e. MOUNTING LOCATION AND HEIGHT: SIGNS INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR AT A DISTANCE AWAY FROM THE DOOR SO THAT A PERSON MAY APPROACH WITHIN 3" OF THE SIGNAGE WITHOUT ENTERING THE DOOR SWING. SIGNS MOUNTED AT 60" ABOVE THE FINISH FLOOR TO THE SIGN CENTER LINE.
C. RAISED BRAILLE AND COPY PLASTIC SIGNS BY BEST FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, DESIGN AND FINISHES BY OTHER MANUFACTURERS MAY BE SUBMITTED TO THE ARCHITECT FOR REVIEW NO LATER THAN TEN (10) DAYS PRIOR TO THE BID DATE. INCLUDE SAMPLES AND PRODUCT DATA.
D. SIGNS: "STANDARD WORD & PICTURE" SIGNS WITH TEXT AND RAISED OR ENGRAVED SYMBOLS.
   1. SIGN BODY: "MP" PLASTIC WITH TWO-COLOR, SCRATCH RESISTANT, NON-STATIC, FIRE RETARDANT, WASHABLE MELAMINE LAMINATE WITH NON-GLARE SURFACE OVER BROWN PHENOLIC CORE.
   2. FONT: STANDARD MEDIUM, COPY RAISED 1/32" AND MINIMUM 5/8" HIGH.
   3. BRAILLE: GRADE 2.
   4. SIZE: 6" X 8" X 1/8" THICK.
   5. MOUNTING: WALL, ADHESIVE TAPE.
E. RESTROOM SIGNS: GRAPHICS CONSISTENT WITH INTERNATIONALLY ACCEPTED SYMBOLS IN CONTENT AND PROPORTION, AND INCLUDE THE EQUIVALENT WRITTEN AND BRAILLE DESCRIPTION DIRECTLY BELOW. PROVIDE THE FOLLOWING:
   1. NO. WP287RB - HANDICAPPED ACCESS "MEN".
   2. NO. WP288RB - HANDICAPPED ACCESS "WOMEN".
   3. NO. WP268ARB - HANDICAPPED ACCESS "MEN" AND "WOMEN".
   4. COLORS: SELECTED FROM MANUFACTURER'S STANDARD PALETTE.
F. EGRESS SIGNS: "EXIT" LOCATED AT ALL BUILDING EXIT DOORS, AND INCLUDE BRAILLE DESCRIPTION DIRECTLY BELOW. PROVIDE THE FOLLOWING:
   1. SIZE: 6" X 4" X 1/8" THICK.
   2. COLORS: SELECTED FROM MANUFACTURER'S STANDARD PALETTE

SECTION 102113 - TOILET COMPARTMENTS

A. THIS SECTION INCLUDES BAKED-ENAMEL UNITS AS FOLLOWS:
   1. TOILET ENCLOSURES: FLOOR MOUNTED, OVERHEAD BRACED.
   2. URINAL SCREENS: WALL HUNG.
   3. MOUNTING HARDWARE AND ACCESSORIES.
B. METAL TOILET COMPARTMENTS AND SCREENS BY SANYMETAL FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CHARACTERISTICS AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE
   1. ACCURATE PARTITIONS CORPORATION.
   2. ALL AMERICAN METAL CORP.
   3. AMERICAN SANITARY PARTITION CORPORATION.
   4. BRADLEY CORPORATION.
C. FLOOR MOUNTED, OVERHEAD BRACED, METAL PARTITIONS: "SANACRYLIC ACADEMY" SERIES.
   1. PANELS AND DOORS: 1" THICK WITH TWO SHEETS OF 22 GAUGE GALVANIZED-BONDERIZED STEEL ENCLOSING SOUND-DEADENING CORE. EDGES FORMED, WELDED 18" O.C., SEALED WITH OVAL-CROWN LOCK STRIP, MITERED AND FINISHED AT THE CORNERS.
      a. STANDARD DOOR WIDTH: 24".
      b. HANDICAPPED DOOR WIDTH: 36" WITH 32" CLEAR (MINIMUM) OPENING.
      c. PROVIDE SWING-IN DOORS AT STANDARD STALLS.
      d. PROVIDE SWING-OUT DOORS AT HANDICAPPED STALLS.
   2. PILASTERS: 1¼" THICK WITH TWO SHEETS OF ACRYLIC COATED 20 GAUGE GALVANIZED-BONDERIZED STEEL WELDED AND FINISHED TO MATCH DOORS.
      a. BASES: ATTACHED FLOOR STIRRUPS AND LEVELING BOLTS FOR FLOOR ANCHORAGE.
      b. TOPS: FULL PERIMETER OVERHEAD BRACED WITH 1" X 1½" ANODIZED ALUMINUM ANTI-GRIP HEADRAIL BRACING.
   3. HARDWARE:
      a. HINGES:
         1) TOP HINGE PINS: SECURED AT THREE POINTS WITH DOORS FITTINGS FULLY FLUSH WITH DOOR FACE PLATES.
         2) BOTTOM HINGE PINS: #7961 CONCEALED CONTROLLED POWER BEARING GRAVITY HINGE.
         3) ADJUSTABLE: TO ALIGN DOORS AT CLOSED OR 30 DEGREES FROM THE CLOSED POSITIONS.
      b. LATCHES: #8800 CONCEALED STAINLESS STEEL SLIDE BOLT WITH ONE PIECE CHROME-PLATED STOP AND KEEPER. NO EXTERIOR ACCESS KNOBS OR LEVERS.
      c. COAT HOOKS AND BUMPERS: #7810 ONE PIECE CHROME-PLATED UNIT WITH HOOK AND RUBBER TIPPED BUMPER.
      d. DOOR PULLS: #7401 AT OUT-SWINGING DOORS, EXTERIOR ONLY.
      e. PILASTER HINGE BRACKETS: CHROME-PLATED ZAMAC ALLOY AND THRU-BOLTED TO THE PILASTER.
      f. FLOOR CONNECTIONS: CONCEALED WITH ONE PIECE 304 STAINLESS STEEL THEFT PROOF PLINTH.
      g. PANEL AND PILASTERS CONNECTIONS: CHROME-PLATED ZAMAC STIRRUP BRACKETS.
   4. OVERHEAD RAILS: EXTRUDED ALUMINUM RAIL WITH ANTI-GRIP HEAD. FINISH: MILL.
D. METAL PANELS:
   1. STEEL SHEETS WITH COLOR-COATED FINISH: MILL-PHOSPHATIZED, CORROSION-RESISTANT STEEL SHEET; STRETCHER-LEVELED FLATNESS, ASTM A 591, CLASS C, OR ASTM A 653; WITH MANUFACTURER'S STANDARD BAKED FINISH.
      a. COLOR: SELECTED FROM MANUFACTURER'S FULL PALETTE.
   2. CORE MATERIAL: SOUND-DEADENING HONEYCOMB OF RESIN-IMPREGNATED KRAFT PAPER IN THICKNESS REQUIRED TO PROVIDE FINISHED THICKNESS INDICATED.
   3. FINISH: MANUFACTURER'S STANDARD PIGMENTED, ORGANIC COATING.
      a. COLOR: ONE COLOR IN EACH ROOM SELECTED FROM MANUFACTURER'S STANDARD PALETTE.

SECTION 102800 - TOILET ACCESSORIES

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. WASHROOM AND SHOWER ROOM ACCESSORIES.
   2. UNDERLAVATORY GUARDS.
B. TOILET ACCESSORIES BY BOBRICK WASHROOM EQUIPMENT, INC. FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, CAPACITIES, PERFORMANCE CHARACTERISTICS, AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. A & J WASHROOM ACCESSORIES, INC.
   2. AMERICAN SPECIALTIES, INC.
   3. BRADLEY CORPORATION.
   4. GENERAL ACCESSORY MANUFACTURING CO. (GAMCO).
   5. MCKINNEY/PARKER WASHROOM ACCESSORIES CORP.
C. UNDERLAVATORY GUARDS BY TRUEBRO, INC. FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CHARACTERISTICS, AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. BROCAR PRODUCTS, INC.
D. CHILDCARE PRODUCTS BY KOALA CORPORATION FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CHARACTERISTICS, AND FINISHES BY THE FOLLOWING MANUFACTURERS ARE ALSO ACCEPTABLE.
   1. AMERICAN INFANT CARE PRODUCTS INC.
   2. AMERICAN SPECIALTIES, INC.
   3. BOBRICK WASHROOM EQUIPMENT, INC.
   4. BROCAR PRODUCTS, INC.
   5. GENERAL ACCESSORY MANUFACTURING CO. (GAMCO).
   6. SAFE-STRAP COMPANY, INC.
E. ACCESSORY SCHEDULE:
   1. T-3 SOAP DISPENSER (WALL MOUNTED): B-4112
   2. T-4 PAPER TOWEL DISPENSER WITH INTEGRAL WASTE RECEPTACLE (RECESSED): B-43944, TOWELMATE: 3944-130, LINERMATE: 43944-134
   3. T-6 PAPER TOWEL DISPENSER (WALL MOUNTED): B-4262 W/ TOWELMATE
   4. T-9 GRAB BAR: B-6806X36.
   5. T-10 GRAB BAR: B-6806X42.
   6. T-11 GRAB BAR: B-6806X18.
   7. T-12 TOILET PAPER DISPENSER (DOUBLE ROLL): B-265
   8. T-13 PROTECTIVE PIPE COVERS: TRUEBRO "LAV GUARD".
   9. T-15 CHILD CHANGING STATION: KOALA KB-200 (COORD COLOR WITH ARCHITECT)
   10. T-16 ANNEALED MONOLITHIC, FILM-BACKED SAFETY GLASS MIRRORS - SEE SECTION 088300
   11. T-17 MIRROR: B-165 2436

SECTION 104400 - FIRE-PROTECTION SPECIALTIES

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. PORTABLE FIRE EXTINGUISHERS.
   2. FIRE-PROTECTION CABINETS.
   3. MOUNTING BRACKETS FOR FIRE EXTINGUISHERS.
   4. SEE PAINTING DIVISION 09 "PAINTING" FOR FIELD PAINTING OF CABINETS.
B. QUALITY ASSURANCE:
   1. NFPA COMPLIANCE: FABRICATE AND LABEL FIRE EXTINGUISHERS TO COMPLY WITH NFPA 10, "PORTABLE FIRE EXTINGUISHERS."
   2. FIRE EXTINGUISHERS: LISTED AND LABELED FOR TYPE, RATING, AND CLASSIFICATION BY AN INDEPENDENT TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
C. FIRE EXTINGUISHERS, CABINETS AND EXTINGUISHER MOUNTING BRACKETS BY LARSEN MANUFACTURING CO. FORM THE BASIS-OF-DESIGN. PRODUCTS WITH COMPARABLE MATERIALS, PERFORMANCE CHARACTERISTICS AND FINISHES BY MANUFACTURERS LISTED BELOW ARE ALSO ACCEPTABLE.
   1. ANSUL INCORPORATED.
   2. BADGER FIRE PROTECTION.
   3. BUCKEYE FIRE EQUIPMENT COMPANY.
   4. GENERAL FIRE EXTINGUISHER CORPORATION.
   5. KIDDE FYRNETICS.
D. PORTABLE FIRE EXTINGUISHERS:
   1. MODEL: "MP SERIES", MULTIPURPOSE DRY-CHEMICAL TYPE WITH FLUIDIZED AND SILICONIZED MONO AMMONIUM PHOSPHATE POWDER, UL-RATED AS SCHEDULED, IN ENAMELED-STEEL CONTAINER. COLOR: RED.
   2. RATINGS: "MP10", 4-A:60-B:C, 10-LBS NOMINAL CAPACITY, IN SEMIRECESSED CABINETS IN NONRATED WALLS, AND AT SURFACE MOUNTED CABINETS AND WALL LOCATIONS.
E. FIRE EXTINGUISHER CABINETS: SURFACE AND SEMI-RECESSED MOUNTED CABINETS "ARCHITECTURAL SERIES VERTICAL DUO" WITH FULL CLEAR TEMPERED OR LAMINATED SAFETY GLASS IN DOOR, ROUND CABINET TRIM AND STANDARD WHITE BAKED PAINTED FINISH.
   1. MODEL: "2409-6R" WITH 2½" ROLLED EDGE TRIM. SEMIRECESSED MOUNTED IN INTERIOR NONRATED WALLS.
   2. CABINET MATERIAL: PRE-FINISHED ENAMELED-STEEL SHEET. COLOR: WHITE, FIELD PAINT TO MATCH ADJACENT WALL COLOR.
   3. DOOR HARDWARE: MANUFACTURER'S STANDARD DOOR-OPERATING HARDWARE OF PROPER TYPE FOR CABINET TYPE, TRIM STYLE, AND DOOR MATERIAL AND STYLE INDICATED.
      a. PROVIDE PROJECTING DOOR PULL AND FRICTION LATCH.
      b. PROVIDE CONTINUOUS HINGE, OF SAME MATERIAL AND FINISH AS TRIM, PERMITTING DOOR TO OPEN 180 DEGREES.
F. SURFACE MOUNTING BRACKETS: MANUFACTURER'S STANDARD STEEL, DESIGNED TO SECURE FIRE EXTINGUISHER TO WALL OR STRUCTURE, OF SIZES REQUIRED FOR TYPES AND CAPACITIES OF FIRE EXTINGUISHERS INDICATED, WITH PLATED OR BAKED-ENAMEL FINISH.
   1. MODEL: "B-2", STEEL.
   2. COLOR: RED.
   3. IDENTIFICATION: LETTERING COMPLYING WITH AUTHORITIES HAVING JURISDICTION FOR LETTER STYLE, SIZE, SPACING, AND LOCATION. LOCATE AS INDICATED BY ARCHITECT.
      a. IDENTIFY BRACKET-MOUNTED FIRE EXTINGUISHERS WITH WORDS "FIRE EXTINGUISHER" IN RED LETTER DECALS APPLIED TO MOUNTING SURFACE.
      b. ORIENTATION: VERTICAL.

SECTION 105310 - AWNINGS

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. FITTINGS AND CONNECTIONS TO BUILDING STRUCTURE.
   2. FABRIC
   3. ACCESSORIES.
B. STRUCTURAL PERFORMANCE: PROVIDE AWNINGS AND SUPPORT SYSTEMS CAPABLE OF WITHSTANDING THE EFFECTS OF GRAVITY LOADS AND THE FOLLOWING LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED. COMPLY WITH OHIO BUILDING CODE CHAPTER 16 STRUCTURAL LOADS.
   1. WIND LOADS: DETERMINE LOADS BASED ON MINIMUM DESIGN WIND PRESSURES FOR 90 MPH BASIC WIND SPEED.
   2. GROUND SNOW LOADS: 20 PSF. INCLUDES SNOW DRIFTING REQUIRED BY LOCAL BUILDING CODE.
   3. MINIMUM LIVE LOAD: 5 PSF.
C. ANCHORS, FASTENERS, FITTINGS, HARDWARE, AND INSTALLATION ACCESSORIES: COMPLY WITH PERFORMANCE REQUIREMENTS INDICATED AND SUITABLE FOR EXPOSURE CONDITIONS, SUPPORTING STRUCTURE, ANCHORING SUBSTRATES, AND INSTALLATION METHODS INDICATED. CORROSION-RESISTANT OR NONCORRODIBLE UNITS; WEATHER-RESISTANT, COMPATIBLE, NONSTAINING MATERIALS. PROVIDE AS REQUIRED FOR AWNING ASSEMBLY, MOUNTING, AND SECURE ATTACHMENT. NUMBER AS NEEDED TO COMPLY WITH PERFORMANCE REQUIREMENTS AND TO MAXIMIZE APPEARANCE; EVENLY SPACED. WHERE EXPOSED TO VIEW, WITH FINISH AND COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.
   1. WOOD SCREWS: ASME B18.6.1.
   2. LAG BOLTS: ASME B18.2.1.
   3. BOLTS: STEEL BOLTS COMPLYING WITH ASTM A 307, GRADE A; WITH ASTM A 563 HEX NUTS AND, WHERE INDICATED, FLAT WASHERS.
   4. EXPANSION ANCHORS: ANCHOR BOLT AND SLEEVE ASSEMBLY OF MATERIAL INDICATED BELOW WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 6 TIMES THE LOAD IMPOSED WHEN INSTALLED IN UNIT MASONRY ASSEMBLIES AND EQUAL TO 4 TIMES THE LOAD IMPOSED WHEN INSTALLED IN CONCRETE AS DETERMINED BY TESTING PER ASTM E 488 CONDUCTED BY A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY.
      a. MATERIAL: STAINLESS STEEL WITH BOLTS AND NUTS COMPLYING WITH ASTM F 593 AND ASTM F 594, ALLOY GROUP 1 OR 2.
   5. ADHESIVE-BONDED ANCHORS: ANCHOR BOLT AND SLEEVE ASSEMBLY OF MATERIAL INDICATED BELOW WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 6 TIMES THE LOAD IMPOSED WHEN INSTALLED IN UNIT MASONRY ASSEMBLIES AND EQUAL TO 4 TIMES THE LOAD IMPOSED WHEN INSTALLED IN CONCRETE AS DETERMINED BY TESTING PER ASTM E 1512 CONDUCTED BY A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY.
      a. MATERIAL: STAINLESS STEEL WITH BOLTS AND NUTS COMPLYING WITH ASTM F 593 AND ASTM F 594, ALLOY GROUP 1 OR 2.
D. CAULKING: "SM-5522 ACRYLIC CAULK", GLASS-CLEAR.
E. FRAMES: REPAIR / RECONFIGURE EXISTING ALUMINUM FRAMES
F. FABRIC: REINFORCE WEAR POINTS AND HARDWARE ATTACHMENT POINTS WITH MANUFACTURER'S STANDARD WEBBING.
   1. SUNBRELLA: 100% SOLUTION DIED ACRYLIC AWNING FABRIC.
   2. FABRIC EDGES AND SEAMS: MANUFACTURER'S STANDARD HEMMING AND SEAMING METHODS.
   3. COLOR: TO BE SELECTED BY ARCHITECT

SECTION 321216 - ASPHALT PAVING

A. THIS SECTION INCLUDES THE FOLLOWING:
   1. HOT-MIX ASPHALT PAVING.
   2. COLD MILLING EXISTING PAVEMENT.
   3. STRIPING.
   4. PARKING BLOCKS.
B. QUALITY ASSURANCE:
   1. MANUFACTURER QUALIFICATIONS: MANUFACTURER SHALL BE REGISTERED WITH AND APPROVED BY AUTHORITIES HAVING JURISDICTION AND THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT).
   2. REGULATORY REQUIREMENTS: COMPLY WITH APPLICABLE STANDARDS OF THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT).FOR ASPHALT PAVING WORK.
   3. ASPHALT-PAVING PUBLICATION: COMPLY WITH THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) "CONSTRUCTION AND MATERIAL SPECIFICATIONS", LATEST EDITION, AND AI MS-22, "CONSTRUCTION OF HOT MIX ASPHALT PAVEMENTS," UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.
C. PROJECT CONDITIONS:
   1. ENVIRONMENTAL LIMITATIONS: DO NOT APPLY ASPHALT MATERIALS IF SUBGRADE IS WET OR EXCESSIVELY DAMP OR IF THE FOLLOWING CONDITIONS ARE NOT MET:
      a. PRIME COAT: MINIMUM SURFACE TEMPERATURE OF 50 DEGREES F.
      b. COURSE THICKNESS / MINIMUM SURFACE TEMP.
         1) 3" AND OVER — 36 DEGREES F.
         2) 1.5" TO 2.9" — 40 DEGREES F.
         3) 1" TO 1.4" — 50 DEGREES F.
         4) LESS THAN 1" — 60 DEGREES F.
   2. PAVEMENT-MARKING PAINT: PROCEED WITH PAVEMENT MARKING ONLY ON CLEAN, DRY SURFACES AND AT A MINIMUM AMBIENT OR SURFACE TEMPERATURE OF 40 DEG F FOR OIL-BASED MATERIALS, 50 DEG F FOR WATER-BASED MATERIALS, AND NOT EXCEEDING 95 DEG F.
   3. TACK COAT: IF SURFACE ASPHALT CONCRETE COURSE IS NOT PLACED WITHIN TEN (10) DAYS AFTER COMPLETION OF THE INTERMEDIATE ASPHALT CONCRETE COURSE, INSTALL A TACK COAT OVER INTERMEDIATE COURSE PRIOR TO SURFACE COURSE INSTALLATION.
   4. STRIPING:
      a. INITIAL STRIPING: PROVIDE STRIPING LAYOUT INDICATED OVER UNSEALED ASPHALT PAVEMENT.
      b. COORDINATION: NOTIFY THE OWNER AT LEAST TEN (10) DAYS PRIOR TO ANTICIPATED DATE OF SEALING AND STRIPING INSTALLATION.
D. ASPHALT MATERIALS: HOT-MIX ASPHALT: DENSE, HOT-LAID, HOT-MIX ASPHALT PLANT MIXES APPROVED BY THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT).
   1. AGGREGATE BASE: ODOT ITEM 304.
      a. CRUSHED CARBONATE STONE, CRUSHED GRAVEL, CRUSHED AIR-COOLED BLAST FURNACE SLAG, AND OPEN HEARTH SLAG FROM APPROVED SOURCES AND MEETING THE GRADATION REQUIREMENTS OF 703.04 .
      b. OPEN-HEARTH SLAG: CONFORM TO THE STOCKPILING AND AGING REQUIREMENTS OF 703.01 .
      c. GRANULATED SLAG: MEET THE REQUIREMENTS OF 703.08.
   2. ASPHALT CONCRETE: DENSE, HOT-LAID, HOT-MIX ASPHALT, PLANT MIXED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.
      a. ACCESS ROAD AND OUTSIDE STORAGE BUILDING: DEPTH PER DRAWINGS.
         1) BASE COURSE: ODOT ITEM 301
         2) INTERMEDIATE COURSE: ODOT ITEM 448.
         3) SURFACE COURSE: ODOT ITEM 446.
      b. APPROACHES FOR OVERHEAD DOORS AND DUMPSTER PAD: DEPTH PER DRAWINGS.
         1) ALL CONCRETE PAVEMENT, REFER TO DIVISION 32 "CONCRETE PAVEMENT".
      c. BIKEWAY PATH: DEPTH PER DRAWINGS.
         1) INTERMEDIATE COURSE: ODOT ITEM 402.
         2) SURFACE COURSE: ODOT ITEM 404.
   3. TACK COAT: ODOT ITEM 407.
      a. BITUMINOUS MATERIAL MEETING THE APPLICABLE REQUIREMENTS OF 702 AND ONE OF THE FOLLOWING: 702.02 RC-70 OR RC-250; 702.04 RS-1, SS-1, SS-1H, CRS-1, CSS-1 OR CSS-1H; OR 702.13.
      b. CUT-BACK ASPHALT 702.02 MAY ONLY BE USED AFTER SEPTEMBER 15 AND BEFORE MAY 15.
      c. APPLICATION RATE: 0.75 GALLONS PER SQUARE YARD.
E. AUXILIARY MATERIALS:
   1. SEAL COAT: ENGINEERED RESIN EMULSION SEALCOAT SLURRY "JENNITE", WITH 6 POUNDS OF SAND PER GALLON, BY NEYRA INDUSTRIES INC. EQUAL PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBMITTED FOR REVIEW NO LATER THAN TEN (10) DAYS PRIOR TO THE BID DATE. REFER TO THE NOTICE TO BIDDERS.
      a. SAND: AS RECOMMENDED BY SEALER MANUFACTURER.
         1) WASHED DRY SILICA SAND FREE OF DUST, TRASH, CLAY, ORGANIC MATERIALS OR OTHER CONTAMINANTS.
         2) GRADATION: AMERICAN FOUNDRY SOCIETY GRAIN FINENESS NUMBER NOT LESS THAN FIFTY (50) AND NO MORE THAN SEVENTY (70), WHEN TESTED IN ACCORDANCE WITH ASTM C 136.
      b. COATS: TWO (2).
   2. PARKING PAVEMENT-MARKING PAINT: "PERMALINE MARKING PAINT LATEX PAINT" BY NEYRA INDUSTRIES, INC. EQUAL PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBMITTED FOR REVIEW NO LATER THAN TEN (10) DAYS PRIOR TO THE BID DATE. REFER TO THE NOTICE TO BIDDERS.
      a. MATERIALS: HIGH SOLIDS, FACTORY MIXED, NON-BEADED, WATER BASED ACRYLIC LATEX STRIPING PAINT CONTAINING ULTRAVIOLET RESISTANT PIGMENTS.
      b. COLOR: WHITE.
      c. COATS: ONE (1).
F. CONCRETE PARKING BLOCKS: PRECAST, AIR-ENTRAINED CONCRETE, 5,000 PSI 2500-PSI MINIMUM COMPRESSIVE STRENGTH, NATURAL COLOR.
   1. SIZE: 6" HIGH X 10" WIDE X 72" LONG WITH TWO (2) #4 REINFORCING BARS.
   2. DOWELS: TWO (2) #6 STEEL RODS WITH HOOK ON TOP, 30" MINIMUM LENGTH, PER UNIT.

SECTION 321313 - CONCRETE PAVEMENT

A. THIS SECTION INCLUDES CEMENT CONCRETE PAVEMENT FOR THE FOLLOWING APPLICATIONS:
   1. EXTRUDED CURBS.
   2. CURB AND SIDEWALKS.
   3. DUMPSTER PAD.
   4. STORAGE BIN PADS.
B. QUALITY ASSURANCE:
   1. CONCRETE MANUFACTURER QUALIFICATIONS: MANUFACTURER OF READY-MIXED CONCRETE PRODUCTS COMPLYING WITH ASTM C 94 REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
   2. ACI PUBLICATIONS: COMPLY WITH ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE," UNLESS MODIFIED BY THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
C. STEEL REINFORCEMENT:
   1. PLAIN-STEEL WELDED WIRE FABRIC: ASTM A 185, FABRICATED FROM AS-DRAWN STEEL WIRE INTO
   2. REINFORCEMENT BARS: ASTM A 615 FLAT SHEETS., GRADE 60 , DEFORMED.
   3. PLAIN STEEL WIRE: ASTM A 82, AS DRAWN.
   4. BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING, SUPPORTING, AND FASTENING STEEL REINFORCEMENT. MANUFACTURE BAR SUPPORTS ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE.
D. CONCRETE MATERIALS: COMPLY WITH DIVISION 03 "CAST-IN-PLACE CONCRETE".
E. RELATED MATERIALS:
   1. FORMS: STEEL OR WOOD OF SIZE AND STRENGTH TO RESIST MOVEMENT DURING CONCRETE PLACEMENT AND TO RETAIN HORIZONTAL AND VERTICAL ALIGNMENT UNTIL REMOVAL. PROVIDE FORMS, FREE OF DISTORTION AND DEFECTS, AND OF HEIGHT EQUAL TO FULL DEPTH OF CONCRETE WORK.
      a. PROVIDE 2" NOMINAL THICKNESS, SURFACED PLANK WOOD FORMS FOR STRAIGHT SECTION. USE FLEXIBLE SPRING STEEL FORMS OR LAMINATED BOARDS TO FORM RADIUS BENDS AS REQUIRED.
      b. COAT FORMS WITH A NON-STAINING FORM RELEASE AGENT THAT WILL NOT DISCOLOR OR DEFACE THE SURFACE OF THE CONCRETE.
   2. EXPANSION- AND ISOLATION-JOINT-FILLER STRIPS: ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER, OR ASTM D 1752, CORK OR SELF-EXPANDING CORK.
   3. EVAPORATION RETARDER: AS LISTED IN DIVISION 03 "CAST-IN-PLACE CONCRETE".
   4. WATER REPELLENT FOR SIDEWALKS ONLY: "CONSOLIDECK SALTGUARD" BY PROSOCO, INC. SINGLE COAT. USE "CUR-TO-SPEC MS" AS COMPATIBLE WITH CURING COMPOUND OR A DISSIPATING TYPE AS LISTED IN DIVISION 03 "CAST-IN-PLACE CONCRETE".
F. EXTERIOR PATIO: REFER TO THE DRAWINGS FOR LOCATION OF PATIO SLAB AND PATTERN OF SCOURED CONTROL JOINTS.

SECTION 329200 - TURF AND GRASSES

A. SECTION INCLUDES:
   1. PREPARATION OF LAWN AND GRASS AREAS AFTER FINISH GRADING INCLUDING REMOVAL OF ROCKS, DEBRIS, ETC.
   2. SEEDING.
   3. EXISTING ON-SITE TOPSOIL MATERIALS ANALYSIS, AMENDMENT RECOMMENDATIONS AND MATERIALS FOR LAWNS AND GRASSES AND EXTERIOR PLANTS PLANTING AREAS.
B. GRASS SEED: FRESH, CLEAN, DRY, NEW-CROP SEED COMPLYING WITH AOSA'S "JOURNAL OF SEED TECHNOLOGY; RULES FOR TESTING SEEDS" FOR PURITY AND GERMINATION TOLERANCES.
C. SUN AND PARTIAL SHADE: PROPORTIONED BY WEIGHT AS POSSIBLE:
   1. COMPOSITION:
      a. 70% TURF-TYPE FESCUES.
      b. 20% PERENNIAL RYEGRASS (LOLIUM PERENNE).
      c. 10% KENTUCKY BLUEGRASS (POA PRATENSIS).
D. WATER: POTABLE.
E. FERTILIZER: HIGH PHOSPHORUS "STARTER" FERTILIZER THAT WILL STIMULATE ROOT GROWTH.
F. TACKIFIER: NONASPHALTIC, COLLOIDAL MIXTURE NONTOXIC, FREE OF PLANT GROWTH OR GERMINATION INHIBITORS FOR SLURRY APPLICATION AS RECOMMENDED BY MULCH MANUFACTURER.
G. MULCH: BIODEGRADABLE DYED PAPER OR WOOD PRODUCT FREE OF PLANT GROWTH OR GERMINATION INHIBITORS.
   1. COLOR: GREEN.
   2. MOISTURE CONTENT: 15 PERCENT, MAXIMUM.
   3. PH RANGE: 4.5 TO 6.5.

SECTION 329300 - PLANTS

A. SECTION INCLUDES:
   1. TREES, SHRUBS, GROUND COVER AND PLANTS.
   2. PLANTING MIXES, MULCHES AND ACCESSORIES.
   3. INSTALLATION MAINTENANCE FOR INDICATED TIME PERIOD.
B. TREE AND SHRUB MATERIAL
   1. GENERAL: FURNISH NURSERY-GROWN TREES AND SHRUBS COMPLYING WITH ANSI Z60.1, WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS AND DISFIGUREMENT.
   2. ROOT-BALL DEPTH: FURNISH TREES AND SHRUBS WITH ROOT BALLS MEASURED FROM TOP OF ROOT BALL, WHICH SHALL BEGIN AT ROOT FLARE ACCORDING TO ANSI Z60.1.
   3. PROVIDE [BALLED AND BURLAPPED] [BALLED AND POTTED] [BARE-ROOT] [CONTAINER-GROWN] [FABRIC BAG-GROWN] TREES.
   4. SHRUB SIZES INDICATED ON DRAWINGS ARE SIZES AFTER PRUNING.
C. GROUND COVER PLANTS
   1. GROUND COVER: PROVIDE GROUND COVER OF SPECIES INDICATED, ESTABLISHED AND WELL ROOTED IN POTS OR SIMILAR CONTAINERS, AND COMPLYING WITH ANSI Z60.1.
D. PLANTS
   1. ANNUALS AND BIENNIALS: PROVIDE HEALTHY, DISEASE-FREE PLANTS OF SPECIES AND VARIETY SHOWN OR LISTED, WITH WELL-ESTABLISHED ROOT SYSTEMS REACHING TO SIDES OF THE CONTAINER TO MAINTAIN A FIRM BALL, BUT NOT WITH EXCESSIVE ROOT GROWTH ENCIRCLING THE CONTAINER. PROVIDE ONLY PLANTS THAT ARE ACCLIMATED TO OUTDOOR CONDITIONS BEFORE DELIVERY AND THAT ARE IN BUD BUT NOT YET IN BLOOM.
   2. PERENNIALS: PROVIDE HEALTHY, FIELD-GROWN PLANTS FROM A COMMERCIAL NURSERY, OF SPECIES AND VARIETY SHOWN OR LISTED, COMPLYING WITH REQUIREMENTS IN ANSI Z60.1.
E. ORGANIC SOIL AMENDMENTS
   1. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, PH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 1" SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIEMENS/M.
   2. PEAT: SPHAGNUM PEAT MOSS, PARTIALLY DECOMPOSED, FINELY DIVIDED OR GRANULAR TEXTURE, WITH A PH RANGE OF 3.4 TO 4.8.
   3. PEAT: FINELY DIVIDED OR GRANULAR TEXTURE, WITH A PH RANGE OF 6 TO 7.5, CONTAINING PARTIALLY DECOMPOSED MOSS PEAT, NATIVE PEAT, OR REED-SEDGE PEAT AND HAVING A WATER-ABSORBING CAPACITY OF 1100 TO 2000 PERCENT.
   4. WOOD DERIVATIVES: DECOMPOSED, NITROGEN-TREATED SAWDUST, GROUND BARK, OR WOOD WASTE; OF UNIFORM TEXTURE, FREE OF CHIPS, STONES, STICKS, SOIL, OR TOXIC MATERIALS.
   5. MANURE: WELL-ROTTED, UNLEACHED, STABLE OR CATTLE MANURE CONTAINING NOT MORE THAN 25 PERCENT BY VOLUME OF STRAW, SAWDUST, OR OTHER BEDDING MATERIALS; FREE OF TOXIC SUBSTANCES, STONES, STICKS, SOIL, WEED SEED, AND MATERIAL HARMFUL TO PLANT GROWTH.
F. FERTILIZERS
   1. SLOW-RELEASE FERTILIZER: GRANULAR OR PELLETED FERTILIZER CONSISTING OF 50 PERCENT WATER-INSOLUBLE NITROGEN, PHOSPHORUS, AND POTASSIUM IN THE FOLLOWING COMPOSITION:
      a. COMPOSITION: 20 PERCENT NITROGEN, 10 PERCENT PHOSPHOROUS, AND 10 PERCENT POTASSIUM, BY WEIGHT.
      b. OR OTHER: PROVIDE THE APPROPRIATE TYPE FOR THE PLANT AS RECOMMENED BY THE PLANT SUPPLIER.
G. MULCHES
   1. ORGANIC MULCH: SHREDDED HARDWOOD OR OTHER TO MATCH EXISTING.

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Hilliard Civic & Cultural Arts Center
CITY OF HILLIARD
5425 CENTER STREET HILLIARD, OH 43026

Project Number: 15002
Drawn By: DK
Date: 08/31/2015

A904

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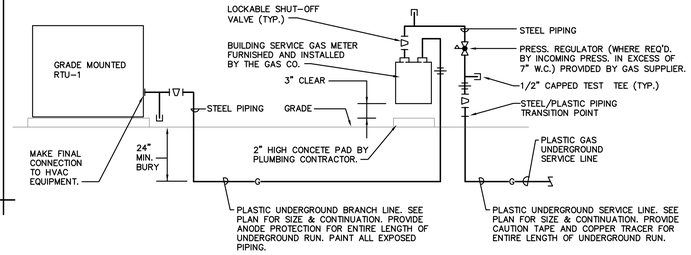
GAS SERVICE NOTES:

1. MATERIALS & METHODS OF INSTALLATION FOR ALL ELEMENTS TO BE IN ACCORDANCE WITH THE GAS PROVIDER/AUTHORITY, CONFIRMED BY THE PLBG. CONTR. IN ADVANCE OF WORK, AND SUBJECT TO THEIR APPROVAL UPON COMPLETION.
2. THIS DIAGRAM IS SCHEMATIC IN NATURE FOR INDICATION OF PERTINENT ELEMENTS & GENERAL CONFIGURATION ONLY. ALL PIPE SIZES AND SPECIFIC ELEMENT SETTINGS TO BE AS DIRECTED BY THE GAS PROVIDER/AUTHORITY.
3. ALL PIPING BELOW GRADE TO BE LISTED/APP'D. PLASTIC; AB. GRADE TO BE LISTED/APP'D. STEEL. REFER TO SPECIFICATIONS FOR LISTED/APP'D. PIPING MATERIALS
4. WHEN A PRESS. REGULATOR IS REQUIRED, ADJUST FOR 7" W.C. AT METER OUTLET FOR HOUSE SERVICE, XXX CFH FLOW CAP.

TOTAL BUILDING GAS LOAD

RTU-1	350	CFH
TOTAL	350	CFH

NOTE:
INSTALL REGULATORS AND METER IN ACCORDANCE WITH GAS PROVIDER REQUIREMENTS, CONFIRMED IN ADVANCE OF WORK.



GAS METER/REGULATOR PIPING DIAGRAM

CONSTRUCTION NOTES

1. ALL WORK TO BE SCHEDULED IN ADVANCE WITH THE OWNER.
2. HOURS AND AREAS OF ACCESS FOR CONSTRUCTION TO BE PER THE OWNER'S DIRECTION.
3. DESIGNATED WORK AREAS ARE AS INDICATED BY THE ARCHITECTURAL PLANS AND THE OWNER. ANY WORK REQUIRED OUTSIDE OF THESE AREAS TO BE APPROVED BY AND SCHEDULED IN ADVANCE WITH THE OWNER.
4. WORK TO BE DONE IN SUCH A MANNER AS TO AVOID OR MINIMIZE INTERUPTION OF NORMAL ACTIVITIES IN ADJACENT AREAS REMAINING IN OPERATION DURING CONSTRUCTION. ANY UTILITY OUTAGES OR IMPAIRMENTS TO BE SCHEDULED WITH THE OWNER IN ADVANCE, AND EXECUTED IN THE MANNER DIRECTED.
5. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR FIRESTOPPING AT ALL PLUMBING RELATED PENETRATIONS OF FIRE, SMOKE AND OTHER RATED STRUCTURES, INCLUDING FLOORS, WALLS, PARTITIONS, ETC.. REFER TO ARCHITECTURAL DOCUMENTATION FOR LOCATIONS OF ALL RATED STRUCTURES, AND SPECIFIC INFORMATION AND REQUIREMENTS PERTAINING TO SAME.
6. ALL WORK LOCATED INSIDE THE LIMITS OF CONSTRUCTION LINE CAN BE INSTALLED DURING REGULAR BUSINESS HOURS.
7. ALL WORK OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE PERFORMED DURING OFF-BUSINESS HOURS. ALL EQUIPMENT AND FURNITURE SHALL BE PROTECTED FROM DUST AND DEBRIS. PATCHING EXISTING CEILINGS OR WALLS WILL BE BY THE GENERAL CONTRACTOR AT THE PLUMBING CONTRACTOR'S EXPENSE.
8. ALL CUTTING AND PATCHING OF THE EXISTING STRUCTURE SHALL BE PERFORMED BY THIS CONTRACTOR. IF AT ANY TIME EXISTING STRUCTURAL MEMBERS ARE CUT OR OTHERWISE COMPROMISED, THIS CONTRACTOR SHALL HALT ALL WORK AND CONTACT THE ARCHITECT/CONSTRUCTION MANAGER FOR REDIRECTION AS REQUIRED.
9. ALL VALVES INDICATED TO BE INSTALLED ABOVE CEILING SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS IN COORDINATION WITH WORK OF OTHER TRADES.
10. ALL CONDITIONS UPON COMPLETION OF WORK INCLUDED UNDER THIS CONTRACT TO MATCH CONDITIONS PRIOR TO START OF WORK.

PLUMBING ABBREVIATIONS

AB.	ABOVE	FLR.	FLOOR
A.F.F.	ABOVE FINISHED FLOOR	F.V.	FLUSH VALVE
APPROX.	APPROXIMATELY	LAV.	LAVATORY
CLG.	CEILING	MECH.	MECHANICAL
C.O.	CLEAN OUT	RM.	ROOM
CONN.	CONNECT	TYP.	TYPICAL
CONTR.	CONTRACTOR	W/	WITH
EXIST.	EXISTING	WC	WATER CLOSET

CODED NOTES ⬡

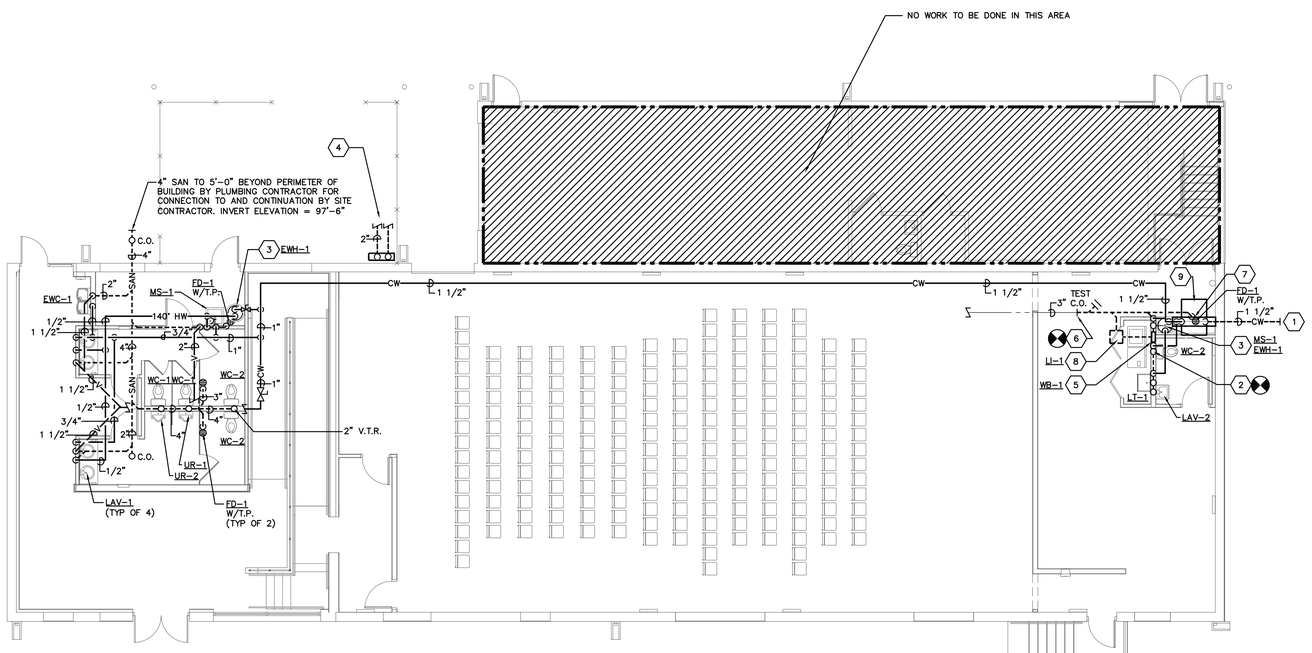
1. 1 1/2" DOMESTIC WATER SERVICE TO 5'-0" BEYOND PERIMETER OF BUILDING BY THIS CONTRACTOR FOR CONNECTION TO AND CONTINUATION BY SITE CONTRACTOR. INSTALLATION TO BE COORDINATED IN ADVANCE OF WORK. INVERT ELEVATION= 96'-0".
2. CONNECT NEW 2" V TO EXISTING 4" V STACK ABOVE CEILING AND EXTEND AS SHOWN. INSTALLATION, INCLUDING EXACT LOCATION OF CONNECTION POINT TO EXISTING TO BE FIELD VERIFIED BY THIS CONTRACTOR IN ADVANCE OF WORK.
3. ELECTRIC WATER HEATER (EWH-1) PROVIDED AND INSTALLED BY THIS CONTRACTOR AT THIS LOCATION MOUNTED ABOVE AND DRAINED TO MS-1, SEE PLUMBING EQUIPMENT SCHEDULE ON SHEET P203 FOR FURTHER DETAIL OF WORK AT THIS LOCATION. SPECIFICATIONS/ELECTRIC WATER HEATER DIAGRAM ON SHEET P203.
4. REFER TO GAS METER/REGULATOR PIPING DIAGRAM ON THIS SHEET FOR FURTHER DETAIL OF WORK AT THIS LOCATION, COORDINATE WORK WITH HVAC CONTRACTOR IN ADVANCE.
5. WASHER PROVIDED BY OTHERS. THIS CONTRACTOR TO PROVIDE WASHING MACHINE SUPPLY AND DRAIN BOX SIMILAR TO GUY GRAY MODEL PL200 WITH 1/2" CW AND HW SHUT-OFF VALVES, 2" CENTER DRAIN, 12"Wx9.75" OVERALL SIZE, CONSTRUCTED OF HIGH IMPACT POLYSTYRENE, AND UPC/IAPMO LISTED AND APPROVED. INSTALLATION TO BE COORDINATED WITH OWNER/ARCHITECT IN ADVANCE OF WORK.
6. CONNECT NEW 3" SAN TO EXISTING 3" SAN AND EXTEND AS SHOWN. INSTALLATION INCLUDING EXACT LOCATION OF CONNECTION POINT TO EXISTING TO BE COORDINATED IN-FIELD BY THE CONTRACTOR.
7. 1" DOMESTIC WATER METER PROVIDED AND INSTALLED BY THIS CONTRACTOR. 1 1/2" ASSE 1013 LISTED/APPROVED REDUCED PRESSURE ZONE PRINCIPAL BACKFLOW PREVENTER PROVIDED AND INSTALLED BY THIS CONTRACTOR.
8. LINT INTERCEPTOR (LI-1) PROVIDED AND INSTALLED BY THIS CONTRACTOR BELOW SLAB AT THIS LOCATION/ADJACENT TO CLOTHES WASHER. REFER TO PLUMBING EQUIPMENT SCHEDULE ON SHEET P202 FOR SPECIFICATIONS/STACK ON SHEET P203 FOR FURTHER DETAIL OF WORK AT THIS LOCATION. INSTALLATION TO BE COORDINATED WITH WORK OF OTHER TRADES IN ADVANCE.
9. MAINTAIN A MINIMUM OF 24" CLEARANCE AT FRONT PERIMETER OF METER AND BACKFLOW PREVENTER, WITH 18" EDGE CLEARANCE FROM ANY WALLS AND 12" EDGE CLEARANCE ON EACH END, PER THE LOCAL WATER AUTHORITY.

PLUMBING LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—CW—	DOMESTIC COLD WATER LINE	- - - - -	EXISTING WORK TO BE REMOVED
—D—	DRAIN LINE		PIPE BRANCH TOP CONN.
—F.P.—	FIRE PROTECTION LINE		PIPE BRANCH BOTTOM CONN.
—HW—	HOT WATER LINE		PIPE UNION
—HWR—	HOT WATER RETURN LINE		BALL VALVE
—SAN—	SANITARY LINE		CHECK VALVE
—TP—	TRAP PRIMER LINE		PRESSURE REGULATOR
—V—	VENT LINE		FLOOR DRAIN
	P-TRAP (PLAN VIEW)		PRESSURE GAUGE
	CAPPED LINE		CONNECT TO EXISTING
	EXISTING WORK TO REMAIN		THRU FLOOR AS SHOWN

PLUMBING NOTES

1. NOTE THAT EXISTING CONDITIONS SHOWN ON PLANS ARE FROM PREVIOUS ENGINEERING DOCUMENTATION AND FIELD OBSERVATION. ACTUAL CONDITIONS MAY VARY, AND MUST BE FIELD VERIFIED BY THIS CONTRACTOR (WHETHER SHOWN OR NOT). THIS CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS AS NECESSITATED BY ACTUAL CONDITIONS, REQUIRED TO COMPLETE INSTALLATION OF NEW ITEMS. IF EXISTING CONDITIONS PROHIBIT INSTALLATION OF ITEMS, NOTIFY THE CONSTRUCTION MANAGER FOR REDIRECTION AS REQUIRED.
2. REFER TO ARCHITECTURAL DOCUMENTATION FOR ADDITIONAL SCOPE/INFORMATION REGARDING DEMOLITION/REMODELING WORK, INCLUDING IDENTIFICATION OF AREAS AND ITEMS INVOLVED, AS WELL AS INFORMATION OF BOTH A GENERAL AND SPECIFIC NATURE.
3. UNLESS DIRECTED OTHERWISE, WHEN EXISTING PLUMBING ITEMS THAT ARE IN USE PRIOR TO START OF THIS PROJECT AND DO NOT OBSTRUCT NEW WORK, THE ITEM SHALL REMAIN IN USE DURING THE EXECUTION OF NEW WORK AND AFTER PROJECT COMPLETION. EXISTING PLUMBING ITEMS THAT OBSTRUCT NEW WORK, AND/OR ARE IN EXPOSED LOCATIONS IN REVISED/REMODELED AREAS WHERE NEW CONCEALING/FINISH STRUCTURE IS PROVIDED UNDER SEPARATE CONTRACT, SHALL BE REVISED/RELOCATED AS REQUIRED TO CLEAR NEW WORK, AND/OR BE IN A CONCEALED LOCATION.
4. UNLESS DIRECTED OTHERWISE, WHERE CONCEALING/FINISH STRUCTURE IS PROVIDED UNDER SEPARETE CONTRACT, ALL WORK IN THE PLUMBING CONTRACT NOT SPECIFICALLY INTENDED OR IDENTIFIED FOR EXPOSED/VISIBLE INSTALLATION SHALL BE INSTALLED WITHIN THE CONCEALING STRUCTURE.
5. CUTTING/REMOVAL AND REPAIR/REPLACEMENT OF EXISTING STRUCTURES AND/OR SURFACES REQUIRED BY WORK IN THE PLUMBING CONTRACT IS BY THE PLUMBING CONTRACTOR, UNLESS INDICATED OTHERWISE. REPAIR/REPLACEMENT TO BE TO ORIGINAL CONDITION, AND TO MATCH ADJACENT SURFACES IN TYPE, KIND AND FINISH. THIS INCLUDES CEILINGS, PARTITIONS, FLOORS, SOFFITS, ETC., BOTH WITHIN AND OUTSIDE THE REVISED/REMODELED AREA(S) THAT ARE AFFECTED BY WORK IN THE PLUMBING CONTRACT. THIS CONDITION DOES NOT APPLY IF EXISTING STRUCTURES AND/OR SURFACES ARE BEING REVISED/REMOVED/ UNDER SEPARATE CONTRACT.
6. ALL PIPING SHOWN IS ABOVE CEILING IN AREAS WITH DROPPED CEILINGS, OR AT BOTTOM OF OVERHEAD SUPPORT STRUCTURE IN EXPOSED STRUCTURE AREAS, UNLESS INDICATED OTHERWISE.
7. THE PLUMBING CONTRACTOR IS TO SECURE AND VERIFY ALL MEASUREMENTS AND CONDITIONS AT THE PROJECT IN ADVANCE OF WORK (INCLUDING FABRICATION).
8. THE PLUMBING CONTRACTOR IS TO PROVIDE ALL ADDITIONAL STEEL, HANGERS, RODS, CLAMPS, ETC., AS REQUIRED FOR PROPER INSTALLATION, SUPPORT, AND COORDINATION WITH WORK PROVIDED UNDER SEPARATE CONTRACT. UNLESS INDICATED OTHERWISE IN PROJECT SPECIFICATIONS OR BY THE PIPE MATERIAL MANUFACTURER, SUPPORT PIPING AS FOLLOWS:
9. LAYOUT AND INSTALLATION OF PLUMBING CONTRACT PIPING, EQUIPMENT, AND ITEMS INDICATED ON PLAN IS SCHEMATIC IN NATURE. EXACT LOCATION, ROUTING AND INSTALLATION TO BE COORDINATED WITH BUILDING STRUCTURE AND ALL OTHER WORK PROVIDED UNDER SEPARATE CONTRACT.
10. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL PLUMBING UTILITIES REQUIRED AND PROVIDED FOR WORK UNDER SEPARATE CONTRACT WITH THE APPROPRIATE CONTRACTOR(S) IN ADVANCE OF WORK. THIS INCLUDES SUPPLY AND DRAIN ITEMS, FOR DIRECT (PIPED) AND/OR INDIRECT (FLOOR/HUB DRAIN, AIR GAP, ETC.) CONNECTION/SERVICE.
11. RUN ALL WATER LINES LEVEL.
12. ROUGH IN ALL PIPING (SUPPLY, RETURN, WASTE, DRAIN, ETC.) FOR FIXTURES/EQUIPMENT INSTALLATION THRU OR ON FACE OF WALL (AS APPLICABLE), AND TERMINATE WITH SHORT PIPE NIPPLE AND CAP. ROUGH INS AT EXTERIOR WALLS (IF ANY) TO BE ON "WARM" SIDE OF INSULATION ASSEMBLY, AS REQUIRED FOR NON-FREEZE INSTALLATION.
13. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF COLUMBUS BUILDING CODE, INCLUDING APPLICABLE PLUMBING, MECHANICAL AND HANDICAP ACCESSIBILITY PROVISIONS.
14. PROVIDE CLEANOUTS AS FOLLOWS:
    A. IN ALL HORIZONTAL SANITARY PIPING AT INTERVALS NOT TO EXCEED 100 L.F. IN LENGTH.
    B. AT CONNECTION POINTS TO EXISTING SANITARY AND VENT PIPING (TEST TYPE CLEANOUTS).
15. UNLESS INDICATED OTHERWISE, ALL FIXTURES AND EQUIPMENT PROVIDED WITH PLUMBING SUPPLY PIPING TO BE FURNISHED WITH APPROVED/LISTED STOPS IN ACCESSIBLE LOCATIONS.
16. SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF CASEWORK, EQUIPMENT AND OTHER ITEMS PROVIDED UNDER SEPARATE CONTRACT, INCLUDING EXACT LOCATIONS AND UTILITY CONNECTION REQUIREMENTS. COORDINATE PLUMBING UTILITY WORK AS REQUIRED IN ADVANCE, INCLUDING PLACEMENT OF FITTINGS, ACCESSORIES, APPURTENANCES, DRAINS, ETC.
17. VERIFY THE EXACT LOCATION AND INSTALLATION REQUIREMENTS FOR ALL DRAINS WITH THE ARCHITECTURAL AND STRUCTURAL DOCUMENTATION FOR PROPER PLACEMENT IN RESPECT TO SLOPES AND STRUCTURE AT EACH DRAIN. COORDINATE INSTALLTION WITH THE APPROPRIATE CONTRACTOR. FINAL INSTALLATION AND LOCATION SUBJECT TO APPROVAL.
18. PLUMBING PIPING IS NOT PERMITTED TO RUN ABOVE ANY ELECTRICAL SWITCHGEAR, MOTOR CONTROL CENTERS OR PANELS (INCLUDING ACCESS/CLEARANCE SPACE 42" IN FRONT OF THESE ITEMS, AND MIN. 30" WIDE), UNDER ANY CIRCUMSTANCES.
    A. LOCATION OF EXISTING ITEMS OF THESE TYPES TO BE DETERMINED AND CONFIRMED IN THE FIELD PRIOR TO START OF WORK.



FIRST FLOOR
PLUMBING NEW WORK PLAN
SCALE: 1/8"=1'-0"
FINISH FLOOR ELEVATION = 100'-0"

B / P203 STACK

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08/31/15

Hilliard Civic & Cultural Arts Center

5425 CENTER STREET HILLIARD, OH 43026

CITY OF HILLIARD

Project Number:	13023
Drawn By:	CH
Date:	08/31/2015

P201

P201-13270.DWG

PRATER
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6130 Wilcox Road
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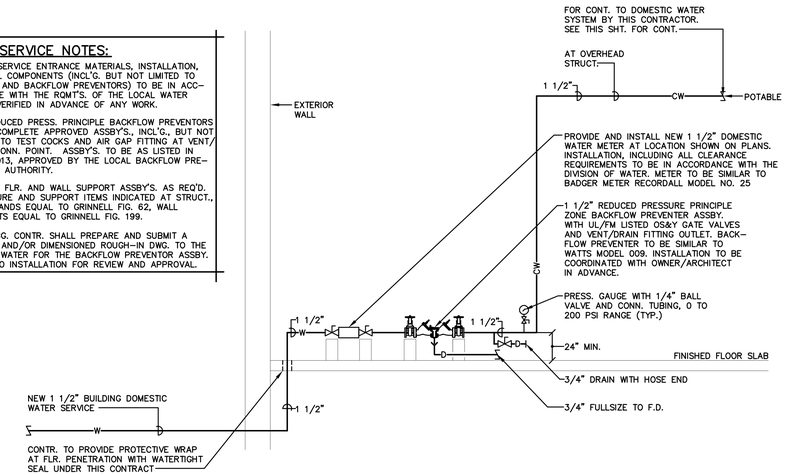
DESIGNED BY	DRAWN BY	CHECKED BY	JOB NUM.
JWH	JWH	MB	13270

DRAIN & CLEANOUT SCHEDULE

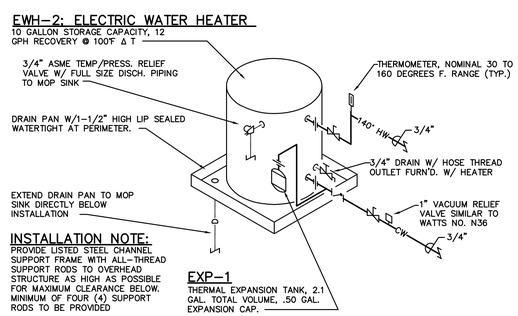
DES.	LOCATION	DESCRIPTION
FD-1	FINISHED FLOOR F.D.	ZURN ZN-415 CAST IRON FLOOR DRAIN WITH DOUBLE DRAINAGE FLANGE AND WEEP-HOLES, BOTTOM CAULK OUTLET WITH TYPE B SIZE 6" DIAMETER NICKEL BRONZE ADJUSTABLE STRAINER. FURNISH WITH CLAMPING COLLAR EXCEPT FLOOR DRAINS IN ON-GRADE LOCATIONS.
C.O.	WALLS OF FINISHED AREA	USE CLEANOUT TEE AND PROVIDE CLEANOUT AND ACCESS COVER SIMILAR TO ZURN Z-1446 WITH ROUND POLISHED STAINLESS STEEL ACCESS COVER AND ABS PLASTIC THREADED PLUG. SIZE TO SUIT CLEANOUT.
C.O.	FLOORS OF FINISHED AREA	PROVIDE FRAME AND ACCESS COVER SIMILAR TO ZURN ZN-1400 WITH GAS TIGHT BRONZE PLUG, ROUND SCREWDOWN ACCESS COVER BOX WITH POLISHED SCORIATED TOP AND ANCHOR LUGS.
C.O.	ALL OTHER CLEANOUTS	ZURN ZB-1470 FLUSH WITH FLOOR OR WALL AND HAVE COUNTER-SUNK BRASS HEADS. BRASS HEADS.

WATER SERVICE NOTES:

1. WATER SERVICE ENTRANCE MATERIALS, INSTALLATION, AND ALL COMPONENTS (INCL'G. BUT NOT LIMITED TO METERS AND BACKFLOW PREVENTORS) TO BE IN ACC-ORDANCE WITH THE RQMT'S. OF THE LOCAL WATER DEPT., VERIFIED IN ADVANCE OF ANY WORK.
2. ALL REDUCED PRESS. PRINCIPLE BACKFLOW PREVENTORS TO BE COMPLETE APPROVED ASSBY'S., INCL'G., BUT NOT LIMITED TO TEST COCK'S AND AIR GAP FITTING AT VENT/DRAIN CONN. POINT. ASSBY'S. TO BE AS LISTED IN ASSE 1013, APPROVED BY THE LOCAL BACKFLOW PRE-VENTION AUTHORITY.
3. PROVIDE FLR. AND WALL SUPPORT ASSBY'S. AS REQ'D. TO SECURE AND SUPPORT ITEMS INDICATED AT STRUCT., PIPE STANDS EQUAL TO GRINNELL FIG. 62, WALL BRACKETS EQUAL TO GRINNELL FIG. 199.
4. THE PLBG. CONTR. SHALL PREPARE AND SUBMIT A SCALED AND/OR DIMENSIONED ROUGH-IN DWG. TO THE DIV. OF WATER FOR THE BACKFLOW PREVENTOR ASSBY. PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL.



DOMESTIC WATER SERVICE ENTRANCE DIAGRAM



EWH-1; ELECTRIC WATER HEATER DIAGRAM

PLUMBING FIXTURE SCHEDULE

PLUMBING FIXTURE NOTES:

1. UNLESS INDICATED OTHERWISE, THE ARCHITECT SHALL SELECT THE FIXTURE COLOR/FINISH FROM THE MANUFACTURER'S FULL RANGE OF STANDARD OPTIONS.
2. UNLESS INDICATED OTHERWISE, ALL EXPOSED METALLIC COMPONENTS TO BE FURNISHED WITH POLISHED CHROME FINISH, INCLUDING FAUCETS, TRAPS, STOPS, PIPING, ETC.
3. UNLESS INDICATED OTHERWISE, ALL EXPOSED PIPING SHALL BE FURNISHED WITH POLISHED CHROME FINISH BRASS ESCUTCHEONS AT ALL WALL/CABINET PENETRATIONS AND FIXTURE CONNECTIONS.

FIXTURE	MANUFACTURER	REMARKS		PIPE SIZE	
WC-1	AMERICAN STANDARD, BEMIS, McGUIRE	FIXTURE;	AMERICAN STANDARD CADET RIGHT HEIGHT MODEL NO. 2467.016 FLOOR MOUNTED PRESSURE ASSISTED TANK TYPE, ELONGATED BOWL, OPEN FRONT SEAT 1.6 GPF, 16.5" RIM HEIGHT, 2-1/8" GLAZED TRAPWAY.	1/2"	---
		STOP(S);	McGUIRE MODEL 2169LK 1/2" CLOSET SUPPLY W/ LOOSE KEY BRASS ANGLE STOP & COPPER FLEX RISER. ALL CHROME PLATED		
		SEAT;	BEMIS OPEN FRONT SEAT, MODEL NO. 1655/SSC (SELF-SUSTAINING CHECK HINGE)		
WC-2 (HANDICAP ACCESS-IBLE)	AMERICAN STANDARD, BEMIS, McGUIRE	FIXTURE;	AMERICAN STANDARD CADET RIGHT HEIGHT MODEL NO. 2467.016 FLOOR MOUNTED PRESSURE ASSISTED TANK TYPE, ELONGATED BOWL, OPEN FRONT SEAT 1.6 GPF, 16.5" RIM HEIGHT, 2-1/8" GLAZED TRAPWAY.	1/2"	---
		STOP(S);	McGUIRE MODEL 2169LK 1/2" CLOSET SUPPLY W/ LOOSE KEY BRASS ANGLE STOP & COPPER FLEX RISER. ALL CHROME PLATED		
		SEAT;	BEMIS OPEN FRONT SEAT, MODEL NO. 1655/SSC (SELF-SUSTAINING CHECK HINGE)		
		FIXTURE ASSEMBLY TO COMPLY WITH HANDICAP ACCESS REQUIREMENTS.			
LAV-1 (HANDICAP ACCESS-IBLE)	AMERICAN STAN-DARD/McGUIRE	FIXTURE;	AMERICAN STD. PIAZZA COUNTER TOP MODEL NO. 0478.403	1/2"	1/2"
		CONTROLS;	AMERICAN STD. CENTERSET LAVATORY FAUCET, WITH 0.5 GPM LAMINAR FLOW OUTLET AND LEVER HANDLES. MODEL NO. 3875.501		
		MIXING VALVE;	SIMILAR TO LEONARD MODEL NO. 270 THERMOSTATIC MIXING MIXING VALVE WITH INTEGRAL INLET CHECK STOPS, LOCKING TEMPERATURE ADJUSTMENT, AND ASSE 1070 CERTIFIED. ADJ-UST VALVE AS REQUIRED TO PROVIDE A MAXIMUM OF 120°F HOT WATER AT OUTLET OF GOOSENECK FAUCET TO SINK.		
		TRAP;	McGUIRE MODEL 8902 1 1/4"x1 1/2" 17 GA. P-TRAP, CHROME PLATED		
		STOP(S);	McGUIRE MODEL 2165LK 1/2" LAVATORY SUPPLIES W/ LOOSE KEY BRASS ANGLE STOPS & COPPER FLEX TUBE RISERS. ALL CHROME PLATED		
		CARRIER;	ZURN SERIES 1231		
		COVER;	McGUIRE PRO-WRAP SERIES FOR EXPOSED SUPPLY AND DRAIN		
LAV-2 (HANDICAP ACCESS-IBLE)	KOHLER/ LEONARD/ ZURN/ MCQUIRE OR EQUAL	FIXTURE;	KOHLER SOHO WALL HUNG; MODEL NO. K-2054	1/2"	1/2"
		CONTROLS;	KOHLER JULY SINGLE-HOLE BATHROOM SINK FAUCET MODEL NO. K-98146-4, 1.5 GPM MAX FLOW, ONE PIECE SELF CONTAINED CERAMIC DISC VALVE.		
		MIXING VALVE;	SIMILAR TO LEONARD MODEL NO. 270 THERMOSTATIC MIXING MIXING VALVE WITH INTEGRAL INLET CHECK STOPS, LOCKING TEMPERATURE ADJUSTMENT, AND ASSE 1070 CERTIFIED. ADJ-UST VALVE AS REQUIRED TO PROVIDE A MAXIMUM OF 120°F HOT WATER AT OUTLET OF GOOSENECK FAUCET TO SINK.		
		TRAP;	McGUIRE MODEL 8902 1 1/4"x1 1/2" 17 GA. P-TRAP, CHROME PLATED		
		STOP(S);	McGUIRE MODEL 2165LK 1/2" LAVATORY SUPPLIES W/ LOOSE KEY BRASS ANGLE STOPS & COPPER FLEX TUBE RISERS. ALL CHROME PLATED		
		CARRIER;	ZURN SERIES 1230		
LT-1	FIAT/ CHICAGO/ McGUIRE/	FIXTURE;	FLOOR MOUNTED LAUNDRY SINK, MODEL P-1.	1/2"	1/2"
		CONTROLS;	CHICAGO DECK MOUNTED 8" FIXED CENTERS HOT AND COLD WATER SINK FAUCET, MODEL NO. 1100-317ABCP		
		DRAIN:	ELKAY MODEL NO. LK-35 BASKET STRAINER		
		TRAP;	McGUIRE MODEL 8912 1 1/2"x1 1/2" 17 GA. P-TRAP, CHROME PLATED		
		STOP(S):	McGUIRE MODEL 2165 1/2" SINK SUPPLIES WITH WHEEL HANDLE BRASS ANGLE STOPS AND CHROME PLATED COPPER FLEX TUBE RISERS.		
MS-1	FIAT	FIXTURE;	FIAT MODEL NO. MSB-2424 (MOLDED STONE) WITH INTEGRAL DRAIN	3/4"	3/4"
		CONTROLS;	FIAT MODEL NO. 830-AA WITH INTEGRAL STOPS & VAC. BRKR.		
		TRAP;	CAST IRON OR COPPER 3" P-TRAP		
		OTHER;	FIAT MODEL NO. E-88-AA STAINLESS STEEL BUMPER GUARDS; FIAT MODEL NO. MSG-2424 STAINLESS STEEL WALL GUARDS FIAT MODEL NO. 889-CC STAINLESS STEEL MOP HANGER FIAT MODEL NO. 889-CC STAINLESS STEEL MOP HANGER		
EWC-1	ELKAY	FIXTURE;	ELKAY MODEL NO. EZSTL8C WALL MOUNTED BI-LEVEL ADA WATER COOLER, WITH ECH8 REMOTE CHILLER	1/2"	---
		CARRIER;	ZURN SERIES 1225		
		TRAPS;	McGUIRE MODEL 8902 1 1/4"x1 1/2" 17 GA. P-TRAP, CHROME PLATED		
		STOP(S);	McGUIRE MODEL 2166 1/2" CLOSET SUPPLY W/ WHEEL HANDLE BRASS ANGLE STOP AND COPPER FLEX TUBE RISER. ALL CHROME PLATED		
		FIXTURE ASSEMBLY TO COMPLY WITH HANDICAP ACCESS REQUIREMENTS.			
UR-1	SLOAN/ ZURN	FIXTURE/	WASHBROOK FLOWISE 0.5 GPF HIGH EFFICIENCY URINAL MODEL NO. 6590.501, MANUAL FLUSH VALVE	3/4"	---
		CARRIER;	ZURN SERIES 1221		
UR-2 (HANDICAP ACCESS-IBLE)	SLOAN/ ZURN	FIXTURE/	WASHBROOK FLOWISE 0.5 GPF HIGH EFFICIENCY URINAL MODEL NO. 6590.501, MANUAL FLUSH VALVE	3/4"	---
		CARRIER;	ZURN SERIES 1221		
		FIXTURE ASSEMBLY TO COMPLY WITH HANDICAP ACCESS REQUIREMENTS.			

PLUMBING EQUIPMENT

EWH-1; ELECTRIC WATER HEATER

SIMILAR TO A.O. SMITH NO. DEL-10 WITH NON-SIMULTANEOUS 3 KW HEATING ELEMENTS, U.L. LISTED, 150 PSIG PRESSURE RATING, ANODE ROD, GLASS LINED TANK, HIGH TEMPERATURE CUT-OFF SWITCH, OUTER JACKET WITH BAKED ENAMEL FINISH, FULL-SIZE ACCESSIBLE CONTROL COMPARTMENT, ELECTRIC JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK, ASME TEMPERATURE/PRESSURE RELIEF VALVE AND DRAIN VALVE. WATER HEATER TO BE RATED FOR 208 VOLT 3 PHASE SERVICE SEE ELECTRIC WATER HEATER DIAGRAM ON THIS SHEET FOR RATINGS AND CAPACITIES.

WB-1; WASHER CONNECTION BOX

GUY GRAY MODEL B-200 RECESSED WALL MTD. CLOTHES WASHER UTILITY BOX W/2" DRAIN OUTLET AND ANGLE BODY HW AND CW STOPS W/ 1/2" INLETS AND 3/4" HOSE CONNECTION OUTLETS. TRAP SHALL BE A McGUIRE MODEL 1208 2"x 2" HEAVY CAST BRASS P-TRAP.

THERMAL EXPANSION TANK

AMTROL ST SERIES WITH STEEL SHELL, RIGID POLYPROPYLENE LINER AND HEAVY DUTY RUBBER DIAPHRAGM. LINER AND DIAPHRAGM MECHANICALLY BONDED TO SHELL TO FORM A SEPARATE AIR CHAMBER AND NON-CORROSIVE WATER RESERVOIR. AIR CHAMBER PRE-CHARGED TO 55 PSIG, AND PROVIDED WITH A STANDARD AIR VALVE FITTING. SEE PLANS FOR RATINGS AND CAPACITIES.

TRAP PRIMER VALVE ASSEMBLY

PRECISION PLUMBING PRODUCTS OREGON #1 TRAP PRIMER WITH INTEGRAL CHECK VALVE, 316 STAINLESS STEEL BALL, SLIP JOINT NUT WASHER, STAINLESS STEEL WIRE MESH SCREEN, SELF-ADJUSTING TO CHANGING LINE PRESSURE, 10 PSI DIFFERENTIAL ACTIVATED, RATED FOR A MAXIMUM WORKING PRESSURE OF 80 PSIG, UPC, ASSE 1018, AND ISO LISTED/APPROVED.

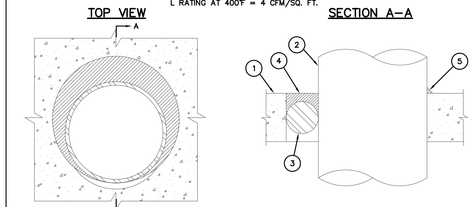
LI-1; LINT INTERCEPTOR

SIMILAR TO ZURN MODEL Z-1185 WITH ACID RESISTANT INTERIOR AND EXTERIOR STEEL CONSTRUCTION, 2" INLET/OUTLET CONNECTIONS, MAXIMUM 30 GPM, NON-SKID COVER, PRIMARY STRAINING BAFFLE, AND SECONDARY INTER-CEPTING SCREEN.

UL/CUL SYSTEM NO. CAJ1154

METAL PIPE THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

F RATING = 3-HR
T RATING = 1/4-HR
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



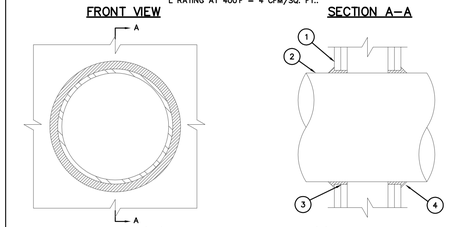
1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR. FIRE-RATING):
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
   B. ANY UL/ULC CLASSIFIED CONCRETE BLOCK WALL.
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   A. MAXIMUM 10" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE.
   C. MAXIMUM 4" NOMINAL DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" NOMINAL DIAMETER EMT.
3. BACKER ROD, HILTI CF 128 FILLER FOAM, OR MINERAL WOOL TO BE USED AS BACKER.
4. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
5. MINIMUM 1/2" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES:
1. MAXIMUM DIAMTER OF OPENING = 14".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 3-1/4".
3. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY.

UL/CUL SYSTEM NO. WL1085

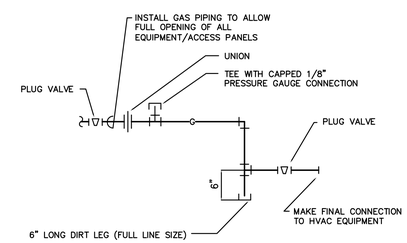
METAL PIPE THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY

F RATING = 1-HR. OR 2-HR.
T RATING = 0-HR
L RATING AT AMBIENT = LESS THAN 1CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (UL/ULC CLASSIFIED U300 OR U400 SERIES) (1-HR OR 2-HR FIRE-RATING) (2-HR SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   A. MAXIMUM 12" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 12" NOMINAL DIAMETER CAST IRON PIPE.
   C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE.
   D. MAXIMUM 6" NOMINAL DIAMETER EMT.
   E. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
3. HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT FORCED INTO ANNULAR SPACE TO MAXIMUM EXTENT POSSIBLE.
4. MINIMUM 1/2" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT TO BE INSTALLED AROUND PIPE, LAPPING 1/4" BEYOND PERIPHERY OF OPENING

NOTES:
1. MAXIMUM DIAMTER OF OPENING = 13-1/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/4".



GAS CONNECTION DETAIL

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STATE OF OHIO
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08/31/15

Hilliard Civic & Cultural Arts Center

CITY OF HILLIARD

5425 CENTER STREET HILLIARD, OH 43026

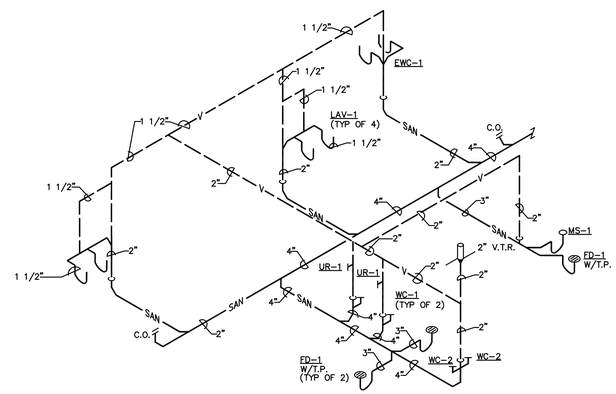
Project Number: 13023
Drawn By: CH
Date: 08/31/2015

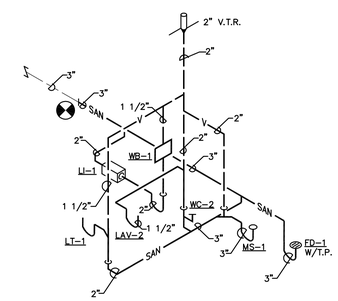
P202

P202-13270.DWG

PRATER
Engineering Associates, Inc.
6130 Wilcox Road (614) 766 4896
Dublin, Ohio 43016 FAX: (614) 766 2354

DESIGNED BY	DRAWN BY	CHECKED BY	JOB NUM.
JWH	JWH	MB	13270





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5425 CENTER STREET HILLIARD, OH 43026

CITY OF HILLIARD

2	07/22/14	REVISION #2
3	08/12/14	REVISION #3

Project Number: 13023

Drawn By: CH

Date: 05/01/2014

P203

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MECHANICAL SPECIFICATIONS

I. GENERAL CONDITIONS

A. GENERAL

1. EXCEPT AS SPECIFIED TO THE CONTRARY, THIS CONTRACT SHALL INCLUDE FURNISHING, INSTALLING, CONNECTING AND OPERATION OF ALL EQUIPMENT WHICH IS PART OF MECHANICAL SYSTEMS.

2. GENERAL AND SPECIAL CONDITIONS OF AIA (AMERICAN INSTITUTE OF ARCHITECTS) AND OWNER'S GENERAL REQUIREMENTS SHALL APPLY UNLESS NOTED OTHERWISE.

3. THE REQUIREMENTS SET FORTH UNDER "GENERAL CONDITIONS". "MODIFICATIONS TO GENERAL CONDITIONS" AND "SPECIAL CONDITIONS" ARE A PART OF THIS CONTRACT.

4. THIS CONTRACT SHALL INCLUDE A VISIT TO THE JOB SITE AND TAKE INTO CONSIDERATION MECHANICAL, ELECTRICAL AND GENERAL TRADE WORK IN PLACE AND WORK TO BE PUT INTO PLACE PRIOR TO BIDDING. REROUTING OF DUCTWORK, PIPING AND EQUIPMENT, AS REQUIRED TO MISS THIS WORK SHALL BE ACCOMPLISHED AT NO ADDITIONAL COST TO THE OWNER.

5. ALL MOTORS FOR SUCH EQUIPMENT (IF AND WHERE SPECIFIED ON DRAWINGS) SHALL BE FURNISHED AND INSTALLED AS PART OF THIS CONTRACT. CONTROLS FOR SUCH MOTORS SHALL BE FURNISHED UNDER THIS CONTRACT AND INSTALLATION OF CONTROLS AND ALL ELECTRICAL WIRING, NOT SHOWN ON ELECTRICAL DRAWINGS, SHALL BE PERFORMED UNDER THIS CONTRACT.

B. SUBSTITUTIONS AND MISCELLANEOUS EQUIPMENT

1. THE BIDDING OF THIS WORK WILL CONTEMPLATE THE USE OF EQUIPMENT AND MATERIALS EXACTLY AS SPECIFIED HEREIN. WHERE ONE OR MORE NAMES OF MANUFACTURES ARE MENTIONED ANY ONE MAY BE UTILIZED.

2. ALTERNATE EQUIPMENT MAY BE BID AS A SUBSTITUTION TO THAT SPECIFIED WITH THE APPROPRIATE DEDUCT NOTED. HOWEVER, THE EQUIPMENT SUBSTITUTED SHALL MEET ALL SPECIFICATIONS IN DESIGN AND BE SUBJECT TO OWNER AND/OR ENGINEER APPROVAL. ANY ADDITIONAL COST INCURRED DUE TO SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

3. MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THE PIPING SYSTEMS SUCH AS FITTING, HANGERS, ETC., CAN BE OF ANY RECOGNIZED MANUFACTURER PROVIDED THESE ITEMS MEET MINIMUM STANDARDS AS SET BY THE ENGINEER.

C. ORDINANCES, PERMITS CERTIFICATES AND OWNER REQUIREMENTS

1. ALL WORK UNDER THIS CONTRACT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE OWNER'S REQUIREMENTS, ALL LAWS, ORDINANCES AND ALL REGULATIONS OF THE STATE, COUNTY, AND MUNICIPALITY WHICH IN ANY WAY AFFECTS THIS WORK. THE ARCHITECT WILL OBTAIN THE GENERAL BUILDING, MECHANICAL, ELECTRICAL AND PLUMBING PERMITS. ANY OTHER PERMITS AND CERTIFICATES OF INSPECTION REQUIRED FOR THE PROJECT WILL BE OBTAINED BY THE CONTRACTOR PERFORMING THE WORK. FEES WILL BE INCLUDED IN THE BID PRICE. ALL WORK SHALL ALSO BE INSTALLED IN ACCORDANCE WITH REGULATIONS OF THE FIRE UNDERWRITERS HAVING JURISDICTION AND LOCAL UTILITIES. CONTRACTOR SHALL ALSO SECURE ANY PERMITS OR PAY ANY FEES TO THE LOCAL UTILITY COMPANIES FOR THE WORK REQUIRED.

D. DRAWINGS

1. MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATION OF OUTLETS, EQUIPMENT AND PIPING.

2. THE EXACT LOCATION OF OUTLETS, EQUIPMENT AND PIPING MAY BE CHANGED FROM TIME TO TIME AS WORK PROGRESSES. UNDER THIS CONTRACT ALL LOCATIONS SHALL BE VERIFIED WITH ALL TRADES AND THAT THEY ARE ACCORDING TO THE LATEST INFORMATION AVAILABLE. SHOULD THIS NOT BE DONE THE WORK WILL BE CHANGED AT NO ADDITIONAL EXPENSE TO THE OWNER.

3. THE OWNER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN LOCATIONS OF EQUIPMENT OR PIPING ARRANGEMENTS UP TO THE TIME OF ROUGH-IN WITHOUT ADDITIONAL COSTS.

4. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIALS OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED EVEN THOUGH NOT MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK AND WHICH IS USUALLY INCLUDED IN WORK OF A SIMILAR CHARACTER SHALL BE FURNISHED UNDER THIS CONTRACT.

5. AS PART OF THIS WORK THE CONTRACTOR SHALL SUBMIT ONE (1) BLUE LINE SET AND ONE SET OF SEPIAS OF AS BUILT DRAWINGS INDICATING THE EXACT LOCATION OF ALL WORK INSTALLED. ACCEPTANCE SHALL NOT OCCUR UNTIL RECEIPT OF THESE DRAWINGS IS OBTAINED BY THE OWNER.

E. SHOP DRAWINGS

1. AS PART OF THE WORK INCLUDED UNDER EACH MECHANICAL SECTION, WITHOUT CAUSING ANY DELAY IN WORK, SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIAL SHALL BE SUBMITTED FOR ENGINEER'S REVIEW.

2. SUBMITTAL SHALL INCLUDE WIRING DIAGRAMS, PERFORMANCE CURVES AND DATA SPECIFIC TO THIS PROJECT AND BEAR CONTRACTOR'S APPROVAL STAMP CERTIFYING THAT HE HAS VERIFIED CONFORMANCE TO THE CONTRACTUAL DOCUMENTS.

3. IN THE ENGINEER'S REVIEW OF SHOP DRAWINGS, REVIEW IS FOR CONFORMANCE WITH THE GENERAL DESIGN CONCEPT AND ARRANGEMENT ONLY. COMMENTS, CORRECTIONS OR MARKINGS DO NOT CONSTITUTE WAIVER OF THE CONTRACT DOCUMENTS REQUIREMENTS. DIMENSIONS, QUANTITIES AND COORDINATION ARE THE RESPONSIBILITY OF THE CONTRACTOR.

F. CLEANING UP

1. UNLESS OTHERWISE NOTED, ALL EXCESS MATERIALS AND DEBRIS CAUSED BY THIS WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND PROMPTLY BE REMOVED FROM THE SITE. ALL FIXTURES AND EQUIPMENT INSTALLED SHALL BE THOROUGHLY CLEANED WEEKLY. ALL MOTORS AND EQUIPMENT SHALL BE COVERED OR OTHERWISE PROTECTED FROM CONSTRUCTION DUST AND DEBRIS. NO EQUIPMENT OTHER THAN THOSE DESIGNED TO ARE TO BE EXPOSED TO INCLEMENT WEATHER.

G. CUTTING AND PATCHING

1. CUTTING FOR OPENINGS, WHEN NECESSARY, SHALL BE DONE BY THIS CONTRACTOR WITH SUCH TOOLS AND METHODS AS TO PREVENT UNNECESSARY DAMAGE TO SURROUNDING AREAS OR EQUIPMENT.

2. FILL SPACE IN ALL AREAS PACKING WHERE REQUIRED TO MAINTAIN FIRE RATING. OPENINGS SHALL BE TEMPORARILY FIRE STOPPED UNTIL PERMANENT FIRE STOPPING IS DONE. THIS INCLUDES HOLES LEFT DUE TO REMOVAL OF PIPING.

3. PATCHING SHALL MATCH EXISTING SURFACES IN KIND AND FINISH, AND SHALL BE DONE BY THE GENERAL CONTRACTOR.

4. NO STRUCTURAL MEMBER WILL BE CUT INTO WITHOUT THE EXPRESSED PERMISSION OF THE OWNER'S REPRESENTATIVE.

H. FIRESTOPPING

1. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR FIRESTOPPING AROUND ALL OPENINGS FOR PIPES, DUCTS, CONDUITS ETC., INSTALLED BY HIM AT ALL FIRE WALLS. FIRESTOPPING SHALL BE PERFORMED BY AN INSTALLER WHO HAS BEEN TRAINED BY THE MANUFACTURER, OR MANUFACTURER'S REPRESENTATIVE, IN THE INSTALLATION PROCEDURES BASED ON PUBLISHED UL TESTED FIRE STOP SYSTEMS.

2. FIRESTOPPING SHALL MEET THE REQUIREMENTS OF ASTM E-814 OR UL 1479 FIRE TESTS BY A RECOGNIZED TESTING AGENCY. FIRESTOPPING SHALL ALSO CONFORM TO THE FOLLOWING GOVERNING CODES: OHIO BASIC BUILDING CODE, NFPA 101-LIFE SAFETY CODE & NFPA 70 - NATIONAL ELECTRIC CODE.

3. PENETRATION
   a. CLEAN PENETRATION HOLES OF DIRT, LOOSE MATERIALS AND FOREIGN MATTER WHICH MAY AFFECT BOND OR INSTALLATION.
   b. REMOVE COATINGS SUCH AS PAINT, CURING COMPOUNDS, WATER REPELLENT & SEALERS AS REQUIRED.
   c. INSTALL BACKING MATERIALS TO PREVENT LIQUID MATERIAL LEAKAGE.

4. APPLICATION
   a. PREPARE AND APPLY PENETRATION SEALING SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS.
   b. EMPLOY INSTALLATION TECHNIQUES WHICH WILL ENSURE THAT FIRESTOPPING IS DEPOSITED TO FILL AND SEAL HOLES AND OPENINGS.
   c. TOOL EXPOSED SURFACES OF APPLIED SEALANT TO SMOOTH FINISH.
   d. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECTED TO TRAFFIC.

5. PROVIDE INTUMESCENT SEALANTS AND COLLARS AT OPENINGS INVOLVING PLASTIC OR INSULATED PIPE SIMILAR TO THE METACAULK SERIES 880 AND 950.

6. FIRESTOPPING BY DOW CORNING, 3M, HILTI OR METACAULK MAY FURNISHED AT THE CONTRACTOR'S OPTION.

I. GUARANTEE

1. ALL LABOR AND MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER WHICH WILL COMMENCE UPON THE FINAL INSPECTION BY THE ENGINEER. DURING THIS TIME, ALL LEAKS, CORRECTION OF ALL THE FAILURES TO SUCH MATERIAL AND THE CORRECTION OF ALL DISCREPANCIES WITH DRAWING CODE AND THE SPECIFICATIONS SHALL BE DONE UNDER THIS CONTRACT AT NO ADDITIONAL EXPENSE TO THE OWNER.

J. RECORD DRAWINGS

1. THE CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF ALL DEVIATIONS FROM CONTRACT DRAWINGS AND SPECIFICATIONS. HE SHALL NEATLY AND CORRECTLY ENTER IN COLORED PENCIL ANY DEVIATIONS ON DRAWINGS. AT COMPLETION OF THE PROJECT DELIVER DRAWINGS TO OWNER'S REPRESENTATIVE.

II. PLUMBING

A. PERMITS AND FEES

a. UNLESS DIRECTED OTHERWISE BY THE GENERAL CONDITIONS PORTION OF PROJECT DOCUMENTATION, THE PLUMBING CONTRACTOR SHALL APPLY FOR AND PAY ANY REVIEW, INSPECTION, PERMIT, LICENSE, TESTING AND/OR OTHER SERVICE FEES REQUIRED BY ALL REVIEW/INSPECTION/APPROVAL AUTHORITIES IN CONNECTION WITH THE WORK UNDER THIS CONTRACT.

B. PLUMBING REFERENCES

1. APPLICABLE CONSTRUCTION CODES, STANDARDS AND GUIDELINES FOR ALL PLUMBING CONTRACT ELEMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   a. STATE OF OHIO, OHIO BUILDING CODE, OBC, INCLUDING THE STATE OF OHIO PLUMBING CODE.
   b. CITY OF COLUMBUS BUILDING CODE, INCLUDING PLUMBING, MECHANICAL, HANDICAP ACCESSIBILITY AND ENERGY CONSERV-ATION PORTIONS THEREOF.
   c. LOCAL BOARD OF HEALTH.
   d. STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY (E.P.A.).
   e. CITY OF COLUMBUS SEWER UTILITY AUTHORITY.
   f. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) STANDARDS FOR MATERIALS AND CONSTRUCTION.
   g. AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS FOR PERFORMANCE AND TESTING.
   h. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS FOR MATERIALS, CONSTRUCTION AND TESTING.
   i. NATIONAL SANITATION FOUNDATION (NSF) STANDARDS FOR MATERIALS AND CONSTRUCTION.
   j. CAST IRON SOIL PIPE INSTITUTE (CISPI) STANDARDS FOR MATERIALS AND CONSTRUCTION.
   k. UNDERWRITER'S LABORATORIES (UL) STANDARDS FOR MATERIALS AND CONSTRUCTION.
   l. THE MANUFACTURER'S INSTALLATION GUIDELINES AND RECOMMENDATIONS FOR INDIVIDUAL ITEMS, ELEMENTS AND/OR SYSTEMS INDICATED HEREIN.

C. PIPE ANCHORS, HANGERS AND SUPPORTS

1. ALL PIPING SHALL BE SEPARATELY HUNG AND SUPPORTED FROM APPROVED STRUCTURAL MEMBERS OR CONCRETE OVERHEAD STRUCTURE ONLY. NO PIPE SHALL BE HUNG FROM ROOF DECK, PIPE, DUCTS OR OTHER COMPONENTS OR EQUIPMENT OF OTHER TRADES.

2. PROVIDE LISTED/APPROVED ADJUSTABLE HANGERS, INSERTS, BRACKETS, CLAMPS, SUPPLEMENTARY STEEL AND OTHER DEVICES REQUIRED FOR PROPER SUPPORT OF ALL PIPE LINES.

3. HANGERS SHALL BE DESIGNED TO ALLOW FOR EXPANSION & CONTRAC-TION AND TO ALLOW INSULATION (WHERE APPLICABLE) TO RUN CONT-INUOUSLY THROUGH HANGERS.

4. WIRE OR STRAP HANGERS ARE NOT PERMITTED. ADJUST HANGERS SO AS TO DISTRIBUTE WEIGHT LOAD EQUALLY ON ATTACHMENTS.

D. SANITARY AND VENT PIPING

1. APPLICATIONS FOR SANITARY AND VENT SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. SANITARY AND VENT PIPING FROM DESIGNATED POINTS WITH ALL CONNECTIONS.
   b. DRAINAGE AND VENT PIPING FOR ALL OTHER MISCELLANEOUS SYSTEMS OR EQUIPMENT AS INDICATED ON DOCUMENTS AND AS REQUIRED.

2. ALL WASTE, DRAIN AND VENT PIPING INSTALLED SHALL BE SERVICE WEIGHT CAST IRON SOIL PIPE.

3. ALL CAST IRON SOIL PIPE SHALL BE BITUMASTIC COATED INSIDE AND OUT. JOINTS IN SOIL PIPE SHALL BE APPROVED RUBBER O-RING SLIP TYPE SEALS WITH SOIL PIPE AND FITTINGS APPROVED FOR THIS TYPE OF SEAL, OR USE "NO-HUB" PIPE FITTINGS WITH A NEOPRENE SEALING SLEEVE AND A STAINLESS STEEL SHIELD AND CLAMP ASSEMBLY. ALL CAST IRON PIPE SHALL BE INSTALLED IN ACCORDANCE WITH STANDARDS AS SET FORTH BY THE CAST IRON PIPE INSTITUTE.

4. ALL DRAIN AND VENT PIPING SHALL BE TESTED PER LOCAL ORDINANCES.

5. PVC PIPING SHALL NOT BE PERMITTED FOR INSTALLATION IN THE BUILDING.

E. WATER PIPING - DOMESTIC

1. ABOVE GROUND WATER PIPING SHALL BE TYPE "L" HARD DRAWN COPPER TUBING WITH WROUGHT SOCKET-SOLDER COPPER FITTINGS AND SOLDER JOINTS MADE WITH LEAD-FREE SOLDER.

2. ALL ABOVE GROUND CW PIPING, VALVES AND FITTINGS SHALL BE INSULATED WITH 1/2" THICK FIBER GLASS PIPE INSULATION. ALL ABOVE GROUND HW PIPING & FITTINGS SHALL BE INSULATED WITH 1" THICK FIBER GLASS PIPE INSULATION. DO NOT INSULATE VALVES IN HW PIPING. FIBER GLASS PIPE INSULATION SHALL BE PROVIDED WITH VAPOR BARRIER AND UNIVERSAL JACKET GLUED WITH VAPOR BARRIER ADHESIVE.

3. ISOLATE ALL DISSIMILAR PIPING MATERIALS WITH DI-ELECTRIC UNIONS.

4. 2 1/2" SIZE AND SMALLER MAY BE TWO-PIECE BRONZE BODY BALL VALVE, SCREWED CONNECTIONS, UNION CONNECTION BODY, TEFLON SEATS, CONVENTIONAL PORT BLOWOUT PROOF STEM, ADJUSTABLE PACKING GLAND, CHROME PLATED BRONZE BALL AND LEVER HANDLE LABELED FOR THE SERVICE CONTROLLED. DESIGN FOR 150 S.W.P. AND 400 WOG. EQUAL TO APOLLO 70-300 SERIES.

5. VALVES BY CRANE, HAMMOND, NIBCO, APOLLO OR JENKINS MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

6. ALL DOMESTIC WATER PIPING SHALL BE CLEANED, FLUSHED AND TESTED PER STATE, LOCAL AND HEALTH DEPARTMENT.

PLUMBING INSULATION

1. SCOPE

F. a. PROVIDE LISTED INSULATION COVER FOR ALL ITEMS/ELEMENTS AS SPECIFIED HEREIN, AS SHOWN ON PLANS; AND FOR ANY OTHER ITEMS/ELEMENTS REQUIRING SAME.

   b. INSULATE PIPING AND ASSOCIATED ACCESSORIES AND APPURTENANCES INCLUDED IN THE FOLLOWING SYSTEMS:

      1. DOMESTIC HOT AND COLD WATER.

2. PRODUCTS

   a. ALL INSULATING MATERIALS, INCLUDING JACKETS, CEMENTS, ADHESIVES, VAPOR BARRIERS, ETC., SHALL BE U.L. LISTED, WITH A FLAME SPREAD RATING NOT TO EXCEED 25, AND A SMOKE DEVELOPMENT RATING NOT TO EXCEED 50. ALL EXTERIOR FINISHES SHALL HAVE A MINIMUM SERVICE TEMPERATURE LIMIT (FSTM 70) OF MINUS 50 TO 220 DEGREES F.

   b. MOLDED PLASTIC FITTING COVERS SHALL BE U.L. LISTED, WITH A FLAME SPREAD RATING NOT TO EXCEED 25, AND A SMOKE DEVELOPMENT RATING NOT TO EXCEED 50.

   c. INSULATION THICKNESSES ARE BASED ON INSULATION HAVING THERMAL RESISTANCE IN THE RANGE OF 4.0 HR F FT2/BTU TO 4.6 HR F FT2/BTU PER INCH OF THICKNESS ON A FLAT SURFACE AT A MEAN TEMPERATURE OF 75°F. MINIMUM INSULATION THICKNESS SHALL BE INCREASED FOR MATERIALS HAVING R VALUES LESS THAN 4.0 OR MAY BE REDUCED FOR MATERIALS HAVING R VALUES GREATER THAN 4.6 TO GIVE EQUIVALENT "R" VALUES.

   d. PIPE COVER SHALL BE SIMILAR TO JOHNS MANVILLE "MICRO-LOK" GLASS FIBER INSULATION, RATED FOR 850 DEGREES F.,WITH A FACTORY APPLIED AP-T ALL-PURPOSE SELF-SEALING VAPOR BARRIER JACKET. BUTT STRIPS SHALL BE MINIMUM 3" WIDE, AND OF SAME MATERIAL AS JACKET. EQUAL MATERIALS, INCLUDING THICKNESS AND CONDUCTIVITY RATINGS/LISTINGS, AS MANUFACTURED BY OWENS CORNING, KNAUF OR MANSON MAY BE FURNISHED, AT THE CONTRACTOR'S OPTION. WHERE INSULATION THICKNESS IS INDICATED FOR COVER HEREIN, IT IS NOMINAL MINIMUM REQUIRED THICKNESS.

   e. ALL CEMENTS, ADHESIVES, FINISHES, AND ASSOCIATED MATERIALS SHALL BE SIMILAR TO THAT PROVIDED BY FOSTER. EQUAL MATERIALS AS PROVIDED BY CHILDERS OR VIMASCO MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

3. EXECUTION

1. COVER COLD WATER PIPING AS FOLLOWS:

   a. COVER WITH MINIMUM 1/2" THICKNESS GLASS FIBER PIPE INSULATION.

   b. BUTT ALL EDGES OF INSULATION AND SEAL ALL LONGITUDINAL LAPS AND BUTT STRIPS WITH WHITE VAPOR BARRIER CEMENT, SIMILAR TO FOSTER NO. 85-20; OR FURNISH WITH MANUFACTURER'S INTEGRAL SELF-SEALING LAPS.

   c. FITTINGS AND MECHANICAL COUPLINGS SHALL BE WRAPPED WITH COMPRESSED FIBER GLASS TO SAME THICKNESS AND DENSITY AS ADJACENT PIPE COVERING, AND COVERED WITH A LISTED MOLDED

   d. ALL APPURTENANCES AND ACCESSORIES SUCH AS VALVES, FLANGES, UNIONS, ETC. INSTALLED IN REFERENCED PIPING (WITH THE EXCEPTION OF BACKFLOW PREVENTION ASSEMBLIES LISTED AT THE END OF THIS PARAGRAPH) SHALL BE WRAPPED WITH FULL THICKNESS INSULATION AND COVERED WITH A LISTED MOLDED PLASTIC FITTING COVER; OR AN OPEN MESH GLASS CLOTH SHALL BE APPLIED OVER WET MASTIC, AND COVERED WITH A SECOND COAT OF FIRE RESISTANT MASTIC. BACKFLOW PREVENTION ASSEMBLIES WHICH REQUIRE PERIODIC INSPECTION/TESTING/MAINTENANCE SHALL NOT BE PROVIDED WITH INSULATION COVER, UNLESS THESE ASSEMBLIES ARE IN WATER SENSITIVE LOCATIONS, SUCH AS ABOVE LAY-IN CEILINGS. IF LISTED BACKFLOW PREVENTION ASSEMBLIES ARE IN WATER SENSITIVE LOCATIONS, FURNISH COVER COMPLYING WITH THIS SPECIFICATION THAT ALLOWS REMOVAL AND REPLACEMENT AS NECESSARY FOR REQUIRED ACCESS.

   e. USE 12" LONG SECTIONS OF CALCIUM SILICATE RIGID INSULATION, WITH JACKET SAME AS ADJACENT PIPE COVERING FOR TRANSFER OF SUPPORT TO PIPING AT EACH HANGER, WITHOUT STRESS TO THE PIPE COVERING ASSEMBLY. AT THE CONTRACTOR'S OPTION, AN APPROVED WOOD OR HIGH-DENSITY (20 LB./CUBIC FOOT) FIBERGLASS BLOCK MAY BE SUBSTITUTED FOR THE RIGID INSULATION SECTION. VAPOR BARRIER TO BE MAINTAINED THROUGHOUT.

2. COVER HOT WATER, HOT WATER RETURN AND TEMPERED WATER PIPING AS FOLLOWS:

   a. COVER WITH MINIMUM 1" THICKNESS GLASS FIBER PIPE INSULATION.

   b. BUTT ALL EDGES OF INSULATION AND SEAL ALL LONGITUDINAL LAPS AND BUTT STRIPS WITH WHITE VAPOR BARRIER CEMENT, SIMILAR TO FOSTER NO. 85-20; OR FURNISH WITH MANUFACTURER'S INTEGRAL SELF-SEALING LAPS.

   c. FITTINGS AND MECHANICAL COUPLINGS SHALL BE WRAPPED WITH COMPRESSED FIBER GLASS TO SAME THICKNESS AND DENSITY AS ADJACENT PIPE COVERING, AND COVERED WITH A LISTED MOLDED PLASTIC FITTING.

   d. ALL APPURTENANCES AND ACCESSORIES SUCH AS HANGERS, VALVES, FLANGES, UNIONS, ETC. INSTALLED IN REFERENCED PIPING SHALL NOT BE COVERED. COVER SHALL BE INTERRUPTED TO ALLOW DIRECT HANGER SUPPORT OF REFERENCED PIPING. ALL INSULATION COVER TERMINATION POINTS SHALL BE STOPPED WITH AN EVEN FLAT SURFACE PERPENDICULAR TO PIPING, SEALED WITH FOSTER "TIGHT-FIT" COATING.

3. ALL APPLICATIONS SHALL BE MADE ON CLEAN, DRY SURFACES WITH ALL JOINTS BUTTED FIRMLY TOGETHER.

4. INSULATION MUST RUN CONTINUOUS THROUGH HANGERS, SLEEVES AND WALLS FOR ALL COLD WATER, VACUUM PUMP EXHAUST AND AIR COMPRESSOR INTAKE PIPING.

5. INSULATION SHALL NOT BE APPLIED UNTIL GENERAL CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO MINIMIZE POTENTIAL FOR PHYSICAL OR MOISTURE DAMAGE TO THE COVER ASSEMBLY. ALL DAMAGED COVER SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

6. HANGER RODS MUST BE PERPENDICULAR BEFORE INSULATION IS INSTALLED.

7. LONGITUDINAL LAP JOINTS AND BUTT STRIPS FOR GLASS FIBER PIPING INSULATION SHALL BE SECURED WITH STAPLES ON THREE (3) INCH CENTERS, AND SEALED WITH AN APPROVED VAPOR BARRIER ADHESIVE WHERE APPLICABLE. STAPLES ARE NOT REQUIRED WHEN INSULATION UTILIZES A "DOUBLE" ADHESIVE SELF-SEALING SYSTEM.

G. DRAINS AND CLEANOUTS

1. SEE DRAWINGS FOR FLOOR DRAINS BASIS OF DESIGN.

2. CLEANOUTS:
   a. WALL TYPE TO BE SIMILAR TO ZURN MODEL NO. Z-1468 W/ CLEANOUT TEE, THREADED GASTIGHT BRONZE PLUG AND ROUND POLISHED STAIN-LESS STEEL WALL ACCESS COVER AND SECURING SCREW.
   b. FLOOR TYPE TO BE SIMILAR TO ZURN MODEL NO. ZN-1400 WITH CAST IRON BODY, ROUND FRAME, THREADED GASTIGHT BRONZE PLUG, NICKEL BRONZE FINISH ON FRAME AND TOP, ANCHOR FLANGE AND BOTTOM OUTLET WITH NEOPRENE GASKET CONNECTOR.
   c. ALL OTHER CLEANOUTS TO BE SIMILAR TO ZURN MODEL NO. Z-1470 WITH THREADED GASTIGHT BRONZE PLUG.

3. EQUAL DRAINS AND CLEANOUTS AS MANUFACTURED BY ZURN, JOSAM, WADE, WATTS OR J.R. SMITH MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

H. PLUMBING FIXTURES

1. SEE DRAWINGS FOR BASIS OF DESIGN.

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Hilliard Civic & Cultural Arts Center

CITY OF HILLIARD

5425 CENTER STREET HILLIARD, OH 43026

Project Number:	13023
Drawn By:	CH
Date:	08/31/2015

P301

P301-13270.DWG

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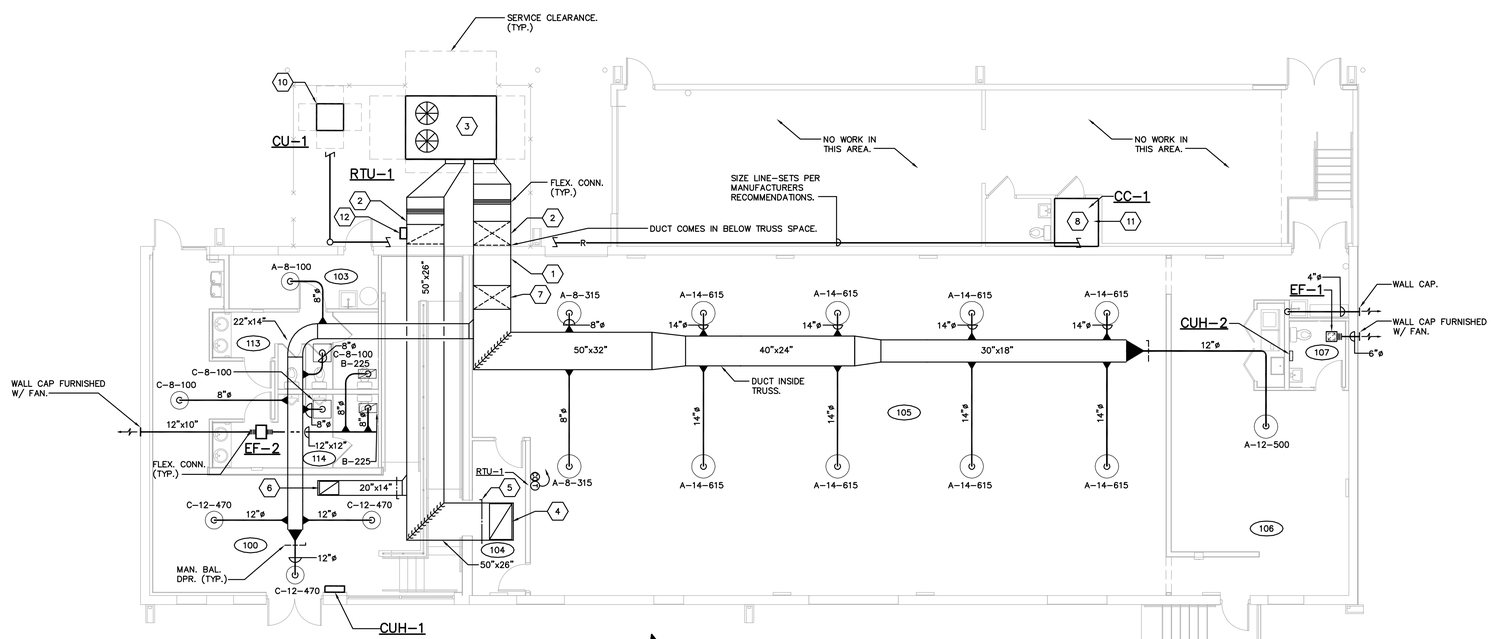

FIRST FLOOR HVAC PLAN

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

MECHANICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—CW—	DOMESTIC COLD WATER LINE		PIPE UNION
—D—	DRAIN LINE		Y-TYPE STRAINER
—G—	GAS LINE		COMB. BALANCE & STOP VALVE
—HG—	HOT GAS LINE		GATE VALVE (SCREWED BODY)
—HW—	DOMESTIC HOT WATER LINE		BALL VALVE
— LIQ —	LIQUID LINE		CHECK VALVE
— SAN —	SANITARY LINE		GAS COCK OR BALANCE VALVE
— SUCT —	SUCTION LINE		FLOOR OR AREA DRAIN
— —V— —	VENT LINE		THERMOSTAT
	PENDANT TYPE SPRINKLER HEAD		CONNECT TO EXISTING
	UPRIGHT TYPE SPRINKLER HEAD		THRU FLOOR AS SHOWN
—G—	P-TRAP (PLAN VIEW)	J.R. SHL.	JANITOR OR SHOWER TRIM
	HOSE BIBB		SUPPLY DUCT UP
	EXISTING WORK TO REMAIN		SUPPLY DUCT DOWN
	EXISTING WORK TO BE REMOVED		R.A., O.A., OR EXH. DUCT UP
—HWR—	HEATING WATER RETURN		R.A., O.A., OR EXH. DUCT DOWN
—HWS—	HEATING WATER SUPPLY		ROUND DUCT
	PIPE FLANGES		ELBOW WITH TURNING VANES
MOD	MOTOR OPERATED DAMPER		MAN. DAMPER
	45° BOOT BRANCH TAKEOFF		SPIN-IN FITTING WITH MANUAL BALANCE DAMPER
D	DUCT SMOKE DETECTOR		PETE'S PLUG

MECHANICAL ABBREVIATIONS

AB.	ABOVE	INV. ELEV.	INVERT ELEVATION
A.D.	ACCESS DOOR	J.R.	JANITOR RECEPTOR
A.F.F.	ABOVE FINISHED FLOOR	K.E.S	KITCHEN EQUIPMENT SUPPLIER
B.F.C.	BELOW FINISHED CEILING	LAV.	LAVATORY
B.O.D.	BOTTOM OF DUCT	M.A.T.	MIXED AIR TEMPERATURE
BTM.	BOTTOM	MAN. DPR.	MANUAL DAMPER
BLDG.	BUILDING	MECH.	MECHANICAL
CLG.	CEILING	M. A.	MIXED AIR
CONC.	CONCRETE	O.A.	OUTSIDE AIR
C.O.	CLEANOUT	PLBG.	PLUMBING
CONN.	CONNECT	REG.	REGISTER
CONTR.	CONTRACTOR	REQD.	REQUIRED
DTL.	DETAIL	R.A.	RETURN AIR
DIFF.	DIFFUSER	RM.	ROOM
DN.	DOWN	S.A.	SUPPLY AIR
ELEC.	ELECTRICAL	SHT.MTL.	SHEET METAL
EXH.	EXHAUST	S & R	SUPPLY & RETURN
EXIST.	EXISTING	S.S.	SERVICE SINK
E.W.C.	ELECTRIC WATER COOLER	TYP.	TYPICAL
FLEX.	FLEXIBLE	T.C.C.	TEMP. CONTROL CONTRACTOR
FLR.	FLOOR	UR.	URINAL
F.D.	FLOOR DRAIN	V.T.R.	VENT THRU ROOF
FURN.	FURNISH	VIB. ISOL.	VIBRATION ISOLATION
GR.	GRILLE	W/	WITH
H.B.	HOSE BIBB	W.C.	WATER CLOSET
HTR.	HEATER		

CODED NOTES ⬡

1. ROUTE DUCT UP IN TRUSS SPACE. MOUNT AS HIGH AS POSSIBLE.
2. PROVIDE TURNING VANES AT ELBOW.
3. MOUNT ROOFTOP UNIT ON 10" HIGH CURB.
4. 48"x30" R.A. OPENING ON TOP OF DUCT. COVER WITH 1/2" WIRE MESH.
5. BALANCE R.A. DAMPER TO 5240 CFM.
6. 18"x26" R.A. OPENING ON TOP OF DUCT. COVER WITH 1/2" WIRE MESH. BALANCE TO 1285 CFM.
7. 50"x32" UP IN TRUSS SPACE IN THIS LOCATION.
8. HVAC CONTRACTOR TO PROVIDE NEW COOLING COIL. SEE SCHEDULE ON SHEET H201. PROVIDE NEW WIRING TO OPERATE THE UNIT AS AN AIR CONDITIONER.
9. INSTALL DRYER DUCT PER DETAIL ON SHEET H201.
10. HVAC CONTRACTOR TO PROVIDE NEW CONDENSING UNIT FOR EXISTING FURNACE LOCATED IN THE FOOD PANTRY.
11. EXTEND CONDENSATION DRAIN LINE TO FLOOR DRAIN LOCATED IN MECHANICAL CLOSET.
12. MOUNT POWERED EXHAUST FAN IN VERTICAL RISE OF RETURN AIR DUCT.

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ROOFTOP UNIT SCHEDULE

NOTES:
1. UNIT PERFORMANCE AT 95°F AMBIENT TEMPERATURE.

UNIT					EVAPORATOR FAN									COMPRESSOR				CONDENSER					COOLING COIL								HEAT NAT. GAS			ELECTRICAL					REMARKS
UNIT NUMBER	LOCATION	MFGR & MODEL NUMBER	UNIT WEIGHT POUNDS	SEER	NOM. TONS	HP	BHP REQ'D	FLA	SUPPLY CFM	ESP	RPM	OUTSIDE AIR MIN %	OUTSIDE AIR CFM	HP	NO. OF COMP.	RLA	NO. STAGES	HP	NO. OF FANS	SQ. FT. COIL	CFM	FLA	TYPE	EDB	EWB	SENS. MBH	LATENT MBH	TOTAL MBH	SQ. FT. COIL	FACE VEL.	MBTUH INPUT	MBTUH OUTPUT	STAGES OF CONTROL	VOLT	PHASE	CONTROL VOLTAGE	MINIMUM CIRCUIT AMPS	MAXIMUM FUSE SIZE	
RTU-1	ROOF	TRANE YSC-240F3	2,500	–	20	7.5	--	--	7,860	1.00	--	18	1415	11.7/6.9	2	20.0/13.2	–	1.0	–	–	–	2.5	DX	80	67	205	59	264	–	–	350	280	MODULATING	208	3	24	115	150	1 2 3 4 5 6 7 8 9 10 11

1. 2" 30% PLEATED FILTERS
2. PROVIDE WITH BELT DRIVE MOTOR.
3. MOUNT UNIT ON 10" HIGH CURB.
4. EXTEND CONDENSATION DRAIN PIPING FROM THE DRAIN PAN OF UNIT TO SPLASH BLOCK ON ROOF PROVIDED BY THIS CONTRACTOR.
5. FURNISH UNIT WITH OUTSIDE AIR ECONOMIZER
6. FURNISH UNIT WITH 7-DAY ELECTRONIC PROGRAMMABLE THERMOSTAT
7. PROVIDE WITH POWERED EXHAUST
8. FURNISH UNIT WITH HOT GAS BYPASS & REHEAT
9. UNIT TO BE CONFIGURED WITH HORIZONTAL DISCHARGE.
10. FURNISH UNIT WITH CO2 CENSORS.
11. PROVIDE UNIT WITH AN INSULATED BOTTOM.

FAN SCHEDULE

MANUFACTURER'S MODEL NUMBER BASED ON GREENHECK UNLESS OTHERWISE NOTED.

FAN NO.	LOCATION	FUNCTION	MFGR. MODEL NUMBER	FAN TYPE	WHEEL TYPE & SIZE	CFM	TOTAL S.P. "W.G.	R.P.M.	TIP SPEED F.P.M.	OUTLET VELOCITY F.P.M	MAX. SONES RATING	MOTOR H.P.	BHP REQ'D	VOLT	PHASE	TYPE MOTOR STARTING	DAMPER GRAVITY	DAMPER MOTOR OPERATED	DRIVE BELT	DRIVE V-BELT	DRIVE DIRECT	REMARKS
EF-1	CEILING	RESTROOM EXHAUST	GREENHECK CSP-A700	CEILING MOUNTED	F.C. WHEEL	450	0.375	1100	3494	636	2.0	350 WATTS	--	120	1	A.T.L.	●				●	1 2
EF-2	CEILING	RESTROOM EXHAUST	GREENHECK CSP-B110	CEILING MOUNTED	F.C. WHEEL	75	0.375	950	1975	490	2.5	100 WATTS	--	120	1	A.T.L.	●				●	1 2

1. FURNISH WITH DISCONNECT SWITCH
2. FAN TO BE CONTROLLED BY TIME CLOCK.

COOLING COIL/CONDENSING UNIT SCHEDULE

ITEM	CC-1 CU-1
COOLING COIL MANUFACTURER	TRANE
MODEL NUMBER	4TXCB004C03
TOTAL COOLING CAP. MBTU	16.3
SENSIBLE COOLING MBTU	21.4
NOMINAL TONNAGE	2.0
SYSTEM SEER	16
FAN FLA	0.74
VOLTS/PHASE	208-230/1ø
RECMD. PROTECTION RATING (AMPS)	15
COMPRESSOR RLA	8.3
COMPRESSOR LRA	58
REFRIG. LINES SUCT./LIQ.	5/8" – 3/8"

NOTES:
1. COOLING CAPACITIES BASED ON 80°F DB/67°F WB ENTERING AIR, 95°F AMBIENT AIR TEMPERATURES & 45°F MAX. SUCTION TEMPERATURE.
2. PROVIDE A DIGITAL ELECTRONIC, 7 DAY PROGRAMMABLE, AUTO-CHANGEOVER, HARD WIRED THERMOSTAT W/ BUILT IN CYCLE PROTECTOR.
3. CONDENSING UNITS SHALL BE MATCHED WITH THE EXISTING FURNACE AND COOLING COIL & HAVE A MINIMUM COMBINATION SEER RATING OF 13.0.
4. EXTEND 3/4" CONDENSATION DRAIN LINE TO FLOOR DRAIN. PROVIDE A SEPARATE OVERFLOW DRAIN LINE FROM THE DRAIN PAN TO THE FLOOR DRAIN. THE OVERFLOW DRAIN LINE SHALL CONNECT TO THE DRAIN PAN AT A HIGHER LEVEL THAN THE PRIMARY DRAIN CONNECTION.
5. CONTRACTOR SHALL SIZE REFRIGERANT LINE SETS PER MANUFACTURER'S REQUIREMENTS. FURNISH UNITS W/ PRE-CHARGED LINE SETS. COORDINATE LENGTH AND SIZE OF LINE SET W/ MANUFACTURER.
11. ALL CONDENSING UNITS ARE TO BE FURNISHED WITH LOW AMBIENT TEMPERATURE SENSOR.

AIR TERMINAL SCHEDULE

ROUND AND SQUARE DIFFUSERS: TYPE OF OUTLET — A – 8 – 300 — AIR QUANTITY IN C.F.M. (DIFF. & REG. ONLY); SIZE OF OUTLET (NECK SIZE DIAMETER FOR DIFFUSERS)

TYPE	DESCRIPTION
A	ROUND SUPPLY AIR DIFFUSER TITUS MODEL TMRA. DIFFUSERS SHALL HAVE ADJUSTABLE HORIZONTAL-TO-VERTICAL PATTERN WITH EQUALIZING GRID
B	RETURN/EXHAUST AIR GRILLE, LAY-IN, TITUS MODEL 350RL: 24"x12" UNLESS OTHERWISE NOTED.
C	SUPPLY AIR DIFFUSER, TITUS MODEL TMSA: 24"x24" UNLESS OTHERWISE NOTED. DIFFUSER SHALL HAVE ADJUSTABLE HORIZONTAL-TO-VERTICAL PATTERN WITH EQUALIZING GRID.

EQUIPMENT NOTES

CUH-1
QMARK MODEL AWH HEAVY DUTY WALL HEATER. 5,000 WATTS HEATING CAPACITY, 208/1 PHASE. UNIT TO HAVE INTEGRAL THERMOSTAT & DISCONNECT.

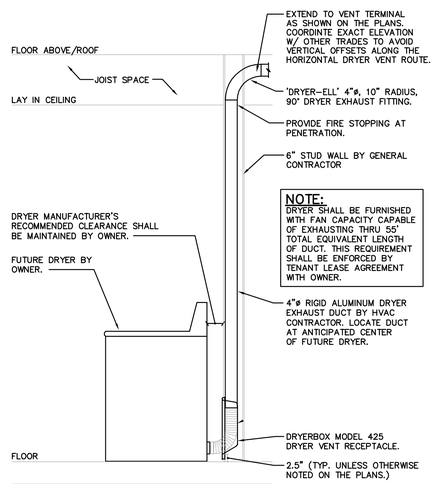
CUH-2
QMARK MODEL AWH HEAVY DUTY WALL HEATER. 1,000 WATTS HEATING CAPACITY, 208/1 PHASE. UNIT TO HAVE INTEGRAL THERMOSTAT & DISCONNECT.

MECHANICAL LEGEND

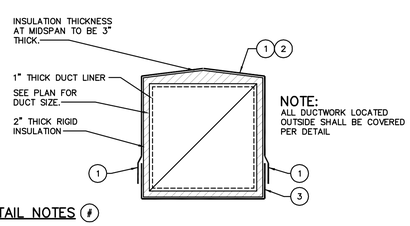
SYMBOL	DESCRIPTION
—CW—	DOMESTIC COLD WATER LINE
—D—	DRAIN LINE
—G—	GAS LINE
—HG—	HOT GAS LINE
—HW—	DOMESTIC HOT WATER LINE
—LIQ—	LIQUID LINE
—SAN—	SANITARY LINE
—SUCT—	SUCTION LINE
—V—	VENT LINE
	PENDANT TYPE SPRINKLER HEAD
	UPRIGHT TYPE SPRINKLER HEAD
—C	P-TRAP (PLAN VIEW)
	HOSE BIBB
	EXISTING WORK TO REMAIN
	EXISTING WORK TO BE REMOVED
—HWR—	HEATING WATER RETURN
—HWS—	HEATING WATER SUPPLY
	PIPE FLANGES
MOD	MOTOR OPERATED DAMPER
	45° BOOT BRANCH TAKEOFF
D	DUCT SMOKE DETECTOR
	PIPE UNION
	Y-TYPE STRAINER
	COMB. BALANCE & STOP VALVE
	GATE VALVE (SCREWED BODY)
	BALL VALVE
	CHECK VALVE
	GAS COCK OR BALANCE VALVE
	FLOOR OR AREA DRAIN
T	THERMOSTAT
	CONNECT TO EXISTING
	THRU FLOOR AS SHOWN
SH.	JANITOR OR SHOWER TRIM
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	R.A., O.A., OR EXH. DUCT UP
	R.A., O.A., OR EXH. DUCT DOWN
ø	ROUND DUCT
	ELBOW WITH TURNING VANES
	MAN. DAMPER
	SPIN-IN FITTING WITH MANUAL BALANCE DAMPER
	PETE'S PLUG

MECHANICAL ABBREVIATIONS

AB.	ABOVE	INV. ELEV.	INVERT ELEVATION
A.D.	ACCESS DOOR	J.R.	JANITOR RECEPTOR
A.F.F.	ABOVE FINISHED FLOOR	K.E.S	KITCHEN EQUIPMENT SUPPLIER
B.F.C.	BELOW FINISHED CEILING	LAV.	LAVATORY
B.O.D.	BOTTOM OF DUCT	M.A.T.	MIXED AIR TEMPERATURE
BTM.	BOTTOM	MAN. DPR.	MANUAL DAMPER
BLDG.	BUILDING	MECH.	MECHANICAL
CLG.	CEILING	M. A.	MIXED AIR
CONC.	CONCRETE	O.A.	OUTSIDE AIR
C.O.	CLEANOUT	PLBG.	PLUMBING
CONN.	CONNECT	REG.	REGISTER
CONTR.	CONTRACTOR	REQD.	REQUIRED
DTL.	DETAIL	R.A.	RETURN AIR
DIFF.	DIFFUSER	RM.	ROOM
DN.	DOWN	S.A.	SUPPLY AIR
ELEC.	ELECTRICAL	SHT.MTL.	SHEET METAL
EXH.	EXHAUST	S & R	SUPPLY & RETURN
EXIST.	EXISTING	S.S.	SERVICE SINK
E.W.C.	ELECTRIC WATER COOLER	TYP.	TYPICAL
FLEX.	FLEXIBLE	T.C.C.	TEMP. CONTROL CONTRACTOR
FLR.	FLOOR	UR.	URINAL
F.D.	FLOOR DRAIN	V.T.R.	VENT THRU ROOF
FURN.	FURNISH	VIB. ISOL.	VIBRATION ISOLATION
GR.	GRILLE	W/	WITH
H.B.	HOSE BIBB	W.C.	WATER CLOSET
HTR.	HEATER		

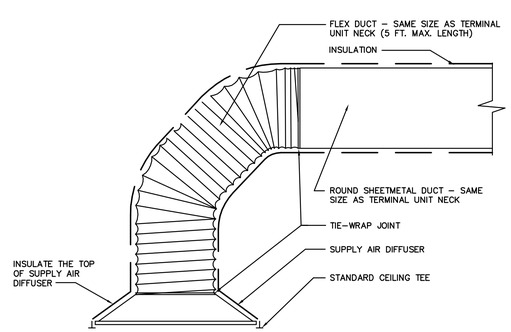


DRYER EXHAUST ROUGH-IN DETAIL
SCALE: N.T.S.

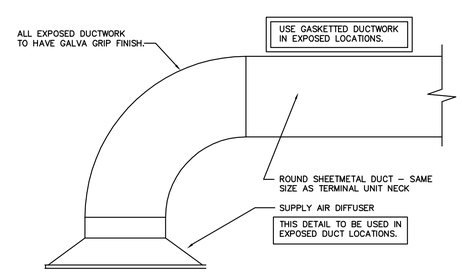


DETAIL NOTES (#)
1. COVER DUCTWORK WITH FACTORY COLORED ALUMINUM JACKET AND BANDS. COLOR SELECTION OF ALUMINUM JACKET BY ARCHITECT.
2. INSULATION SHALL BE FOIL FACED TO PERMIT PROPER ADHESION TO THE WATERPROOFING MEMBRANE.
3. MEMBRANE SHALL BE CONTINUOUS CROSS THE BOTTOM, EXTENDING AT LEAST 6" UP EACH SIDE.

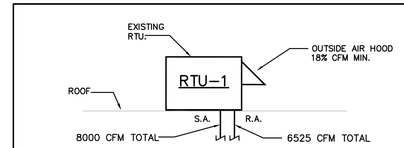
EXTERIOR DUCTWORK INSULATION DETAIL
SCALE: N.T.S.



SUPPLY AIR DIFFUSER DETAIL



SUPPLY AIR DIFFUSER DETAILS
SCALE: NO SCALE



THEATER (8000 CFM S.A.):
Vou = (5 CFM/PERSON)(200 PEOPLE) + (0.06 CFM/S.F.)(2970) = 1178 CFM
Vot = 1178/0.8 = 1475 CFM MIN. O.A. REQUIRED

OUTSIDE AIR SCHEMATICS

H202-13270.DWG

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MECHANICAL SPECIFICATIONS

I. GENERAL CONDITIONS

A. GENERAL

1. EXCEPT AS SPECIFIED TO THE CONTRARY, THIS CONTRACT SHALL INCLUDE FURNISHING, INSTALLING, CONNECTING AND OPERATION OF ALL EQUIPMENT WHICH IS PART OF MECHANICAL SYSTEMS.
2. GENERAL AND SPECIAL CONDITIONS OF AIA (AMERICAN INSTITUTE OF ARCHITECTS) AND OWNER'S GENERAL REQUIREMENTS SHALL APPLY UNLESS NOTED OTHERWISE.
3. THE REQUIREMENTS SET FORTH UNDER "GENERAL CONDITIONS". "MODIFICATIONS TO GENERAL CONDITIONS" AND "SPECIAL CONDITIONS" ARE A PART OF THIS CONTRACT.
4. THIS CONTRACT SHALL INCLUDE A VISIT TO THE JOB SITE AND TAKE INTO CONSIDERATION MECHANICAL, ELECTRICAL AND GENERAL TRADE WORK IN PLACE AND WORK TO BE PUT INTO PLACE PRIOR TO BIDDING. REROUTING OF DUCTWORK, PIPING AND EQUIPMENT, AS REQUIRED TO MISS THIS WORK SHALL BE ACCOMPLISHED AT NO ADDITIONAL COST TO THE OWNER.
5. ALL MOTORS FOR SUCH EQUIPMENT (IF AND WHERE SPECIFIED ON DRAWINGS) SHALL BE FURNISHED AND INSTALLED AS PART OF THIS CONTRACT. CONTROLS FOR SUCH MOTORS SHALL BE FURNISHED UNDER THIS CONTRACT AND INSTALLATION OF CONTROLS AND ALL ELECTRICAL WIRING, NOT SHOWN ON ELECTRICAL DRAWINGS, SHALL BE PERFORMED UNDER THIS CONTRACT.

B. SUBSTITUTIONS AND MISCELLANEOUS EQUIPMENT

1. THE BIDDING OF THIS WORK WILL CONTEMPLATE THE USE OF EQUIPMENT AND MATERIALS EXACTLY AS SPECIFIED HEREIN. WHERE ONE OR MORE NAMES OF MANUFACTURES ARE MENTIONED ANY ONE MAY BE UTILIZED.
2. ALTERNATE EQUIPMENT MAY BE BID AS A SUBSTITUTION TO THAT SPECIFIED WITH THE APPROPRIATE DEDUCT NOTED. HOWEVER, THE EQUIPMENT SUBSTITUTED SHALL MEET ALL SPECIFICATIONS IN DESIGN AND BE SUBJECT TO OWNER AND/OR ENGINEER APPROVAL. ANY ADDITIONAL COST INCURRED DUE TO SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
3. MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THE PIPING SYSTEMS SUCH AS FITTING, HANGERS, ETC., CAN BE OF ANY RECOGNIZED MANUFACTURER PROVIDED THESE ITEMS MEET MINIMUM STANDARDS AS SET BY THE ENGINEER.

C. ORDINANCES, PERMITS CERTIFICATES AND OWNER REQUIREMENTS

1. ALL WORK UNDER THIS CONTRACT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE OWNER'S REQUIREMENTS, ALL LAWS, ORDINANCES AND ALL REGULATIONS OF THE STATE, COUNTY, AND MUNICIPALITY WHICH IN ANY WAY AFFECTS THIS WORK. THE ARCHITECT WILL OBTAIN THE GENERAL BUILDING, MECHANICAL, ELECTRICAL AND PLUMBING PERMITS. ANY OTHER PERMITS AND CERTIFICATES OF INSPECTION REQUIRED FOR THE PROJECT WILL BE OBTAINED BY THE CONTRACTOR PERFORMING THE WORK. FEES WILL BE INCLUDED IN THE BID PRICE. ALL WORK SHALL ALSO BE INSTALLED IN ACCORDANCE WITH REGULATIONS OF THE FIRE UNDERWRITERS HAVING JURISDICTION AND LOCAL UTILITIES. CONTRACTOR SHALL ALSO SECURE ANY PERMITS OR PAY ANY FEES TO THE LOCAL UTILITY COMPANIES FOR THE WORK REQUIRED.

D. DRAWINGS

1. MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATION OF OUTLETS, EQUIPMENT AND PIPING.
2. THE EXACT LOCATION OF OUTLETS, EQUIPMENT AND PIPING MAY BE CHANGED FROM TIME TO TIME AS WORK PROGRESSES. UNDER THIS CONTRACT ALL LOCATIONS SHALL BE VERIFIED WITH ALL TRADES AND THAT THEY ARE ACCORDING TO THE LATEST INFORMATION AVAILABLE. SHOULD THIS NOT BE DONE THE WORK WILL BE CHANGED AT NO ADDITIONAL EXPENSE TO THE OWNER.
3. THE OWNER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN LOCATIONS OF EQUIPMENT OR PIPING ARRANGEMENTS UP TO THE TIME OF ROUGH-IN WITHOUT ADDITIONAL COSTS.
4. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIALS OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED EVEN THOUGH NOT MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK AND WHICH IS USUALLY INCLUDED IN WORK OF A SIMILAR CHARACTER SHALL BE FURNISHED UNDER THIS CONTRACT.
5. AS PART OF THIS WORK THE CONTRACTOR SHALL SUBMIT ONE (1) BLUE LINE SET AND ONE SET OF SEPIAS OF AS BUILT DRAWINGS INDICATING THE EXACT LOCATION OF ALL WORK INSTALLED. ACCEPTANCE SHALL NOT OCCUR UNTIL RECEIPT OF THESE DRAWINGS IS OBTAINED BY THE OWNER.

E. SHOP DRAWINGS

1. AS PART OF THE WORK INCLUDED UNDER EACH MECHANICAL SECTION, WITHOUT CAUSING ANY DELAY IN WORK, SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIAL SHALL BE SUBMITTED FOR ENGINEER'S REVIEW.
2. SUBMITTAL SHALL INCLUDE WIRING DIAGRAMS, PERFORMANCE CURVES AND DATA SPECIFIC TO THIS PROJECT AND BEAR CONTRACTOR'S APPROVAL STAMP CERTIFYING THAT HE HAS VERIFIED CONFORMANCE TO THE CONTRACTUAL DOCUMENTS.
3. IN THE ENGINEER'S REVIEW OF SHOP DRAWINGS, REVIEW IS FOR CONFORMANCE WITH THE GENERAL DESIGN CONCEPT AND ARRANGEMENT ONLY. COMMENTS, CORRECTIONS OR MARKINGS DO NOT CONSTITUTE WAIVER OF THE CONTRACT DOCUMENTS REQUIREMENTS. DIMENSIONS, QUANTITIES AND COORDINATION ARE THE RESPONSIBILITY OF THE CONTRACTOR.

F. CLEANING UP

1. UNLESS OTHERWISE NOTED, ALL EXCESS MATERIALS AND DEBRIS CAUSED BY THIS WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND PROMPTLY BE REMOVED FROM THE SITE. ALL FIXTURES AND EQUIPMENT INSTALLED SHALL BE THOROUGHLY CLEANED WEEKLY. ALL MOTORS AND EQUIPMENT SHALL BE COVERED OR OTHERWISE PROTECTED FROM CONSTRUCTION DUST AND DEBRIS. NO EQUIPMENT OTHER THAN THOSE DESIGNED TO ARE TO BE EXPOSED TO INCLEMENT WEATHER.

G. CUTTING AND PATCHING

1. CUTTING FOR OPENINGS, WHEN NECESSARY, SHALL BE DONE BY THIS CONTRACTOR WITH SUCH TOOLS AND METHODS AS TO PREVENT UNNECESSARY DAMAGE TO SURROUNDING AREAS OR EQUIPMENT.
2. FILL SPACE IN ALL AREAS PACKING WHERE REQUIRED TO MAINTAIN FIRE RATING. OPENINGS SHALL BE TEMPORARILY FIRE STOPPED UNTIL PERMANENT FIRE STOPPING IS DONE. THIS INCLUDES HOLES LEFT DUE TO REMOVAL OF PIPING.
3. PATCHING SHALL MATCH EXISTING SURFACES IN KIND AND FINISH, AND SHALL BE DONE BY THE GENERAL CONTRACTOR.
4. NO STRUCTURAL MEMBER WILL BE CUT INTO WITHOUT THE EXPRESSED PERMISSION OF THE OWNER'S REPRESENTATIVE.

H. FIRESTOPPING

1. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR FIRESTOPPING AROUND ALL OPENINGS FOR PIPES, DUCTS, CONDUITS ETC., INSTALLED BY HIM AT ALL FIRE WALLS. FIRESTOPPING SHALL BE PERFORMED BY AN INSTALLER WHO HAS BEEN TRAINED BY THE MANUFACTURER, OR MANUFACTURER'S REPRESENTATIVE, IN THE INSTALLATION PROCEDURES BASED ON PUBLISHED UL TESTED FIRE STOP SYSTEMS.
2. FIRESTOPPING SHALL MEET THE REQUIREMENTS OF ASTM E-814 OR UL 1479 FIRE TESTS BY A RECOGNIZED TESTING AGENCY. FIRESTOPPING SHALL ALSO CONFORM TO THE FOLLOWING GOVERNING CODES: OHIO BASIC BUILDING CODE, NFPA 101- LIFE SAFETY CODE & NFPA 70 - NATIONAL ELECTRIC CODE.
3. PENETRATION
   a. CLEAN PENETRATION HOLES OF DIRT, LOOSE MATERIALS AND FOREIGN MATTER WHICH MAY AFFECT BOND OR INSTALLATION.
   b. REMOVE COATINGS SUCH AS PAINT, CURING COMPOUNDS, WATER REPELLENT & SEALERS AS REQUIRED.
   c. INSTALL BACKING MATERIALS TO PREVENT LIQUID MATERIAL LEAKAGE.
4. APPLICATION
   a. PREPARE AND APPLY PENETRATION SEALING SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS.
   b. EMPLOY INSTALLATION TECHNIQUES WHICH WILL ENSURE THAT FIRESTOPPING IS DEPOSITED TO FILL AND SEAL HOLES AND OPENINGS.
   c. TOOL EXPOSED SURFACES OF APPLIED SEALANT TO SMOOTH FINISH.
   d. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECTED TO TRAFFIC.
5. PROVIDE INTUMESCENT SEALANTS AND COLLARS AT OPENINGS INVOLVING PLASTIC OR INSULATED PIPE SIMILAR TO THE METACAULK SERIES 880 AND 950.
6. FIRESTOPPING BY DOW CORNING, 3M, HILTI OR METACAULK MAY FURNISHED AT THE CONTRACTOR'S OPTION.

I. GUARANTEE

1. ALL LABOR AND MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER WHICH WILL COMMENCE UPON THE FINAL INSPECTION BY THE ENGINEER. DURING THIS TIME, ALL LEAKS, CORRECTION OF ALL THE FAILURES TO SUCH MATERIAL AND THE CORRECTION OF ALL DISCREPANCIES WITH DRAWING CODE AND THE SPECIFICATIONS SHALL BE DONE UNDER THIS CONTRACT AT NO ADDITIONAL EXPENSE TO THE OWNER.

J. RECORD DRAWINGS

1. THE CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF ALL DEVIATIONS FROM CONTRACT DRAWINGS AND SPECIFICATIONS. HE SHALL NEATLY AND CORRECTLY ENTER IN COLORED PENCIL ANY DEVIATIONS ON DRAWINGS. AT COMPLETION OF THE PROJECT DELIVER DRAWINGS TO OWNER'S REPRESENTATIVE.

II. HVAC

A. LOW PRESSURE DUCTWORK AND ACCESSORIES

1. DUCTWORK AND ACCESSORIES SHALL BE FABRICATED AND INSTALLED IN STRICT ACCORDANCE WITH THE 2" W.G. TABLE IN THE LATEST EDITION OF SMACNA EXCEPT AS HEREIN NOTED AND/OR AS DETAILED ON THE DRAWINGS.
   a. FIBERGLASS DUCT BOARD SHALL NOT BE UTILIZED. DUCTWORK, PLENUM, ETC. SHALL BE CONSTRUCTED OF SHEET METAL.
   b. VANED ELBOWS ARE TO UTILIZE DOUBLE THICKNESS VANES WITH THE ELBOW HEAL RADIUSED THE SAME AS THE TURNING VANE. ELBOW CHEEKS ARE TO BE A MINIMUM OF 3". VANED ELBOWS ARE NOT TO BE UTILIZED IN DUCTWORK WHERE VELOCITY EXCEEDS 2000 FPM.
   c. RADIUS ELBOWS, 1/3 RADIUS OR FULL RADIUS ARE TO BE UTILIZED EXCEPT WITHIN 20' OF AN AIR OUTLET. 1/3 RADIUS ELBOWS SHALL HAVE A TURNING VANE ONE GAGE HEAVIER THAN DUCT CONSTRUCTION.
   d. ALL DUCTWORK DIMENSIONS INDICATED ON PLANS ARE CLEAR INSIDE DIMENSIONS. WHERE DUCTS ARE LINED, DUCTWORK IS TO BE INCREASED TO MAINTAIN THAT FREE AREA.
   e. FLEXIBLE CONNECTIONS TO ALL EQUIPMENT SHALL BE MADE WITH 3" WIDE DOUBLE NEOPRENE COATED FLAME RETARDANT FIBER GLASS FLEXIBLE SHEET CONNECTION. FLEXIBLE TO HAVE A MINIMUM OF 24" GAGE, 3" WIDE SHEET. METAL COLLARS PERMANENTLY ATTACHED TO EACH SIDE.
   f. MITERED OFFSETS GREATER THAN 30° IN EITHER DIRECTION SHALL NOT BE PERMITTED.
   g. CHANGES IN DUCT SIZES SHALL BE MADE BY UNIFORM TAPER SECTION WITH A MAXIMUM INCLUDED ANGLE OF DIVERGENCE OF 15°.
   h. SPLITTER DAMPERS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY NOTED ON THE DRAWING.
   i. VOLUME DAMPERS SHALL BE SINGLE BLADE UP TO 6" IN WIDTH AND MULTIBLADE FOR LARGER SIZES. VOLUME DAMPERS SHALL HAVE BALL BEARINGS AND SHALL INCORPORATE LOCKING TYPE INDICATING ADJUSTMENT.
   j. FLEXIBLE DUCTS TO BE WIREMOLD WG INSULATED FLEXIBLE DUCTWORK RATED AT 0.5" POSITIVE STATIC PRESSURE MINIMUM. MAXIMUM LENGTH OF FLEXIBLE DUCT TO BE 5'-0".

B. HVAC INSULATION

1. INSULATION THICKNESSES ARE BASED ON INSULATION HAVING THERMAL RESISTANCE IN THE RANGE OF 4.0 HR F ft.2/BTU TO 4.6 HR F ft2/BTU PER INCH OF THICKNESS ON A FLAT SURFACE AT A MEAN TEMPERATURE OF 75°F. MINIMUM INSULATION THICKNESS SHALL BE INCREASED FOR MATERIALS HAVING R VALUES LESS THAN 4.0 OR MAY BE REDUCED FOR MATERIALS HAVING R VALUES GREATER THAN 4.6 TO GIVE EQUIVALENT "R" VALUES.
2. COVER ALL SUPPLY, RETURN AND EXHAUST AIR DUCTS AS FOLLOWS:
   a. ALL UNLINED DUCTS IN THE CEILING SPACE SHALL BE INSULATED W/ 1 1/2" THICK, 1 LB. DENSITY BLANKET FLEXIBLE DUCT INSULATION.
   b. ALL LINED DUCTS WITHIN THE CEILING PLENUM SPACE DO NOT REQUIRE WRAPPING.
   c. COVER THE TOPS OF ALL SUPPLY AIR DIFFUSERS WITH 1 1/2" 1 LB. DENSITY BLANKET FLEXIBLE DUCT INSULATION.
   d. ADHERE INSULATION TO DUCT SURFACE WITH FOSTER NO. 85-20 ADHESIVE APPLIED IN 6" WIDE STRIPS ON 12" CENTERS. BUTT ALL EDGES OF INSULATION AND SEAL ALL JOINTS WITH A FOIL-SKRIM-KRAFT TAPE OR FLANGE ADHERED OVER THE JOINT. SECURE INSULATION WITH FLARE DOOR STAPLES UNTIL THE ADHESIVE SETS.
   e. SEAL ALL BREAKS AND JOINTS IN VAPOR BARRIER WITH 2-1/2" WIDE PRESSURE SENSITIVE TAPE TO MATCH VAPOR BARRIER FACING. ADHERE WITH FOSTER 85-20 ADHESIVE WHERE NECESSARY.
3. COVER EXTERIOR MAKE-UP AIR DUCTS AS FOLLOWS:
   a. ALL MAKE-UP AIR DUCTS LOCATED OUTDOORS SHALL BE INSULATED PER THE EXTERIOR DUCTWORK INSULATION DETAIL.
4. COVER REFRIGERANT PIPING AS FOLLOWS:
   a. INSULATE WITH 1" THICK ELASTOMERIC PIPE INSULATION.
   b. COVER VALVES (INCLUDING BONNET) AND APPURTENANCES IN COLD LINES.
   c. SEAL ALL BUTT JOINTS WITH ARMSTRONG NO. 520 ADHESIVES.
   d. FITTINGS SHALL BE COVERED WITH ELASTOMERIC INSULATION TO THE SAME THICKNESS AS ADJACENT PIPE. SEAL ALL JOINTS WITH ARMSTRONG NO. 520 ADHESIVE.
   e. INSTALL A RIGID ELASTOMERIC INSERT BETWEEN PIPE AND HANGER AT EACH PIPE HANGER TO PREVENT EXCESSIVE COMPRESSION OF THE ELASTOMERIC INSULATION. AT THE CONTRACTORS OPTION, CORK STOPPERS OR WOOD BLOCKS MAY BE INSTALLED AT EACH HANGER. VAPOR BARRIER TO BE MAINTAINED THROUGHOUT.
   f. PIPE COVERING OUTSIDE OF BUILDING SHALL BE SAME THICKNESS, AND COATED WITH ARMSTRONG TYPE WB FINISH TO MAKE WEATHER RESISTANT.
5. COVER CONDENSATE DRAIN PIPING AS FOLLOWS:
   a. INSULATE WITH 1/2" ELASTOMERIC PIPE INSULATION.
   b. SEAL ALL BUTT JOINTS WITH ARMSTRONG NO. 520 ADHESIVE.
6. ALL SUPPLY AND RETURN AIR CONDITIONING DUCT INSULATION TO BE CONTINUOUS THROUGH WALLS AND PIPE HANGERS.
7. FIBERGLASS INSULATION SHALL BE BY JOHNS MANVILLE. EQUIVALENT TYPE THICKNESS AND CONDUCTIVITY INSULATION BY OWENS CORNING, KNAUF OR CERTAINTEED MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.
8. ALL SUPPLY AIR DUCTS EXPOSED IN THE SPACE BEING SERVED DO NOT REQUIRE EXTERIOR INSULATION.

C. DUCT LINER

1. ALL RECTANGULAR LOW PRESSURE SUPPLY AND RETURN AIR DUCTWORK SHALL BE INTERNALLY LINED W/ 1" THICK, 1 1/2 POUND DENSITY FLEXIBLE THERMAL AND ACOUSTICAL INSULATION. THE SURFACE FACING THE AIR STREAM SHALL BE TREATED WITH A NON-COMBUSTIBLE COATING TO PREVENT AIR EROSION. LINER SHALL BE AS MANUFACTURED BY OWENS-CORNING OR APPROVED EQUIVALENT FROM MANVILLE OR KNAUFF.
   a. DUCT INSULATION FASTENERS SHALL BE METAL SPINDLE ANCHORS AND WASHERS WITH A NON-CORROSIVE COATING. SPINDLES ARE TO BE FOR SPOT WELDING TO THE DUCT.
   b. DUCT INSULATION ADHESIVE SHALL BE H.B. FULLER CO., CO., FOSTER 85-23 OR ENGINEER APPROVED EQUAL.
   c. SEAL ALL LEADING EDGES OF LINER, INCLUDING AT DUCT JOINT, COILS AND DAMPERS, WITH A THICK COAT OF JOHNS MANVILLE SUPERSEAL EDGE TREATMENT.

D. REFRIGERANT PIPING SYSTEM

1. PIPE TYPE L-ACR HARD DEHYDRATED SCALE FREE COPPER TUBING.
2. FITTINGS WROUGHT COPPER, SOLDER TYPE.
3. SHUT-OFF VALVES IN REFRIGERANT LINES SHALL BE SIMILAR TO HENRY, BALANCED-ACTING DIAPHRAGM TYPE WITH BRASS BODY WITH SOLDER TYPE ENDS.
4. PROPERLY CLEAN ENDS OF ALL TUBING BEFORE SOLDERING.
5. ALL JOINTS SHALL BE MADE WITH "SILFOS".
6. DURING CONSTRUCTION, THIS CONTRACTOR SHALL TAKE PRECAUTION TO MINIMIZE CONTAMINATION OF SYSTEM BY DIRT, SCALE, MOISTURE OR OTHER FOREIGN MATTER. ALL FOREIGN MATERIAL AND MOISTURE IN THE SYSTEM SHALL BE REMOVED.
7. THIS CONTRACTOR SHALL PROVIDE OIL FOR COMPRESSOR AND PROPER REFRIGERANT CHARGE FOR THE SYSTEM.
8. PRECHARGED INSULATED LINE SETS MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

E. INLINE EXHAUST FANS

1. INLINE EXHAUST FANS BASED ON GREENHECK. MODEL NUMBERS AND CAPACITIES AS SHOWN ON THE DRAWINGS.
2. INLINE EXHAUST FANS SHALL BE DIRECT DRIVE, FORWARD CURVED, CENTRIFUGAL BLOWER TYPE EXHAUSTER, WITH INTEGRAL ALUMINUM BACKDRAFT DAMPER. STEEL CASING WITH ENAMEL FINISH, AND VIBRATION ISOLATORS. PROVIDE A POWDER-PAINTED WHITE STEEL GRILLE. PROVIDE WITH INTEGRAL DISCONNECT SWITCH.
3. MOTORS SHALL BE 120 VOLT, 1 PHASE, 60 CYCLE. PERMANENTLY LUBRICATED WITH BUILT-IN THERMAL OVERLOAD PROTECTION.
4. PROVIDE FLEXIBLE CONNECTIONS AT DUCT CONNECTIONS.
5. PROVIDE SPEED CONTROL SWITCH MOUNTED AT FAN FOR BALANCING.
6. STARTER AND WIRING BY ELECTRICAL CONTRACTOR.
7. INLINE EXHAUST FANS BY COOK AND PENN-BARRY OF THE SAME TYPE, SIZE AND CAPACITY REQUIREMENTS MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

F. GRILLES, REGISTERS AND DIFFUSERS

1. REFER TO DRAWINGS FOR BASIS OF DESIGN.
2. AIR DEVICES BY TITUS, KRUEGER OR PRICE MEETING ALL SPECIFIED REQUIREMENTS MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

G. MANUAL BALANCE DAMPERS

1. BASED ON AMERICAN WARMING TYPE VC-2 OPPOSED BLADE WITH HEAVY DUTY MOLDED NYLON BEARINGS, 16 GAUGE GALVANIZED STEEL BLADES (8" MAX. WIDTH), EXTENDED SHAFT AND LINKAGE.
   a. BALANCE DAMPERS FOR ROUND DUCTS SHALL BE AMERICAN WARMING TYPE VC-9 SINGLE BLADE, 22 GAUGE (4" TO 12") 20 GAUGE (13" TO 18") AND 18 GAUGE (19" TO 24") GALVANIZED STEEL.
   b. ALL DAMPERS SHALL BE EQUIPPED WITH LOCKING QUADRANTS.
2. AT THE CONTRACTOR'S OPTION, MANUAL BALANCING DAMPERS SHALL BE MANUFACTURED BY THE CONTRACTOR PER SMACNA STANDARDS. DAMPERS SHALL HAVE LOCKING QUADRANTS ON BOTH SIDES OF THE DUCT.
3. DAMPERS AND LOUVERS BY RUSKIN, AIR BALANCE, GREENHECK OR VENT PRODUCTS, OF THE SAME TYPE AND MEETING SPECIFIED REQUIREMENTS, MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

H. SINGLE ZONE ROOFTOP UNITS

1. UNITS SHALL BE FURNISHED COMPLETELY FACTORY ASSEMBLED AND TESTED INCLUDING ALL CONTROLS.
2. THE UNITS SHALL OPERATE ON 208 VOLT, 60 HERTZ, 3 PHASE ELECTRIC SERVICE.
3. THE UNITS SHALL BE COMPLETELY FACTORY ASSEMBLED, PIPED, WIRED, TESTED AND SHIPPED IN ONE PIECE WITH A SINGLE POINT POWER CONNECTION. OUTSIDE AIR SYSTEM, RETURN AIR SYSTEM, FILTERS, BAROMETRIC RELIEF DAMPERS, POWER EXHAUST, SWITCHES, SUPPLY FAN SYSTEM AND ALL STANDARD OPERATING UNITS SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR ROOFTOP APPLICATION AND INCLUDE A WEATHERPROOF CABINET TO INCLUDE INSULATED BOTTOM PANELS.
4. THE UNIT MANUFACTURER SHALL INCLUDE A FIVE (5) YEAR NON- PRORATED GUARANTEE FOR THE COMPRESSORS AND ONE (1) YEAR NON- PRORATED GUARANTEE FOR THE STRUCTURE AND OTHER EQUIPMENT, INCLUDING ELECTRICAL AND TEMPERATURE CONTROL DEVICES.
5. UNITS SHALL BE A TRANE VOYAGER SINGLE ZONE, COMBINATION GAS HEATING/ELECTRIC COOLING PACKAGED ROOFTOP AS SCHEDULED ON THE DRAWINGS. UNIT SHALL CONSIST OF INSULATED WEATHER TIGHT CASING WITH DUAL COMPRESSOR, AIR COOLED CONDENSER COIL, CONDENSER FANS, DIRECT EXPANSION EVAPORATOR COIL, RETURN AIR FILTERS, SUPPLY MOTORS AND DRIVES, 0 - 100% ECONOMIZER CONTROL, POWER EXHAUST, ROOF CURB, AND UNIT CONTROLS AS SPECIFIED ON PLANS.
6. FURNISH JOHNSON CONTROLS 7 DAY FULLY PROGRAMMABLE THERMOSTAT MODEL #T600MEP-2. THERMOSTAT TO HAVE "SMART FAN" CONTROLS ENABLING THE FAN TO OPERATE CONTINUOUSLY DURING THE PROGRAMMED OCCUPIED TIMES AND CYCLE WITH THE EQUIPMENT DURING THE PROGRAMMED UNOCCUPIED TIMES. THERMOSTAT TO HAVE ECONOMIZER CONTROL CAPABILITY. PROVIDE WITH LOCKBOX. THERMOSTAT BY HONEYWELL OR ROOFTOP UNIT MANUFACTURER'S THERMOSTAT CAPABLE OF CONTROL SYSTEMS AS STATED MAY BE PROVIDED AT CONTRACTOR'S OPTION, SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL. FURNISHED WITH EACH UNIT.
7. CABINET: GALVANIZED STEEL, PHOSPHORIZED, AND FINISHED WITH AN AIR-DRY PAINT COATING WITH REMOVABLE ACCESS PANELS. STRUCTURAL MEMBERS SHALL BE 16 GAUGE WITH ACCESS DOORS AND REMOVABLE PANELS OF MINIMUM 20 GAUGE. CABINET CONSTRUCTION SHALL ALLOW FOR ALL SERVICE/ MAINTENANCE FROM ONE SIDE OF THE UNIT. PROVIDE 1/2 INCH THICK COATED FIBERGLASS INSULATION ON ALL EXTERIOR PANELS IN CONTACT WITH THE RETURN AND CONDITIONED AIR STREAM.
8. WATER AND AIR TIGHT PANELS WITH HANDLES SHALL PROVIDE ACCESS TO FILTERS, HEATING SECTION, RETURN AIR FAN SECTION, SUPPLY AIR FAN SECTION, EVAPORATOR COIL SECTION, AND UNIT CONTROL SECTION.
9. SUPPLY FANS SHALL BE DOUBLE WIDTH, DOUBLE INLET CENTRIFUGAL DESIGN. ALL FANS SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
10. FAN MOTORS SHALL BE HIGH EFFICIENCY, HEAVY DUTY, 1750 RPM, OPEN DRIP-PROOF TYPE WITH RELUBRICATIVE BALL BEARINGS. THE MOTOR SHALL HAVE A VARIABLE PITCH SHEAVE)1.25 DRIVE SERVICE FACTOR) AND AN ADJUSTABLE BASE FOR PROPER ALIGNMENT AND BELT TENSION ADJUSTMENT. THE ENTIRE FAN ASSEMBLY SHALL BE COMPLETELY ISOLATED FROM THE UNIT BULKHEAD WITH NEOPRENE GASKETING AND MOUNTED ON DOUBLE DEFLECTION RUBBER-IN-SHEAR OR SPRING ISOLATORS.
11. OUTDOOR FAN MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE INTERNAL THERMAL OVERLOAD PROTECTION. OUTDOOR FANS SHALL BE DIRECT DRIVE, STATICALLY AND DYNAMICALLY BALANCED, DRAW THROUGH IN THE VERTICAL DISCHARGE POSITION. PROVIDE SHAFTS CONSTRUCTED OF SOLID HOT ROLLED STEEL, GROUND AND POLISHED, WITH KEY-WAY, AND PROTECTIVELY COATED WITH LUBRICATING OIL.
12. COMPLETELY ASSEMBLED AND FACTORY INSTALLED HEATING SYSTEM SHALL BE INTEGRAL TO UNIT. HEATING SECTION SHALL BE FACTORY RUN TESTED PRIOR TO SHIPMENT. GAS BURNER SHALL BE FORCED COMBUSTION TYPE POWER BURNER, NEGATIVE PRESSURE GAS VALVE, MANUAL SHUT-OFF, HOT SURFACE IGNITION, AND FLAME SENSING SAFETY CONTROL.
13. PROVIDE DIRECT EXPANSION EVAPORATOR COIL WITH CONFIGURED ALUMINUM FIN SURFACE MECHANICALLY BONDED TO COPPER TUBING COIL. PROVIDE AN INDEPENDENT EXPANSION DEVICE FOR EACH REFRIGERATION CIRCUIT. FACTORY PRESSURE TEST AT 450 PSIG AND LEAK TESTED AT 200 PSIG. PROVIDE DRAIN PAN FOR BASE OF EVAPORATOR COIL CONSTRUCTED OF PVC OR GALVANIZED STEEL WITH EXTERNAL CONNECTIONS.
14. PROVIDE INTERNALLY FINNED 3/8" SEAMLESS COPPER TUBE MECHANICALLY BONDED TO ALUMINUM FINS. FACTORY PRESSURE TESTED TO 450 PSIG. PROVIDE VERTICAL DISCHARGE, DIRECT DRIVE FANS WITH ALUMINUM BLADES. FANS SHALL BE STATICALLY BALANCED. MOTORS SHALL BE PERMANENTLY LUBRICATED, WITH INTEGRAL THERMAL OVERLOAD PROTECTION IN A WEATHER TIGHT CASING.
15. COMPRESSOR: PROVIDE HERMETIC RECIPROCATING COMPRESSOR WITH HEAT TREATED FORGED STEEL OR CAST IRON SHAFTS, ALUMINUM ALLOY CONNECTING RODS, AUTOMOTIVE TYPE PISTONS, RINGS TO PREVENT GAS LEAKAGE, INTERNAL SUCTION AND DISCHARGE VALVES, CRANKCASE HEATER, AND CENTRIFUGAL OIL PUMP. INTERNALLY ISOLATED MOTORS ON SPRINGS. PROVED SUCTION GAS COOLED MOTOR WITH OVER TEMPERATURE AND OVER CURRENT PROTECTION.
16. UNITS SHALL HAVE COOLING CAPABILITIES DOWN TO 0 DEGREE F.
17. PROVIDE A FULLY INTEGRATED FACTORY INSTALLED 100% MODULATING OUTSIDE AIR ECONOMIZER WITH UNIT RETURN, BAROMETRIC RELIEF AIR DAMPERS, POWER EXHAUST AS SCHEDULED ON THE DRAWINGS. UNIT OPERA-TION IS THROUGH PRIMARY TEMPERATURE CONTROLS THAT AUTOMATICALLY MODULATE DAMPERS TO MAINTAIN SPACE TEMPERATURE. PROVIDE ECONOMIZER WITH DRY BULB CONTROL ONLY. PROVIDE ADJUSTABLE MINIMUM POSITION CONTROL LOCATED IN THE ECONOMIZER SECTION OF THE UNIT.
18. UNITS SHALL BE COMPLETELY FACTORY WIRED WITH NECESSARY CONTROLS AND CONTACTOR PRESSURE LUGS OR TERMINAL BLOCK FOR POWER WIRING. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A UNIT MOUNTED DISCONNECT SWITCH. UNIT SHALL HAVE SINGLE POINT POWER CONNECTIONS. MIRCRO-PROCESSOR CONTROLS SHALL BE PROVIDED FOR ALL 24 VOLT CONTROL FUNCTIONS. THE RESIDENT CONTROL ALGORITHMS SHALL MAKE ALL HEATING, COOLING AND/OR VENTILATING DECISIONS IN RESPONSE TO ELECTRONIC SIGNALS FROM SENSORS MEASURED INDOOR AND OUTDOOR TEMPERATURES. THE CONTROL ALGORITHM SHALL MAINTAIN ACCURATE TEMPERATURE CONTROL AND MINIMIZE DRIFT FROM SETPOINT. A CENTRALIZED MICRO-PROCESSOR SHALL PROVIDE ANIT-SHORT CYCLE TIMING AND TIME DELAY BETWEEN COMPRESSORS TO PROVIDE A HIGHER LEVEL OF MACHINE PROTECTION.
19. ROOFTOP UNITS BY AAON, CARRIER, BRYANT OR LENNOX, MEETING SPECIFIED REQUIREMENTS, MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.
20. UNITS SHALL BE INSTALLED ABOVE ROOF ON CURBS FURNISHED WITH UNITS.
21. CURBS FOR DIRECT ROOF PENETRATIONS SHALL BE WEATHERPROOFED TO ROOF BY THE HVAC CONTRACTOR. THE HVAC CONTRACTOR SHALL WEATHERPROOF DUCTS TO CURBS.
22. EXTEND CONDENSATION DRAIN PIPING FROM THE DRAIN PAN OF EACH UNIT TO ROOF SPLASH BLOCK ON ROOF PROVIDED BY THIS CONTRACTOR

I. TESTS AND ADJUSTMENTS

1. CONTRACTOR SHALL ARRANGE AND PAY FOR A CERTIFIED TEST AND AIR BALANCE FOR THE PROJECT, WITHIN TWO WEEKS AFTER COMPLETION OF THE CONSTRUCTION. A CERTIFIED AIR BALANCE REPORT SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL. IN THE EVENT THAT THE OWNER REQUIRED ADJUSTMENTS TO OWNER'S AIR DISTRIBUTION, CONTRACTOR SHALL PAY ALL COSTS RELATED THERETO.

J. CONTROLS

1. THIS CONTRACT SHALL INCLUDE ALL LINE, LOW VOLTAGE CONTROL WIRING AND ELECTRICAL INTERLOCK WIRING TO OPERATE HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT INSTALLED UNDER THIS CONTRACT. ALL WIRING TO COMPLY WITH ELECTRICAL SPECIFICATIONS, THE NATIONAL ELECTRIC CODE, AND ALL STATE AND LOCAL CODES.

K. AIR COOLED CONDENSING UNITS

1. PROVIDE TRANE AIR COOLED CONDENSING UNITS WHERE SHOWN ON THE DRAWINGS. MODEL NUMBERS AND CAPACITIES AS SHOWN ON THE DRAWINGS.
2. UNITS MUST COMPLY WITH OHIO ENERGY CODE IN REGARDS TO COP, EER, ETC.
   a. CONDENSING UNITS SHALL BE FURNISHED WITH A SCROLL TYPE COMPRESSOR UTILIZING R-410A AND BE PROVIDED WITH CRANKCASE HEATER, AUTOMATICALLY REVERSIBLE OIL PUMPS, INTERNAL AND EXTERNAL MOTOR PROTECTION, DIRECT DRIVE UP-DISCHARGE PROPELLER FAN AND OUTDOOR DEFROST THERMOSTAT.
   b. PRECHARGED INSULATED TUBING FURNISHED WITH UNITS PROPERLY SIZED AND INSTALLED TO MANUFACTURER'S RECOMMENDATIONS. SERVICE VALVES, FILTER DRIER AND SIGHT GLASS TO BE FIELD INSTALLED.
   c. A WALL MOUNTED 24 VOLT 7 DAY PROGRAMMABLE THERMOSTAT FURNISHED WITH THE UNIT SHALL CONTROL THE OUTDOOR UNIT TO MAINTAIN ROOM TEMPERATURE. THERMOSTAT TO HAVE SELECTION FOR HEATING COOLING, CONTINUOUS OR AUTOMATIC FAN OPERATION.
   d. POWER WIRING TO UNIT AND DISCONNECT BY ELECTRICAL CONTRACTOR. CONTROL WIRING BY THIS CONTRACTOR.
   e. SECURE CONDENSING UNITS TO EXISTING SIDEWALK. PROVIDE APPROVAL FROM LEASING COMPANY ON SECURING METHOD.
3. AIR COOLED CONDENSING UNIT EQUIPMENT MEETING ALL REQUIREMENTS BY YORK, CARRIER, BRYANT, LUXAIRE OR AAON MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

L. CONDENSATION DRAIN PIPING SYSTEM

1. PROVIDE CONDENSATION DRAIN PIPING FOR AIR CONDITIONING UNITS AS SHOWN ON DRAWINGS.
2. PIPING SHALL BE SCHEDULE 40 PVC OR TYPE DWV HARD DRAWN COPPER DRAINAGE TUBING FOR DRAINS WITH CAST BRASS DRAINAGE FITTINGS.
3. ALL CONDENSATION DRAIN LINES SHALL BE TRAPPED.
4. PITCH ALL CONDENSATION AND OTHER DRAIN LINES DOWN A MINIMUM OF 1" IN 30' IN THE DIRECTION OF FLOW.

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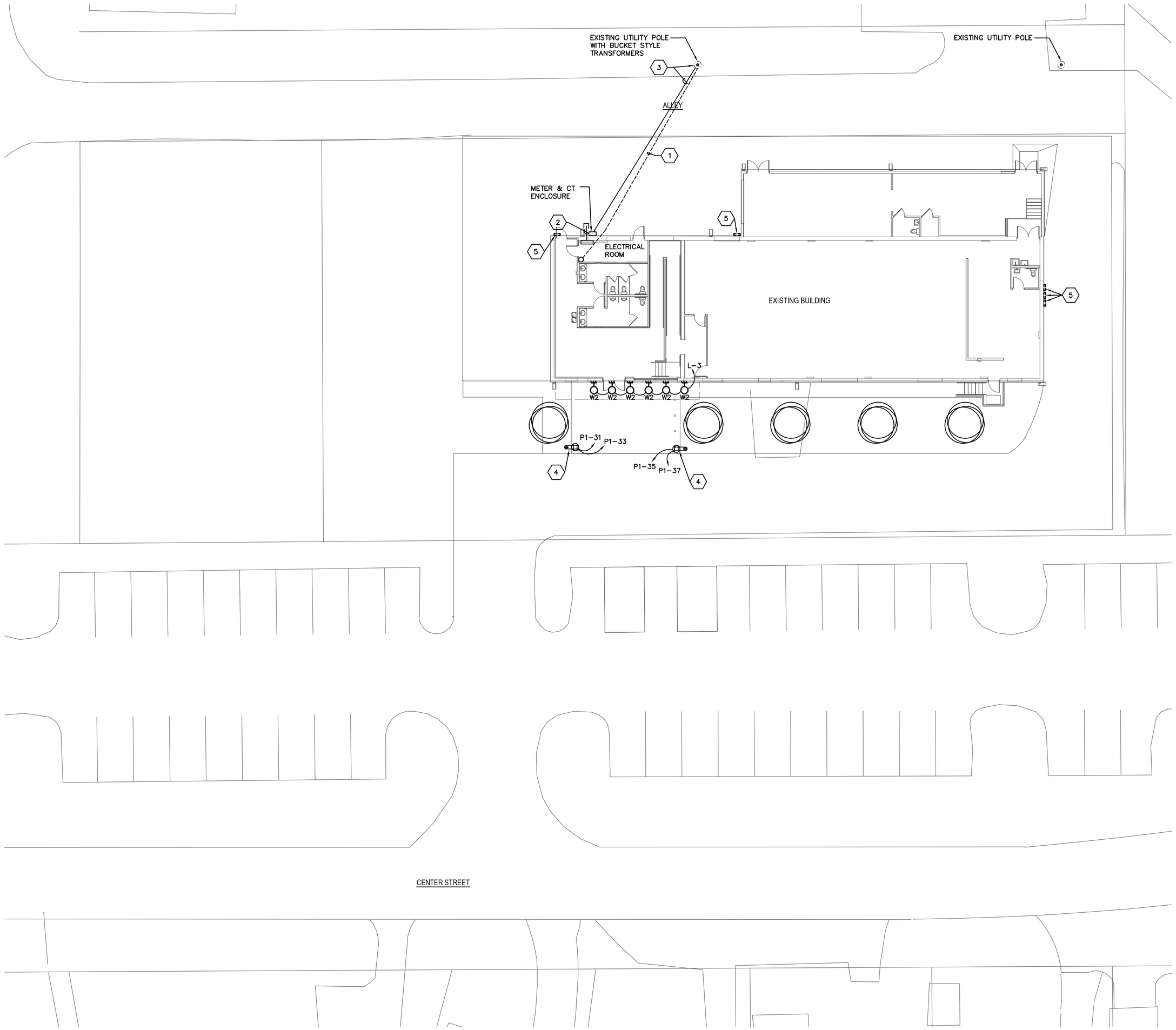
Project Number: 13023
Drawn By: CH
Date: 08/31/2015

H301



ELECTRICAL SITE PLAN
SCALE: 1/16"=1'-0"

GENERAL NOTES

A. FIELD VERIFY ALL EXISTING CONDITIONS AND LOCATE NEARBY UTILITIES PRIOR TO COMMENCEMENT OF WORK. COORDINATE WITH RESPECTIVE UTILITY COMPANIES.

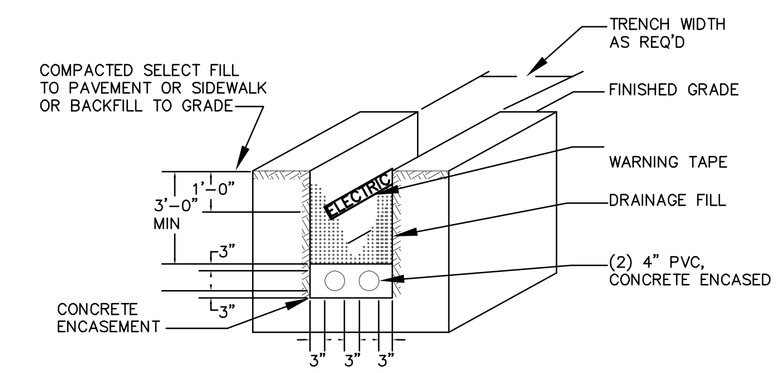
B. COORDINATE ALL UTILITY POWER INTERFACE REQUIREMENTS WITH ELECTRIC UTILITY COMPANY PRIOR TO COMMENCEMENT OF WORK.

C. ALL UNDERGROUND CONDUITS SHALL BE INSTALLED AT A MINIMUM DEPTH OF 36" BELOW GRADE. PROVIDE RED WARNING TAPE MARKED "ELECTRIC" 12 INCHES ABOVE CONDUIT AND EXTENDING THROUGHOUT ENTIRE RUN OF CONDUITS.

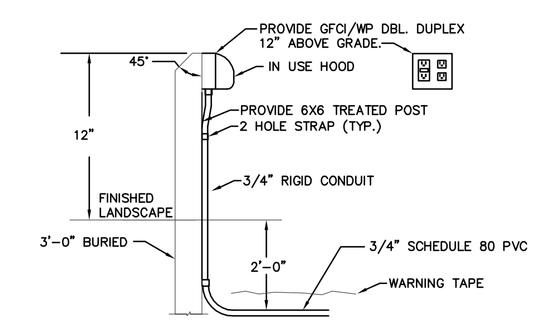
D. ALL CONDUCTORS, CONNECTIONS AND SPLICES INSTALLED UNDERGROUND SHALL BE LISTED FOR USE IN WET LOCATIONS.

CODED NOTES ⬡

1. PROVIDE (1) EMPTY 4" PVC COMM CONDUIT UNDERGROUND FROM TELEPHONE BOARD LOCATED IN ELECTRICAL ROOM TO EXISTING UNDGROUND UTILITY AS SHOWN ON PLAN. COORDINATE EXACT LOCATION OF CONDUIT WITH LOCAL TELEPHONE COMPANY.
2. ELECTRICAL CONTRACTOR SHALL STUB (3) 4" CONDUITS 5' OUT OF BUILDING FOR FUTURE USE.
3. ELECTRICAL CONTRACTOR SHALL EXTEND (2) 4" CONDUITS TO AEP UTILITY POLE AND UP POLE. PROVIDE WEATHER HEAD AT TOP OF CONDUIT AND IDENTIFY. COORDINATE EXACT LOCATION OF CONDUITS WITH LOCAL UTILITY COMPANY.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE WEATHERPROOF, GFI TYPE DOUBLE DUPLEX RECEPTACLE MOUNTED ON 4"X4" WOOD POST AT 12" ABOVE FINISHED LANDSCAPING. WIRE EACH RECEPTACLE SEPARATELY.
5. ELECTRICAL CONTRACTOR SHALL REMOVE EXISTING OVERHEAD SERVICE, METERS AND CT ENCLOSURES. REMOVE OVERHEAD FEEDERS BACK TO UTILITY POLE AND POLE MOUNTED TRANSFORMERS.



SECONDARY VOLTAGE DUCTBANK DETAIL
SCALE: N.T.S.



POST MOUNTED RECEPTACLE DETAIL
SCALE: N.T.S.

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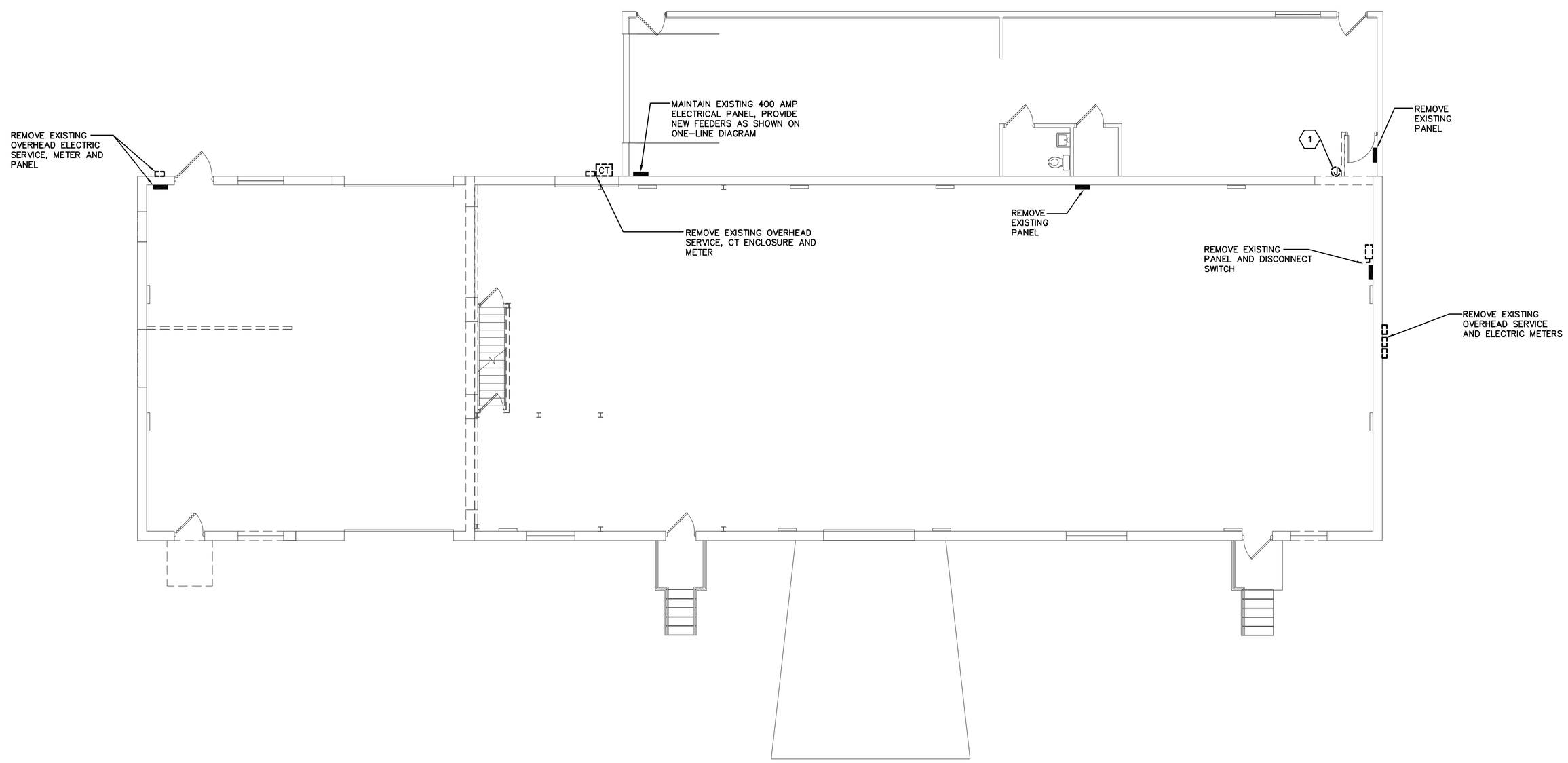
E101

CODED NOTES ⬡

1. ELECTRICAL CONTRACTOR SHALL RELOCATE EXISTING JUNCTION BOX TO ABOVE DOOR OPENING AND MAINTAIN CIRCUITRY. FIELD VERIFY EXACT REQUIREMENTS PRIOR TO ROUGH-IN.



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FIRST FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8"=1'-0"

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GENERAL NOTES

A. ELECTRICAL CONTRACTOR SHALL CIRCUIT ALL EXIT SIGNS AND EMERGENCY EGRESS FIXTURES AHEAD OF LOCAL SWITCHLEG FOR EMERGENCY ILLUMINATION.

CODED NOTES ⬡

1. MOUNT ALL LIGHT FIXTURES IN THIS AREA TO BOTTOM OF TRUSS WORK.
2. SEE MAIN RESTROOM CONTROL DIAGRAM ON SHEET E301.

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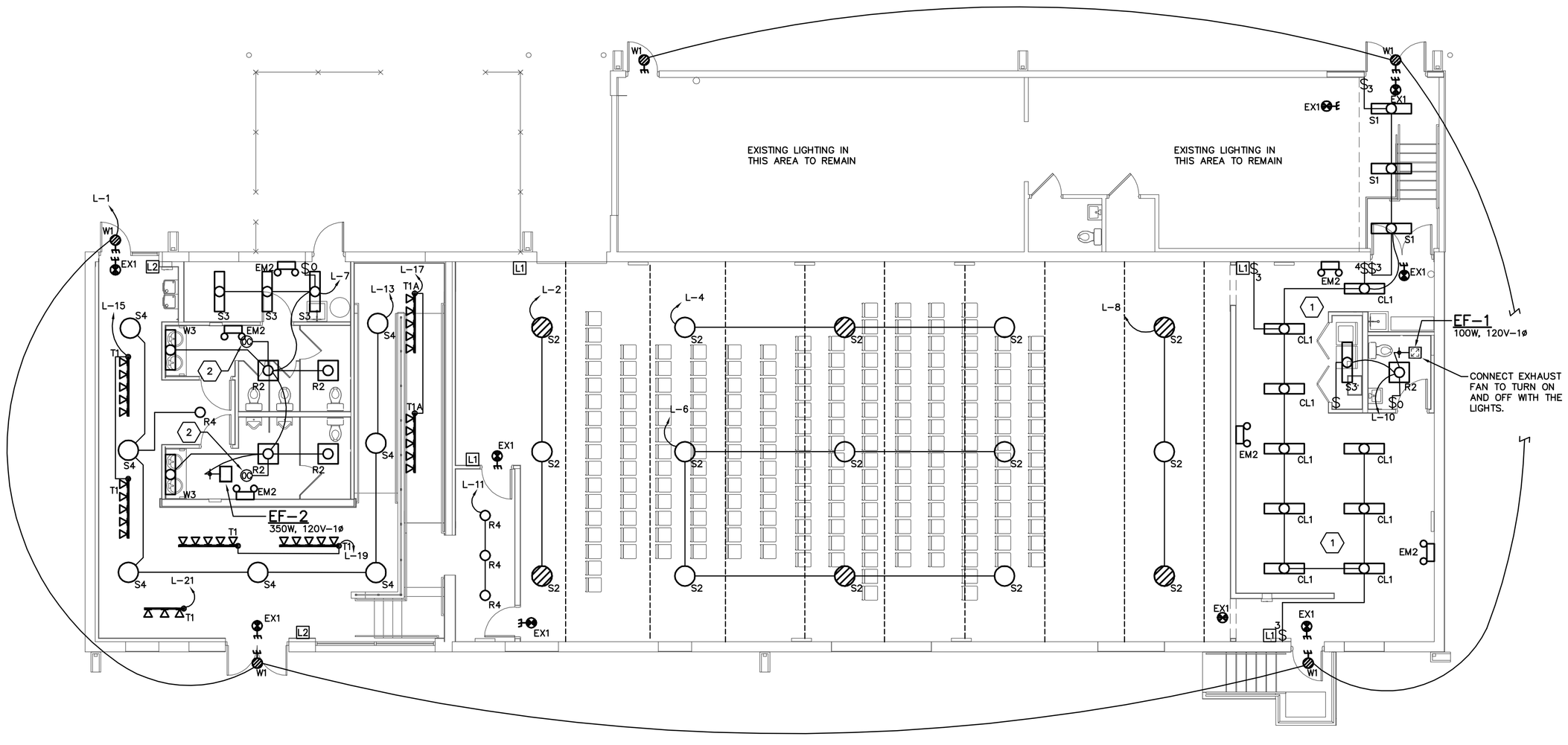

FIRST FLOOR LIGHTING PLAN
SCALE: 1/8"=1'-0"

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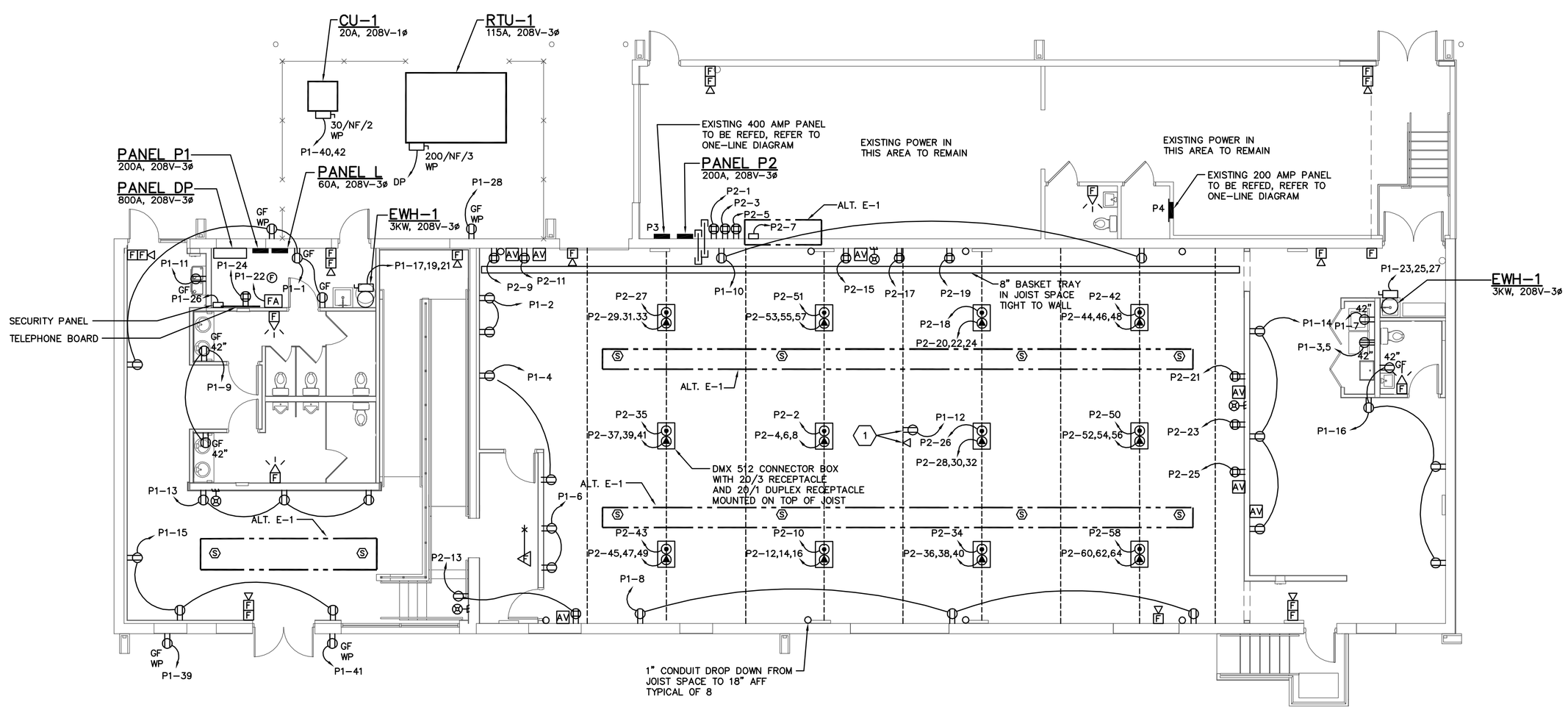
CODED NOTES ⬡

1. ELECTRICAL CONTRACTOR SHALL MOUNT RECEPTACLE AND DATA OUTLET ON TOP OF TRUSS FOR PROJECTOR.

ALTERNATES

E-1 ELECTRICAL CONTRACTOR SHALL PROVIDE ADD ALTERNATE: TO PROVIDE ROUGH-IN FOR SPEAKER/PAGING SYSTEM.



FIRST FLOOR POWER PLAN
SCALE: 1/8"=1'-0"

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RELAY PANEL

CIRCUIT	DESCRIPTION	
1	LOBBY HIGHBAYS	L-13
2	LOBBY TRACK	L-15
3	LOBBY TRACK	L-17
4	LOBBY TRACK	L-19
5	LOBBY TRACK	L-21
6	MULTI PURPOSE RM	L-2
7	MULTI PURPOSE RM	L-4
8	MULTI PURPOSE RM	L-6
9	MULTI PURPOSE RM	L-8
10	MULTI VESTIBULE	L-11
11	SPARE	–
12	SPARE	–

FIXTURE SCHEDULE

NOTE : FIXTURE NUMBER, LETTER PREFIX INDICATES TYPE OF MOUNTING AS FOLLOWS:
CL–CEILING MOUNTED; S–STEM SUSPENDED; W–WALL MOUNTED; R–CEILING RECESSED;
WR–WALL RECESSED; CV–COVE MOUNTED; UC–UNDER CABINET; RF–ROOF MOUNTED;
P–POST; GR–GROUND; CH–CHAIN SUSPENDED

FIXTURE NUMBER	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	REMARKS
CL1	1X4 CEILING 2 LAMP LENSED FLUORESCENT	COLUMBIA	PM14–232G–RAA12.189–EPU	2 – 32W T8	·
R1	2X4 RECESSED 3 LAMP, 18 CELL 3" DEEP PARABOLIC	COLUMBIA	P424–332G–MA36–S–3EB8UNV XMARK–F0735	3 – 32W T8	BOARDROOM
R2	2X2 RECESSED 3 LAMP LENSED FLUORESCENT	COLUMBIA	JT824–317G–FSA12.125–3EB8UNV G1–F0735	3 – 17W T8	RESTROOMS
R3	2X4 RECESSED 3 LAMP LENSED FLUORESCENT WITH GASKETING	COLUMBIA	JT824–332G–FSA12.125–3EB8UNV G1–F0735	3 – 32W T8	KITCHEN
R4	6" RECESSED DOWNLIGHT WITH CLEAR ALZAK REFLECTOR WHITE TRIM RING	PRESCOLITE	LF6LED–6LFLED7–35K–WT	18W LED	MEETING ROOM
S1	4' LINEAR LED SUSPENDED FIXTURE WHITE FINISH	LUMENPULSE	LL12P–D1–120–4–dHO35K–NO –ACC100–WH	1 – 57W LED	LOBBY
S2	16" LED HIGHBAY WITH ACRYLIC DIFFUSER WHITE FINISH	WILA	P680–949–A16–V–WH–LUD VERIFY CORD LENGTH	1 – 50W LED	MULTIPURPOSE ROOM
S3	4' INDUSTRAIL FLUORESCENT	COLUMBIA	CS4–232–EB8UNV–F0735	2 – 32W T8	MECH ROOM
S4	16" LED HIGHBAY WITH ACRYLIC DIFFUSER WHITE FINISH	WILA	P680–944–A16–V–WH–LUD VERIFY CORD LENGTH	1 – 50W LED	LOBBY
T1	4' & 8' TRACK SECTIONS WITH COMBINATION OF SPOTS AND FLOOD LED HEADS	AMERLUX	HORNET–HP–21–LED–E–WT TEK–120–SP/FL–300–90–DIM–ELV	1 – 21W LED PER HEAD	LOBBY SUSPENDED 10'–0" A.F.F. ONE HALF OF HEADS SHALL BE SPOTS THE OTHER HALF FLOODS
T1A	4' & 8' TRACK SECTIONS WITH COMBINATION OF SPOTS AND FLOOD LED HEADS	AMERLUX	HORNET–HP–21–LED–E–WT TEK–120–SP/FL–300–90–DIM–ELV	1 – 21W LED PER HEAD	LOBBY – CELING MOUNTED ONE HALF OF HEADS SHALL BE SPOTS THE OTHER HALF FLOODS
T2	MONO POINT SINGLE TRACK HEAD WITH FLOOD LED HEADS	AMERLUX	HORNET–HP–SC–21–LED–E–WT TEK–120–FL–300–90–DIM–ELV	1 – 21W LED	LOBBY SUSPENDED 10'–0" A.F.F.
W1	EXTERIOR DOWN LIGHT CIRCUIT BOC OPTION AHEAD OF LIGHTING CONTACTOR	HUBBELL	QSPC–42F9–P2–BOC	1 – 42W CFL	EXTERIOR DOORS
W2	EXTERIOR ARM MOUNTED SIGN LIGHTER	HILITE	H–18107–91–1/2ST–ARM–91–CGU– 91–21–LED2–27–D–BCM–1	1 – 21W LED	CANOPY SIGN
W3	4' LINEAR LED WALL MOUNTED FIXTURE WHITE FINISH	LUMENPULSE	LL12S–WM–D–120–4–dH027K–NO–WH	1 – 57W LED	LOBBY
EX1	SINGLE FACE, EDGELITE EXIT SIGN UNIVERSAL MOUNT	DUAL LITE	LESCRXWA	LED	FIRST FLOOR PUBLIC SPACES PROVIDE CHEVRONS AS INDICATED ON DRAWINGS
EX2	SINGLE FACE, POLYCARBONET EXIT SIGN UNIVERSAL MOUNT	DUAL LITE	LXURW	LED	BACK OR HOUSE, UPPER FLOORS PROVIDE CHEVRONS AS INDICATED ON DRAWINGS
EM1	EMERGENCY BATTERY PACK WITH DUAL HEADS	DUAL LITE	·	LED	· · ·

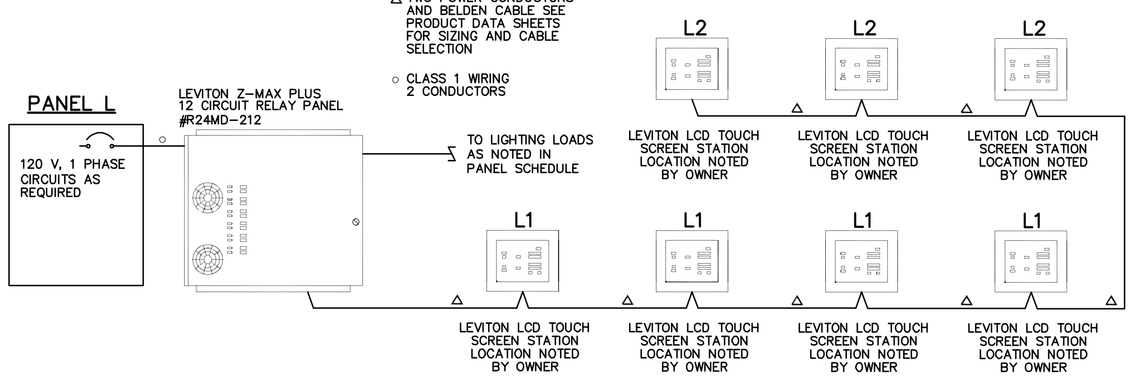
ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING HGT. TO CENTER UNLESS OTHERWISE NOTED
R1	FLUORESCENT LIGHT FIXTURE: TYPE "R1" SEE LIGHTING FIXTURE SCHEDULE; WIRED TO SWITCH "a"	
	TRACK LIGHTING FIXTURE; TYPE "T4"; SEE LIGHTING FIXTURE SCHEDULE; QUANTITY OF HEADS AS SHOWN	
	CEILING OR WALL MOUNTED LIGHTING FIXTURE TYPE "R2", "W2"; SEE LIGHTING FIXTURE SCHEDULE	SEE DRAWINGS
	FLUORESCENT STRIP/INDUSTRIAL LIGHT FIXTURE; SEE LIGHTING FIXTURE SCHEDULE	
	LIGHTING FIXTURE WITH EMERGENCY BATTERY BALLAST	
	EXIT SIGN FIXTURE (WITH DIRECTIONAL ARROWS AS SHOWN) (TYPE AND MOUNTING AS NOTED; SEE LIGHTING FIXTURE SCHEDULE)	94"
	EMERGENCY LIGHTING BATTERY PACK WITH INTERGRAL HEADS (TYPE AND MOUNTING AS NOTED; SEE LIGHTING FIXTURE SCHEDULE)	90"
	EMERGENCY LIGHTING REMOTE HEAD	90"
	SITE LIGHTING FIXTURE (TYPE AND MOUNTING AS NOTED; SEE LIGHTING FIXTURE SCHEDULE)	
$a	SINGLE POLE SWITCH; a = SWITCH "a"	42"
$2;3;4;K;P	SPECIAL SWITCH: 2–WAY; 3–WAY; 4–WAY; KEY OPERATED; SWITCH WITH PILOT LIGHT	42"
OS $OS	OCCUPANCY SENSOR; CEILING / WALL MOUNTED LINE VOLTAGE	42"
D	DIMMER SWITCH	42"
	DUPLEX RECEPTACLE; 3 WIRE GROUND TYPE	18"
	DUPLEX RECEPTACLE; FLOOR MOUNTED	
WP	DUPLEX RECEPTACLE WEATHERPROOF	18"
GF	DUPLEX RECEPACLE W/ GROUND FAULT INTERRUPTER	18"
	SINGLE RECEPTACLE	18"
	DOUBLE DUPLEX RECEPTACLE	18"
	220 VOLT RECEPTACLE	18"
J, JF	JUNCTION BOX; WALL \ CEILING MOUNTED: FLOOR MOUNTED	SEE DRAWINGS
	COMBINATION TELEPHONE / DATA OUTLET	18"
	COMBINATION TELEPHONE / DATA OUTLET FLOOR MOUNTED	
	MOTOR – 1 PHASE	AS REQUIRED
	MOTOR – 3 PHASE	AS REQUIRED
	ELECTRICAL PANEL – SURFACE MOUNT, FLUSH MOUNT	6'–0" TO TOP
	PLYWOOD TELEPHONE BACKBOARD	AS REQUIRED
	ELECTRIC METER / C.T. CABINET	5'–0" TO TOP
	SPECIAL CABINET (AS REQUIRED)	AS REQUIRED
	TELEPHONE TELEPHONE TERMINAL BOARD	6'–0" TO TOP
	SAFETY DISCONNECT SWITCH	AS REQUIRED
	120/277 VOLT TOGGLE TYPE DISCONNECT SWITCH	AS REQUIRED
T	LOW VOLTAGE TRANSFORMER	AS REQUIRED
CP	CONTROL PANEL	AS REQUIRED
C LC	CONTACTOR; LIGHTING CONTRACTOR	AS REQUIRED
	LINE VOLTAGE THERMOSTAT	60"
F	FIRE ALARM PULL STATION	42"
F	FIRE ALARM SPEAKER / STROBE	80"
F	FIRE ALARM STROBE	80"
F F	SMOKE DETECTOR – CEILING / WALL MOUNTED	
A	SMOKE DETECTOR – DUCT MOUNTED	SEE DRAWINGS
RT	REMOTE ALARM LAMP – DUCT DETECTOR	90"
FA	FIRE ALARM PANEL	6'–0" TO TOP
FA	FIRE ALARM REMOTE ANNUNCIATOR PANEL	60"
	FIRE ALARM BELL	90"
FS	SPRINKLER SYSTEM FLOW SWITCH	
FS	SPRINKLER SYSTEM TAMPER SWITCH	
PS	SPRINKLER SYSTEM PRESSURE SWITCH	
	PUSH BUTTON	42"
TV, F TV	TELEVISION OUTLET; F – FLOOR MOUNTED	SEE DRAWINGS
AV	AUDIO/VISUAL BOX	SEE DRAWINGS
S S	SPEAKER; CEILING / WALL MOUNTED	SEE DRAWINGS
	MICROPHONE OUTLET, WALL MOUNTED	18"
DC	DOOR CONTACT	AS REQUIRED
ML	MAGNETIC LOCK	AS REQUIRED
MD	120 VOLT MOTOR OPERATED DAMPER	AS REQUIRED
TC	TIME CLOCK	AS REQUIRED

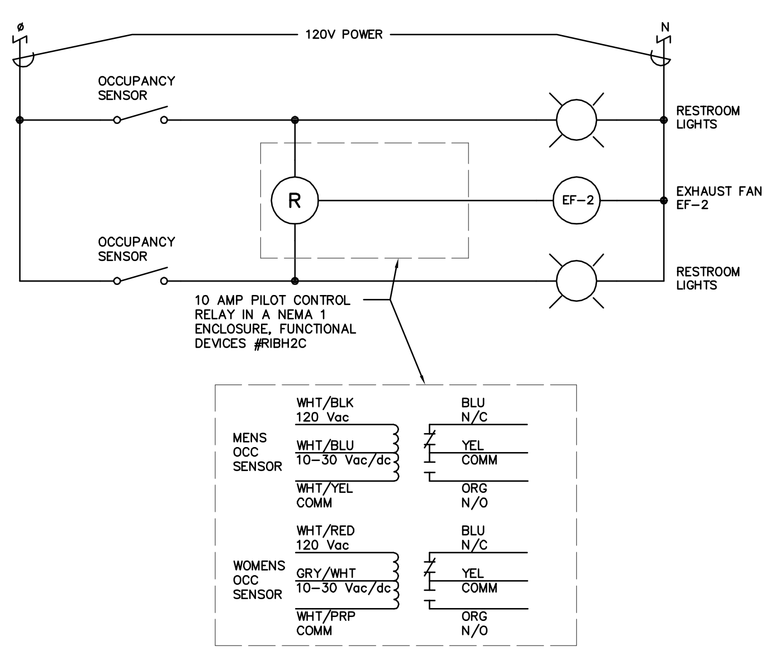
SYMBOL KEY

△ TWO POWER CONDUCTORS AND BELDEN CABLE SEE PRODUCT DATA SHEETS FOR SIZING AND CABLE SELECTION

○ CLASS 1 WIRING 2 CONDUCTORS



DIMMING CONTROL DIAGRAM



MAIN RESTROOM CONTROL DIAGRAM

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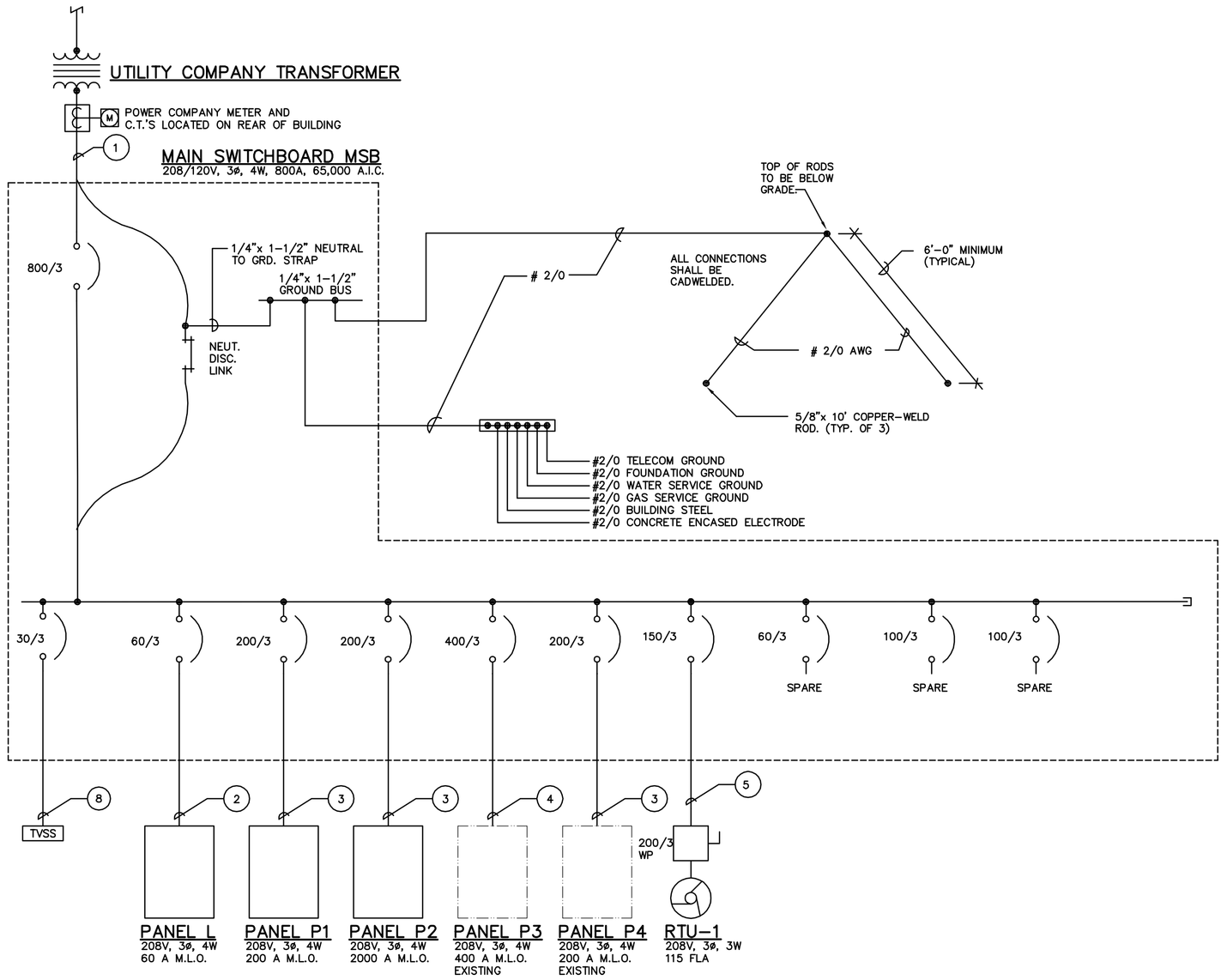

ONE-LINE DIAGRAM

SCALE: NONE

FEEDER SCHEDULE

DESIG.	C.B. OR FUSE SIZE	FEEDER SIZE	
		WIRE	COND.
1	800A	(2) SETS OF [4 - 600]	(2) 4"
2	60A	4 - 4 + 10	1 1/4"
3	200A	4 - 3/0 + 6	2"
4	400A	4 - 600 + 3	3 1/2"
5	200A	3 - 3/0 + 6	2"
6	60A	3 - 4 + 10	1"
7	45A	4 - 6 + 10	3/4"
8	30A	3 - 10 + 10	3/4"

WIRING LEGEND

4 - 500 + 2 - 4"

- NO. OF CONDUCTORS
- SIZE OF CONDUCTORS
- SIZE OF CONDUIT
- SIZE OF GROUND CONDUCTOR

Panel ID: P1 | Location: MECH ROOM | Mounting: SURFACE | Main Type: M.L.O.
Voltage: 208 / 120 | Phase: 3 | Wire: 4 | Main Size: 200 Amps
Panel Type: GE OR SQ D | Enclosure: NEMA-1

** = Refer to one line diagram for wire sizes.

GND SIZE	WIRE SIZE	BRANCH CIRCUIT DESCRIPTION	CKT BKR SIZE	CKT BKR OPTION	CONN. LOAD (KVA)	CKT NO.	PHASE	CKT NO.	CONN. LOAD (KVA)	CKT BKR OPTION	CKT BKR SIZE	BRANCH CIRCUIT DESCRIPTION	WIRE SIZE	GND SIZE
12	12	RECEPT MECH/HALL	20/1	--	0.540	1	A	2	0.360	--	20/1	RECEPT MULTI PURP	12	12
10	10	DRYER	30/2	--	2.250	3	B	4	0.360	--	20/1	RECEPT MULTI PURP	12	12
--	10	----	--	--	2.250	5	C	6	0.360	--	20/1	RECEPT MULTI PURP	12	12
12	12	WASHER	20/1	--	1.176	7	A	8	0.540	--	20/1	RECEPT MULTI PURP	12	12
12	12	RECEPT LAVS	20/1	--	0.360	9	B	10	0.360	--	20/1	RECEPT MULTI PURP	12	12
12	12	EWC	20/1	--	0.660	11	C	12	0.180	--	20/1	PROJECTOR	12	12
12	12	RECEPT LOBBY	20/1	--	0.540	13	A	14	0.540	--	20/1	RECEPT BACKSTAGE	12	12
12	12	RECEPT LOBBY	20/1	--	0.540	15	B	16	0.720	--	20/1	RECEPT BACKSTAGE	12	12
12	12	WATER HEATER	20/3	--	1.000	17	C	18	0.000	--	20/1	SPARE	--	--
--	12	----	--	--	1.000	19	A	20	0.000	--	20/1	SPARE	--	--
--	12	----	--	--	1.000	21	B	22	0.250	LO	20/1	FIRE ALARM PANEL	12	12
12	12	WATER HEATER	20/3	--	1.000	23	C	24	0.360	LO	20/1	TELEPHONE BOARD	12	12
--	12	----	--	--	1.000	25	A	26	0.250	LO	20/1	SECURITY PANEL	12	12
--	12	----	--	--	1.000	27	B	28	0.180	--	20/1	RECEPT ROOF	12	12
--	--	SPARE	20/1	--	0.000	29	C	30	0.000	--	20/1	SPARE	--	--
12	12	RECEPT PLAZA	20/1	--	0.180	31	A	32	0.000	--	20/1	SPARE	--	--
12	12	RECEPT PLAZA	20/1	--	0.180	33	B	34	0.000	--	20/1	SPARE	--	--
12	12	RECEPT PLAZA	20/1	--	0.180	35	C	36	0.000	--	20/1	SPARE	--	--
12	12	RECEPT PLAZA	20/1	--	0.180	37	A	38	0.000	--	20/1	SPARE	--	--
12	12	RECEPT PLAZA	20/1	--	0.180	39	B	40	2.080	--	30/2	CU-1	10	10
12	12	RECEPT PLAZA	20/1	--	0.180	41	C	42	2.080	--	--	----	10	--
--	--	SPARE	20/1	--	0.000	43	A	44	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	45	B	46	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	47	C	48	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	49	A	50	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	51	B	52	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	53	C	54	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	55	A	56	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	57	B	58	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	59	C	60	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	61	A	62	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	63	B	64	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	65	C	66	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	67	A	68	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	69	B	70	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	71	C	72	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	73	A	74	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	75	B	76	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	77	C	78	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	79	A	80	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	81	B	82	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	83	C	84	0.000	--	--	SPACE	--	--

Connected Load Panel Summary

Phase A:	6.3	KVA	52.6	AMPS
Phase B:	9.5	KVA	78.8	AMPS
Phase C:	8.3	KVA	68.8	AMPS
Total:	24.0	KVA		

Breaker Options (If Used):
TC - Time Clock Control
LO - Lock-On Device
GF - GND Fault CKT Interrupter
IG - Isolated ground
SH - Shunt Trip Breaker

Panel ID: P2 | Location: MECH ROOM | Mounting: SURFACE | Main Type: M.L.O.
Voltage: 208 / 120 | Phase: 3 | Wire: 4 | Main Size: 200 Amps
Panel Type: GE OR SQ D | Enclosure: NEMA-1

Provide panel with 200% neutral
** = Refer to one line diagram for wire sizes.

GND SIZE	WIRE SIZE	BRANCH CIRCUIT DESCRIPTION	CKT BKR SIZE	CKT BKR OPTION	CONN. LOAD (KVA)	CKT NO.	PHASE	CKT NO.	CONN. LOAD (KVA)	CKT BKR OPTION	CKT BKR SIZE	BRANCH CIRCUIT DESCRIPTION	WIRE SIZE	GND SIZE
12	12	RECEPT AV RACK	20/1	TC,LO	0.360	1	A	2	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV RACK	20/1	TC,LO	0.360	3	B	4	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV RACK	20/1	TC,LO	0.360	5	C	6	1.000	--	--	----	12	--
12	12	PA SYSTEM	20/1	--	0.200	7	A	8	1.000	--	--	----	12	--
12	12	RECEPT AV	20/1	--	0.360	9	B	10	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV	20/1	--	0.360	11	C	12	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV	20/1	--	0.360	13	A	14	1.000	--	--	----	12	--
12	12	RECEPT AV PLATFORM	20/1	--	0.360	15	B	16	1.000	--	--	----	12	--
12	12	RECEPT AV PLATFORM	20/1	--	0.360	17	C	18	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV PLATFORM	20/1	--	0.360	19	A	20	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV PLATFORM	20/1	--	0.360	21	B	22	1.000	--	--	----	12	--
12	12	RECEPT AV PLATFORM	20/1	--	0.360	23	C	24	1.000	--	--	----	12	--
12	12	RECEPT AV PLATFORM	20/1	--	0.360	25	A	26	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/1	--	1.000	27	B	28	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/3	--	1.000	29	C	30	1.000	--	--	----	12	--
--	2	----	--	--	1.000	31	A	32	1.000	--	--	----	12	--
--	2	----	--	--	1.000	33	B	34	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/1	--	1.000	35	C	36	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/3	--	1.000	37	A	38	1.000	--	--	----	12	--
--	2	----	--	--	1.000	39	B	40	1.000	--	--	----	12	--
--	2	----	--	--	1.000	41	C	42	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/1	--	1.000	43	A	44	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/3	--	1.000	45	B	46	1.000	--	--	----	12	--
--	12	----	--	--	1.000	47	C	48	1.000	--	--	----	12	--
--	12	----	--	--	1.000	49	A	50	1.000	--	20/1	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/1	--	1.000	51	B	52	1.000	--	20/3	RECEPT AV TRUSS	12	12
12	12	RECEPT AV TRUSS	20/3	--	1.000	53	C	54	1.000	--	--	----	12	--
--	12	----	--	--	1.000	55	A	56	1.000	--	--	----	12	--
--	12	----	--	--	1.000	57	B	58	1.000	--	20/1	RECEPT AV TRUSS	12	12
--	--	SPARE	20/1	--	0.000	59	C	60	1.000	--	20/3	RECEPT AV TRUSS	12	12
--	--	SPARE	20/1	--	0.000	61	A	62	1.000	--	--	----	12	--
--	--	SPARE	20/1	--	0.000	63	B	64	1.000	--	--	----	12	--
--	--	SPARE	20/1	--	0.000	65	C	66	0.000	--	20/1	SPARE	--	--
--	--	SPACE	--	--	0.000	67	A	68	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	69	B	70	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	71	C	72	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	73	A	74	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	75	B	76	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	77	C	78	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	79	A	80	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	81	B	82	0.000	--	--	SPACE	--	--
--	--	SPACE	--	--	0.000	83	C	84	0.000	--	--	SPACE	--	--

Connected Load Panel Summary

Phase A:	17.6	KVA	147.0	AMPS
Phase B:	18.4	KVA	153.7	AMPS
Phase C:	16.4	KVA	137.0	AMPS
Total:	52.5	KVA		

Breaker Options (If Used):
TC - Time Clock Control
LO - Lock-On Device
GF - GND Fault CKT Interrupter
IG - Isolated ground
SH - Shunt Trip Breaker

Panel ID: L | Location: MECH ROOM | Mounting: SURFACE | Main Type: M.L.O.
Voltage: 208 / 120 | Phase: 3 | Wire: 4 | Main Size: 60 Amps
Panel Type: GE OR SQ D | Enclosure: NEMA-1

** = Refer to one line diagram for wire sizes.

GND SIZE	WIRE SIZE	BRANCH CIRCUIT DESCRIPTION	CKT BKR SIZE	CKT BKR OPTION	CONN. LOAD (KVA)	CKT NO.	PHASE	CKT NO.	CONN. LOAD (KVA)	CKT BKR OPTION	CKT BKR SIZE	BRANCH CIRCUIT DESCRIPTION	WIRE SIZE	GND SIZE
12	12	LTG BLDG EXTERIOR	20/1	TC,LO	0.100	1	A	2	0.165	--	20/1	LTG MULTI PURPOSE	12	12
12	12	LTG CANOPY	20/1	TC,LO	0.250	3	B	4	0.165	--	20/1	LTG MULTI PURPOSE	12	12
--	--	SPARE	20/1	--	0.000	5	C	6	0.330	--	20/1	LTG MULTI PURPOSE	12	12
12	12	LTG MECH/LAVS/STOR	20/1	--	1.389	7	A	8	0.165	--	20/1	LTG MULTI PURPOSE	12	12
--	--	SPARE	20/1	--	0.000	9	B	10	1.575	--	20/1	LTG BACKSTAGE	12	12
12	12	LTG MULTI VESTIBULE	20/1	--	0.200	11	C	12	0.000	--	20/1	SPARE	--	--
12	12	LTG LOBBY/RAMP	20/1	--	0.450	13	A	14	0.000	--	--	SPACE	--	--
12	12	LTG LOBBY TRACK	20/1	--	0.325	15	B	16	0.000	--	--	SPACE	--	--
12	12	LTG LOBBY TRACK	20/1	--	0.325	17	C	18	0.000	--	--	SPACE	--	--
12	12	LTG LOBBY TRACK	20/1	--	0.325	19	A	20	0.000	--	--	SPACE	--	--
12	12	LTG LOBBY TRACK	20/1	--	0.275	21	B	22	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	23	C	24	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	25	A	26	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	27	B	28	0.000	--	--	SPACE	--	--
--	--	SPARE	20/1	--	0.000	29	C	30	0.000	--	--	SPACE	--	--
				--	0.000	31	A	32	0.000	--				
				--	0.000	33	B	34	0.000	--				
				--	0.000	35	C	36	0.000	--				
				--	0.000	37	A	38	0.000	--				
				--	0.000	39	B	40	0.000	--				
				--	0.000	41	C	42	0.000	--				

Connected Load Panel Summary

Phase A:	2.6	KVA	21.6	AMPS
Phase B:	2.6	KVA	21.6	AMPS
Phase C:	0.7	KVA	5.5	AMPS
Total:	5.8	KVA		

Breaker Options (If Used):
TC - Time Clock Control
LO - Lock-On Device
GF - GND Fault CKT Interrupter
IG - Isolated ground
SH - Shunt Trip Breaker

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STATE OF OHIO
GREGORY A. RILEY
E-58930
REGISTERED PROFESSIONAL ENGINEER
8/31/15

Hilliard Civic & Cultural Arts Center

CITY OF HILLIARD

5425 CENTER STREET HILLIARD, OH 43026

Project Number: 13023
Drawn By: CH
Date: 08/31/2015

E401

E401-13270.DWG

PRATER
Engineering Associates, Inc.
6130 Wilcox Road
Dublin, Ohio 43016
(614) 766 4896
FAX: (614) 766 2354

DESIGNED BY	DRAWN BY	CHECKED BY	JOB NUM.
CLJ	CLJ	DLP	13270

16010 – GENERAL PROVISIONS

REFERENCE

The General Conditions and other Contract Documents as set forth in the foregoing pages are hereby incorporated into and become a part of the Specifications for work under this title, insofar as they apply hereto.

All Specifications under this Division Title are directed to and are the responsibility of the Electrical Contractor. Unless other trades or persons are specifically mentioned, "Electrical Contractor" is inferred and intended.

CONTRACT DRAWINGS

The Drawings accompanying these Specifications are complementary each to the other and what is called for by one shall be as if called for by both.

Consult all Contract Drawings which may affect the location of equipment, conduit and wiring and make minor adjustments in location to secure coordination.

Wiring layout is schematic and exact locations shall be determined by structural and other conditions. This shall not be construed to mean that the design of the system may be changed; it refers only to the exact locations of conduit and equipment to fit into the building as constructed and with the coordination of conduit and other equipment with piping and equipment included under other divisions of the Specifications.

Coordinate layout of work with other trades. Make minor adjustments in location required for coordination. Locations of structural systems, heating work and plumbing lines shall take preference over locations of conduit lines where conflict occurs.

Other than minor adjustments shall be submitted to the Architect for approval before proceeding with the work.

The location of outlets and switches shown on the Drawings is approximate, and the Architect shall have the right to relocate any outlets or switches before they are installed without additional cost.

MANUFACTURER'S DRAWINGS

The Contractor shall submit to the Architect for review, within six weeks after date of contract, six (6) copies of manufacturer's drawings and wiring diagrams. The Engineer will review Contractor's shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall system designed by the Engineer. Before submitting a shop drawing or any related material to the Engineer, Contractor shall: review each such submission for conformance with the means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto, all of which are the sole responsibility of Contractor; approve each such submission before submitting it; and so stamp each such submission before submitting it. The Engineer shall assume that no shop drawing or related submittal comprises a variation unless Contractor advises Engineer otherwise via a written instrument which is acknowledged by Engineer in writing. The items, types of submittals and related material (if any) called for are indicated below:

ITEMS REQUIRED	TYPE SUBMITTALS
Lighting and Power Panels	Shop Drawings
Lighting Fixtures	Catalog Cuts
Fire Alarm System	Shop Drawings
Motor Starters and Controls	Shop Drawings

The Engineer shall return shop drawings and related materials with comments provided that each submission has been called for and is stamped by Contractor as indicated above. The Engineer shall return without comment material not called for or which has not been approved by Contractor.

Engineer's review of Manufacturer's Drawings or Schedules shall not relieve the Contractor from responsibility for errors or omissions in Manufacturer's Drawings or Schedules and deviation from Engineer's Drawings or Specifications.

At the completion of the Job, before final payment is made, the Contractor shall submit six (6) copies of Manufacturer's "As–Built" Drawings. Included with the Drawings shall be The Operating and Maintenance Manuals as called for in Section 16011.

JOB–SITE COPY OF DOCUMENTS

Maintain at the site, one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other modifications, in good order. The Drawings shall be marked to record all changes made during construction especially deviations made necessary to incorporate equipment different from base equipment specified. These shall be available to the Architect. The Drawings marked to record all changes made during construction shall be delivered to the Architect for the Owner upon completion of the work. An additional set of Drawings will be furnished by the Architect for this purpose upon request.

MATERIALS

All materials shall be new and undeteriorated and of a quality not less than the minimum specified.

Materials and equipment for which there are Underwriters' Laboratories Standard requirements, listing and labels, shall have listing of Underwriters' Laboratories and be so labeled.

SUBSTITUTIONS

It is the intent of this article to make the Specification open in every respect to all available brands of material of equal quality during the period of bidding.

Bid shall be based on furnishing one of the brands of material and equipment mentioned in the Specifications. Submit, attached to the Bid, selected list of all material and equipment brands intended to be furnished if awarded the Contract. No change of brands shall be made after receipt of Bid and attached material brands list, unless approved in writing by the Architect.

The Electrical Contractor is also invited to bid on any other equal or similar brands of material and equipment he may desire to furnish, or substitute, stating the difference in cost, if any. Other brands must be clearly stated on a substitution sheet. Be prepared to submit sample material within three (3) weeks after requested by the Architect, Engineer or Owner, and assume all transportation costs involved in shipment and return of samples. Lamps are to be sent with sample fixtures and fixtures are to be wired with cord and plug to facilitate lighting for appraisal. The Architect shall decide the question of equality before the Contract is awarded.

Substitutions which are accepted shall be written into the Contract and no changes of brands shall be made after the Contract is signed unless approved in writing by the Architect.

Refer to "Instructions to Bidders" regarding substitutions.

Where the Contractor furnishes equipment or material specified as equal or which is accepted as a substitution, he is responsible for all modifications required for his work, and work of all other trades to install the equipment and insure performance as originally specified.

GUARANTEES

The Electrical Contractor shall be responsible for all defects, repairs and replacements in materials and workmanship for a period of one (1) year after final written acceptance by the Architect.

Product guarantees greater than one (1) year shall be passed along to the Owner for full benefit of the manufacturer's warranty.

QUANTITIES

Items may be referred to as singular or plural on the Drawings and in the Specifications. The Contractor is responsible for determining quantity of each item required.

INSTALLATION

Furnish and install all necessary hangers, supports, straps, boxes, fittings and other similar appurtenances not indicated on the Drawings but which are required for a complete and properly installed system consistent with the Architectural treatment of the building.

Contractor shall inform himself fully regarding peculiarities and limitations of space available for installation of materials and apparatus under this contract, and see that all equipment necessary to be reached from time to time for operation and maintenance are made easily accessible. Clearances, when possible, shall be greater than those required by code.

Working Clearances: At least 6'–6" clear headroom must be maintained in front of all electrical equipment. Provide at least 3'–0" for 208/120 volt clear space in front of all electrical equipment as wide as the equipment with a minimum of 2'–6" wide.

WORKMANSHIP

Electrical work shall meet or exceed the standards of installation and workmanship set forth in the latest edition of the National Electrical Contractors Association publication entitled NECA Standard of Installation, except as otherwise modified in these specifications or shown on the Drawings.

The Architect or Owner reserves the right to direct the removal and replacement of any item which, in his opinion, does not present an orderly, neat or workmanlike appearance, provided that such item can be properly installed in an orderly way by methods usual in such work, or which does not comply with the contract drawings or these specifications. Perform such removals or replacements when directed in writing by the Architect and at the Contractor's expense.

The Electrical Contractor, insofar as the work is concerned, shall at all times keep the premises in a neat and orderly condition, and at the completion of the work shall properly clean up and cart away debris and excess materials.

End of Section

16011 – OPERATION AND MAINTENANCE MANUALS

OPERATION AND MAINTENANCE MANUALS

Submit three (3) bound copies of operation and maintenance manuals, 8– 1/2" by 11" in 3–ring hardback binder. 23" X 25" and larger sheets shall be folded and indexed in rear of binder.

Format:

Title page: Title of Project, Owner, Address, Date of Submittals, Name and Address of Contractor, Name of Architect, Name of Engineer.
Second page: Index of Manual Contents.
First Section: A copy of each approved shop drawing and submittal with an index at the beginning of the section.
Second Section: A list (same as submittal drawings) of all equipment used on the project, together with suppliers name and address.
Third Section: Operating and Maintenance Instructions for all signaling systems, the Fire Alarm System, Evacuation system, White Noise System. Manufacturer's maintenance manuals for equipment furnished under this Contract shall include such items as parts lists, detailed lubrication instructions, procedures for performing normal maintenance functions, preliminary trouble shooting procedures and wiring diagrams.
Complete wiring diagrams for the Fire Alarm, Evacuation and White Noise Systems as actually wired including control and interlocking wiring.
Brief but complete instructions for start–up, shut–down and routine maintenance of each system.

OWNER PERSONNEL INSTRUCTION

After placing systems in operation, thoroughly instruct designated Owner's personnel on operation and maintenance of all equipment and systems.

Provide a minimum of four (4) hours total instruction. Instructions shall include the following:

Location of equipment and explanation of function.
Refer to operating instruction manual for record and clarity.
Coordination of written and verbal instructions so that each is understood by personnel.

The Electrical Contractor shall be responsible for arranging for the instruction and supervision at a time convenient to the Owner or his representative and for notifying of the time at least 48 hours in advance.

End of Section

16020 – WORK INCLUDED

SCOPE

Furnish all materials, labor, tools, transportation, incidentals and appurtenances to complete in every detail and leave in working order all items of work called for herein and shown on the accompanying Drawings.

not specifically mentioned or shown on the Drawings, but necessary to fully complete the work, shall be furnished.

COORDINATION OF PLANS AND SPECIFICATIONS

Contact the Architect immediately if there is any question regarding the meaning or intent of either Plans or Specifications, or upon noticing any discrepancies or omissions in either Plans or Specifications.

SITE VISITATION

The Bidder is required to visit the site and fully inform himself concerning all conditions affecting the scope of the work. Failure to visit the site shall not relieve him from any responsibility in the performance of this Contract.

SUPERVISION OF WORK

He shall have in charge of the work, at all times during construction, a competent superintendent with a large experience in the work to be done under this Specification.

Refer to the Specifications covering all branches of the work and keep fully informed of the progress of the general construction. Install all work that is concealed and built into the building in place in sufficient time to insure proper location without delays to the work of the other trades. Properly attend the work during the process of building–in to prevent misalignment and damage.

TEMPORARY SERVICE

For temporary service see GENERAL CONDITIONS Section of the Specifications.

CUTTING AND PATCHING

Avoid cutting of concrete, masonry and other work by use of inserts and sleeves, and when necessary shall be done by the Electrical Contractor with such tools and methods as to prevent unnecessary damage to surrounding areas or equipment.

This Contractor shall give the General Contractor locations and sizes of all openings required for the installation of electrical equipment before walls, etc., are started. If it becomes necessary to cut into new work because of the failure of this Contractor to notify the General Contractor, then the General Contractor shall coordinate any necessary cutting by this Contractor. Patching shall be at this Contractor's expense.

No cutting shall be done which will in any way reduce the structural strength of the building. Should such cutting be found necessary the Architect must first be fully informed of, and consent to, the proposed operation.

All cutting through poured concrete slabs and walls shall be done with core drills. No jack hammers will be allowed.

Patching shall match existing surfaces in kind and finish and shall be done by the General Contractor at the Electrical Contractor's expense. This includes patching existing ceilings and floors where required and patching holes left by removal of existing conduits, bus duct, equipment, etc.See GENERAL CONDITIONS.

Repair of damages, by this Contractor, to newly patched and refinished areas shall be done by the General Contractor at this Contractor's expense in kind to match existing condition.

All conduits, bus ducts, equipment, etc., that penetrates walls or floors shall have openings, sleeves, etc., filled and closed off to prevent the possible spread of fire or products of combustion through the wall or floor.

Where required to maintain fire rating, openings shall be sealed utilizing 3M Brand Fire Barrier Penetration Sealing systems. Fire barrier or fire stop systems from Crouse–Hinds, Thomas & Betts or Dow Corning may be used at Contractor's option. This includes holes left due to removal of existing conduit, bus duct, etc. Openings shall be temporarily firestopped until permanent fire–stopping is done.

CLEANING AND PAINTING

All electrical equipment shall be kept dry and clean during the construction period panelboard etc., shall be covered with fiberglass reinforced plastic sheeting as a minimum form of protection. Provide additional protection, if job conditions so require.

Interiors of all enclosures, etc. shall be thoroughly vacuumed, cleaned and all dirt and debris removed before installing trim or covers.

All finished surfaces of equipment furnished under this Contract shall be thoroughly cleaned of dirt and all scratched or damaged surfaces shall be touched up with matching materials before final acceptance of the work. No exposed ferrous metal surfaces shall be left unpainted. Touch–up all galvanized, if scratched, with two coats of aluminum paint.

Prime and paint all steel hangers, boxes, straps, rods, etc. which are not provided with rust–protective finish or the protective finish is damaged in installation. Paint to be zinc chromate primer and aluminum bronze finish. This includes unfinished and mechanical spaces as well as "exposed to view" locations.

Prime and paint all wood mounting panels with two (2) coats gray flameproof paint, both sides and edges.

When all work is completed and all work has been satisfactorily tested and accepted by the Architect, all fixtures, conduit and other exposed surfaces shall be thoroughly cleaned.

All lamps in all fixtures shall be installed new and the entire system shall be checked for satisfactory operation.

Paint all exposed bare conduit, panels and boxes in Equipment Rooms. Painting shall consist of two coats of semi–gloss enamel paint, except on walls which in the Room Finish Schedule are shown to be painted under PAINTING Section of the Specifications. The colors shall be as selected by the Architect.

End of Section

16025 – CODES AND FEES

CODES

All work performed under this Specification shall be done in accordance with the latest edition of the National Electrical Code as prepared and published by the National Fire Protection Association, National Electrical Safety Code, Standards of National Bureau of Fire Underwriters and any Federal, State Codes or Local Codes applying.

PERMITS AND FEES

Obtain and pay for all permits required by all laws and regulations or public authority having such jurisdiction. File drawings necessary to obtain permits.

ENERGY CODE

All motors used in Mechanical Systems must comply with the requirements of the State of Ohio "Model Code for Energy Conservation".

All motors rated greater than 1000 watts shall have a power factor of not less than 85% under rated load conditions. Power factor of less than 85% shall be corrected to at least 90% under rated load conditions.

For motors up to and including 50 horsepower, the manufacturer shall provide motors with a power factor of not less than 85%. If this is not possible, then the manufacturer shall provide and install power factor corrective devices to comply with this Code.

On all package equipment where starters are provided with the equipment such as chillers, heat pumps, rooftop units, etc., the manufacturer will be responsible for providing and installing power factor corrective devices to comply with this Code.

End of Section

16030 – TESTS AND INSPECTIONS

INSPECTIONS

Obtain all inspections required by all laws, ordinances, rules, regulations or public authority having jurisdiction and obtain certificates of such inspections and submit same to the Architect. Pay all fees, charges and other expenses in connection therein.

Before any electrical work is covered, the Architect will inspect the electrical work completed at that time.

Final Inspection – When the Contractor determines all work is completed and working properly per the Contract Documents, he shall request a "Final" inspection by the Architect in writing. If more than one reinspection is required after this final inspection, the Contractor shall bear all additional costs, including compensation for the Architect's additional services made necessary thereby. A final inspection will not be made until Operating and Maintenance Manuals and Test Reports are submitted and approved and all prior "Observation report" punch lists are completed, signed and returned to the Architect.

OBSERVATION REPORTS

During the course of construction, the Architect will prepare "Observation Reports" with a list of items found to be in need of correction. All items listed shall be corrected by the Contractor. A space is provided on the form for the Contractor to note the completion of each item. All prior "Observation Report" items must be completed, the lists signed and returned to the Architect prior to making the final inspection. After the final list is issued, the same procedure will apply.

TESTS

When the Architect makes final inspection of all electrical work he will order tests performed as deemed necessary. These tests may include operation of lights and equipment, continuity of conduit system, grounding resistances and insulation resistances and checking out the operation of the various systems. This Contractor shall provide such assistance as required (including manpower and tools) to start and stop the various systems, etc. and simulate control sequences. The Contractor (not the Architect) is responsible to turn on the systems and demonstrate they are operating properly.

Submit data taken during such test to Architect. Pay all professional engineering fees involved in required testing of equipment.

All signaling systems, such as private telephone system, and fire alarm shall be checked out and tested by a qualified field representative of equipment vendor. A report shall be submitted to Architect by vendor representative indicating results of such final check out and test. Final payment will not be approved until such report is submitted.

If the Architect determines that any work requires special inspection, testing, or approval, he will, upon written authorization from the Owner, instruct the contractor to order such special inspection, testing or approval. The Contractor shall give timely notice so the Architect may observe the inspections, tests or approvals. If such special inspection or testing reveals a failure of the work to comply with the requirements of the Contract Documents, the Contractor shall bear all costs thereof, including compensation for the Architect's additional services made necessary by such failure; otherwise the Owner shall bear such costs, and an appropriate Change Order shall be issued.

UNACCEPTABLE WORK

Work shall be unacceptable when found to be defective or contrary to the Plans, Specifications, Codes specified or accepted standards of good workmanship.

The Contractor shall promptly correct all work found unacceptable by the Architect whether observed before or after substantial completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such unacceptable work, including compensation for the Architect's additional services made necessary thereby.

GUARANTEE

This Contractor is responsible for all defects, repairs and replacements in materials and workmanship, for a period of one (1) year after final payment is approved by the Architect.

PERFORMANCE

Contractor, subcontractor, vendors, or manufacturer shall provide tests on the following equipment. Refer to the appropriate specification section for description of the tests.

Fire Alarm System

LIGHTING

All lamps in all fixtures shall be installed new and the entire system shall be checked for satisfactory operation.

PHASE ROTATION

Prove that the switchgear, panelboards, etc., are connected for clockwise (A–B–C) rotation as marked by the manufacturer.

Prove that all electrical equipment is connected for clockwise rotation (A–B–C).

LOAD BALANCE

Prove that loads are balanced across all phases of panelboards.

Obtain optimum phase balance under full load condition by reconnection of panelboard feeders at the main switchboard. Any panelboards requiring circuit changes for balance shall reflect these changes in the panel directory and wire color identification. Color change can be made with colored tape at panel.

Pay special attention to prevent reverse rotation of motors during load balance and adjustments.

NEUTRAL–GROUND SEPARATION

Prove that the neutral and ground are separated, except as required by the National Electrical Code, at service entrance and transformer secondaries.

RESISTANCE AND CONTINUITY

Provide insulation resistance, grounding resistance, and ground continuity tests of feeders, branch circuits or equipment on demand.

CONNECTIONS

Prove that mechanical connections are torqued to manufacturer's recommended UL and NEMA standards on demand.

CONTROL AND INTERLOCKING

Prove that motors and equipment operate as indicated in control and wiring diagrams and sequence of operation.

Prove that lighting, switchboard and miscellaneous controls operate as indicated in control and wiring diagrams and sequence of operation.

EQUIPMENT

Provide necessary electrical personnel and testing instruments as required to assist in testing of installation.

End of Section

16111 – CONDUITS

SCOPE

Furnish and install all conduits, boxes, fittings, etc., for a complete raceway system.
See Section 16130 "Boxes"

CONDUIT – Electrical Metallic Tubing (EMT)

All wiring in building interior, including feeders, branch circuits and auxiliary wiring shall be run in thin wall (EMT) conduit.

All steel conduit shall be galvanized and all conduit shall have the manufacturer's name and U.L. label attached to or stamped on each piece.

Each section of conduit furnished shall be straight, free from blisters and other defects and in 10'–0" lengths. Galvanizing shall be of such nature and so applied that it will not crack or flake when conduit is bent.

All conduit sizes stated herein or marked on the drawings are minimum size and shall be no less than 1/2" unless otherwise noted.

CONDUIT – Rigid Metallic

All conduit on building exterior, or in exterior partitions, shall be rigid or intermediate (IMC) steel.

Minimum size shall be no less than 1/2".

CONDUIT – Flexible Metallic

Flexible neoprene–clad galvanized steel conduit shall be used for "makeup" connections to rotating machinery and heating elements. Lighting fixtures may be supplied with short lengths of flexible conduit with green ground wire.

Minimum size shall be 1/2" trade size.

CONDUIT FITTINGS – Metallic

All thinwall connectors shall be of the insulated throat type, similar to Thomas and Betts No. 5123–1/2". All fittings shall be steel. No die cast fittings will be allowed. Contractor may use Thomas and Betts, Raco Steel City or Midwest fittings.

All rigid and IMC conduits shall have threaded connections.

Liquid tight flexible metallic fittings shall be Midwest LTB–50 Flexible metallic fittings shall be Steel City XC–242.

"Mineralac" type supports and "Unistrut" type one bolt supports with square ends shall not be used at any location.

INSTALLATION

All rigid (GRC) or intermediate (IMC) conduit entering cabinets, pull boxes, junction boxes or outlet boxes shall be secured with double lock nuts and ends bushed.

No more than four (4) 90 degree bends will be allowed in any one conduit run. Where more bends are necessary in any single run, a pull box shall be installed; pull boxes shall also be installed in long runs at a maximum separation of 100'–0". All conduit except in concrete slab or earth shall be routed parallel or perpendicular to the lines of the building and no out of plumb or diagonal lines will be accepted.

Unless otherwise noted, all conduit shall be run concealed within the building construction when installed in finished interior or exterior areas. Conduit in equipment rooms and on roof may be run exposed. Exposed wiring in finished areas shall be in wiremold.

All conduit shall be substantially supported by pipe straps or suitable clamps or hangers attached to the elements of the building structure to provide rigid installation; in no case shall conduit be attached or supported from adjoining pipe or installed in such a manner as to prevent the ready removal of other pipe for repairs.

Strap iron hangers and wire will not be approved for conduit support.

No conduit shall rest on or be supported from acoustical tile ceilings, or their suspension system.

Exposed conduits rising from floor to surface panels, or boxes, shall have a 4" high concrete curb encasing the conduits at the floor line. Curb to have chamfered edges.

Where conduit runs across building expansion joints or where necessary to compensate for thermal expansion or contraction, provide expansion unions.

Exercise necessary precaution to prevent accumulation of water, dirt, or concrete in conduits during execution of electrical work. Conduit in which water or foreign material has been permitted to accumulate shall be thoroughly cleaned, or replaced where such accumulations cannot be removed.

All conduits must be kept dry and free of water or debris with approved pipe plugs or caps. Care shall be given that plugs or caps be installed before pouring of concrete.

Conduit sleeves through the floor shall project one inch above the finished floor.

Flexible conduit may only be used as follows:

Lighting fixtures may be supplied with short lengths not longer than 6'–0".

Make up connections to transformers in lengths not longer than 2'–0".

All expansion joints, flexible connections, and vibration isolators shall be bridged with short lengths not longer than 2'–0".

All connections to rotating machinery and heating elements shall be made with short lengths (minimum 12") of liquid–tite conduit. Where motors are mounted on sliding bases, the flexible connection shall be long enough to allow full travel of the motor on the base (maximum 36").

Pull Wires

A pull wire shall be installed in all empty conduits. In dry locations, pull wire shall be No. 16 gage galvanized iron or nylon pull cord.

Both ends of all pull wires shall be identified by means of labels or tags, reading "PULL WIRE" and shall be numbered to refer to the same pull wire.

Remove all conduits cut dead except in concrete or masonry.

Conduits thru roof shall be flashed with 6" high pitch pockets, or equally effective means approved by the Architect.

Seal water and moisture tight all conduits entering from outside the building.

End of Section

16120 – WIRE AND CABLE

SCOPE

Furnish and install all wiring required to connect complete power, lighting, grounding, control, and auxiliary systems.

STANDARDS

All conductors shall be stranded and of the AWG size and type shown on the Drawings. Where no size or type is shown, conductors shall not be less than #12 type XHHW, THHN, or THWN. All conductors shall be copper and have 600 volt insulation; be UL labeled and of American manufacturer.

All conductors shall be stranded unless otherwise noted and conform to the latest edition of the Underwriters' Laboratories, Inc., "Standard for Rubber Covered Wires and Cables" and the National Electrical Code.

No wire used for lighting or power shall be smaller than #12 AWG.

No wire used for control circuits shall be smaller than #14 AWG.

Stranded #18 AWG copper or #18 solid two conductor cable shall be the minimum used for fire protective signaling circuits. #18 AWG stranded shall be minimum used for fire alarm remote annunciators. Limited energy cable shall have insulation labeled for F.A. circuits.

INSTALLATION

All conductors shall be continuous from box–to–box. No joints shall be permitted in the circuit other than in junction boxes or fixtures.

All make up connections to fluorescent lighting fixtures and all branch circuit conductors run in wiring channels of fluorescent lighting fixtures shall be THHN, THHW, or XHHW rated 90°C.

Equipment ground conductors shall be same insulation type as the associated circuit conductors.

All conductors of a circuit shall follow the same path through any openings in metal partitions within enclosure.

The ampacity of all conductors shall be at least as great as the rating of the fuse or circuit breaker on the line side of the conductors. Note the ampacity reduction required by Code when more than three conductors are placed in a raceway.

All conductors for distribution and control equipment terminations shall be based on full 75°C ampacity.

E501–13270.DWG

PRATER
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6130 Wilcox Road
Dublin, Ohio 43016
(614) 766 4896
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Hilliard Civic & Cultural Arts Center
5425 CENTER STREET HILLIARD, OH 43026
CITY OF HILLIARD

Project Number:	13023
Drawn By:	CH
Date:	08/31/2015

E501

All conductors for appliance and utilization equipment terminations rated 100 amperes or less shall be based on 60°C ampacity.

Provide cable supports for vertical raceways per NEC Table 300–19 (a).

Wiring installed in separate conduits.

All emergency and exit lighting.

Control wiring.

Auxiliary systems wiring.

All fire alarm signaling circuits.

Swab conduits free of moisture, dirt and grease before pulling wire. Care shall be exercised while installing wire in conduits so that conductor insulation will not be injured. No oils, grease or compounds other than Ideal "Wire Lube", "Yellow 77", or equal UL approved wire pulling lubricants shall be used for pulling in any conductors.

Remove all wire cut dead.

Fire Alarm signaling circuits shall not be spliced. No parallel branching of wires is permitted. All wiring shall be run parallel and perpendicular to building lines.

CONNECTIONS

All connections are to be made using pressure type terminals.

Where connections are to be made to devices or equipment under screw heads only, install insulated, crimp type spade clips on the wire ends before the connections are made.

Devices shall not be used as through connection points. Where through circuits are involved they shall be spliced in the box and a pigtail connected to the device.

Connectors shall contain only one wire unless they are listed for multiple conductors.

Joints in #10 and smaller wire shall be made using the following types of connectors: Minnesota Mining and Manufacturing "Scotch Lok", Ideal Industries, Inc. "Wing Nut", or Thomas and Betts Co. Type "PT". Connectors shall be used only within their range. Other threaded–on types of insulated connectors shall not be used.

Joints in #8 and larger wire or joints in any wires above the range of threaded–on connectors shall be made using pressure type mechanical connectors applied after wires are cleaned and then insulated using two (2) layers of "Scotchfil" brand electrical insulation putty and covered by two (2) half–lapped layers of "Scotch 88", or Plymouth Slipnot Gray vinyl plastic electrical tape. Connectors can be installed and sealed against moisture by installing Raychem "TCS (indoor) or WCSM (exterior)" sealant coated heat shrink tubing.

WIRE COLOR CODE

The wiring color code shall match existing building standard
On 3– and 4–way switches, the travelers shall be the same color as the phase used.

Conductors No. 10 AWG or smaller shall have insulation colored as noted above.

Conductors No. 8 AWG or larger shall have insulation colored as noted above or colored tape, minimum size 1/2", wrapped twice around at the following points:

At each terminal
At each conduit entrance
At intervals not more than 12 inches apart in all boxes, panel tubs, switchboards, etc.

Equipment grounding conductors No. 8 AWG and larger shall be green or green tape applied in a continuous wrap where visible at panels and junction boxes, etc.

MARKING

All branch circuits shall be marked in the panelboard gutters. Markers shall indicate corresponding branch–circuit numbers.

All signal and control wires shall be marked at all termination points, such as cabinets, terminal boxes, equipment racks, control panels, consoles, etc.

Fire alarm detector and station circuit wire shall be marked to indicate to what zone they are attached.

The wire markers shall be Thomas and Betts vinyl tape type WM wrapped once around the wire and the adhesive sides placed together to form a flag.

These wire markers shall be installed when wire is pulled.

EXIT AND EMERGENCY WIRING

All exit and emergency wiring shall be as shown on the Drawings and shall be run in a separate conduit from any other conduit. Branch circuit wiring shall be #10 THW minimum.

Wire insulation shall be color coded the same as the respective voltage building wiring, and be identified with 1/2" wide red tape wrapped twice around at not more than 12" intervals at all access points. On conductors #8 AWG and larger with black insulation, red tape will be used in addition to other identification tape.

End of Section

16130 – BOXES AND PLATES

SCOPE

Furnish and install all outlet, junction, and pullboxes as indicated on the Drawings and as necessary to install the required conduit and wiring in a neat and workmanlike manner.

Furnish and install all outlet and junction box covers and wiring device plates.

STANDARDS

Pullboxes and junction boxes shall be in accordance with Code requirements and shall be Underwriters' Laboratories labeled.

BOXES FOR FLUSH WORK

Flush outlet, junction and pullboxes shall be pressed steel galvanized or sherardized and shall be a minimum of 4" square or octagonal similar to Appleton #40.

Flush floor boxes shall be concrete tight, Class 2, dual level, fully adjustable Hubbell B2527 or B2529 (shallow), with #S–2525 cover plate. Above floor fittings shall be #SC3091 for 120 volt duplex and #SC3090 for telephone or intercom. Contractor may use T & B #916O Series at his option.

BOXES FOR EXTERIOR WORK

Boxes at exterior areas to be watertight and dust–tight with gasketed covers.

BOXES FOR EXPOSED WORK

All boxes for exposed work in finished spaces shall be "FS" type with threaded hubs with rigid conduit riser (deep wiremold boxes).

All boxes for outlets and devices in unfinished spaces shall be steel 4–11/16".

PLATES AND COVERS

Switch plates on flush and cast boxes shall be Sierra Nos. S–1N, S–2N, S–3N etc., as required, and shall be made of satin finish #302 stainless steel.

Duplex receptacle plates on flush and cast boxes shall be Sierra No. S–8N satin finish #302 stainless steel.

Plates for exposed outlets in unfinished spaces shall have Steel City Series RS–4" square galvanized surface covers for application required. Covers shall be raised 1/2" and edges fit flush with top of box.

Special or engraved plates, as indicated on the Drawings, shall be Sierra #302 satin stainless steel for the application required. Letters shall be 3/16", engraved with black enamel fill.

Blank outlets where required in finished areas shall match wiring device covers in that area.

Plates of satin finish #302 stainless steel as manufactured by Slater may be furnished at this Contractor's option.

INSTALLATION

All boxes shall be rigidly supported from building structure independent of the conduit system. Boxes cast into masonry or concrete are considered to be rigidly supported.

Close all unused and open knockouts with plugs of the proper size.

End of Section

16140 – WIRING DEVICES

Switch plates on flush and cast boxes shall be Sierra nos. P–in, P–2n, P–3n, etc. and shall be made of ivory plastic.

Duplex receptacle plates on flush and cast boxes shall be Sierra no. P–8n ivory plastic.

Plates for exposed outlets in unfinished spaces shall have Steel City series RS–4" square galvanized surface covers for application required. Covers shall be raised 1/2" and edges fit flush top of box.

Wiring devices shall be furnished in strict accordance with the catalogue number and manufactures listed in the schedule which follows. Other special purpose devices shall be as specified on the drawings.

Furnish and install all wiring devices where shown on the Drawings.

Wiring devices shall be furnished in strict accordance with the catalogue numbers and manufacturers listed in the Schedule which follows. Other special purpose devices shall be as specified on the Drawings.

STANDARDS

Duplex Grounding Type Receptacle – 20 amp, 125 volt – NEMA 5–20R

Hubbell – 5362–I,
Cooper – 5362–I,

Tamper resistant duplex grounding type receptacle – 20 amp, 125 volt–nema 5–20R

Hubbell – RR20SITR

Single pole switches – 20 amp, 120 volt

Hubbell – 1221
Arrow Hart – 1991

3–way switches – 20 amp, 120 volt

Hubbell – 1223
Arrow Hart – 1993

Dryer receptacle – 30 amp, 125/250 volt, 4 wire ground type – nema 14–30R

Hubbell – 9430 with 9432 angle plug
Arrow Hart – 5744 with 5732 angle plug

Range receptacle – 50 amp, 125/250 volt, 4 wire ground type – nema 14–50R

Hubbell – 9450 with 9452 angle plug
Arrow Hart – 5754 with 5752 angle plug

Tamper resistant weatherproof receptacles – 20 amp, 125 volt – nema 5–20R

Hubbell – RR20SIWRTR with intermatic guardian I series, nema 3R cover

Tamper resistant G.F.I. receptacle – 20 amp, 125 volt – nema 5–20R

Hubbell – GFTR20LI with S26 or PJ26 plate or WP–26 W.P. cover

Weatherproof Receptacles – 20 Amp, 125 Volt – NEMA 5–15R

Hubbell – 5262, 5252 with 5205 cover, Intermatic Guardian I Series, NEMA 3R cover Cooper – 5262, 5252 with 4500 cover

G.F.I. Receptacle – 20 Amp, 125 Volt – NEMA 5–20R

Hubbell – GF 5362–I with S26 or PJ26 plate or WP–26 W.P. Cover

SUBSTITUTIONS

The Electrical Contractor may upon approval by Engineer furnish equal devices by P & S, or Woodhead.

INSTALLATION

Install wiring devices in a neat and workmanlike manner.

Ground all receptacles in accordance with Article 250–74 of NEC and as indicated in the Grounding Section of this Specification.

To eliminate noise pass thru, no outlets or devices shall be mounted back to back.

Wiring devices specified are side and back wired type and shall be back wired.

All outlets within dwelling units shall be Tamper Resistant type.

Commercial kitchen coverplates shall be stainless steel.

End of Section

16150 – MOTOR AND EQUIPMENT WIRING

SCOPE

Provide power and connect all motors and motor driven equipment shown on the Plans.

Furnish, install and connect all over current and disconnect means as required by the National Electrical Code.

Motors and motor driven equipment shall be provided and installed by others. Motor starters, controllers and control devices; other than temperature control equipment and devices and starters for controllers, furnished as part of packaged equipment; shall be furnished and installed by the Electrical Contractor, except as otherwise noted.

INSTALLATION

Install and wire all motor control equipment per wiring diagrams and instructions furnished to him, including interlock wiring between equipment.

Motor and equipment locations shown on the Drawings are approximate. Obtain exact locations from the Contractor concerned.

Refer to the Heating and Air Conditioning, Specifications for description of electrical equipment and controls furnished by them.

Verify all control sequences, etc. in accordance with Section 16030 – Tests.

End of Section

16160 – POWER PANELS – CIRCUIT BREAKER

SCOPE

Furnish and install, as scheduled and shown on the Drawings, power panels for operation on 208/120 volt, 3 phase, 4–wire service.

Each panel shall be connected with a feeder as sized on the Drawings.

STANDARDS

The panels shall be Square D, Type I–Line, with branch breakers as scheduled on the Drawings.

All terminations shall be marked "75°C only", "60/75°C" or listed for use of 75°C insulated wire at full 75°C ampacity.

CONSTRUCTION

All bus bars shall be silver or tin plated copper. Panel shall have an integral short circuit rating or 65 KAIC, including breakers.

Cabinets shall be of commercial galvanized sheet steel, code gauge and size, surface mounted. Doors shall be fitted with chrome plated combination lock and catch, and all keyed alike.

Directory card and frame inside panel door.

Neutral assembly shall have individual anti–turn solderless terminals, similar to Square D type PK, for connection of ultimate number of neutral wires. Sheet metal terminal strips and connections will be rejected.

Panel shall have a copper ground bar similar to neutral bar in number, size, and type of anti–turn solderless lugs. This ground bar shall be factory bonded to the panel tub in the gutter space opposite the mains and the neutral assembly and shall have the screwdriver slots facing the front of the panel. Ground bars in panel side gutters will be rejected. Sheet metal terminal strips and connections will be rejected. Note that the height of the panel tub may be higher than normal because of the ground bar.

CIRCUIT BREAKERS

The branch breakers shall be molded case, temperature compensated, quick–make, quick–break, with thermal–magnetic trip and permanently bolted to bus bars.

Breakers that feed heating, air conditioning, and refrigeration equipment shall be listed "HACR" type.

INSTALLATION

Panels shall be mounted with top of panel at 6'–0" above floor.

Directory cards shall be correctly filled in by typewriter for circuits as installed, before final payment is made.

Additional identification shall be furnished as specified in Section 16195.

End of Section

16163 – 208/120 VOLT PANELS

SCOPE

Furnish and install, as scheduled and shown on the Drawings, lighting panels for operation on 208/120 volt, 3 phase, 4–wire service.

Each panel shall be connected with a feeder as sized on the Drawings.

STANDARDS

The panels shall be Square D, type NQOD, unless otherwise noted, with branch breakers as scheduled on the Drawings.

All terminations shall be marked "75°C only", "60/75°C" or listed for use of 75°C insulated conductors at full 75°C ampacity.

CONSTRUCTION

All bus bars shall be silver or tin plated copper.

Cabinets shall be of commercial galvanized sheet steel, code gauge and size, surface or flush mounted as called for in the Drawings. Flush panels shall be finished with prime coat only. Doors shall be fitted with chrome plated combination lock and catch, and all keyed alike.

Directory card and frame inside panel door.

Neutral assembly shall have individual anti–turn solderless terminals, similar to Square D type PK, for connection of ultimate number of neutral wires. Sheet metal terminal strips and connections will be rejected.

Panel shall have a copper ground bar similar to neutral bar in number, size, and type of anti–turn solderless lugs. This ground bar shall be factory bonded to the panel tub in the gutter space opposite the mains and the neutral assembly and shall have the screwdriver slots facing the front of the panel. Ground bars in panel side gutters will be rejected. Sheet metal terminal strips and connections will be rejected. Note that the height of the panel tub may be higher than normal because of the ground

CIRCUIT BREAKERS

The branch breakers shall be type QOB or QOB–H rated 10,000 A.I.C. minimum, molded case, temperature compensated, quick–make, quick– break, with thermal–magnetic trip and permanently bolted to bus bars.

Breakers that are used to switch 120 volt fluorescent lighting shall be type SWD.

Breakers that feed heating, air conditioning and refrigeration equipment shall be listed "HACR"

INSTALLATION

Panels shall be mounted with top of panel at 6'–0" above floor.

Directory cards shall be correctly filled in by typewriter for circuits as installed, before final payment is made.

Additional identification shall be furnished as specified in Section 16195.

End of Section

16170 – DISCONNECTS

SCOPE

The Electrical Contractor shall furnish and install heavy duty fusible disconnect or non–fusible disconnect switches where shown on the Drawings, in conformance with N.E.C. requirements for each unit of equipment.

GENERAL REQUIREMENTS

Switches shall be wall mounted in general purpose enclosure unless otherwise noted. They shall be NEMA heavy–duty type and shall have the rating, capacity and number of poles for the service concerned.

Switches in exterior locations shall be NEMA 3R.

All switches have provisions for padlocking and shall be by the same manufacturer.

Switches for use on motor circuits shall be horsepower rated.

Handle shall be pad lockable.

INSTALLATION

Switches shall be installed to provide code required clearance and shall be generally wall mounted at 6'–0" to top.

Disconnects mounted on equipment shall be field coordinated and located to clear any access openings or paths.

Provide free standing unistrut support frame for switches that cannot be wall or equipment mounted. Frame shall be full height and attached at the floor and ceiling, or angle braced to floor or poured into concrete equipment pad in order to provide rigid structure. Minimum height to top of floor mounted switches shall be 36".

End of Section

16195 – IDENTIFICATION

SCOPE

Each piece of service equipment and individual switches, all disconnects, all power and lighting panels, all cabinets and pull boxes for auxiliary systems, such as telephone, fire alarm and emergency exit lights, etc., shall be identified on the front cover or trim with its name and/or designation number or letter as shown on the Drawings and with the voltage available within the panel.

GENERAL

Identification shall be in the form of laminated plastic nameplates, black face, with the letters engraved into the white background, minimum 1/4" high. Plates shall be drilled on each end for sheet metal screw attachment. No "Dymo" or similar tape type labels will be allowed.

Fire Alarm and Emergency equipment nameplates shall be red face with letters engraved into white background.

Power Panel
The following is an example of the nameplate layout and wording.

Panel P1
120/208 volt, 3 phase, 4–wire

INSTALLATION

Plastic nameplates shall be attached to face of electrical device by sheet metal screws. Locate plate so wording reads horizontally and plate does not obstruct other identification plates, latches or operators.

Fire Alarm and emergency boxes and enclosures shall be painted red and have system identification nameplate.

All fluorescent emergency lighting fixtures shall have a identification nameplate on the ballast compartment cover with the word "EMERGENCY" in 3/8 inch letters.

Branch–Circuit Panelboards: Per NEC 210–4d, a phase color–code nameplate shall be mounted on the inside trim adjacent to the manufacturer's nameplate. Refer to Section 16120, 3.03A for proper color code for voltage utilized.

End of Section

16501 – LIGHTING FIXTURES

SCOPE

Contractor shall furnish and install lighting fixtures and lamps as indicated in Fixture Schedule shown on Drawings, and specified herein.

All lighting fixtures are indicated on the Drawings with an identifying letter and number, i.e., S–1, CL–2, R–5, etc. Refer to the Fixture Schedule on the Drawings which identifies the fixture in accordance with letter and number and indicates the type of mounting of the fixture in accordance with the Legend Section of the Schedule.

STANDARDS

Lighting fixtures scheduled on the Drawings are specified as standards for design, quality and appearance. Fixture of other manufacturers will be considered by the Architect provided they are equal to or better than the standard.
Reference: Section 16010, General Provisions.

Fixture materials given with the standard fixtures shall be maintained if alternate manufacturers are used, i.e., metal sides for metal sides, acrylic plastic louvers for acrylic plastic louvers, etc.

GENERAL

Lay–in grid fixtures may be furnished clips for use in supporting fixtures in accordance with NEC Article 410–16(c).

Flush fixtures may be furnished with prewired feature provided they are U.L. approved for 75°C. wiring and the junction box capacity is sufficient for the circuit wiring requirements.

Recessed incandescent fixtures shall be equipped with thermal protection in accordance with NEC Article 410–65(c) and U.L. 1571.

Clearances for recessed portions of fixtures from combustible material and thermal insulation, shall be in accordance with NEC Article 410–66.

Provide parabolic louvered troffers with self–adhering mylar overlays to protect lamps and louvers from construction dust. The mylar shall remain in place until final clean–up.

Provide dual (2 per fixture) ballast for "double switched" three lamp fluorescent fixtures.

BALLASTS

All large lamp ballasts of fluorescent fixtures shall be electronic non–dimming, programmed rapid start CBM and U.L. approved and of the HPF type. They shall be sound rated "A", Class P, Optanium as manufacatured by Advance.

All compact lamp ballasts shall be electronic, U.L. approved, high power factor, THD less than 10% starting temperature of –5' and shall contain end of lamp life fault mode shutdown protection, Class P, energy saving, by Valmont Electric, Universal, or Advance.

Fluorescent ballasts for exterior locations designated on the Drawings shall be low temperature (0') magnetic ballasts manufactured by Valmont Electric, Universal, or Advance Company.

LAMPS

All lamp holders installed by the Electrical Contractor shall be furnished complete with new lamps of the size indicated on the Fixture Schedule.

Fluorescent lamps shall be cool white for fixtures with low temperature ballasts and fixtures in locations below 60'F. All other fluorescent lamps shall be standard (cool white)(warm white) by General Electric, Sylvania or Philips.

Fluorescent lamps shall be cool white for fixtures with low temperature ballasts and fixtures in locations below 60'F. All other fluorescent lamps shall be energy saving (cool white)(warm white) General Electric Watt–Miser, Sylvania Super Saver or Philips Econo–Watt.

Fluorescent lamps shall be Sylvania T–8 or T–5 as indicated in fixture schedule.

Incandescent lamps shall be designed to operate on 125 volts.

Lamps used during construction will be furnished by the Contractors requiring light and shall be removed from all fixtures shortly before the completion of the Contract.

Lamps in exit signs be LED extended life type as indicated by the fixture manufacturer.

GENERAL

This Contractor shall inform the General Contractor of location and framing details necessary for the installation of flush ceiling fixtures and deliver to the General Contractor all frames of these fixtures so that they become a part of the ceiling construction. This Contractor shall verify the actual suspension system to be used and make all adjustments in fixture installation provisions required thereby.

Flush fixtures that have light leaks between the frame and ceiling shall have a gasket installed by this Contractor between the trim and the ceiling.

Furnish all mounting straps, frames, rings and other accessories required for a complete lighting installation. Refer to architectural room treatment schedule. Should any conflict occur with the building structure that will not allow proper installation of fixtures, the Architect shall be contacted before proceeding.

No fixtures shall be installed until painting is completed. Fixtures with paint marks on them shall be replaced.

All light fixtures shall be installed with centerlines symmetrical to the building, or at angles so designated by the plans. Fixtures not set thus shall be removed and reinstalled at this Contractor's expense.

Any fixtures scratched, bent, cracked or in any way damaged before acceptance by Owner shall be replaced at this Contractor's expense.

All lamps shall be in working order at the time of final acceptance of the work by the Owner and Architect.

All lighting fixtures are to be grounded on the interior of the fixture housing, on clean bare metal (free of paint), by use of a pigtail and fastened by a screw used for no other purpose.

INSTALLATION

Wherever lighting systems are supported and fastened to a ceiling suspension system of the grid type, the following method shall be followed:

On suspended fixtures, an additional wire is to be added at each stem location from the structural floor above, providing there are no wires within six inches (6") of the stem clip. (NOTE that these wires cannot be suspended from the lathe and plaster but must be anchored into the structural floor).

Surface mounted fluorescent fixtures shall be fastened at each of the four corners and fit tight to the ceiling suspension system.

Each fixture shall have a support wire at each corner of each recessed fixture. Each fixture shall be fastened to the grid system in accordance with NEC Article 410–16(c) using suitable clips. If fixtures are located other than on a main T–bar, additional T– bar or channel shall be added above the ceiling and fixture supported as directed, or fixture shall be supported independent of the ceiling suspension system.

The T–bar shall not be cut out to provide room for the junction box.

A few of the first fixtures shall be checked as soon as they are suspended, to determine if any sagging or twisting of the ceiling system exists, and if fixtures are firm and hang straight. Finally, after fixtures and lamps have been installed, the ceiling shall be rechecked for sagging, and any correction shall be the responsibility of the Electrical Contractor.

End of Section

E502–13270.DWG

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CITY OF HILLIARD

Project Number:	13023
Drawn By:	CH
Date:	08/31/2015

E502

16721 – FIRE ALARM SYSTEM

SCOPE

Furnish and install a complete microprocessor based class B, electrically operated and supervised, closed circuit fire alarm system, locating all units of equipment as shown on the drawings.

STANDARDS

The materials, wiring and equipment shall be designed and built in accordance with the best practices of the electrical industry and shall conform to the standards of:

National Electrical Code
The National Electrical Safety Code
Applicable state and local regulations
National Fire Protection Association
UL listed or associated factory mutual insurance company listed

Base equipment shall be Simplex. equal equipment as made by Edwards, Notifier, ADT or Siemens may be used at the contractor's option.

General system description

The supervised, addressable system shall be so arranged that pulling a manual fire station or operation of one of the automatic detecting devices will cause all the alarm signals to sound and illuminate continuously until the station has been reset.

All fire alarm stations shall be key–locked so that only an authorized person can, with a special key, open the station for test purposes.

All circuits shall be under constant electrical supervision so that should an open circuit or ground occur in the station or bell circuits, or the operating leg of power fail, the operating trouble bell shall ring.

The trouble bell circuits shall be so arranged that they may be silenced by operating a corresponding silencing switch which transfers the signal to a pilot light that continues to burn as long as the trouble conditions continue to exist.

The supervising leg of power shall likewise be under constant electrical supervision so that should it fail, the supervising trouble signal shall ring. this trouble signal may likewise be silenced by operating its corresponding silencing switch which causes its pilot light to burn.

The system shall monitor the state of each smoke and duct detector. it shall initiate trouble signals when the above devices require maintenance. In addition, the system shall initiate general alarm when a sudden state of the device occurs.

Duct mounted smoke dampers shall close by a signal from the auxiliary relays of the local duct mounted smoke detector.

Fire alarm control panel shall send all alarm and trouble signals to the municipal fire department or remote monitoring service organization.

Sprinkler waterflow and tamper switches shall be supervised for alarm and trouble conditions. devices are shown schematically on drawing. Coordinate exact location with Division 15 contractor in field.

Smoke detectors in dwelling units shall be multi station with 120 volt ac primary power source and battery back–up equipped with sounder base for local annunciation of smoke detection. Dwelling unit smoke detectors shall be interconnected to sound all smoke detectors upon detection of smoke. Dwelling unit detectors shall not be connected to the building fire alarm system.

ADAAG hearing impaired type dwelling units shall have a visible strobe in the living room, bathroom and bedroom connected to the building fire alarm system. Units shall also have a visible strobe actuated by the multi–station smoke detectors. The strobes shall be located adjacent to each strobe in the unit.

Devices

Horns and Strobes

All power supplies shall be sized for 30% additional capacity to handle future installations of devices.

All initial horn and strobe circuits shall be loaded to 70% capacity.

Rquipment manufacturer shall select the intensity rating for each visual appliance to provide an equivalent illumination for the space/installation to comply with ADA and NFPA 72.
fire alarm control panel

Fire alarm control panel (FACP) shall be Simplex 4100 True Alarm. FACP shall detect operation of any signal initiating device by alpha numeric display, have a remote annunciator indicating the area of the fire alarm condition, operate all general alarm devices, and function as indicted:

1. Be microprocessor based.
2. Have 80 character english readout with dynamic LCD display
3. Have standard RS–232–C output to control remote printer.
4. Provide with equipment for active zones, spare zones and future zones.
5. Provide for remote annunciators
6. Provide for selective manual actuation of emergency signals.
7. Te programmed for 10% additional points with coded alarm.
8. Provide smoke detector alarm verification.
9. Program shall be stored in non–volatile memory.
10. Be provided with digital alarm communicating transmitter (DACT) to monitor the status of the fire alarm control panel and report alarms, troubles, and supervisory conditions to a central supervising station via the public switched telephone network.

General alarm circuits: positive non–interfering type so that a second zone can be annunciated simultaneously or closely following first zone.

Convert main 120 volt AC power to low voltage direct current for 24 volt DC system.

Provide approved battery type and charger/transformer system for emergency backup power during period of power supply failure to control panel.

1. Minimum battery capacity shall be 24–hour operation and supervisory mode plus 15–minute alarm mode.

Provide the following output contacts:
1. System alarm
2. Trouble alarm

FACP shall be a semi–flush mounted red cabinet with glass window and locking door.

Visual Indicating Strobe

Visual device shall be Simplex True Alert 4904 vertical wall mount series. visual devices shall be a minimum of 75 candela, 27 vdc powered xenon flash unit with clear polycarbonate lens. Device shall be red semi–flush base with white "fire" lettering. The manufacturer shall select the proper candela model per the occupancy, location and proper applications of all applicable codes. Strobes shall be synchronized for 1 hz flash rate to reduce the probability of photo–sensitive reactions. Devices shall be UL 1971 listed.

Combination Audible/Visual Indicating Appliance

Combination audible/visual devices shall be Simplex True Alert 4903 series. Devices shall be wall mounted with vertical strobe orientation. Audible device shall be mechanical horn–type 87db minimum at 10 feet. The visual device shall have a minimum of 75 candela, 24 vdc powered xenon flash unit with clear polycarbonate lens. Device shall be red semi–flush base with white "fire" lettering. the manufacturer shall select the proper candela model per the occupancy, location and proper applications of all applicable codes. Strobe shall be synchronized for 1 hz flash rate to reduce the probability of photo–sensitive reaction. Devices shall be UL 1971 listed.

Sprinkler Waterflow and Valve Tamper Switches

Sprinkler water and valve tamper switches will be provided by the fire protection contractor, and wired by the electrical contractor. Provide zone addressable monitor module with each waterflow switch and supervise each tamper switch.

Photoelectric Detector Head

Photoelectric type detectors shall be Simplex True Alarm 4098–9714 with a 4098–9792 base. Detector shall be plug–in analog unit that mounts to a twist–lock, addressable base with integral led status indication and locking, anti–tamper design. Device shall be UL listed.

Addressable Manual Pull Stations

Pull stations shall be Simplex 4099–9003. Pull stations shall be addressable, semi–flush mounted, double action device made of red lexan with a recessed pull handle. Each device shall have a unique address on the system and require a key to reset.

Zone Addressable Module

Zone addressable module shall be Simplex 4190–9001 and used for the monitoring of waterflow, valve tamper and suppression system control panels.

Control Device

Zone addressable control modules shall be Simplex 4190–9002 and shall have relays with isolated contacts for controlling mechanical equipment.

Remote Alarm Lamp

Remote alarm lamps shall be Simplex 2098–9808 with red led alarm indicator.

Remote Monitoring

All equipment device wiring shall be provided for remote monitoring.

FACP shall be compatible with remote monitoring station.

Provide data outlet to serve telephone line for fire alarm auto dialer.

Acceptable Manufacturers

Fire alarm panel and associated devices and components shall be manufactured by <u>one</u> of the following: Simplex Grinnell, Edwards, Honeywell, Notifier, ADT, or Siemens.

Installation

All wiring shall be installed in strict accordance with the equipment manufacturer's recommendations. this contractor shall provide for the services of the equipment manufacturer's representative to assist in final connections, adjustments and tests.

Wire and cable shall be sized and installed per specification section "wiring". Requirements for use of power limited or non–power limited wiring shall be as directed by equipment manufacturer.

Smoke detectors shall be mounted in accessible locations.

Location of duct detectors shall be field coordinated with mechanical contractor but must be mounted within 5'–0" of damper. Any duct work modifications necessary to install detectors in accessible locations shall be the responsibility of the electrical contractor. Furnish mounting hardware as required.

Provide smoke detector and horn/strobe device at FACP

All fire alarm wiring and low voltage cabling shall be installed in 3/4" EMT conduit as a minimum.

System checkout and test

The electrical contractor and the manufacturer representative shall demonstrate and review the system operations with the owner or his representative to assure their complete understanding of the system.

Prior to the demonstration test above, the final fire alarm system shall be completely checked out for operation, zone indication, alarm signal, fan shutdown, etc., and tested by a qualified field representative of equipment vendor in the presence of the contractor, and the owner's representative. The sensitivity of each ionization detector shall be recorded. also, the sensitivity and related air velocity of each air duct smoke detector shall be measured and recorded. a report shall be submitted to the engineer by the vendor's representative indicating the recorded data and the results of such final checkout and test. Final payment will not be approved until such report is submitted.

Training

The electrical contractor shall furnish and install printed, simplified operational instructions at the control unit and all remote annunciator panel locations which describes actions to be taken by operational personnel upon alarm or trouble annunciation.

Shop Drawings

Shop drawings submittal shall include a complete building F.A. system wiring diagram showing all devices and conduit runs, in the system, as it is to be wired. Diagram shall be on approximately a 24" x 36" sheets and shall be in the form of an floor plan so as to show zone identification and devices clearly. Identify device locations by room or corridor numbers as shown on the project drawings.

Submit fire alarm strobe driver panel, and wiring diagrams clearly indicating field connections.

Submit wiring diagrams indicating identification at all terminal points and at junction boxes according to the provisions of section 16195, Identification and 16120, Wire and Cable, and as it is to be wired in the field.

At the completion of the project, furnish six (6) complete bound sets of "As Built" drawings and wiring diagrams to the owner. These shall show each station, automatic detector and other devices installed in the system as a part of the system. Parts and service manuals shall be included.

Guarantee

All materials and installation shall be guaranteed to be free from defects in material and workmanship for one year.

16740 – TELEPHONE CONDUIT SYSTEM

SCOPE

Furnish and install complete telephone conduit system, including riser, telephone cabinets, junction boxes and telephone outlets all as shown on the Drawings.

STANDARDS

Conduit for telephone wall outlet shall be minimum of 3/4" unless shown otherwise;

Telephone outlet boxes shall be minimum of 4" square and plates shall match receptacle plates. Provide floor outlet where shown on the Plans. See Specification Section 16130, "BOXES".

Supply and install 3/4" plywood backboards; locations as shown on the drawings.

The plywood board panels shall be securely attached to the building walls to support relay panels, terminals, power equipment and other hardware weighing approximately 10 pounds per square foot.

The full area of the backboard shall be kept free of all pipes, water meters, conduits, switchgear, etc., with 36" of maintenance area in front.

Prime and paint the plywood backboard (as directed by the Architect) with two (2) coats of gray flame proof paint, both sides and edges.

INSTALLATION

Run 3/4" Schedule 40 PVC conduit from service terminal board to water service entrance for Telephone Company ground.

Bends in conduits, and in particular conduits larger than 2", shall be long sweep bends.

No wiring shall be included in the telephone conduit system, except #14 steel pull wires to be installed throughout.

Conduit system shall be continuous from all outlets to wiring closets or cabinets as shown.

End of Section

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