SYMBOL LEGEND

DRAWING TITLE . . . . . FLOOR PLAN 1/4"=1'-0" | 1

SECTION . . . . . 1 / A5.0 — SECTION I.D. NUMBER; SHEET WHERE SECTION IS LOCATED

DETAIL (ENLARGED) . . . . . 1 / A5.0 — DETAIL I.D. NUMBER; SHEET WHERE SECTION IS LOCATED

ELEVATION . . . . . 8/A3.1 — SHEET WHERE SECTION IS LOCATED; ELEVATION I.D. NUMBER

CEILING HEIGHT . . . . . 10'-0" — CEILING HEIGHT ABOVE FINISHED FLOOR

DOOR . . . . . 1 — DOOR NUMBER DESIGNATION

WINDOW . . . . . A — WINDOW NUMBER DESIGNATION

FINISH MATERIAL . . . . . P-1 TRIM ONLY — FINISH DESIGNATION; COMMENTS, IF APPLICABLE

KEYED NOTES . . . . . 1 — KEYED NOTE DESIGNATION ON APPLICABLE SHEET

REVISIONS . . . # — ADDENDUM NUMBER; REVISED AREA CLOUDED

ELEVATION HEIGHT . . . . T.O. SLAB 100'-0" — REFERENCE POINT; ELEVATION HEIGHT

EQUIPMENT . . . . . A — EQUIPMENT NUMBER/LETTER DESIGNATION

WALL TYPE . . . . . A — WALL TYPE LETTER

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GENERAL PROJECT NOTES

1. APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION. CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF PLANS ON THE PREMISES IN GOOD CONDITION AT ALL TIMES. THIS SHALL INCLUDE ALL ADDENDA AND CHANGE ORDERS.

2. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO STARTING ANY WORK AND SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUBCONTRACTORS AND OWNER.

3. GENERAL CONTRACTOR TO REFER TO THESE DOCUMENTS AS WELL AS SPECIFICATIONS FOR IDENTIFICATION OF ALL OWNER SUPPLIED ITEMS. ALL ITEMS NOT MARKED 'BY OWNER' OR 'N.I.C.' (NOT IN CONTRACT) ARE TO BE SUPPLIED BY GENERAL CONTRACTOR. UNLESS NOTED OTHERWISE, ALL ITEMS ARE TO BE INSTALLED BY GENERAL CONTRACTOR.

4. THE TERM "WORK" AS USED IN THESE NOTES SHALL INCLUDE ALL PROVISIONS AS DRAWN OR SPECIFIED IN THESE DOCUMENTS AS WELL AS ALL OTHER PROVISIONS SPECIFICALLY INCLUDED BY THE OWNER IN THE FORM OF DRAWINGS, SPECIFICATIONS, AND WRITTEN INSTRUCTIONS AND APPROVED BY THE ARCHITECT.

5. BEFORE SUBMITTING A BID, THE CONTRACTOR SHALL VISIT THE PREMISES AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND THE EXTENT OF WORK REQUIRED TO COMPLETE THE PROJECT.

6. BEFORE CONSTRUCTION BEGINS, THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS AND SHALL NOTIFY THE ARCHITECT, IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK AND SHALL BE RESPONSIBLE FOR SAME.

7. IF THE CONTRACT DRAWINGS ARE FOUND TO BE UNCLEAR, AMBIGUOUS OR CONTRADICTORY, THE CONTRACTOR MUST REQUEST CLARIFICATION FROM THE ARCHITECT IN WRITING BEFORE PROCEEDING WITH THAT PART OF THE WORK.

8. THE ARCHITECT SHALL BE AVAILABLE TO VISIT THE SITE WHEN REQUESTED. IF A CONDITION EXISTS THAT REQUIRES OBSERVATION OR ACTION BY THE ARCHITECT OR ENGINEERS, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT.

9. CONTRACTOR SHALL BE FAMILIAR WITH PROVISIONS OF ALL APPLICABLE CODES AND SHALL INSURE THE COMPLIANCE OF THE WORK WITH ALL LOCAL, STATE AND FEDERAL CODES. IN THE EVENT OF CONFLICT BETWEEN LOCAL, STATE AND NATIONAL CODES, THE MORE STRINGENT SHALL GOVERN. BEFORE COMMENCING WORK NOT SHOWN IN DOCUMENTS, BUT REQUIRED TO ACHIEVE FULL COMPLIANCE WITH CODES, CONTRACTOR SHALL NOTIFY OWNER AND ARCHITECT.

10. THESE DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. SAFETY, CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, COMPLIANCE WITH STATE AND FEDERAL REGULATIONS REGARDING SAFETY AND COMPLIANCE WITH REQUIREMENTS SPECIFIED IN THE OWNER/CONTRACTOR CONTRACT IS, AND SHALL BE, THE CONTRACTOR'S RESPONSIBILITY.

11. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES AND SAFETY PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK.

12. DO NOT SCALE DRAWINGS. USE WRITTEN DIMENSIONS FOR ALL MEASUREMENTS. ALL DIMENSIONS ARE TO FACE OF STUD UNLESS OTHERWISE NOTED.

13. OWNER SHALL PAY ALL TAXES, SECURE BUILDING PERMIT AND PAY ALL FEES INCURRED IN THE COMPLETION OF THE PROJECT, INCLUDING BUT NOT LIMITED TO BUILDING PERMITS, WATER, ELECTRIC AND TELEPHONE SERVICE CONNECTION, CERTIFICATE OF OCCUPANCY SURVEY'S AND INSPECTIONS.

14. SCOPE OF WORK. THE CONTRACTOR SHALL INCLUDE AND PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION AND PAY ALL EXPENSES INCURRED IN THE PROPER COMPLETION OF WORK UNLESS SPECIFICALLY NOTED TO BE THE WORK OF OTHERS. CONTRACTOR SHALL PERFORM ALL WORK NECESSARY FOR PRODUCING A COMPLETE, HABITABLE PROJECT, INCLUDING BUT NOT LIMITED TO SITE WORK, ARCHITECTURAL, ELECTRICAL, PLUMBING AND HVAC.

15. THE BID PRICES SHALL INCLUDE EVERYTHING NECESSARY OR PROPER FOR PERFORMING AND COMPLETING THE WORK REQUIRED AS INDICATED BY THE PLANS AND SPECIFICATIONS, TO PROVIDE FINISHED WORK. ANYTHING OMITTED THEREFROM WHICH IS CLEARLY NECESSARY FOR THE COMPLETION OF THE WORK OR ITS APPURTENANCE SHALL BE CONSIDERED A PORTION OF THE WORK ALTHOUGH NOT DIRECTLY SPECIFIED OR SHOWN ON THE DRAWINGS.

16. INSURANCE: WORKMEN'S COMPENSATION, AS REQUIRED BY LAW, AND PUBLIC LIABILITY SHALL BE CARRIED BY THE CONTRACTOR.

17. GUARANTEE: THE CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL MATERIALS, AND WORKMANSHIP FURNISHED OR INSTALLED BY HIM OR HIS SUBCONTRACTORS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE AND SHALL REPLACE ANY DEFECTIVE WORK WITHIN THAT PERIOD WITHOUT EXPENSE TO THE OWNER AND PAY FOR ALL DAMAGES TO OTHER PARTS OF THE BUILDING RESULTING FROM DEFECTIVE WORK OR ITS REPAIR. THE CONTRACTOR SHALL REPLACE DEFECTIVE WORK WITHIN TEN (10) DAYS AFTER IT IS BROUGHT TO HIS ATTENTION.

18. PROTECTION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK AND THAT OF HIS SUBCONTRACTORS FOR LOSSES AND DAMAGES TO EQUIPMENT, TOOLS AND MATERIAL USED IN CONJUNCTION WITH THE WORK AND FOR ACTS OF HIS EMPLOYEES.

19. CONTRACTOR IS TO PROVIDE TO THE OWNER A LIST OF ALL SUBCONTRACTORS USED, COMPLETE WITH ADDRESSES, PHONE NUMBERS AND COPIES OF ALL WARRANTIES.

20. THE TERM "CONTRACTOR" AS USED IN THESE NOTES SHALL REFER TO THE GENERAL CONTRACTOR OR TO THE SUBCONTRACTORS. THE OWNER MAY ELECT TO CONTRACT DIRECTLY WITH A SUBCONTRACTOR FOR ANY PART OF THE WORK.

NATIONAL ACCOUNT
"NATIONAL ACCOUNT" – OWNER HAS ENTERED NATIONAL ACCOUNT AGREEMENTS WITH VENDORS FOR SOME MATERIALS AND PRODUCTS. DEVELOPERS, LANDLORDS AND THEIR ARCHITECTS AND CONTRACTORS SHALL USE THESE VENDORS, WITHOUT SUBSTITUTION, FOR ALL PRODUCTS IDENTIFIED UNDER THE NATIONAL ACCOUNTS PROGRAM.

FIRE DEPARTMENT REQUIRED NOTES IF SPRINKLER EXISTS

1. 2A:10B:C FIRE EXTINGUISHERS SHALL BE PROVIDED IN THE DINING AREAS AND A K CLASS EXTINGUISHERS SHALL BE WITHIN 30 FEET OF COOKING EQUIPMENT. MOUNTING HEIGHT SHALL NOT EXCEED 48" AFF TO THE TOP OF EXTINGUISHER AND TRAVEL DISTANCE TO REACH ONE SHALL NOT EXCEED 75 FEET.
2. DECORATIVE MATERIALS, INCLUDING DRAPES AND HANGINGS, MUST BE NONCOMBUSTIBLE, FLAME RESISTANT OR TREATED WITH A FLAME RETARDANT.
3. GENERAL CONTRACTOR TO ADD SMOKE DETECTOR IN THE DUCTWORK.
4. GENERAL CONTRACTOR IS RESPONSIBLE FOR ENTIRE FIRE SPRINKLER SYSTEM, INCLUDING SUBMITTAL AND APPROVAL FROM THE LOCAL FOR FIRE DEPARTMENT.
5. FIRE SPRINKLER SYSTEM SHALL BE INSTALLED, INSPECTED, AND TESTED IN ACCORDANCE WITH LOCAL JURISDICTION. PLANS AND SPECIFICATIONS SHALL BE SUBMITTED SEPARATELY TO THE FIRE DEPARTMENT AFTER THE BUILDING PERMIT IS ISSUED.
6. THIS PLAN REVIEW OR APPROVAL ENCOMPASSES THE TENANT IMPROVEMENT PLANS ONLY. FIRE SPRINKLER SYSTEM(S), ALARM SYSTEM(S), UNDERGROUND FIRE LINES OR ANY OTHER FIRE PROTECTION SYSTEM OR REQUIRED FIRE DEPARTMENT PERMIT(S), REQUIRES A SEPARATE PLAN SUBMITTAL AND ARE NOT ENCOMPASSED IN THIS PLAN REVIEW OR APPROVAL. A SEPARATE PLAN SUBMITTAL IS REQUIRED PRIOR TO THE COMMENCEMENT OF ANY WORK.
7. IF ADDITIONS OF WALLS AND/OR OTHER TENANT IMPROVEMENTS OBSTRUCT OR EFFECT COVERAGE OR PERFORMANCE OF THE FIRE SPRINKLER SYSTEM, FIRE ALARM SYSTEM AND/OR IF ANY MODIFICATIONS TO THE FIRE SPRINKLER SYSTEM, FIRE ALARM SYSTEM IS NECESSARY, FIRE SPRINKLER, FIRE ALARM TENANT IMPROVEMENT PLANS SHALL BE SUBMITTED TO THE LOCAL FIRE DEPARTMENT FOR APPROVAL PRIOR TO INSTALLATION OR ALTERATION(S).
8. COMPLETE FIRE ALARM SYSTEM PLANS SHALL BE SUBMITTED SEPARATELY TO THE FIRE DEPARTMENT FOR REVIEW AND APPROVAL. INSTALLATION WILL BE IN ACCORDANCE PRIOR TO FINAL APPROVAL OF THE SYSTEM.

DICKEY'S BARBECUE PIT© est. 1941

STORE#: MI-2077

DICKEY'S BARBECUE PIT

FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MICHIGAN 48912

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FOR REFERENCE ONLY.
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03/16/22

SITE LOCATION MAP

AREA LOCATION MAP

SHEET INDEX

T1.0	COVER SHEET
DEMOLITION:	
D1.0	DEMOLITION FLOOR PLAN
D1.1	DEMOLITION REFLECTED CEILING PLAN
ARCHITECTURAL:	
A0.1	ACCESSIBILITY GUIDELINES
A0.2	ACCESSIBILITY GUIDELINES
A0.3	ACCESSIBILITY GUIDELINES
A1.0	DIMENSIONED AND NOTED FLOOR PLAN
A1.1	FLOOR FINISH PLAN AND SCHEDULES
A1.2	EGRESS FLOOR PLAN
A1.3	REFLECTED CEILING PLAN AND SCHEDULES
A1.4	ENLARGED RESTROOM PLAN AND ELEVATIONS
A2.0	EXTERIOR ELEVATIONS
A3.0	INTERIOR DETAILS
A4.0	DOOR, WINDOW AND HARDWARE SCHEDULES
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K1.0	EQUIPMENT PLAN
K1.1	EQUIPMENT SCHEDULE
MECHANICAL:	
MEP1.1	MEP ROOF PLAN
M1.0	MECHANICAL FLOOR PLAN
M2.0	MECHANICAL SCHEDULES AND DETAILS
M3.0	MECHANICAL DETAILS
M4.0	HOOD DRAWINGS
M4.1	HOOD DRAWINGS
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P2.0	PLUMBING SCHEDULES
P3.0	PLUMBING DETAILS
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E1.0	LIGHTING AND POWER FLOOR PLAN
E2.0	POWER ROUGH-IN FLOOR PLAN
E3.0	ELECTRICAL SCHEDULES
E4.0	ELECTRICAL SCHEDULES
E5.0	ELECTRICAL DETAILS
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SP1.0	SPECIFICATIONS
SP1.1	SPECIFICATIONS
SP1.2	SPECIFICATIONS
SP1.3	SPECIFICATIONS
SP1.4	SPECIFICATIONS
SP1.5	SPECIFICATIONS
SP1.6	SPECIFICATIONS
SP1.7	SPECIFICATIONS
SP1.8	SPECIFICATIONS

DATE	△

SCOPE OF WORK

TENANT FINISH OUT OF AN EXISTING LEASE SPACE. IMPROVEMENTS SHALL INCLUDE COMPLETE FINISH OUT OF THE INTERIOR TO INCLUDE NEW NON-LOAD BEARING WALLS, CEILING, FLOOR FINISHES, MILLWORK, SEATING AND MECHANICAL, ELECTRICAL AND PLUMBING.

BUILDING SQUARE FOOTAGE

LEASE AREA: 1,975 SQ. FT.

CODE INFORMATION

BUILDING CODE:	2015 INTERNATIONAL BUILDING CODE
ELECTRICAL CODE:	2017 NATIONAL ELECTRIC CODE OF MICHIGAN
MECHANICAL CODE:	2015 INTERNATIONAL MECHANICAL CODE
PLUMBING CODE:	2018 INTERNATIONAL PLUMBING CODE
FIRE CODE:	2018 INTERNATIONAL FIRE CODE
ENERGY CODE:	2018 INTERNATIONAL ENERGY CONSERVATION CODE
ACCESSIBILITY CODE:	2010 ADA STANDARDS
OCCUPANCY:	A2
CONSTRUCTION TYPE:	II-B
SPRINKLERED:	NOT SPRINKLERED
BUILDING HEIGHT:	ONE STORY

UNDER SEPARATE PERMIT

EXTERIOR SIGNAGE

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
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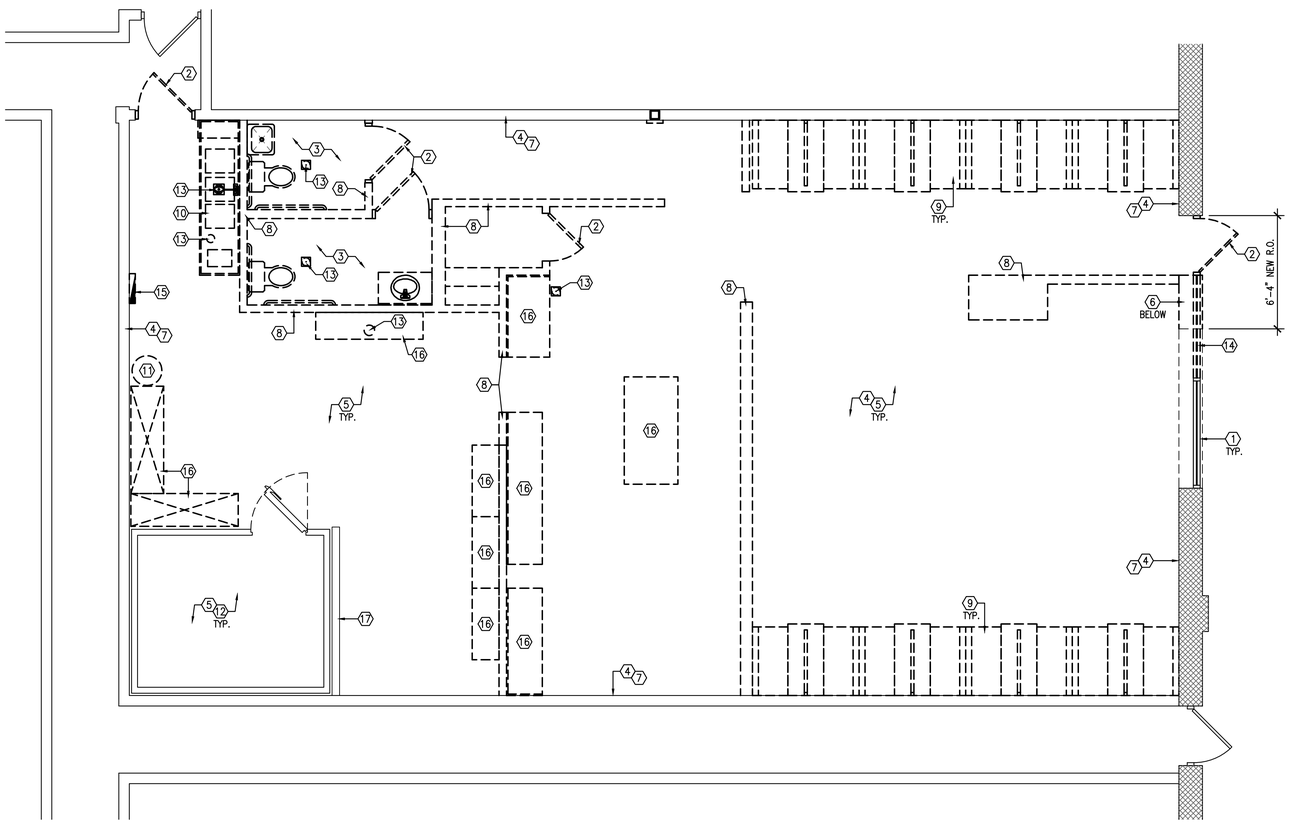
COVER SHEET

SHEET NUMBER:
T1.0

ID54 PROJECT NUMBER:
DBQ21015



DEMOLITION FLOOR PLAN
1/2"= 1'-0"
1

GENERAL NOTES

1	THIS AND ANY OTHER DEMOLITION DRAWINGS ARE NOT INTENDED TO BE ALL INCLUSIVE NOT TO DEFINE THE SLOPE OF WORK OF ALL DEMOLITION WORK REQUIRED FOR THIS PROJECT. DEMOLITION DRAWINGS ARE SHOWN ONLY TO AID THE CONTRACTOR IN PREPARING THE BID AND PERFORMING THE WORK. CONTRACTOR SHALL EXAMINE ALL CONSTRUCTION DOCUMENTS AND VISIT THE SITE DURING BIDDING AS REQUIRED TO DETERMINE THE TOTAL EXTENTS AND SCOPE OF THE DEMOLITION PORTION OF THIS WORK, ALL ITEMS ELECTRICAL, HVAC, PLUMBING, STRUCTURAL FINISH, ETC. THAT ARE NOT REQUIRED TO REMAIN, SHALL BE PART OF THE DEMOLITION WORK REQUIRED TO CARRY OUT WORK AS SHOWN IN THE CONSTRUCTION DOCUMENTS.
2	EXISTING SLAB COULD NOT BE VERIFIED PRIOR TO COMPLETION OF CONSTRUCTION DOCUMENTS AND IS ASSUMED TO BE SLAB ON GRADE. IF SAW CUTTING REVEALS ANY OTHER TYPE OF SLAB G.C. SHALL STOP SAW CUTTING AND NOTIFY ARCHITECT.
3	GENERAL CONTRACTOR TO DISPOSE OF ALL WASTE DURING DEMOLITION IN ACCORDANCE WITH ALL APPLICABLE JURISDICTIONS, CODES, AND ORDINANCES.
4	GENERAL CONTRACTOR TO FIELD LOCATE AND DEACTIVATE IF REQUIRED –IN ALL WALLS TO BE DEMOLISHED –ALL EXISTING "HOT" ELECTRICAL WIRING PRIOR TO DEMOLITION.
5	GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND NOTIFY ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING.
6	REFER TO MEP PLANS FOR COORDINATION OF ALL EXISTING MECHANICAL, ELECTRICAL AND PLUMBING.
7	CONTRACTOR SHALL NOT DEMOLISH ANY LOAD BEARING WALLS OR CONSTRUCTION THAT WILL COMPROMISE THE STRUCTURAL INTEGRITY OF THE STRUCTURE. NOTIFY OWNER OF ANY STRUCTURAL ISSUES ARISING FROM DEMOLITION.
8	REMOVE AND CAP ALL EXISTING ELECTRICAL CONDUIT THROUGHOUT PER ELECTRICAL CODE REQUIREMENTS.
9	REMOVE AND CAP ALL EXISTING FLOOR POWER AND COMMUNICATION OUTLETS THROUGHOUT PER ELECTRICAL CODE REQUIREMENTS.
10	WHERE PARTITION DEMOLITION OCCURS ADJACENT TO EXISTING TO REMAIN, PATCH AND REPAIR ADJACENT CONDITIONS FOR FINAL STORE FINISHES
11	ITEMS DAMAGED DURING DEMOLITION BEYOND SCOPE OF DEMOLITION REQUIREMENTS SHALL BE REPAIRED OR REPLACED TO LIKE NEW CONDITION AT NO ADDITIONAL COST TO OWNER.

SHEET SYMBOLS

— — — — —	EXISTING WALL/FIXTURE TO BE REMOVED, (U.O.N.)
———	EXISTING WALL TO REMAIN

DEMOLITION FLOOR PLAN KEY NOTES:

1	PORTION OF EXISTING STOREFRONT WINDOW TO REMAIN.
2	EXISTING DOOR AND FRAME TO BE REMOVED. PREP AREA TO RECEIVE NEW WHERE APPLICABLE.
3	EXISTING RESTROOM AND FIXTURES TO BE REMOVED.
4	EXISTING FINISHES TO BE REMOVED. PREP AREA TO RECEIVE NEW.
5	EXISTING FLOOR FINISH TO BE REMOVED, FLOOR TO BE CLEAN AND LEVEL TO PREPARE FOR NEW DICKEY'S FLOOR FINISH.
6	PORTION OF EXTERIOR MASONRY LOW WALL TO BE REMOVED AND PREPPED FOR NEW STOREFRONT DOOR(S).
7	EXISTING DEMISING/ EXTERIOR WALL TO REMAIN. DO NOT DAMAGE EXISTING RATED ASSEMBLY (IF ANY, V.I.F.). PATCH/ REPAIR AS REQUIRED TO MAINTAIN FIRE RATING (IF ANY, V.I.F.), AND WHERE DAMAGED FROM PREVIOUS TENANT'S CONSTRUCTION. PREPARE AS NECESSARY TO RECEIVE NEW FINISHES.
8	EXISTING INTERIOR WALL TO BE REMOVED.
9	EXISTING MILLWORK AND FURNITURE TO BE REMOVED.
10	EXISTING 3–COMPARTMENT SINK TO BE REMOVED.
11	EXISTING WATER HEATER TO BE REMOVED.
12	EXISTING WALK–IN COOLER TO REMAIN.
13	EXISTING FLOOR DRAINS, FLOOR SINKS, HUB DRAINS AND CHASES IN FLOOR TO BE REMOVED AND CAPPED AS REQUIRED.
14	EXISTING STOREFRONT GLAZING TO BE REMOVED. PREP AREA TO RECEIVE NEW.
15	EXISTING ELECTRICAL PANEL TO BE REMOVED, REFERENCE ELECTRICAL DRAWINGS FOR SCOPE OF WORK.
16	EXISTING KITCHEN EQUIPMENT TO BE REMOVED.
17	EXISTING WALL TO REMAIN. PREP WALL TO RECEIVE NEW FINISHES.

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DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER

300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

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	DATE	DESCRIPTION

SHEET TITLE:

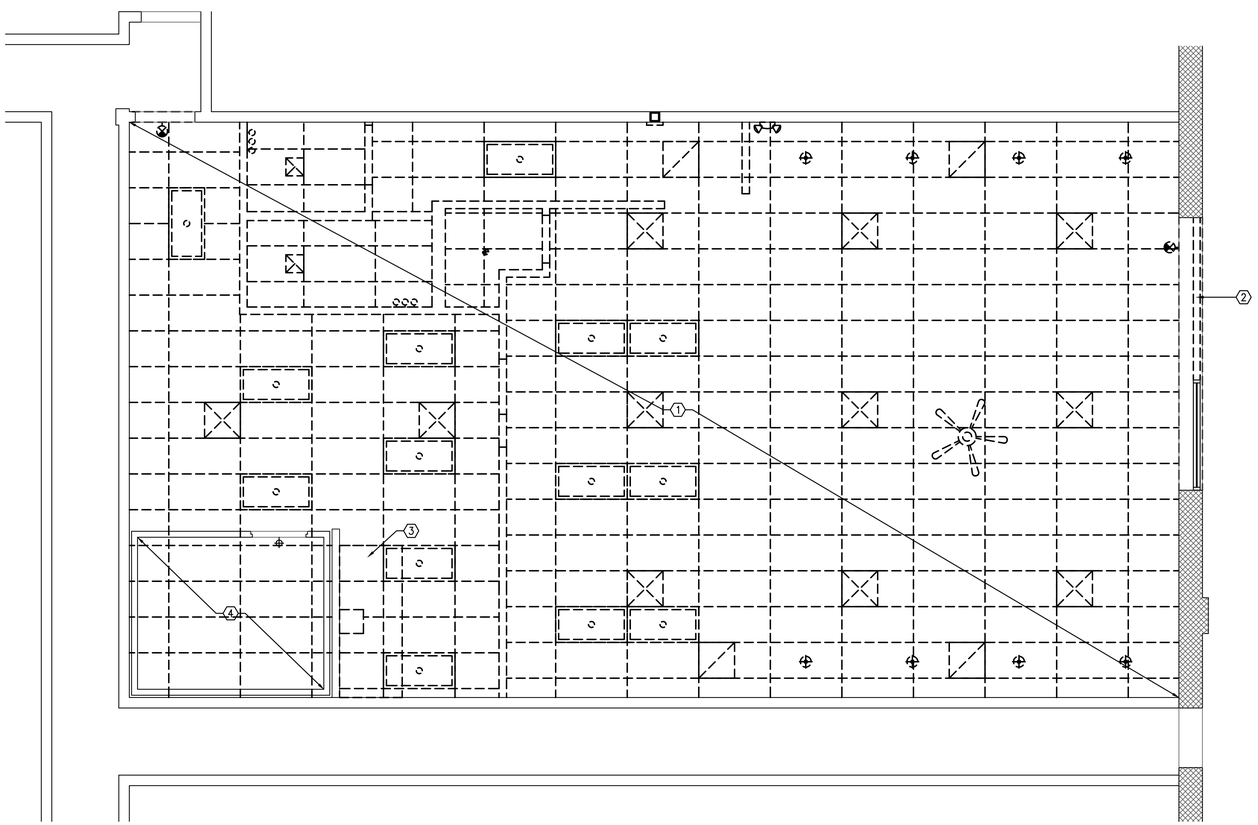
DEMOLITION FLOOR PLAN

SHEET NUMBER:

D1.0

IDS4 PROJECT NUMBER:

DBQ21015



DEMOLITION REFLECTED CEILING PLAN 2
1/2"=1'-0"

GENERAL NOTES

1	THIS AND ANY OTHER DEMOLITION DRAWINGS ARE NOT INTENDED TO BE ALL INCLUSIVE NOT TO DEFINE THE SLOPE OF WORK OF ALL DEMOLITION WORK REQUIRED FOR THIS PROJECT. DEMOLITION DRAWINGS ARE SHOWN ONLY TO AID THE CONTRACTOR IN PREPARING THE BID AND PERFORMING THE WORK. CONTRACTOR SHALL EXAMINE ALL CONSTRUCTION DOCUMENTS AND VISIT THE SITE DURING BIDDING AS REQUIRED TO DETERMINE THE TOTAL EXTENTS AND SCOPE OF THE DEMOLITION PORTION OF THIS WORK, ALL ITEMS ELECTRICAL, HVAC, PLUMBING, STRUCTURAL FINISH, ETC. THAT ARE NOT REQUIRED TO REMAIN, SHALL BE PART OF THE DEMOLITION WORK REQUIRED TO CARRY OUT WORK AS SHOWN IN THE CONSTRUCTION DOCUMENTS.
2	EXISTING SLAB COULD NOT BE VERIFIED PRIOR TO COMPLETION OF CONSTRUCTION DOCUMENTS AND IS ASSUMED TO BE SLAB ON GRADE. IF SAW CUTTING REVEALS ANY OTHER TYPE OF SLAB G.C. SHALL STOP SAW CUTTING AND NOTIFY ARCHITECT.
3	GENERAL CONTRACTOR TO DISPOSE OF ALL WASTE DURING DEMOLITION IN ACCORDANCE WITH ALL APPLICABLE JURISDICTIONS, CODES, AND ORDINANCES.
4	GENERAL CONTRACTOR TO FIELD LOCATE AND DEACTIVATE IF REQUIRED –IN ALL WALLS TO BE DEMOLISHED –ALL EXISTING "HOT" ELECTRICAL WIRING PRIOR TO DEMOLITION.
5	GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND NOTIFY ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING.
6	REFER TO MEP PLANS FOR COORDINATION OF ALL EXISTING MECHANICAL, ELECTRICAL AND PLUMBING.
7	CONTRACTOR SHALL NOT DEMOLISH ANY LOAD BEARING WALLS OR CONSTRUCTION THAT WILL COMPROMISE THE STRUCTURAL INTEGRITY OF THE STRUCTURE. NOTIFY OWNER OF ANY STRUCTURAL ISSUES ARISING FROM DEMOLITION.
8	REMOVE AND CAP ALL EXISTING ELECTRICAL CONDUIT THROUGHOUT PER ELECTRICAL CODE REQUIREMENTS.
9	REMOVE AND CAP ALL EXISTING FLOOR POWER AND COMMUNICATION OUTLETS THROUGHOUT PER ELECTRICAL CODE REQUIREMENTS.
10	WHERE PARTITION DEMOLITION OCCURS ADJACENT TO EXISTING TO REMAIN, PATCH AND REPAIR ADJACENT CONDITIONS FOR FINAL STORE FINISHES
11	ITEMS DAMAGED DURING DEMOLITION BEYOND SCOPE OF DEMOLITION REQUIREMENTS SHALL BE REPAIRED OR REPLACED TO LIKE NEW CONDITION AT NO ADDITIONAL COST TO OWNER.

SHEET SYMBOLS

— — — — —	EXISTING WALL/FIXTURE TO BE REMOVED, (U.O.N.)
———	EXISTING WALL TO REMAIN

DEMOLITION REFLECTED CEILING PLAN KEY NOTES:

1	EXISTING CEILING, DUCTS, LIGHT FIXTURES, CEILING FANS, CONDUIT. SUSPENDED SOFFITS AND ANY UNUSED EQUIPMENT THROUGHOUT (U.O.N). TO BE REMOVED.
2	EXISTING STOREFRONT HEADER TO BE REMOVED. PREPARE FOR NEW. REFER TO PLANS.
3	EXISTING HOOD AND ASSOCIATED EQUIPMENT TO BE REMOVED. PATCH AND REPAIR HOLES AS REQUIRED.
4	EXISTING COOLER AND ASSOCIATED EQUIPMENT TO REMAIN.

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03/16/22

DICKEY'S BARBEQUE PIT

FRANDOR SHOPPING CENTER

300 NORTH CLIPPERT STREET, SUITE 8
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CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

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ICC A117.1 - 2017 Standard for Accessible and Usable Buildings and Facilities Sheet 01

CHAPTER 3: BUILDING BLOCKS

301 General

301.1 Scope. The provisions of Chapter 3 shall apply where required by the scoping provisions adopted by the administrative authority or by Chapters 4 through 11.

301.2 Overlap. Unless otherwise specified, clear floor spaces, clearances at fixtures, maneuvering clearances at doors, and turning spaces shall be permitted to over lap.

302 Floor Surfaces

302.1 General. Floor surfaces shall be stable, firm, and slip resistant, and shall comply with Section 302. Changes in level in floor surfaces shall comply with Section 303.

302.2 Carpet. Carpet or carpet tile shall be securely attached and shall have a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The pile shall be 1/2 inch (13 mm) maximum in height. Exposed edges of carpet shall be fastened to the floor and shall have trim along the entire length of the exposed edge. Carpet edge trim shall comply with Section 303.

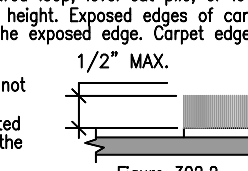


Figure 302.2
CARPET ON FLOOR SURFACES

302.3 Openings. Openings in floor surfaces shall be of a size that does not permit the passage of a 1/2 inch (13 mm) diameter sphere, except as allowed in Sections 407.4.3, 408.4.3, 409.4.3, 410.4, and 805.10. Elongated openings shall be placed so that the long dimension is perpendicular to the predominant direction of travel.

303 Changes in Level

303.1 General. Changes in level in floor surfaces shall comply with Section 303.

303.2 Vertical. Changes in level of 1/4 inch (6.4 mm) maximum in height shall be permitted to be vertical.

303.3 Beveled. Changes in level greater than 1/4 inch (6.4 mm) in height and not more than 1/2 inch (13 mm) maximum in height shall be beveled with a slope not steeper than 1:2.

303.4 Ramps. Changes in level greater than 1/2 inch (13 mm) in height shall be by a ramp complying with Section 405 or by a curb ramp complying with Section 406.

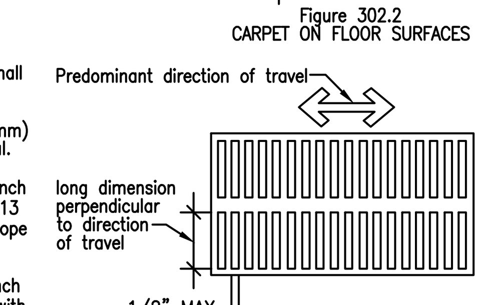


Figure 302.3
OPENINGS IN FLOOR SURFACES

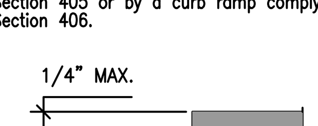


Figure 303.2
CARPET ON FLOOR SURFACES

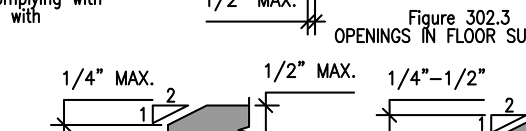


Figure 303.3 BEVELED CHANGES IN LEVEL

304 Turning Space

304.1 General. A turning space shall comply with Section 304.

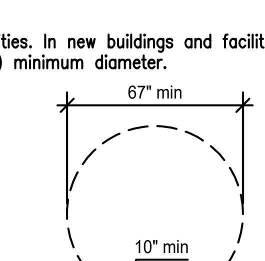
304.2 Floor Surface. Floor surfaces of a turning space shall comply with Section 302. Changes in level are not permitted within the turning space.

Exception: Slopes not steeper than 1:48 shall be permitted.

304.3 Size. Turning spaces shall comply with Section 304.3.1 or 304.3.2.

304.3.1. Circular Space.

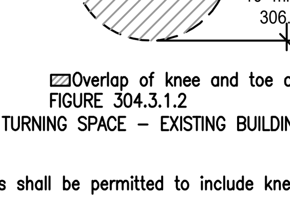
304.3.1.1 New Buildings and Facilities. In new buildings and facilities, the turning space shall be a circular space with a 67–inch (1700 mm) minimum diameter.



Overlap of knee and toe
FIGURE 304.3.1.1
CIRCULAR TURNING SPACE – NEW BUILDING SIZE AND OVERLAP

304.3.2.1 Overlap. Turning spaces shall be permitted to include knee and toe complying with Section 306. Where the turning space includes knee and toe clearances under an obstruction, the overlap shall comply with all of the following:
1. The depth of the overlap shall not be more than 10 inches (255 mm) and
2. The depth shall not exceed the depth of the knee and toe clearances provided, and
3. The overlap shall be permitted only within the turning circle shown shaded in Figure 304.0.1.

304.3.1.2 Existing Buildings and Facilities. in existing buildings and facilities, the turning space shall be a circular space with a 60–inch (1525 mm) minimum diameter.



Overlap of knee and toe clearance
FIGURE 304.3.1.2
CIRCULAR TURNING SPACE – EXISTING BUILDINGS – SIZE AND OVERLAP

304.3.1.2.1 Overlap. Turning spaces shall be permitted to include knee and toe clearance complying with Section 306.

304.3.2 T–Shaped Space

304.3.2.1 New Building and Facilities. In new buildings and facilities, the space shall be a T–shaped space complying with one of the following:

1. A T–shaped space, clear of obstruction, that fits within an area 68 inches (1725 mm) wide and 60 inches (1525 mm) deep, with two arms and one base that are all 36 inches (915 mm) minimum in width. Each arm shall extend 16 inches (405 mm) minimum from each side of the base located opposite the other, and the base shall extend 24 inches (610 mm) minimum from the arms. At the intersection of each arm and the base, the interior corners shall be chamfered for 8 inches (205 mm) minimum along both arms and along the base.
2. A T–shaped space, clear of obstruction, that fits within an area 64 inches (1625 mm) wide and 60 inches (1525 mm) deep, with two arms 38 inches (965 mm) minimum in width and a base of 42 inches (1065 mm) minimum in width. Each arm shall extend 22 inches (560 mm) minimum from each arm.
3. A T–shaped space, clear of obstruction, that fits within an area 64 inches (1625 mm) wide and 60 inches (1525 mm) deep, with two arms 40 inches (1015 mm) minimum in width and a base of 40 inches (1015 mm) minimum in width. Each arm shall extend 20 inches (510 mm) minimum from each arm.

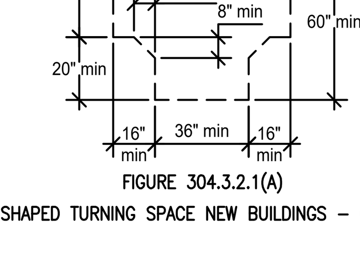


FIGURE 304.3.2.1(A)
T–SHAPED TURNING SPACE NEW BUILDINGS – OPTION 1

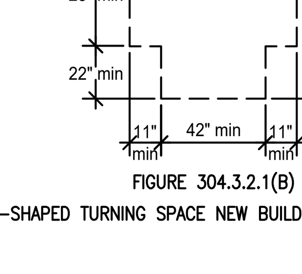


FIGURE 304.3.2.1(B)
T–SHAPED TURNING SPACE NEW BUILDINGS – OPTION 2

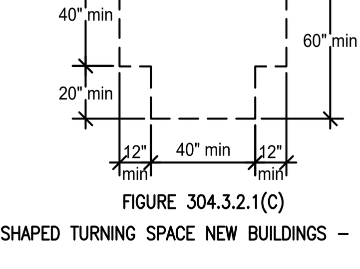


FIGURE 304.3.2.1(C)
T–SHAPED TURNING SPACE NEW BUILDINGS – OPTION 3

CHAPTER 3: BUILDING BLOCKS (CONT.)

304.3.2.1.1 Overlap. Turning spaces shall be permitted to include knee and toe clearance complying with Section 306 of either the base or one arm. For Option 1, the base or arm is the portion beyond the chamfer.

Overlap of knee and toe clearance
FIGURE 304.3.2.1.1
T–SHAPED TURNING SPACE NEW BUILDINGS – OVERLAP

304.3.2.1.2 Existing Buildings and Facilities. In existing buildings and facilities, the turning space shall be a T–shaped space within a 60–inch (1525 mm) minimum square, with arms and base 36 inches (915 mm) minimum in width. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction, and the base shall be clear of obstructions 24 inches (610 mm) minimum.

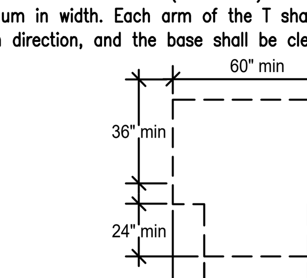


FIGURE 304.3.2.2
T–SHAPED TURNING SPACE NEW BUILDINGS – SIZE AND OVERLAP

304.3.2.2.1 Overlap. Turn spaces shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or arm.

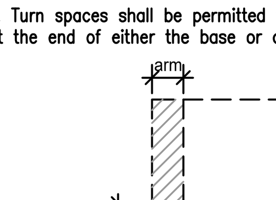


FIGURE 304.3.2.2.1
T–SHAPED TURNING SPACE – EXISITNG BUILDINGS OVERLAP

304.4 Door Swing. Unless otherwise specified, doors shall be permitted to swing into turning spaces.

305 Clear Floor Space.

305.1 General. A clear floor space shall comply with Section 305.

305.2 Floor Surfaces. Floor surfaces of a clear floor space shall comply with Section 302. Changes in level I are not permitted within the clear floor space.
EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

305.3 Size. The clear floor space shall be 52 inches (1320 mm) minimum in length and 30 inches (760 mm) minimum in width.

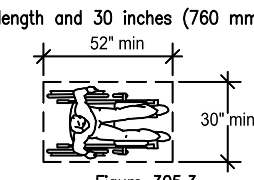


Figure 305.3
SIZE OF CLEAR FLOOR SPACE

305.4 Knee and Toe Clearance. Unless otherwise specified, clear floor space shall be permitted to include knee and toe clearance complying with Section 306.

305.5 Position. Unless otherwise specified, the clear floor space shall be positioned for either forward or parallel approach to an element.

305.6 Approach. One full, unobstructed side of the clear floor space shall adjoin or overlap an accessible route or adjoin another clear floor space .

305.7 Alcoves. If a clear floor space is in an alcove or otherwise confined on all or part of three sides, addi–tional maneuvering clearances complying with Sections 305.7.1 and 305.7.2 shall be provided, as applicable.

305.7.1 Parallel Approach. Where the clear floor space is positioned for a parallel approach, the alcove shall be 60 inches (1525 mm) minimum in width where the depth exceeds 15 inches (380 mm).

305.7.2 Forward Approach. Where the clear floor space is positioned for a forward approach, the alcove shall be 36 inches (915 mm) minimum in width where the depth exceeds 24 inches (610 mm).

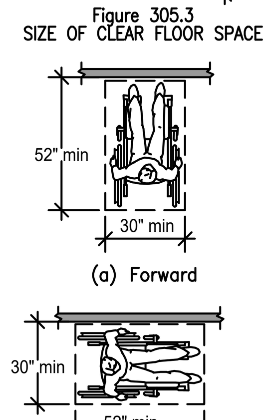


Figure 305.5
POSITION OF CLEAR FLOOR SPACE

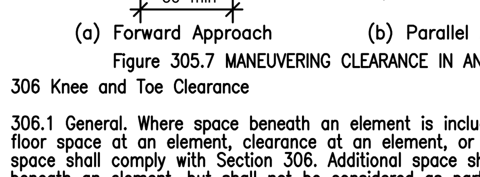


Figure 305.7 MANEUVERING CLEARANCE IN AN ALCOVE

306 Knee and Toe Clearance

306.1 General. Where space beneath an element is included as part of clear floor space at an element, clearance at an element, or a turning space, the space shall comply with Section 306. Additional space shall not be prohibited beneath an element, but shall not be considered as part of the clear floor space or turning space.

306.2 Toe Clearance.

306.2.1 General. Space beneath an element between the floor and 9 inches (230 mm) above the floor shall be considered toe clearance and shall comply with Section 306.2.

306.2.2 Maximum Depth. Toe clearance shall be permitted to extend 25 inches (635 mm) maximum under an element.

306.2.3 Minimum Depth. Where toe clearance is required at an element as part of a clear floor space complying with Section 305, the toe clear–ance shall extend 17 inches (430 mm) minimum beneath the element.

306.2.4 Additional Clearance. Space extending greater than 6 inches (150 mm) beyond the avail–able knee clearance at 9 inches (230 mm) above the floor shall not be considered toe clearance. 306.2.5 Width. Toe clearance shall be 30 inches (760 mm) minimum in width.

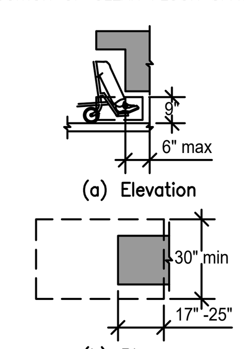


Figure 306.2 TOE CLEARANCE

306.3 Knee Clearance.

306.3.1 General. Space beneath an element between 9 inches (230 mm) and 27 inches (685 mm) above the floor shall be considered knee clearance and shall comply with Section 306.3.

306.3.2 Maximum Depth. Knee clearance shall be permitted to extend 25 inches (635 mm) maxi–mum under an element at 9 inches (230 mm) above the floor.

306.3.3 Minimum Depth. Where knee clearance is required beneath an element as part of a clear floor space complying with Section 305, the knee clearance shall be 11 inches (280 mm) minimum in depth at 9 inches (230 mm) above the floor, and 8 inches (205 mm) minimum in depth at 27 inches (685 mm) above the floor.

306.3.4 Clearance Reduction. Between 9 inches (230 mm) and 27 inches (685 mm) above the floor, the knee clearance shall be permitted to be reduced at a rate of 1 inch (25 mm) in depth for I each 6 inches (150 mm) in height.

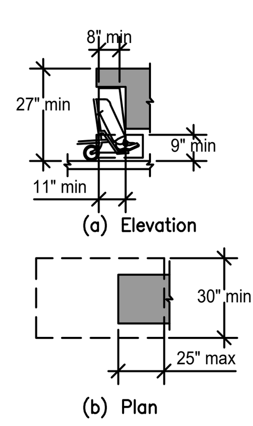


Figure 306.3 KNEE CLEARANCE

306.3.5 Width. Knee clearance shall be 30 inches (760 mm) minimum in width.

307 Protruding Objects

307.1 General. Protruding objects on circulation paths shall comply with Section 307.

307.2 Protrusion Limits. Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the floor shall protrude 4 inches (100 mm) maximum horizontally into the circulation path.

EXCEPTION: Handrails shall be permitted to protrude 4 1/2 inches (115 mm) maximum.

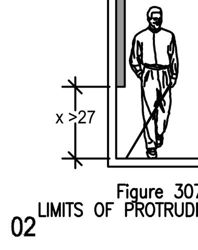


Figure 307.2
LIMITS OF PROTRUDING OBJECTS

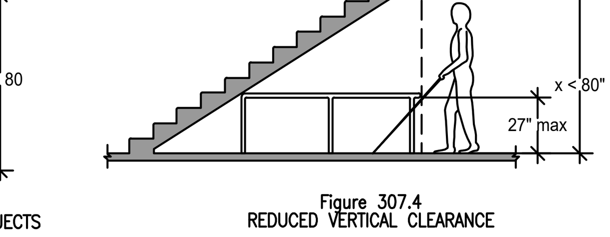


Figure 307.4
REDUCED VERTICAL CLEARANCE

CHAPTER 3: BUILDING BLOCKS (CONT.)

307.3 Post–Mounted Objects. Objects on posts or pylons shall be permitted to overhang 4 inches (100 mm) maximum where more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the floor. Objects on multiple posts or pylons where the clear distance between the posts or pylons is greater than 12 inches (305 mm) shall have the lowest edge of such object either 27 inches (685 mm) maximum or 80 inches (2030 mm) minimum above the floor.

EXCEPTION: Sloping portions of handrails between the top and bottom riser of stairs and above the ramp run shall not be required to comply with Section 307.3.

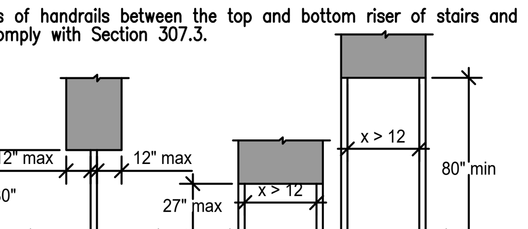


Figure 307.3 POST–MOUNTED PROTRUDING OBJECTS

307.4 Vertical Clearance. Vertical clearance shall be 80 inches (2030 mm) minimum. Rails or other barriers shall be provided where the vertical clearance is less than 80 inches (2030 mm). The leading edge of such rails or barrier shall be located 27 inches (685 mm) maximum above the floor.

EXCEPTION: Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.

307.5 Required Clear Width. Protruding objects shall not reduce the clear width required for accessible routes.

308 Reach Ranges

308.1 General. Reach ranges shall comply with Section 308.

308.2 Forward Reach.

308.2.1 Unobstructed. Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the floor.

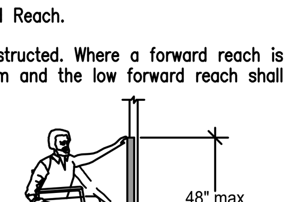


Figure 308.2.1
UNOBSTRUCTED FORWARD REACH

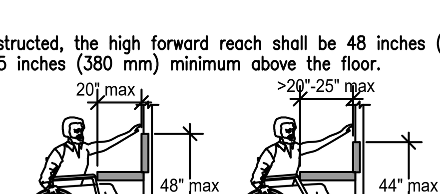


Figure 308.2.2 OBSTRUCTED HIGH FORWARD REACH

308.2.2 Obstructed High Reach. Where a high forward reach is over an obstruction, the clear floor space complying with Section 305 shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (1220 mm) maxi–mum above the floor where the reach depth is 20 inches (510mm) maximum. Where the reach depth exceeds 20 inches (510 mm), the high forward reach shall be 44 inches (1120 mm) maximum above the floor, and the reach depth shall be 25 inches (635 mm) maximum.

308.3 Side Reach.

308.3.1 Unobstructed. Where a clear floor space complying with Section 305 allows a parallel approach to an element and the edge of the clear floor space is 10 inches (255 mm) maximum from the element, the high side reach shall be 48 inches (1220 mm) maximum and the low side reach shall be 15 inches (380 mm) minimum above the floor.

EXCEPTION: Existing elements that are not altered shall be permitted at 54 inches (1370 mm) maximum above the floor.

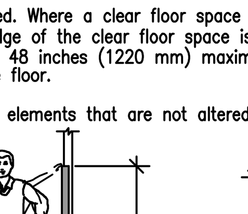


Figure 308.3.1 UNOBSTRUCTED SIDE REACH

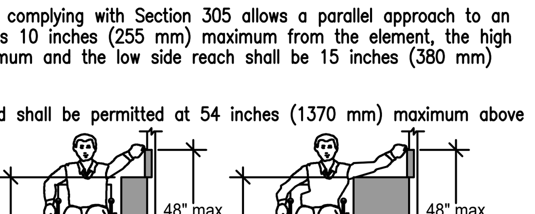


Figure 308.3.2 OBSTRUCTED HIGH SIDE REACH

308.3.2 Obstructed High Reach. Where a clear floor space complying with Section 305 allows a parallel approach to an element and the high side reach I is over an obstruction, the height of the obstruction shall be 34 inches (865 mm) maximum above the floor and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1220 mm) maximum above the floor for a reach depth of 10 inches (255 mm) maximum. Where the reach depth exceeds 10 inches (255 mm), the high side reach shall be 46 inches (1170 mm) maximum above the floor for a reach depth of 24 inches (610 mm) maximum.

EXCEPTION: At washing machines and clothes dryers, the height of the obstruction shall be permitted to be 36 inches (915 mm) maximum above the floor.

309 Operable Parts

309.1 General. Operable parts required to be accessible shall comply with Section 309.
309.2 Clear Floor Space. A clear floor space complying with Section 305 shall be provided.
309.3 Height. Operable parts shall be placed within one or more of the reach ranges specified in Section 308.
309.4 Operation. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum.

EXCEPTION: Gas pump nozzles shall not be required to provide operable parts that have an activating force of 5.0 pounds (22.2 N) maximum.

CHAPTER 4: ACCESSIBLE ROUTES

401 General

401.1 Scope. Accessible routes required by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 4.

402 Accessible Routes

402.1 General. Accessible routes shall comply with Section 402.

402.2 Components. Accessible routes shall consist of one or more of the following components: Walking surfaces with a slope not steeper than 1:20, doors and doorways, ramps, curb ramps excluding the flared sides, elevators, and platform lifts. All components of an accessible route shall comply with the applicable portions of this standard.

402.3 Revolving Doors, Revolving Gates, and Turnstiles. Revolving doors, revolving gates, and turnstiles shall not be part of an accessible route.

403 Walking Surfaces

403.1 General. Walking surfaces that are a part of an accessible route shall comply with Section 403.

403.2 Floor Surface. Floor surfaces shall comply with Section 302.

403.3 Slope. The running slope of walking surfaces shall not be steeper than 1:20. The cross slope of a walking surface shall not be steeper than 1:48.

403.4 Changes in Level. Changes in level shall comply with Section 303.

403.5 Clear Width. The clear width of an accessible route shall be 36 inches (915 mm) minimum.

EXCEPTION: The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width.

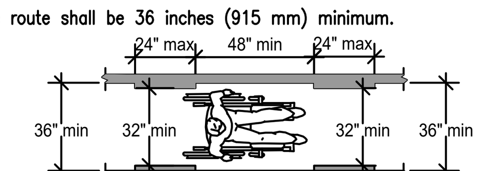


Figure 403.5.1 CLEAR WIDTH OF AN ACCESSIBLE ROUTE

403.5.1 Clear Width at 180 Degree Turn. Where an accessible route makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, clear widths shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum during the turn, and 42 inches (1065 mm) minimum leaving the turn.

EXCEPTION: Section 403.5.1 shall not apply where the clear width during the turn is 60 inches (1525 mm) minimum.

403.5.2 Passing Space. An accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum. Passing spaces shall be either a 60–inch (1525 mm) minimum by 60–inch (1525 mm) minimum space, or an intersection of two walking surfaces that provide a T–shaped turning space complying with Section 304.3.2, provided the base and arms of the T–shaped space extend 48 inches (1220 mm) mini–mum beyond the intersection.

403.6 Handrails. Where handrails are required at the side of a corridor they shall comply with Sections 505.4 through 505.9.

404 Doors and Doorways

404.1 General. Doors and doorways that are part of an accessible route shall comply with Section 404.

404.2 Manual Doors. Manual doors and doorways, and manual gates, including ticket gates, shall comply with Section 404.2.

EXCEPTION: Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.2.6, 404.2.7 and 404.2.8.

404.2.1 Double–Leaf Doors and Gates. At least one of the active leaves of doorways with two leaves shall comply with Sections 404.2.2 and 404.2.3.

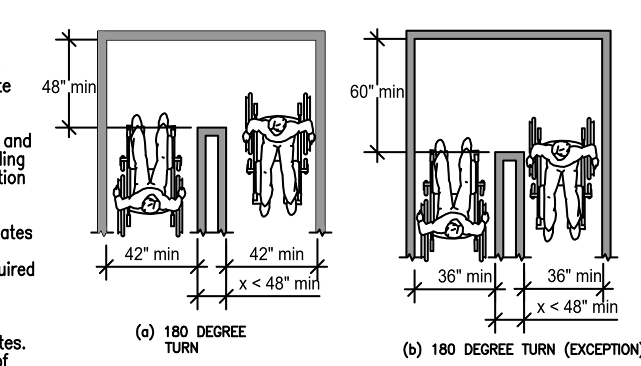


Figure 403.5.1 CLEAR WIDTH AT 180° TURN

CHAPTER 4: ACCESSIBLE ROUTES (CONT.)

404.2.2 Clear Width. Doorways shall have a clear opening width of 32 inches (815 mm) minimum. Clear opening width of doorways with swinging doors shall be measured between the face of door and stop, with the door open 90 degrees. Openings more than 24 inches (610 mm) in depth at doors and door–ways without doors shall provide a clear opening width of 36 inches (915 mm) minimum. There shall be no projections into the clear opening width lower than 34 inches (865 mm) above the floor. Projections into the clear opening width between 34 inches (865 mm) and 80 inches (2030 mm) above the floor shall not exceed 4 inches (100 mm).

EXCEPTIONS:
1. Door closers and door stops shall be permit–ted to be 78 inches (1980 mm) minimum above the floor.
2. In alterations, a projection of 5/8 inch (16 mm) maximum into the required clear open–ing width shall be permitted for the latch side stop.

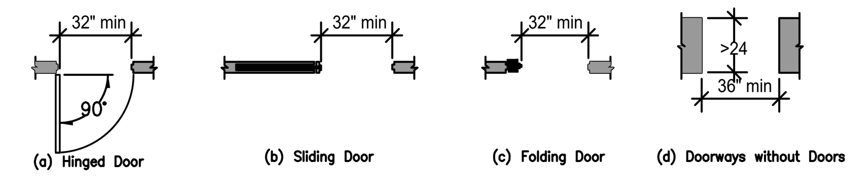


Figure 404.2.2 CLEAR WIDTH OF DOORWAYS

404.2.3 Maneuvering Clearances. Minimum maneuvering clearances at doors shall comply with Section 404.2.3 and shall include the full clear opening width of the doorway. Required door maneuvering clearances shall not include knee and toe clearance.

404.2.3.1 Floor Surface. Floor surface within the maneuvering clearances shall have a slope not steeper than 1:48 and shall comply with Section 302.

404.2.3.2 Swinging Doors. Swinging doors shall have maneuvering clearances complying with Table 404.2.3.2.

404.2.3.3 Sliding and Folding Doors. Sliding doors and folding doors shall have maneuvering clearances complying with Table 404.2.3.3.

TABLE 404.2.3.2–MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS

TYPE OF USE		MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS	
APPROACH DIRECTION	DOOR SIDE	PERPENDICULAR TO DOORWAY	PARALLEL TO DOORWAY (Beyond Latch Unless Noted)
FROM FRONT	PULL	60 INCHES (1525 MM)	18 INCHES (455 MM)
FROM FRONT	PUSH	48 INCHES (1220 MM)	0 INCHES (0 MM)3
FROM HINGE SIDE	PULL	60 INCHES (1525 MM)	36 INCHES (915 MM)
FROM HINGE SIDE	PULL	54 INCHES (1370 MM)	42 INCHES (1065 MM)
FROM HINGE SIDE	PUSH	42 INCHES (1065 MM)1	22 INCHES (560 MM)3 & 4
FROM LATCH SIDE	PULL	48 INCHES (1220 MM)1	24 INCHES (610 MM)
FROM LATCH SIDE	PUSH	42 INCHES (1065 MM)2	24 INCHES (610 MM)

1. ADD 6 INCHES (150 MM) IF CLOSER AND LATCH PROVIDED.
2. ADD 6 INCHES (150 MM) IF CLOSER PROVIDED.
3. ADD 12 INCHES (305 MM) BEYOND LATCH IF CLOSER AND LATCH PROVIDED.
4. BEYOND HINGE SIDE.

TABLE 404.2.3.3–MANEUVERING CLEARANCES AT SLIDING AND FOLDING DOORS

APPROACH DIRECTION	MINIMUM MANEUVERING CLEARANCES	
	PERPENDICULAR TO DOORWAY	PARALLEL TO DOORWAY (beyond stop or latch side unless noted)
FROM FRONT	48 INCHES (1220 MM)	0 INCHES (0 MM)
FROM NON LATCH SIDE	42 INCHES (1065 MM)	22 INCHES (560 MM)1
FROM LATCH SIDE	42 INCHES (1065 MM)	24 INCHES (610 MM)

1. BEYOND POCKET OR HINGE SIDE.

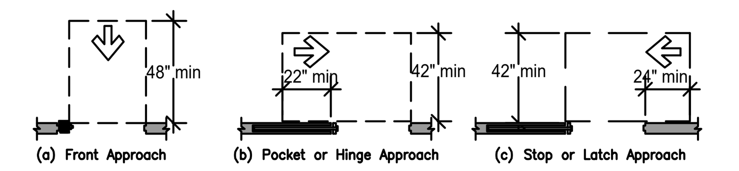


FIG. 404.2.3.3 MANEUVERING CLEARANCE AT SLIDING AND FOLDING DOORS

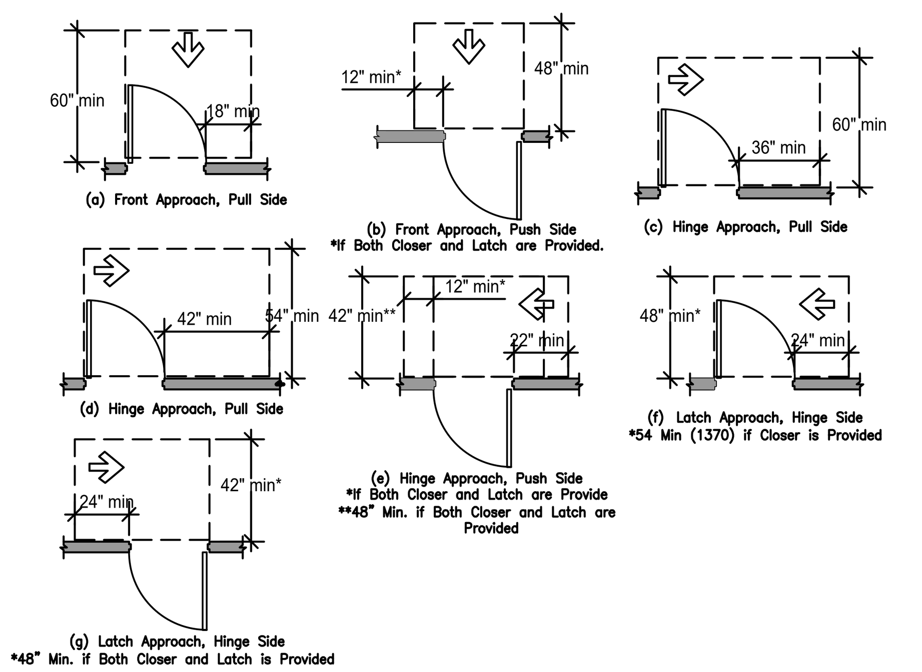


FIG. 404.2.3.2 MANEUVERING CLEARANCE AT MANUAL SWINGING DOORS

404.2.3.4 Doorways without Doors. Doorways without doors that are less than 36 inches (915 mm) in width shall have maneuvering clearances complying with Table 404.2.3.4.

404.2.3.5 Recessed Doors. Where any obstruc–tion within 18 inches (455 mm) of the latch side of a doorway projects more than 8 inches (205 mm) beyond the face of the door, measured perpendicular to the face of the door, maneuvering clearances for a forward approach shall be provided.

404.2.4 Thresholds. If provided, thresholds at door–ways shall be 1/2 inch (13 mm) maximum in height. Raised thresholds and changes in level at doorways shall comply with Sections 302 and 303.

EXCEPTION: An existing or altered threshold shall be permitted to be 3/4 inch (19 mm) maximum in height provided that the threshold has a beveled edge on each side with a maximum slope of 1:2 for the height exceeding 1/4 inch (6.4 mm).

404.2.5 Two Doors in Series. Distance between two hinged or pivoted doors in series shall be 48 inches (1220 mm) minimum plus the width of any door swinging into the space. The space between the doors shall provide a turning space complying with Section 304.

04.2.6 Door Hardware. Handles, pulls, latches, locks, and other operable parts on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor. Where sliding doors are in full open position, operating hardware shall be exposed and usable from both sides.

EXCEPTION: Locks used only for security purposes and not used for normal operation shall not I be required to comply with Section 404.2.6.

404.2.7 Closing Speed.

404.2.7.1 Door Closers. Door closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to an open position of 12 degrees shall be 5 seconds minimum.

404.2.7.2 Spring Hinges. Door spring hinges shall be adjusted so that from an open position of 70 degrees, the door shall move to the closed position in 1.5 seconds minimum.

TABLE 404.2.3.4–MANEUVERING CLEARANCES FOR DOORWAYS WITHOUT DOORS

APPROACH DIRECTION	MINIMUM MANEUVERING CLEARANCES Perpendicular to Doorway
FROM FRONT	48 INCHES (1220 MM)
FROM SIDE	42 INCHES (1065 MM)

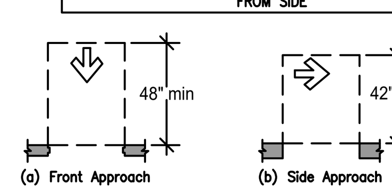
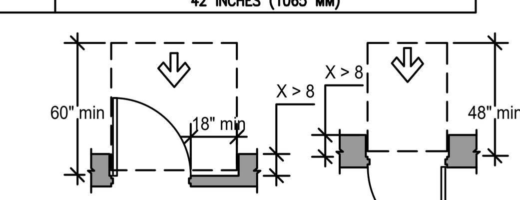


FIG. 404.2.3.4 MANEUVERING CLEARANCE AT DOORWAYS WITHOUT DOORS



CHAPTER 4: ACCESSIBLE ROUTES (CONT.)

404.2.8 Door–Opening Force. Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

1. Interior hinged door: 5.0 pounds (22.2 N) maximum
2. Sliding or folding door: 5.0 pounds (22.2 N) maximum

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

404.2.9 Door Surface. Door surfaces within 10 inches (255 mm) of the floor, measured vertically, shall be a smooth surface on the push side extending the full width of the door. Parts creating horizontal or vertical joints in such surface shall be within 1/16 inch (1.6 mm) of the same plane as the other. Cavities created by added kick plates shall be capped.

EXCEPTIONS:
1. Sliding doors shall not be required to comply with Section 404.2.9.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at no less than 60 degrees from the horizontal shall not be required to comply with the 10–inch (255 mm) bottom rail height requirement.
3. Doors that do not extend to within 10 inches (255 mm) of the floor shall not be required to comply with Section 404.2.9.

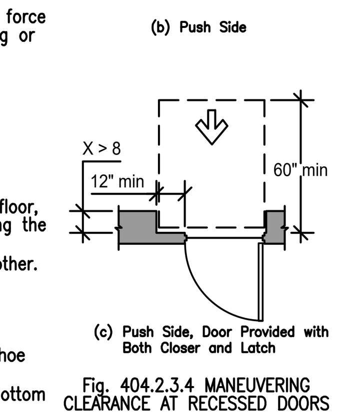


Fig. 404.2.3.4 MANEUVERING CLEARANCE AT RECESSED DOORS

404.2.10 Vision Lites. Doors and sidelites adjacent to doors containing one or more glazing panels that permit viewing through the panels shall have the bottom of at least one panel on either the door or an adjacent sidelite 43 inches (1090 mm) maximum above the floor.

EXCEPTION:

Vision lites with the lowest part more than 66 inches (1675 mm) above the floor shall not be required to comply with Section 404.2.10.

404.3 Automatic Doors. Automatic doors and automatic gates shall comply with Section 404.3. Full powered automatic doors shall comply with ANSI/BHMA A156.10 listed in Section 105.2.4. Power–assist and low–energy doors shall comply with ANSI/BHMA A156.19 listed in Section 105.2.3.

EXCEPTION:

Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4, and 404.3.5.

404.3.1 Clear Width. Doorways shall have a clear opening width of 32 inches (815 mm) in power–on and power–off mode. The minimum clear opening width for automatic door systems shall be based on the clear opening width provided with all leafs in the open position.

404.3.2 Maneuvering Clearances. Maneuvering clearances at power–assisted doors shall comply with Section 404.2.3.

404.3.3 Thresholds. Thresholds and changes in level at doorways shall comply with Section 404.2.4.

404.3.4 Two Doors in Series. Doors in series shall comply with Section 404.2.5.

404.3.5 Control Switches. Manually operated control switches shall comply with Section 309. The clear floor space adjacent to the control switch shall be located beyond the arc of the door swing.

405 Ramps

405.1 General. Ramps along accessible routes shall comply with Section 405.

EXCEPTION: In assembly areas, aisle ramps adjacent to seating and not serving elements required to be on an accessible route shall not be required to comply with Section 405.

405.2 Slope. Ramp runs shall have a running slope greater than 1:20 and not steeper than 1:12.

EXCEPTION: In existing buildings or facilities, ramps shall be permitted to have slopes steeper than 1:12 complying with Table 405.2 where such slopes are necessary due to space limitations.

Table 405.2 ALLOWABLE RAMP DIMENSIONS FOR CONSTRUCTION IN EXISTING SITES, BUILDINGS AND FACILITIES

Slope (A slope steeper than 1:8 is prohibited.)	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches (75 mm)
Steeper than 1:12 but not steeper than 1:10	6 inches (150 mm)

405.3 Cross Slope. Cross slope of ramp runs shall not be steeper than 1:48.

405.4 Floor Surfaces. Floor surfaces of ramp runs shall comply with Section 302.

405.5 Clear Width. The clear width of a ramp run shall be 36 inches (915 mm) minimum. Handrails and handrail supports that are provided on the ramp run shall not project into the required clear width of the ramp run.

405.6 Rise. The rise for any ramp run shall be 30 inches (760 mm) maximum.

405.7 Landings. Ramps shall have landings at the bottom and top of each ramp run. Landings shall comply with Section 405.7.

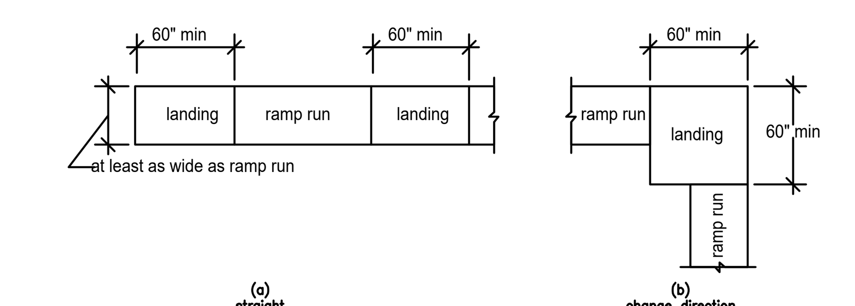


Figure 405.7 Ramp Landings

405.7.1 Slope. Landings shall have a slope not steeper than 1:48 and shall comply with Section 302.

405.7.2 Width. Clear width of landings shall be at least as wide as the widest ramp run leading to the landing.

405.7.3 Length. Landings shall have a clear length of 60 inches (1525 mm) minimum.

405.7.4 Change in Direction. Ramps that change direction at ramp landings shall be sized to provide a turning space complying with Section 304.3.

405.7.5 Doorways. Where doorways are adjacent to a ramp landing, maneuvering clearances required by Sections 404.2.3 and 404.3.2 shall be permitted to overlap the landing area. Where a door that is subject to locking is located adjacent to a ramp landing, the landing shall be sized to provide a turning space complying with Section 304.3.

405.8 Handrails. Ramp runs with a rise greater than 6 inches (150 mm) shall have handrails complying with Section 505.

405.9 Edge Protection. Edge protection complying with Section 405.9.1 or 405.9.2 shall be provided on each side of ramp runs and at each side of ramp landings.

EXCEPTIONS:

1. Edge protection shall not be required on ramps not required to have handrails and that have flared sides complying with Section 406.3.
2. Edge protection shall not be required on the sides of ramp landings serving an adjoining ramp run or stairway.
3. Edge protection shall not be required on the sides of ramp landings having a vertical drop–off of 1/2 inch (13 mm) maximum within 10 inches (255 mm) horizontally of the minimum landing area specified in Section 405.7.
4. Edge protection shall not be required on the sides of ramped aisles where the ramps provide access to the adjacent seats and aisle access ways.

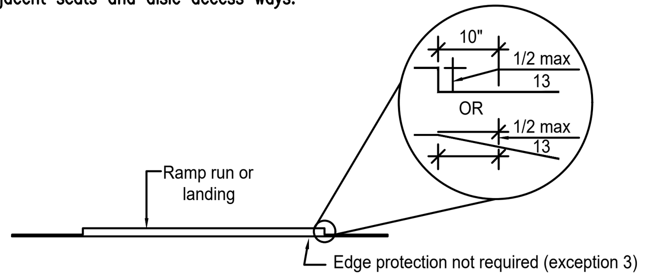


FIGURE 405.9 EDGE PROTECTION -- LIMITED DROP OFF

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03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
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LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT© est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:
ACCESSIBILITY GUIDELINES

SHEET NUMBER:
A0.1

IDS4 PROJECT NUMBER:
DBQ21015

ICC A117.1 - 2009 Standard for Accessible and Usable Buildings and Facilities Sheet 02

CHAPTER 4: ACCESSIBLE ROUTES (CONT.)

405.9.1 Extended Floor Surface. The floor surface of the ramp run or ramp landing shall extend 12 inches (305 mm) minimum beyond the inside face of a railing complying with Section 505.

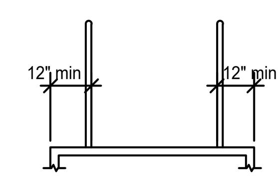


Figure 405.9.1 Extended Floor Surface

405.9.1 Extended Floor Surface. The floor surface of the ramp run or ramp landing shall extend 12 inches (305 mm) minimum beyond the inside face of a railing complying with Section 505.

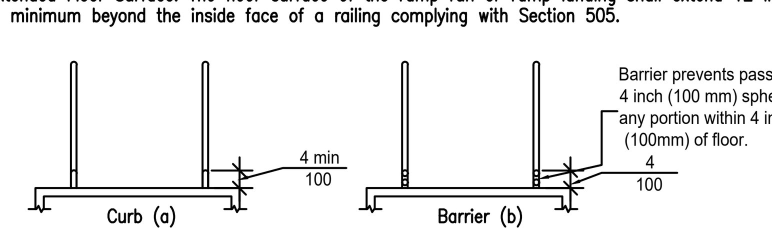


FIGURE 405.9.2 Ramp Edge Protection

405.9.2.1 Curb. A curb shall be a minimum of 4 inches (100 mm) in height.

405.9.2.2 Barrier. Barriers shall be constructed so that the barrier prevents the passage of a 4–inch (100 mm) diameter sphere where any portion of the sphere is within 4 inches (100 mm) of the floor.

405.10 Wet Conditions. Landings subject to wet conditions shall be designed to prevent the accumulation of water.

406 Curb Ramps

406.1 General. Curb ramps on accessible routes shall comply with Sections 406, 405.2, 405.3, and 405.10.

406.2 Counter Slope. Counter slopes of adjoining gutters and road surfaces immediately adjacent to the curb ramp shall not be steeper than 1:20. The adjacent surfaces at transitions at curb ramps to walks, gutters and streets shall be at the same level.

406.3 Sides of Curb Ramps. Where provided, curb ramp flares shall comply with Section 406.3.

406.3.1 Slope. Flares shall not be steeper than 1:10.

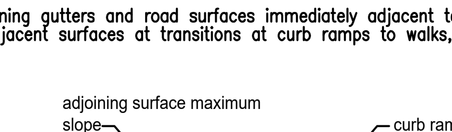


Figure 406.2 Counter Slope of Surfaces Adjacent to Curb Ramps

406.3.2 Marking. If curbs adjacent to the ramp flares are painted, the painted surface shall extend along the flared portion of the curb.

406.4 Width. Curb ramps shall be 36 inches (915 mm) minimum in width, exclusive of flared sides.

406.5 Floor Surface. Floor surfaces of curb ramps shall comply with Section 302.

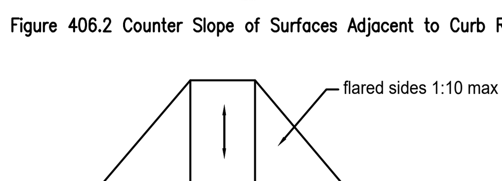


Figure 406.3 Sides of Curb Ramps

406.6 Location. Curb ramps and the flared sides of curb ramps shall be located so they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.

406.7 Landings. Landings shall be provided at the tops of curb ramps. The clear length of the landing shall be 36 inches (915 mm) minimum. The clear width of the landing shall be at least as wide as the curb ramp, excluding flared sides, leading to the landing.

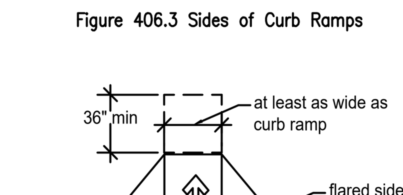


Figure 406.7 Landings

EXCEPTION: In alterations, where there is no landing at the top of curb ramps, curb ramp flares shall be provided and shall not be steeper than 1:12.

406.8 Obstructions. Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

406.9 Handrails. Handrails shall not be required on curb ramps.

406.10 Diagonal Curb Ramps. Diagonal or corner–type curb ramps with returned curbs or other well defined edges shall have the edges parallel to the direction of pedestrian flow. The bottoms of diagonal curb ramps shall have 48 inches (1220 mm) minimum clear space outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 48 inches (1220 mm) minimum clear space within the markings. Diagonal curb ramps with flared sides shall have a segment of curb 24 inches (610 mm) minimum in length on each side of the curb ramp and within the marked crossing.

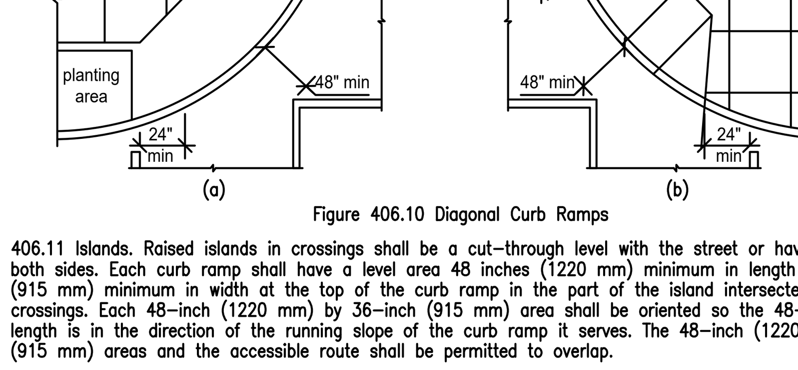
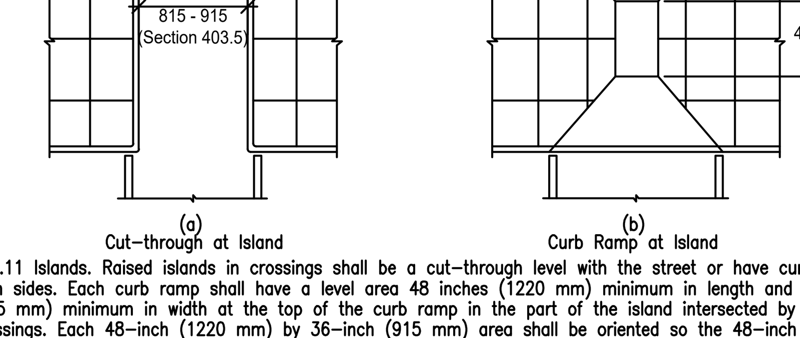


Figure 406.10 Diagonal Curb Ramps

406.11 Islands. Raised islands in crossings shall be a cut–through level with the street or have curb ramps at both sides. Each curb ramp shall have a level area 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width at the top of the curb ramp in the part of the island intersected by the crossings. Each 48–inch (1220 mm) by 36–inch (915 mm) area shall be oriented so the 48–inch (1220 mm) length is in the direction of the running slope of the curb ramp it serves. The 48–inch (1220 mm) by 36–inch (915 mm) areas and the accessible route shall be permitted to overlap.



406.11 Islands. Raised islands in crossings shall be a cut–through level with the street or have curb ramps at both sides. Each curb ramp shall have a level area 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width at the top of the curb ramp in the part of the island intersected by the crossings. Each 48–inch (1220 mm) by 36–inch (915 mm) area shall be oriented so the 48–inch (1220 mm) length is in the direction of the running slope of the curb ramp it serves. The 48–inch (1220 mm) by 36–inch (915 mm) areas and the accessible route shall be permitted to overlap.

406.12 Detectable Warnings at Raised Marked Crossings. Marked crossings that are raised to the same level as the adjoining sidewalk shall be preceded by a detectable warning 24 inches (610 mm) in depth complying with Section 705. The detectable warning shall extend the full width of the marked crossing.

406.13 Detectable Warnings at Curb Ramps. Where detectable warnings are provided on curb ramps, they shall comply with Sections 406.13 and 705.

406.13.1 Area Covered. Detectable warnings shall be 24 inches (610 mm) minimum in depth in the direction of travel. The detectable warning shall extend the full width of the curb ramp or flush surface.

406.13.2 Location. The detectable warning shall be located so the edge nearest the curb line is 6 inches (150 mm) minimum and 8 inches (205 mm) maximum from the curb line.

406.14 Detectable Warnings at Islands or Cut–through Medians. Where detectable warnings are provided on curb ramps or at raised marked crossings leading to islands or cut–through medians, the island or cut–through median shall be provided with detectable warnings complying with Section 705, that are 24 inches (610 mm) in depth, and extend the full width of the pedestrian route or cut–through. Where such island or cut–through median is less than 48 inches (1220 mm) in depth, the entire width and depth of the pedestrian route or cut–through shall have detectable warnings.

CHAPTER 5: GENERAL SITE AND BUILDING ELEMENTS

501 General

501.1 Scope. General site and building elements required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 5.

502 Parking Spaces

502.1 General. Accessible car and van parking spaces shall comply with Section 502.

502.2 Vehicle Space Size. Car parking spaces shall be 96 inches (2440 mm) minimum in width. Van parking spaces shall be 132 inches (3350 mm) minimum in width.

EXCEPTION: Van parking spaces shall be permitted to be 96 inches (2440 mm) minimum in width where the adjacent access aisle is 96 inches (2440 mm) minimum in width.

502.3 Vehicle Space Marking. Car and van parking spaces shall be marked to define the width. Where parking spaces are marked with lines, the width measurements of parking spaces and adjacent access aisles shall be made from the centerline of the markings.

EXCEPTION: Where parking spaces or access aisles are not adjacent to another parking space or access aisle, measurements shall be permitted to include the full width of the line defining the parking space or access aisle.

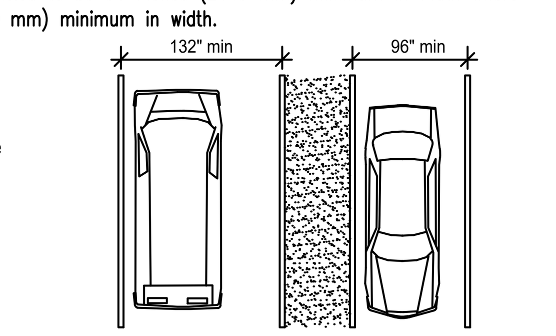


Figure 502.2 Vehicle Parking Spaces

502.4 Access Aisle. Car and van parking spaces shall have an adjacent access aisle complying with Section 502.4.

502.4.1 Location. Access aisles shall adjoin an accessible route. Two parking spaces shall be permitted to share a common access aisle. Access aisles shall not overlap with the vehicular way. Parking spaces shall be permitted to have access aisles placed on either side of the car or van parking space. Van parking spaces that are angled shall have access aisles located on the passenger side of the parking space.

502.4.2 Width. Access aisles serving car and van parking spaces shall be 60 inches (1525 mm) minimum in width.

502.4.3 Length. Access aisles shall extend the full length of the parking spaces they serve.

502.4.4 Marking. Access aisles shall be marked so as to discourage parking in them. Where access aisles are marked with lines, the width measurements of access aisles and adjacent parking spaces shall be made from the centerline of the markings.

EXCEPTION: Where access aisles or parking spaces are not adjacent to another access aisle or parking space, measurements shall be permitted to include the full width of the line defining the access aisle or parking space.

502.5 Floor Surfaces. Parking spaces and access aisles shall comply with Section 302 and have surface slopes not steeper than 1:48. Access aisles shall be at the same level as the parking spaces they serve.

502.6 Vertical Clearance. A vertical clearance of 98 inches (2490 mm) minimum shall be provided at the following locations:

1. Parking spaces for vans.
2. The access aisles serving parking spaces for vans.
3. The vehicular routes serving parking spaces for vans.

502.7 Identification. Where accessible parking spaces are required to be identified by signs, the signs shall include the International Symbol of Accessibility complying with Section 703.6.3.1. Signs identifying van parking spaces shall contain the designation "van accessible." Such signs shall be 60 inches (1525 mm) minimum above the floor of the parking space, measured to the bottom of the sign.

502.8 Relationship to Accessible Routes. Parking spaces and access aisles shall be designed so that cars and vans, when parked, cannot obstruct the required clear width of adjacent accessible routes.

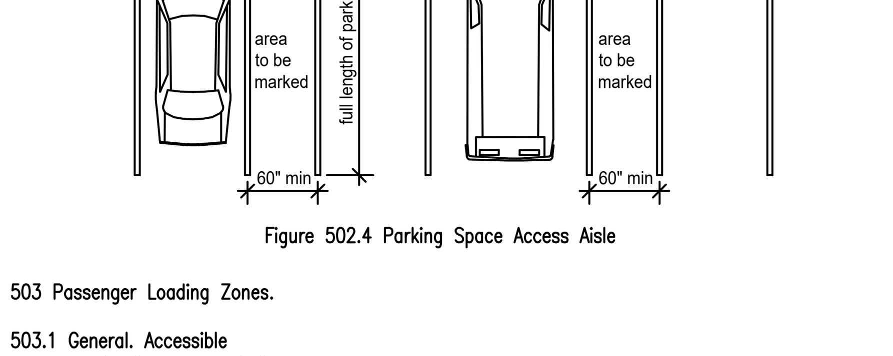


Figure 502.4 Parking Space Access Aisle

503 Passenger Loading Zones.

503.1 General. Accessible passenger loading zones shall comply with Section 503.

503.2 Vehicle Pull–up Space Size. Passenger loading zones shall provide a vehicular pull–up space 96 inches (2440 mm) minimum in width and 20 feet (6095 mm) minimum in length.

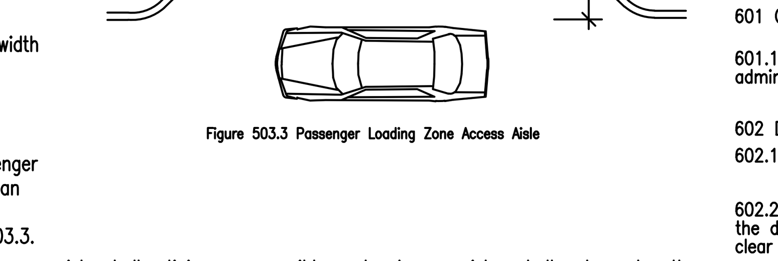


Figure 503.3 Passenger Loading Zone Access Aisle

503.3 Access Aisle. Passenger loading zones shall have an adjacent access aisle complying with Section 503.3.

503.3.1 Location. Access aisle shall adjoin an accessible route. Access aisles shall not overlap the vehicular way.

503.3.2 Width. Access aisle serving vehicular pull–up spaces shall be 60 inches (1525 mm) minimum in width.

503.3.3 Length. Access aisles shall be 20 feet (6095 mm) minimum in length.

503.3.4 Marking. Access aisles shall be marked so as to discourage parking in them.

503.4 Floor Surface. Vehicle pull–up spaces and access aisles serving them shall comply with Section 302 and shall have slopes not steeper than 1:48. Access aisles shall be at the same level as the vehicle pull–up space they serve.

503.5 Vertical Clearance. A vertical clearance of 114 inches (2895 mm) minimum shall be provided at the following locations:

1. Vehicle pull–up spaces;
2. The access aisles serving vehicle pull–up spaces;
3. A vehicular route from an entrance to the passenger loading zone, and;
4. A vehicular route from the passenger loading zone to a vehicular exit serving vehicle pull–up spaces.

504 Stairways

504.1 General. Stairs shall comply with 504.

504.2 Treads and Risers. All steps on a flight of stairs shall have uniform riser heights and uniform tread depths. Risers shall be 4 inches (100 mm) high minimum and 7 inches (180 mm) high maximum. Treads shall be 11 inches (280 mm) deep minimum.

504.3 Open Risers. Open risers are not permitted.

CHAPTER 5: GENERAL SITE AND BUILDING ELEMENTS (CONT.)

504.4 Tread Surface. Stair treads shall comply with Section 302 and shall not have a slope not steeper than 1:48.

504.5 Nosings. The radius of curvature at the leading edge of the tread shall be 1/2 inch (13 mm) maximum. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled. Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical. The permitted projection of the nosing shall extend 1 1/2 inches (38 mm) maximum over the tread or floor below.

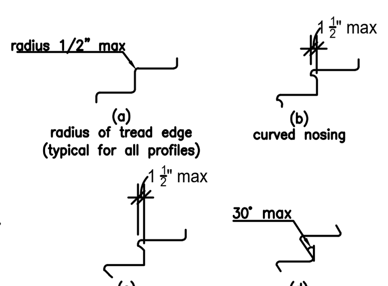


Figure 504.5 Stair Nosings

504.6 Handrails. Stairs shall have handrails complying with 505.

504.7 Wet Conditions. Stair treads and landings subject to wet conditions shall be designed to prevent the accumulation of water.

505 Handrails

505.1 General. Handrails required by Section 405.8 for ramps, or Section 504.6 for stairs, shall comply with Section 505.

505.2 Location. Handrails shall be provided on both sides of stairs and ramps.

EXCEPTION: In assembly areas, handrails shall not be required on both sides of aisle ramps where a handrail is provided at either side or within the aisle width. In assembly seating areas, handrails shall not be required on the sides of ramped aisles serving seats.

505.3 Continuity. Handrails shall be continuous within the full length of each stair flight or ramp run. Inside handrails on switchback or dogleg stairs and ramps shall be continuous between flights or runs. Other handrails shall comply with Sections 505.10 and 307. EXCEPTION: Handrails shall not be required to be continuous in aisles serving seating where handrails are discontinuous to provide access to seating and to permit crossovers within the aisles.

505.4 Height. Top of gripping surfaces of handrails shall be 34 inches (865 mm) minimum and 38 inches (965 mm) maximum vertically above stair nosings, ramp surfaces, and walking surfaces. Handrails shall be at a consistent height above stair nosings, ramp surfaces, and walking surfaces.

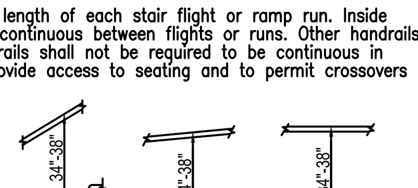


Figure 505.4 Handrail Height

505.5 Clearance. Clearance between handrail gripping surfaces and adjacent surfaces shall be 1 1/2 inches (38 mm) minimum.

505.6 Gripping Surface. Gripping surfaces shall be continuous, without interruption by newel posts, other construction elements, or obstructions.

Figure 505.5 Handrail Clearance

EXCEPTIONS:

1. Handrail brackets or balusters attached to the bottom surface of the handrail shall not be considered obstructions, provided the brackets or balusters comply with the following criteria:

a. Not more than 20 percent of the handrail length is obstructed,

b. Horizontal projections beyond the sides of the handrail occur 11/2 inches (38 mm) minimum below the bottom of the handrail, and provided that for each 1/2 inch (13 mm) of additional handrail perimeter dimension above 4 inches (100 mm), the vertical clearance dimension of 11/2 inch (38 mm) can be reduced by 1/8 inch (3.2 mm), and

c. Edges shall be rounded.

2. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.

Figure 505.6 Horizontal Projections Below Gripping Surface

505.7 Cross Section. Handrails shall have a cross section complying with Section 505.7.1 or 505.7.2.

505.7.1 Circular Cross Section. Handrails with a circular cross section shall have an outside diameter of 11/4 inches (32 mm) minimum and 2 inches (51 mm) maximum.

505.7.2 Noncircular Cross–Section. Handrails with a noncircular cross section shall have a perimeter dimension of 4 inches (100 mm) minimum and 61/4 inches (160 mm) maximum, and a cross–section dimension of 21/4 inches (57 mm) maximum.

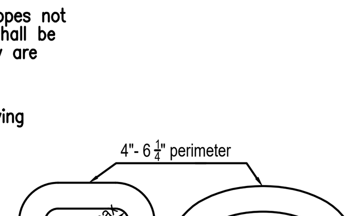


Figure 505.7.2 Handrail Non–Circular Cross Section

505.8 Surfaces. Handrails, and any wall or other surfaces adjacent to them, shall be free of any sharp or abrasive elements. Edges shall be rounded.

505.9 Fittings. Handrails shall not rotate within their fittings.

505.10 Handrail Extensions. Handrails shall extend beyond and in the same direction of stair flights and ramp runs in accordance with Section 505.10.

EXCEPTIONS:

1. Continuous handrails at the inside turn of stairs and ramps.

2. Handrail extensions are not required in aisles serving seating where the handrails are discontinuous to provide access to seating and to permit crossovers within the aisle.

3. In alterations, full extensions of handrails shall not be required where such extensions would be hazardous due to plan configuration.

505.10.1 Top and Bottom Extension at Ramps. Ramp handrails shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs. Extensions shall return to a wall, guard, or floor, or shall be continuous to the handrail of an adjacent ramp run.

505.10.2 Top Extension at Stairs. At the top of a stair flight, handrails shall extend horizontally above the landing for 12 inches (305 mm) minimum beginning directly above the landing nosing. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight.

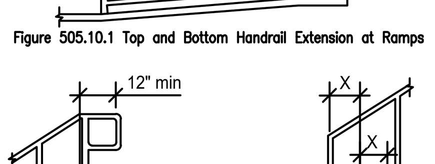


Figure 505.10.1 Top and Bottom Handrail Extension at Ramps

505.10.3 Bottom Extension at Stairs. At the bottom of a stair flight, handrails shall extend at the slope of the stair flight for a horizontal distance equal to one tread depth beyond the bottom tread nosing. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight.

Figure 505.10.2 Top Handrail Extension at Stairs

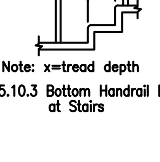


Figure 505.10.3 Bottom Handrail Extension at Stairs

CHAPTER 6: PLUMBING ELEMENTS & FACILITIES

601 General

601.1 Scope. Plumbing elements and facilities required to be accessible by scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 6.

602 Drinking Fountains

602.1 General. Accessible drinking fountains shall comply with Sections 602 and 307.

602.2 Clear Floor Space. A clear floor space complying with Section 305, positioned for a forward approach to the drinking fountain, shall be provided. Knee and toe space complying with Section 306 shall be provided. The clear floor space shall be centered on the drinking fountain.

EXCEPTION: 1. Drinking fountains for standing persons. 2. Drinking fountains primarily for children's use shall be permitted where the spout outlet is 30 inches (760 mm) maximum above the floor, a parallel approach complying with Section 305 is provided and the clear floor space is centered on the drinking fountain.

602.3 Operable Parts. Operable parts shall comply with Section 309.

602.4 Spout Height. Spout outlets of wheelchair accessible drinking fountains shall be 36 inches (915 mm) maximum above the floor. Spout outlets of drinking fountains for standing persons shall be 38 inches (965 mm) minimum and 43 inches (1090 mm) maximum above the floor.

602.5 Spout Location. The spout shall be located 15 inches (380 mm) minimum from the vertical support and 5 inches (125mm) maximum from the front edge of the drinking fountain, including bumpers. Where only a parallel approach is provided, the spout shall be located 31/2 inches (90 mm) maximum from the front edge of the drinking fountain, including bumpers.

602.6 Water Flow. The spout shall provide a flow of water 4 inches (100 mm) minimum in height. The angle of the water stream from spouts within 3 inches (75 mm) of the front of the drinking fountain shall be 30 degrees maximum, and from spouts between 3 inches (75 mm) and 5 inches (125 mm) from the front of the drinking fountain shall be 15 degrees maximum, measured horizontally relative to the front face of the drinking fountain.

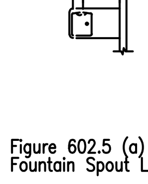


Figure 602.5 (a) Drinking Fountain Spout Location

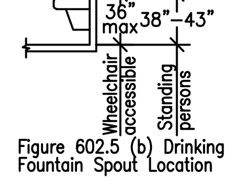


Figure 602.5 (b) Drinking Fountain Spout Location

603 Toilet and Bathing Rooms

603.1 General. Toilet and bathing rooms shall comply with 603.

603.2 Clearances.

CHAPTER 6: PLUMBING ELEMENTS & FACILITIES (CONT.)

603.2.1 Turning Space. A turning space complying with Section 304 shall be provided within the room. The required turning space shall not be provided within a toilet compartment.

603.2.2 Door Swing. Doors shall not swing into the clear floor space or clearance for any fixture.

EXCEPTIONS:

1. Doors to a toilet or bathing room for a single occupant, accessed only through a private office and not for common use or public use shall be permitted to swing into the clear floor space, provided the swing of the door can be reversed to comply with Section 603.2.2.

2. Where the room is for individual use and a clear floor space complying with Section 305.3 is provided within the room beyond the arc of the door swing, the door shall not be required to comply with Section 603.2.2.

603.3 Mirrors. Where mirrors are located above lavatories, a mirror shall be located over the accessible lavatory and shall be mounted with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor. Where mirrors are located above counters that do not contain lavatories, the mirror shall be mounted with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor.

EXCEPTION: Other than within Accessible dwelling or sleeping units, mirrors are not required over the lavatories or counters if a mirror is located within the same toilet or bathing room and mounted with the bottom edge of the reflecting surface 35 inches (890 mm) maximum above the floor.

603.4 Coat Hooks and Shelves. Coat hooks shall be located within one of the reach ranges specified in Section 308. Shelves shall be 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the floor.

603.5 Diaper Changing Tables. Diaper changing tables shall comply with Sections 309 and 902

604 Water Closets and Toilet Compartments

604.1 General. Accessible water closets and toilet compartments shall comply with Section 604. Compartments containing more than one plumbing fixture shall comply with Section 603. Wheelchair accessible compartments shall comply with Section 604.9. Ambulatory accessible compartments shall comply with Section 604.10.

EXCEPTION: Water closets and toilet compartments primarily for children's use shall be permitted to comply with Section 604.11 as applicable.

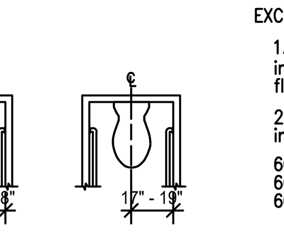


Figure 604.2 Water Closet Location

604.2 Location. The water closet shall be located with a wall or partition to the rear and to one side. The centerline of the water closet shall be 16 inches (405 mm) minimum and 18 inches (455 mm) maximum from the side wall or partition. Water closets located in ambulatory accessible compartments specified in Section 604.10 shall have the centerline of the water closet 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition.

604.3 Clearance.

604.3.1 Size. Clearance around a water closet shall be 60 inches (1525 mm) minimum in width, measured perpendicular from the sidewall.

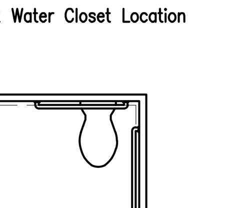


Figure 604.3.1 Size of Clearance at Water Closets

604.3.2 Clearance Depth. Clearance around the water closet shall be 56 inches (1420 mm) minimum in depth, measured perpendicular from the rear wall.

604.3.3 Clearance Overlap. The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, paper dispensers, sanitary napkin receptacles, coat hooks, shelves, accessible routes, clear floor space at other fixtures and the turning space. No other fixtures or obstructions shall be within the required water closet clearance.

604.4 Height. The height of water closet seats shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the floor, measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

EXCEPTION: A water closet in a toilet room for a single occupant, accessed only through a private office and not for common use or public use, shall not be required to comply with Section 604.4.

604.5 Grab Bars. Grab bars for water closets shall comply with 609. Grab bars shall be provided on the side wall closest to the water closet and on the rear wall.

EXCEPTIONS:

1. Grab bars shall not be required to be installed in a toilet room for a single occupant accessed only through a private office and not for common use or public use provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 604.5.

3. In detention or correction facilities, grab bars shall not be required to be installed in housing or holding cells that are specially designed without protrusions for purposes of suicide prevention.

604.5.1 Fixed Side Wall Grab Bars. Fixed side–wall grab bars shall be 42 inches (1065 mm) minimum in length, located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall. In addition, a vertical grab bar 18 inches (455 mm) minimum in length shall be mounted with the bottom of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum above the floor, and with the center line of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum from the rear wall.

EXCEPTION: The vertical grab bar at water closets primarily for children's use shall comply with Section 609.4.2.

604.5.2 Rear Wall Grab Bars. The rear wall grab bar shall be 36 inches (915 mm) minimum in length, and extend from the centerline of the water closet 12 inches (305 mm) minimum on the side closest to the wall, and 24 inches (610 mm) minimum on the transfer side.

EXCEPTIONS:

1. The rear grab bar shall be permitted to be 24 inches (610 mm) minimum in length, centered on the water closet, where wall space does not permit a grab bar 36 inches (915 mm) minimum in length due to the location of a recessed fixture adjacent to the water closet.

2. Where an administrative authority requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, that grab bar shall be permitted to be split or shifted to the open side of the toilet area.

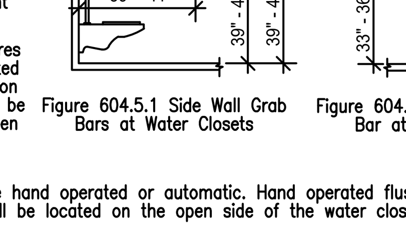


Figure 604.5.1 Side Wall Grab Bars at Water Closets

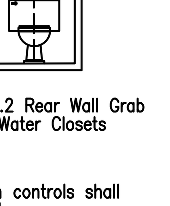


Figure 604.5.2 Rear Wall Grab Bar at Water Closets

604.6 Flush Controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309. Flush controls shall be located on the open side of the water closet.

EXCEPTION: In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

604.7 Dispensers. Toilet paper dispensers shall comply with Section 309.4. Where the dispenser is located above the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 36 inches (915 mm) maximum from the rear wall. Where the dispenser is located below the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall. The outlet of the dispenser shall be located 18 inches (455 mm) minimum and 48 inches (1220 mm) maximum above the floor. Dispensers shall comply with Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.

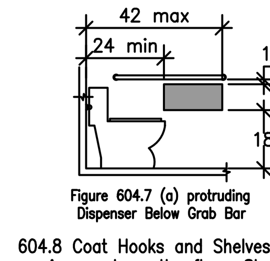


Figure 604.7 (a) protruding Dispenser Below Grab Bar

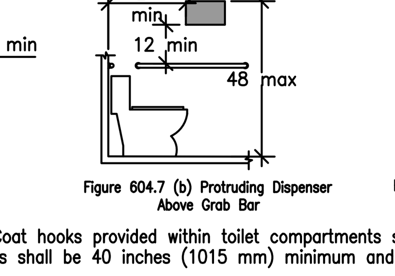


Figure 604.7 (b) Protruding Dispenser Above Grab Bar

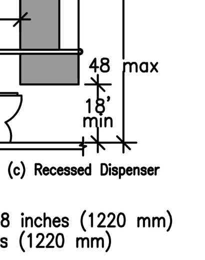


Figure 604.7 (c) Recessed Dispenser

604.8 Coat Hooks and Shelves. Coat hooks provided within toilet compartments shall be 48 inches (1220 mm) maximum above the floor. Shelves shall be 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the floor.

604.9 Wheelchair Accessible Compartments.

604.9.1 General. Wheelchair accessible compartments shall comply with Section 604.9.

604.9.2 Size. Toilet compartments shall comply with Section 604.9.2.1 or 604.9.2.2 as applicable.

604.9.2.1 Minimum area. The minimum area of a wheelchair accessible compartment shall be 60 inches (1525 mm) minimum in width measured perpendicular to the side wall, and 56 inches (1420 mm) minimum in depth for wall hung water closets, and 59 inches (1500 mm) minimum in depth for floor mounted water closets measured perpendicular to the rear wall.

604.9.2.2 Compartment for children's use. The minimum area of a wheelchair accessible compartment primarily for children's use shall be 60 inches (1525 mm) minimum in width measured perpendicular to the side wall, and 59 inches (1500 mm) minimum in depth for wall hung and floor mounted water closets measured perpendicular to the rear wall.

604.9.3 Doors. Toilet compartment doors, including door hardware, shall comply with Section 404, except if the approach is to the latch side of the compartment door clearance between the door side of the stall and any obstruction shall be 42 inches (1065 mm) minimum. The door shall be self–closing. A door pull complying with Section 404.2.6 shall be placed on both sides of the door near the latch. Toilet compartment doors shall not swing into the required minimum area of the compartment.

CHAPTER 6: PLUMBING ELEMENTS & FACILITIES (CONT.)

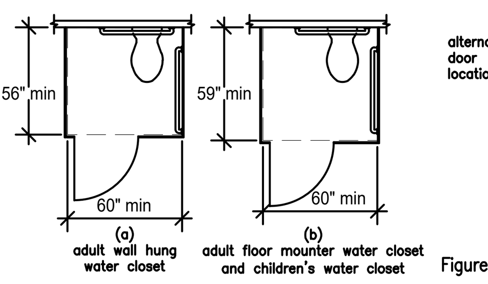


Figure 604.8.1.1 Size of Wheelchair Accessible Toilet Compartment

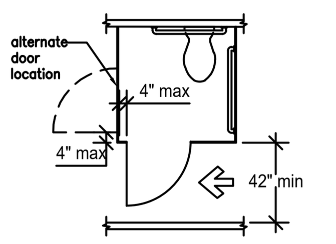


Figure 604.8.1.1 Size of Wheelchair Accessible Toilet Compartment

604.9.3.1 Door Opening Location. The farthest edge of toilet compartment door opening shall be located in the front wall or partition or in the side wall or partition as required by Table 604.9.3.1.

604.9.4 Approach. Wheelchair accessible compartments shall be arranged for left–hand or right–hand approach to the water closet.

604.9.5 Toe Clearance. Toe clearance for compartments primarily for children's use shall comply with Section 604.9.5.2. Toe clearance for other wheelchair accessible compartments shall comply with Section 604.9.5.1.

604.9.5.1 Toe Clearance at Compartments. The front partition and at least one side partition shall provide a toe clearance of 9 inches (230 mm) minimum above the floor and extending 6 inches (150 mm) beyond the compartment side face of the partition, exclusive of partition support members.

EXCEPTIONS:

1. Toe clearance at the front partition is not required in a compartment greater than 62 inches (1575 mm) in depth with a wall–hung water closet, or greater than 65 inches (1650 mm) in depth with a floor–mounted water closet.

2. Toe clearance at the side partition is not required in a compartment greater than 66 inches (1675 mm) in width.

604.9.6 Grab Bars. Grab bars shall comply with Section 609. Side wall grab bars complying with Section 604.5.1 located on the wall closest to the water closet, and a rear wall grab bar complying with Section 604.5.2, shall be provided.

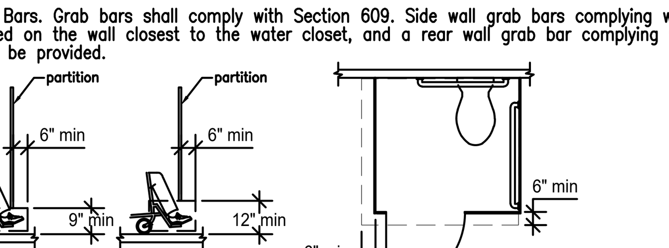


Figure 604.9.5 Wheelchair Accessible Toilet Compartment Toe Clearance

604.10.1 General. Ambulatory accessible compartments shall comply with Section 604.10.

604.10.2 Size. The minimum area of an ambulatory accessible compartment shall be 60 inches (1525 mm) minimum in depth and 36 inches (915 mm) in width.

604.10.3 Doors. Toilet compartment doors, including door hardware, shall comply with Section 404, except if the approach is to the latch side of the compartment door the clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum. The door shall be self–closing. A door pull complying with Section 404.2.6 shall be placed on both sides of the door near the latch. Compartment doors shall not swing into the required minimum area of the compartment.

604.10.4 Grab Bars. Grab bars shall comply with Section 609. Side wall grab bars complying with Section 604.5.1 shall be provided on both sides of the compartment.

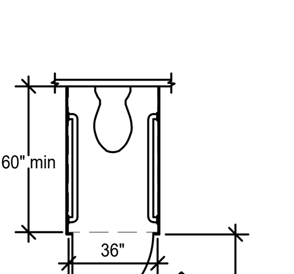


Figure 604.10 Ambulatory Accessible Toilet Compartment

605 Urinals

605.1 General. Urinals shall comply with 605.

605.2 Height and Depth. Urinals shall be of the stall type or shall be of the wall hung type with the rim at 17 inches (430 mm) maximum above the floor. Wall hung urinals shall be 131/2 inches (345 mm) minimum in depth measured from the outer face of the urinal rim to the wall.

605.3 Clear Floor Space. A clear floor space complying with Section 305, positioned for forward approach, shall be provided.

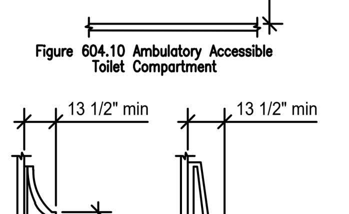


Figure 605.2 Height and Depth of Urinals

605.4 Flush Controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309.

606 Lavatories and Sinks

606.1 General. Lavatories and sinks shall comply with 606.

606.2 Clear Floor Space. A clear floor space complying with Section 305.3, positioned for forward approach, shall be provided. Knee and toe clearance complying with Section 306 shall be provided. The dip of the overflow shall not be considered in determining knee and toe clearances.

EXCEPTIONS:

1. A parallel approach complying with Section 305 and centered on the sink, shall be permitted to a kitchen sink in a space where a cook top or conventional range is not provided.

2. The requirement for knee and toe clearance shall not apply to a lavatory in a toilet or bathing facility for a single occupant, accessed only through a private office and not for common use or public use.

3. A knee clearance of 24 inches (610 mm) minimum above the floor shall be permitted at lavatories and sinks used primarily by children ages 6 through 12 where the rim or counter surface is 31 inches (785 mm) maximum above the floor.

4. A parallel approach complying with Section 305 and centered on the sink, shall be permitted at lavatories and sinks used primarily by children ages 5 and younger.

5. The requirement for knee and toe clearance shall not apply to more than one bowl of a multibowl sink.

6. A parallel approach complying with Section 305 and centered on the sink, shall be permitted at wet bars.

606.3 Height. The front of lavatories and sinks shall be 34 inches (865 mm) maximum above the floor, measured to the higher of the rim or counter surface.

EXCEPTION: A lavatory in a toilet or bathing facility for a single occupant, accessed only through a private office and not for common use or public use, shall not be required to comply with Section 606.3.

606.6 Exposed Pipes and Surfaces. Water supply and drainpipes under lavatories and sinks shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories and sinks.

609 Grab Bars

609.1 General. Grab bars in toilet facilities and bathing facilities shall comply with 609.

609.2 Cross Section. Grab bars shall have a cross section complying with 609.2.1 or 609.2.2.

609.2.1 Circular Cross Section. Grab bars with circular cross sections shall have an outside diameter of 1 1/4 inches (32 mm) minimum and 2 inches (51 mm) maximum.

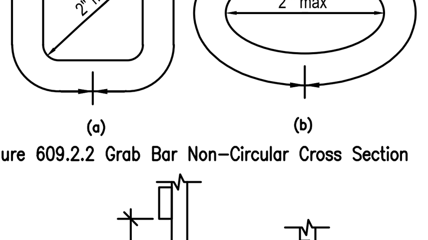


Figure 609.2.2 Grab Bar Non–Circular Cross Section

609.2.2 Non–Circular Cross Section. Grab bars with non–circular cross sections shall have a cross–section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (100 mm) minimum and 4.8 inches (120 mm) maximum.

609.3 Spacing. The space between the wall and the grab bar shall be 1 1/2 inches (38 mm). The space between the grab bar and projecting objects below and at the ends shall be 1 1/2 inches (38 mm) minimum. The space between the grab bar and projecting objects above shall be 12 inches (305 mm) minimum.

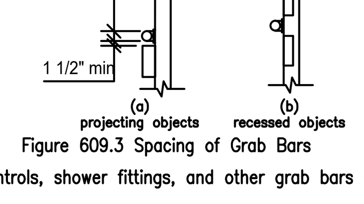


Figure 609.3 Spacing of Grab Bars

EXCEPTION: The space between the grab bars and shower controls, shower fittings, and other grab bars above shall be permitted to be 1 1/2 inches (38 mm) minimum.

609.4 Position of Grab Bars.

609.4.1 General. Grab bars shall be installed in a horizontal position, 33 inches (840 mm) minimum and 36 inches (915 mm) maximum above the floor measured to the top of the gripping surface or shall be installed as required by Items 1 through 3.

1. The lower grab bar on the back wall of a bathtub shall comply with Section 607.4.1.1 or 607.4.2.1.
2. Vertical grab bars shall comply with Sections 604.5.1, 607.4.1.2.2, 607.4.2.2, and 608.3.1.2.
3. Grab bars at water closets primarily for children's use shall comply with Section 609.4.2.

609.5 Surface Hazards. Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive elements and shall have rounded edges.

609.6 Fittings. Grab bars shall not rotate within their fittings.

609.7 Installation and Configuration. Grab bars shall be installed in any manner that provides a gripping surface at the locations specified in this standard and does not obstruct the clear floor space. Horizontal and vertical grab bars shall be permitted to be separate bars, a single piece bar, or combination thereof.

609.8 Structural Strength. Allowable stresses shall not be exceeded for materials used where a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the grab bar, fastener mounting device, or supporting structure.

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CHAPTER 7: COMMUNICATION ELEMENTS AND FEATURES

701 General

701.1 Scope. Communications elements and features required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 7.

702 Alarms

702.1 General. Accessible audible and visible alarms and notification appliances shall be installed in accordance with NFPA 72 listed in Section 105.2.2, be powered by a commercial light and power source, be permanently connected to the wiring of the premises electric system, and be permanently installed.

703 Signs

703.1 General. Accessible signs shall comply with Section 703. Tactile signs shall contain both raised characters and braille. Where signs with both visual and raised characters are required, either one sign with both visual and raised characters, or two separate signs, one with visual, and one with raised characters, shall be provided.

703.1.1 Designations. Interior and exterior signs identifying permanent rooms and spaces shall comply with Sections 703.5.1, 703.2, and 703.3.
EXCEPTION: Exterior signs that are not located at the door to the space they serve shall not be required to comply with Section 703.3.

703.1.2 Directional and Informational Signs. Signs that provide direction to or information about interior spaces and facilities of the site shall comply with Section 703.2.

703.1.3 Pictograms. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5 and shall have text descriptors located directly below the pictogram field and complying with Sections 703.2 and 703.3.

EXCEPTION: Pictograms that provide information about a room or space, such as "No Smoking", occupant logos, and the International Symbol of Accessibility, are not required to have text descriptors.

703.2 Visual Characters.

703.2.1 General. Visual characters shall comply with the following:
1. Visual characters that also serve as raised characters shall comply with Section 703.3, or
2. Visual characters on VMS signage shall comply with Section 703.7, or
3. Visual characters not covered in items 1 and 2 shall comply with Section 703.2.

EXCEPTION: The visual and raised requirements of item 1 shall be permitted to be provided by two separate signs that provide corresponding information provided one sign complies with Section 703.2 and the second sign complies with Section 703.3.

703.2.2 Case. Characters shall be uppercase, lowercase, or a combination of both.

703.2.3 Style. Characters shall be conventional in form. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

703.2.4 Character Height. The uppercase letter "I" shall be used to determine the allowable height of all characters of a font. The uppercase letter "I" of the font shall have a minimum height complying with Table 703.2.4. Viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign.

EXCEPTION: In assembly seating where the maximum viewing distance is 100 feet (30.5 m) or greater, the height of the uppercase "I" of fonts shall be permitted to be 1 inch (25 mm) for every 30 feet (9145 mm) of viewing distance, provided the character height is 8 inches (205 mm) minimum. Viewing distance shall be measured as the horizontal distance between the character and where someone is expected to view the sign.

Table 703.2.4 Visual Character Height

Height to Finish Floor or Ground From Baseline of Character	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	less than 6 feet (1830 mm)	5/8 inch (16 mm)
	6 feet (1830 mm) and greater	5/8 inch (16 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 72 inches (1830 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	less than 15 feet (4570 mm)	2 inch (51 mm)
	15 feet (4570 mm) and greater	2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	less than 21 feet (6400 mm)	3 inch (75 mm)
	21 feet (6400 mm) and greater	3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)

703.2.5 Character Width. The uppercase letter "O" shall be used to determine the allowable width of all characters of a font. The width of the uppercase letter "O" of the font shall be 55 percent minimum and 110 percent maximum of the height of the uppercase "I" of the font.

703.2.6 Stroke Width. The uppercase letter "I" shall be used to determine the allowable stroke width of all characters of a font. The stroke width shall be 10 percent minimum and 30 percent maximum of the height of the uppercase "I" of the font.

703.2.7 Character Spacing. Spacing shall be measured between the two closest points of adjacent characters within a message, excluding word spaces. Spacing between individual characters shall be 10 percent minimum and 35 percent maximum of the character height.

703.2.8 Line Spacing. Spacing between the baselines of separate lines of characters within a message shall be 135 percent minimum and 170 percent maximum of the character height.

EXCEPTION: In assembly seating where the maximum viewing distance is 100 feet (30.5 m) or greater, the spacing between the baselines of separate lines of characters within a message shall be permitted to be 120 percent minimum and 170 percent maximum of the character height.

703.2.9 Height Above Floor. Visual characters shall be 40 inches (1015 mm) minimum above the floor of the viewing position, measured to the baseline of the character. Heights shall comply with Table 703.2.4, based on the size of the characters on the sign.

EXCEPTION: Visual characters indicating elevator car controls shall not be required to comply with Section 703.2.9.

703.2.10 Finish and Contrast. Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

703.3 Raised Characters.

703.3.1 General. Raised characters shall comply with Section 703.3, and shall be duplicated in braille complying with Section 703.4.

703.3.2 Depth. Raised characters shall be raised 1/32 inch (0.8 mm) minimum above their background.

703.3.3 Case. Characters shall be uppercase.

703.3.4 Style. Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

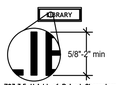


Figure 703.3.5 Height of Raised Characters

703.3.5 Character Height. The uppercase letter "I" shall be used to determine the allowable height of all characters of a font. The height of the uppercase letter "I" of the font, measured vertically from the baseline of the character, shall be 5/8 inch (16 mm) minimum, and 2 inches (51 mm) maximum.

EXCEPTION: Where separate raised and visual characters with the same information are provided, the height of the raised uppercase letter "I" shall be permitted to be 1/2 inch (13 mm) minimum.

703.3.6 Character Width. The uppercase letter "O" shall be used to determine the allowable width of all characters of a font. The width of the uppercase letter "O" of the font shall be 55 percent minimum and 110 percent maximum of the height of the uppercase "I" of the font.

703.3.7 Stroke Width. Raised character stroke width shall comply with Section 703.3.7. The uppercase letter "I" of the font shall be used to determine the allowable stroke width of all characters of a font.

703.3.7.1 Maximum. The stroke width shall be 15 percent maximum of the height of the uppercase letter "I" measured at the top surface of the character, and 30 percent maximum of the height of the uppercase letter "I" measured at the base of the character.

703.3.7.2 Minimum. When characters are both visual and raised, the stroke width shall be 10 percent minimum of the height of the uppercase letter "I".

703.3.8 Character Spacing. Character spacing shall be measured between the two closest points of adjacent raised characters within a message, excluding word spaces. Spacing between individual raised characters shall be 1/8 inch (3.2 mm) minimum measured at the top surface of the characters, 1/16 inch (1.6 mm) minimum measured at the base of the characters, and four times the raised character stroke width maximum. Characters shall be separated from raised borders and decorative elements 3/8 inch (9.5 mm) minimum.

703.3.9 Line Spacing. Spacing between the baselines of separate lines of raised characters within a message shall be 135 percent minimum and 170 percent maximum of the raised character height.

703.3.10 Height above Floor. Raised characters shall be 48 inches (1220 mm) minimum above the floor, measured to the baseline of the lowest raised character and 60 inches (1525 mm) maximum above the floor, measured to the baseline of the highest raised character.

EXCEPTION: Raised characters for elevator car controls shall not be required to comply with Section 703.3.10.

703.3.11 Location. Where a sign containing raised characters and braille is provided at a door, the sign shall be alongside the door at the latch side. Where a sign containing raised characters and braille is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a sign containing raised characters and braille is provided at double doors with two active leaves, the sign shall be to the right of the right-hand door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing raised characters and braille shall be located so that a clear floor area 18 inches (455 mm) minimum by 18 inches (455 mm) minimum, centered on the raised characters is provided beyond the arc of any door swing between the closed position and 45 degree open position.

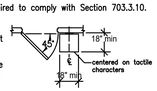


Figure 703.3.11 Location of Tactile Signs at Doors

EXCEPTION: Signs containing raised characters and braille shall be permitted on the push side of doors with closers and without hold-open devices.

CHAPTER 7: COMMUNICATION ELEMENTS AND FEATURES (CONT.)

703.3.12 Finish and Contrast. Characters and their background shall have a non-glare finish. Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background.

EXCEPTION: Where separate raised characters and visual characters with the same information are provided, raised characters are not required to have nonglare finish or to contrast with their background.

703.4 Braille

703.4.1 General. Braille shall be contracted (Grade 2) braille and shall comply with Section 703.4.

703.4.2 Uppercase Letters. The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, or acronyms.

703.4.3 Dimensions. Braille dots shall have a domed or rounded shape and shall comply with Table 703.4.3.

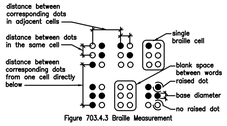


Figure 703.4.3 Braille Measurement

Table 703.4.3 Braille Dimensions

Measurement Range	Minimum in Inches to Maximum in Inches
Dot base diameter	0.059 (1.5 mm) to 0.063 (1.6 mm)
Distance between two dots in the same cell	0.090 (2.3 mm) to 0.100 (2.5 mm) measured center to center
Distance between corresponding dots in adjacent cells	0.241 (6.1 mm) to 0.300 (7.6 mm)measured center to center
Dot height	0.025 (0.6 mm) to 0.037 (0.9 mm)
Distance between corresponding dotsfrom one cell directly below	0.395 (10 mm) to 0.400 (10.2 mm)measured center to center

703.4.4 Position. Braille shall be below the corresponding text. If text is multilined, braille shall be placed below entire text. Braille shall be separated 3/8 inch (9.5 mm) minimum from any other raised characters and 3/8 inch (9.5 mm) minimum from raised borders and decorative elements. Braille provided on elevator car controls shall be separated 3/16 inch (4.8 mm) minimum either directly below or adjacent to the corresponding raised characters or symbols.

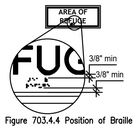


Figure 703.4.4 Position of Braille

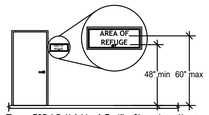


Figure 703.4.5 Height of Tactile Characters Above Finish Floor or Ground

703.4.5 Mounting Height. Braille shall be 48 inches (1220 mm) minimum and 60 inches (1525 mm) maximum above the floor, measured to the baseline of the braille cells.

EXCEPTION: Elevator car controls shall not be required to comply with Section 703.4.5.

703.5.1 General. Pictograms shall comply with Section 703.5.

703.5.2 Pictogram Field. Pictograms shall have a field 6 inches (150 mm) minimum in height. Characters or braille shall not be located in the pictogram field.

703.5.3 Finish and Contrast. Pictograms and their fields shall have a nonglare finish. Pictograms shall contrast with their fields, with either a light pictogram on a dark field or a dark pictogram on a light field.

Figure 703.5 Pictogram Field

703.6 Symbols of Accessibility.

703.6.1 General. Symbols of accessibility shall comply with Section 703.6.

7703.6.2 Finish and Contrast. Symbols of accessibility and their backgrounds shall have a non-glare finish. Symbols of accessibility shall contrast with their backgrounds, with either a light symbol on a dark background or a dark symbol on a light background.

703.6.3 Symbols.

703.6.3.1 International Symbol of Accessibility. The International Symbol of Accessibility shall comply with Figure 703.6.3.1.

703.6.3.2 International Symbol of TTY. The International Symbol of TTY shall comply with Figure 703.6.3.2.

703.6.3.3 Assistive Listening Systems. Assistive listening systems shall be identified by the International Symbol of Access for Hearing Loss complying with Figure 703.6.3.3.

703.6.3.4 Volume-Controlled Telephones. Telephones with volume controls shall be identified by a pictogram of a telephone handset with radiating sound waves on a square field complying with Figure 703.6.3.4.

Figure 703.6.3.1 International Symbol of Accessibility

Figure 703.6.3.2 International Symbol of TTY

Figure 703.6.3.4 Volume Control Telephone

Figure 703.6.3.3 International Symbol of Access for Hearing Loss

703.6 Symbols of Accessibility.

703.6.1 General. Symbols of accessibility shall comply with Section 703.6.

7703.6.2 Finish and Contrast. Symbols of accessibility and their backgrounds shall have a non-glare finish. Symbols of accessibility shall contrast with their backgrounds, with either a light symbol on a dark background or a dark symbol on a light background.

703.6.3 Symbols.

703.6.3.1 International Symbol of Accessibility. The International Symbol of Accessibility shall comply with Figure 703.6.3.1.

703.6.3.2 International Symbol of TTY. The International Symbol of TTY shall comply with Figure 703.6.3.2.

703.6.3.3 Assistive Listening Systems. Assistive listening systems shall be identified by the International Symbol of Access for Hearing Loss complying with Figure 703.6.3.3.

703.6.3.4 Volume-Controlled Telephones. Telephones with volume controls shall be identified by a pictogram of a telephone handset with radiating sound waves on a square field complying with Figure 703.6.3.4.

705 Detectable Warnings

705.1 General. Detectable warning surfaces shall comply with Section 705.

705.2 Standardization. Detectable warning surfaces shall be standard within a building, facility, site, or complex of buildings.

EXCEPTION: In facilities that have both interior and exterior locations, detectable warnings in exterior locations shall not be required to comply with Section 705.4.

705.3 Contrast. Detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.

705.4 Interior Locations. Detectable warning surfaces in interior locations shall differ from adjoining walking surfaces in resiliency or sound-on-cane contact.

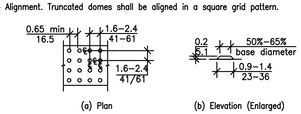
705.5 Truncated Domes. Detectable warning surfaces shall have truncated domes complying with Section 705.5.

705.5.1 Size. Truncated domes shall have a base diameter of 0.9 inch (23 mm) minimum and 1.4 inch (36 mm) maximum, and a top diameter of 50 percent minimum and 65 percent maximum of the base diameter.

705.5.2 Height. Truncated domes shall have a height of 0.2 inch (5.1 mm).

705.5.3 Spacing. Truncated domes shall have a center-to-center spacing of 1.6 inches (41 mm) minimum and 2.4 inches (61 mm) maximum, and a base-to-base spacing of 0.65 inch (16.5 mm) minimum, measured between the most adjacent domes on the grid.

705.5.4 Alignment. Truncated domes shall be aligned in a square grid pattern.



(a) Plan (b) Elevation (Enlarged)

Fig. 705.5 Truncated Dome Size and Spacing

CHAPTER 9: BUILT-IN ELEMENTS AND EQUIPMENT

901 General

901.1 Scope. Built-in furnishings and equipment required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 9.

902 Dining Surfaces and Work Surfaces

902.1 General. Accessible dining surfaces and work surfaces shall comply with Section 902.

EXCEPTION: Dining surfaces and work surfaces primarily for children's use shall be permitted to comply with Section 902.5.

902.2 Clear Floor Space. A clear floor space complying with Section 305, positioned for a forward approach, shall be provided. Knee and toe clearance complying with Section 306 shall be provided.

EXCEPTIONS:
1. At drink surfaces 12 inches (305 mm) or less in depth, knee and toe space shall not be required to extend beneath the surface beyond the depth of the drink surface provided.
2. Dining surfaces that are 15 inches (380 mm) minimum and 24 inches (610 mm) maximum in height arE permitted to have a clear floor space complying with Section 305 positioned for a parallel approach.

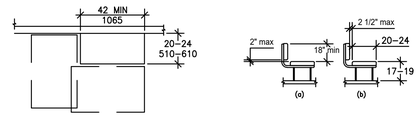
902.3 Exposed Surfaces. There shall be no sharp or abrasive surfaces under the exposed portions of dining surfaces and work surfaces.

902.4 Height. The tops of dining surfaces and work surfaces shall be 28 inches (710 mm) minimum and 34 inches (865 mm) maximum in height above the floor.

903 Benches
903.1 General. Benches shall comply with 903.

903.2 Clear Floor Space. A clear floor space complying with Section 305, positioned for parallel approach to the bench seat, shall be provided.

903.3 Size. Benches shall have seats 42 inches (1065 mm) minimum in length, and 20 inches (510 mm) minimum and 24 inches (610 mm) maximum in depth.



(a) Bench Size and Options for Clear Floor Space

(b) Bench Back Support and Seat Height

Figure 903 Benches

903.4 Back Support. The bench shall provide for back support or shall be affixed to a wall. Back support shall be 42 inches (1065 mm) minimum in length and shall extend from a point 2 inches (51 mm) maximum above the seat surface to a point 18 inches (455 mm) minimum above the seat surface. Back support shall be 21/2 inches (64 mm) maximum from the rear edge of the seat measured horizontally.

903.5 Height. The top of the bench seat shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the floor, measured to the top of the seat.

EXCEPTION: Benches primarily for children's use shall be permitted to be 11 inches (280 mm) minimum and 17 inches (430 mm) maximum above the floor, measured to the top of the seat.

903.6 Structural Strength. Allowable stresses shall not be exceeded for materials used where a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the seat, fastener mounting device, or supporting structure.

903.7 Wet Locations. Where provided in wet locations the surface of the seat shall be slip resistant and shall not accumulate water.

904 Sales and Service Counters

904.1 General. Accessible sales and service counters and windows shall comply with Section 904 as applicable.

EXCEPTION: Drive up only sales or service counters and windows are not required to comply with Section 904.

904.2 Approach. All portions of counters required to be accessible shall be located adjacent to a walking surface complying with Section 403.

904.3 Sales and Service Counters. Sales and service counters shall comply with Section 904.3.1 or 904.3.2. The accessible portion of the countertop shall extend the same depth as the sales and service countertop.

904.3.1 Parallel Approach. A portion of the counter surface 36 inches (915 mm) minimum in length and 36 inches (915 mm) maximum in height above the floor shall be provided. Where the counter surface is less than 36 inches (915 mm) in length, the entire counter surface shall be 36 inches (915 mm) maximum in height above the floor. A clear floor space complying with Section 305, positioned for a parallel approach adjacent to the accessible counter, shall be provided.

904.3.2 Forward Approach. A portion of the counter surface 30 inches (760 mm) minimum in length and 36 inches (915 mm) maximum in height above the floor shall be provided. A clear floor space complying with Section 305, positioned for a forward approach to the accessible counter, shall be provided. Knee and toe clearance complying with Section 306 shall be provided under the accessible counter.

904.4 Checkout Aisles. Checkout aisles shall comply with Section 904.4.

904.4.1 Aisle. Aisles shall comply with Section 403.

904.4.2 Counters. The checkout counter surface shall be 38 inches (965 mm) maximum in height above the floor. The top of the counter edge protection shall be 2 inches (51 mm) maximum above the top of the counter surface on the aisle side of the checkout counter.

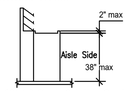


Figure 904.4.2 Check-Out Aisle Counters

904.4.3 Check Writing Surfaces. Where provided, check writing surfaces shall comply with Section 902.4.

904.5 Food Service Lines. Counters in food service lines shall comply with Section 904.5.

904.5.1 Self-Service Shelves and Dispensing Devices. Self-service shelves and dispensing devices for tableware, dishware, condiments, food and beverages shall comply with Section 308.

904.5.2 Tray Slides. The tops of tray slides shall be 28 inches (710 mm) minimum and 34 inches (865 mm) maximum above the floor.

904.6 Security Glazing. Where counters or teller windows have security glazing to separate personnel from the public, a method to facilitate voice communication shall be provided. Telephone handset devices, if provided, shall comply with Section 704.3.

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DICKEY'S BARBECUE PIT est. 1941

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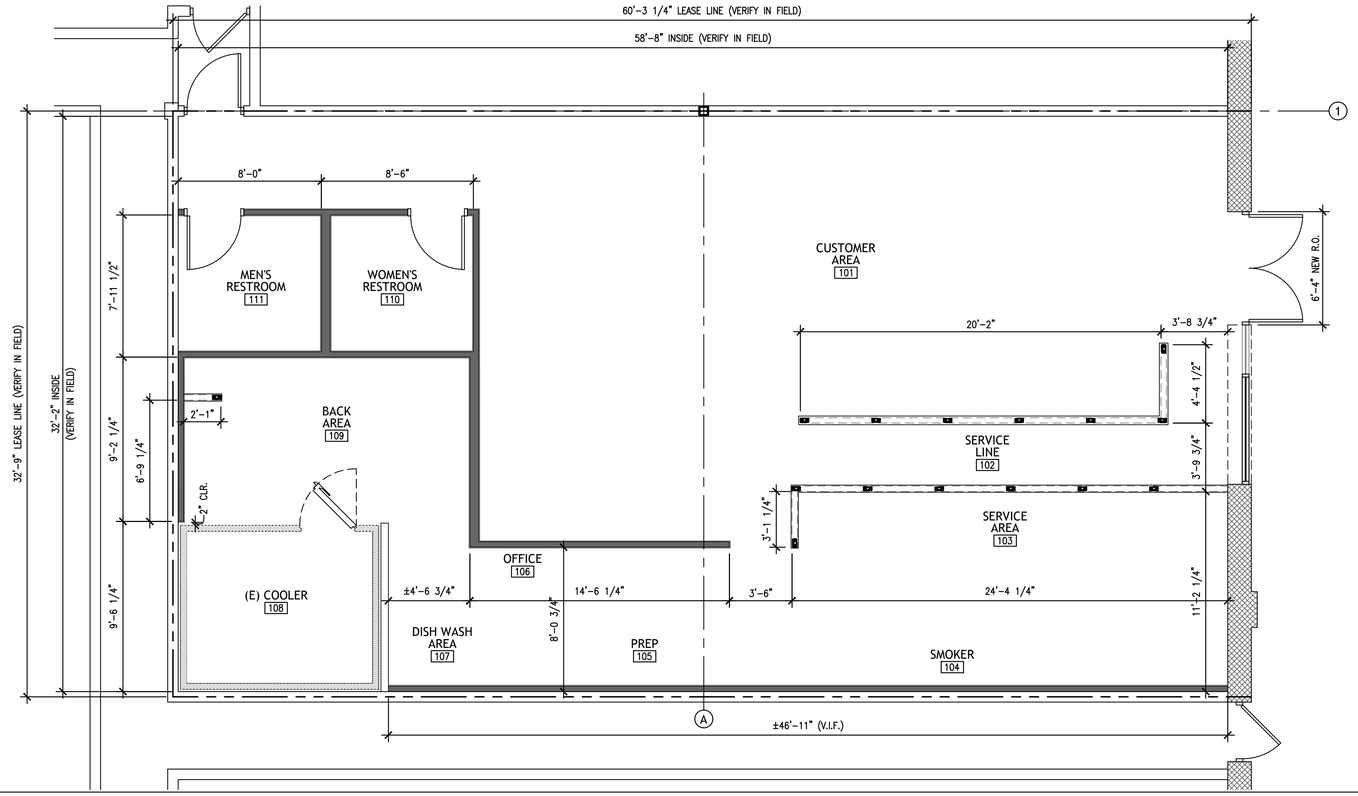
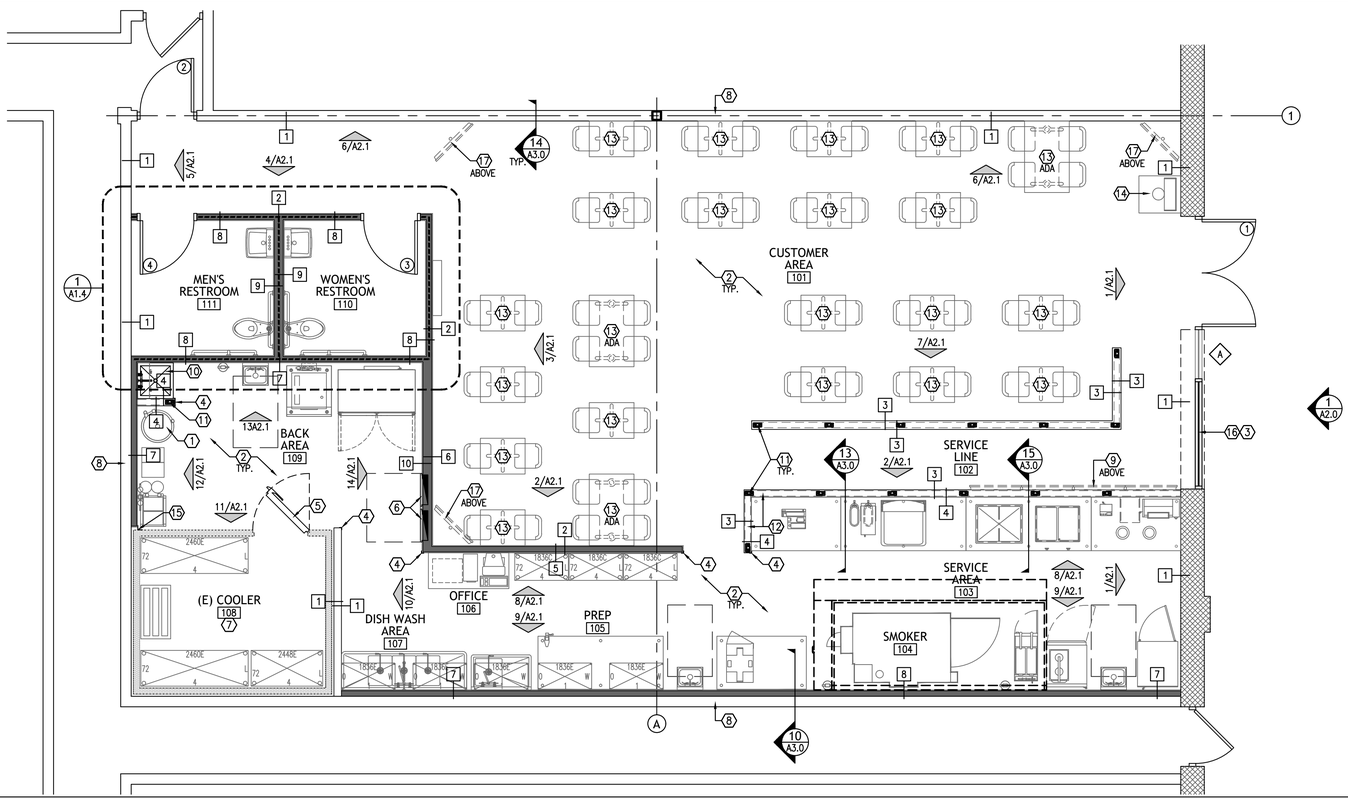


DIMENSIONED FLOOR PLAN 1

1/4"=1'-0"



NOTED FLOOR PLAN 2

1/4"=1'-0"

GENERAL NOTES

1	ALL DIMENSIONS ARE SHOWN TO FACE OF STUD OR FACE OF BLOCK WALL UNLESS NOTES OTHERWISE.
2	REFER TO WALL TYPE SCHEDULE FOR ALL NEW WALLS.
3	REFER TO FINISH SCHEDULE AND DETAILS FOR APPLIED FINISHES.
4	WALLS TO STRUCTURAL DECK MUST BE THOROUGHLY SEALED AROUND PENETRATIONS.
5	PLYWOOD BLOCKING SHALL BE IN INSTALLED FOR ALL WALLS HAVING EQUIPMENT SHELVES, REFER TO KITCHEN DRAWINGS.
6	REFER TO FLOOR FINISH PLAN AND INTERIOR ELEVATIONS FOR WALL FINISHES
7	REFER TO WALL SECTIONS FOR PLACEMENT OF WATERPROOFING AT ALL WALLS WITH CEMENTITIOUS BACKER BOARD.
8	PROVIDE WOOD BLOCKING AT ALL HUNG EQUIPMENT AND RESTROOM.
9	G.C. SHALL FIELD VERIFY THE EXACT EXISTING SPACE CONDITIONS, DIMENSIONS, AND COLUMN SPACING PRIOR TO CONSTRUCTION AND INFORM ARCHITECT IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND BETWEEN DRAWINGS AND SITE CONDITIONS. ANY CHANGES OR REWORK DUE TO UNREPORTED DIFFERENCES SHALL BE AT G.C.'S EXPENSE.
10	REFER TO FINISH SCHEDULE AND DETAILS FOR APPLIED FINISHES.
11	REFER TO PLUMBING PLANS FOR ALL FLOOR DRAINS, FLOOR SINKS AND TRENCH DRAINS LOCATIONS.

KEY NOTES:

1	NEW WATER HEATER, REFER TO PLUMBING SHEETS.
2	REFER TO K SHEETS FOR EQUIPMENT PLAN AND SCHEDULE.
3	EXISTING STOREFRONT SYSTEM TO REMAIN.
4	STAINLESS STEEL CORNER GUARD OR END CAP, REFER TO DETAIL 4/A3.0
5	EXISTING COOLER DOOR. G.C. TO VERIFY PROPER WORKING ORDER.
6	NEW ELECTRICAL PANEL(S), REFER TO ELECTRICAL SHEETS.
7	EXISTING WALK-IN COOLER, G.C. TO VERIFY PROPER WORKING ORDER.
8	EXISTING DEMISING WALL TO REMAIN.
9	OWNER FURNISHED DIGITAL MENU BOARDS. MOUNTS FURNISHED AND INSTALLED BY VENDOR. G.C. TO COORDINATE REQUIREMENTS FOR BLOCKING. REFER TO K SHEETS AND DETAIL 11/A3.0.
10	NEW MOP SINK, REFER TO PLUMBING SHEETS.
11	HALF WALL SUPPORT, REFER TO DETAIL 3/A3.0.
12	FRONT COUNTER WITH OWNER FURNISHED ROLLED METAL PANELS TO FACE OF COUNTER BY G.C.
13	FURNITURE. REFER TO K SHEETS.
14	TRASH RECEPTACLE. REFER TO K SHEETS.
15	STAINLESS STEEL CLOSURE AT COOLER.
16	NEW STOREFRONT SYSTEM TO MATCH EXISTING. REFER TO SHEET A4.0.
17	POLE MOUNTED 40" TELEVISION, REFER TO DETAIL 8/A.0 AND ELECTRICAL SHEETS.

WALL LEGEND

- EXISTING WALL(S) TO REMAIN
- EXISTING CMU WALL(S) TO REMAIN
- NEW 3-5/8" OR 6" METAL WALLS TO 6" ABOVE CEILING @ 16" O.C. SECURE TO FLOOR PER DETAIL 16/A3.0. ATTACH TO EXISTING STRUCTURE ABOVE PER DETAIL 17/A3.0.
- NEW WALLS WITH SOUND BATT INSULATION.
- NEW PARTIAL HEIGHT WALLS W/ 3-5/8" METAL STUDS AT 16" O.C.. SECURE TO FLOOR PER DETAIL 16/A3.0.
- EXISTING COOLER WALL(S) TO REMAIN.

WALL TYPE SCHEDULE

	MATERIALS	1	2	3	4	5	6	7	8	9	10
FRAMING	3 5/8 METAL (25 GA. FOR FULL WALL)		●					●	●		
	3 5/8 METAL LOW WALL (20 GA.)			●	●						
	6" METAL (25 GA. FOR FULL WALL)						●			●	●
	6" METAL LOW WALL (20 GA.)										
	EXISTING WALL	●									
SHEATHING	5/8" GYPSUM BOARD		●				●				
	5/8" MOISTURE RESISTANT GYPSUM BOARD				●			●	●	●	●
	5/8" DUROCK TO 12" A.F.F.				●			●	●	●	●
	1/2" PLYWOOD			●							
COMPONENTS	WATERPROOF MEMBRANE TO 48" A.F.F. (KITCHEN SIDE ONLY)				●			●			●
	WATER PROOF MEMBRANE AT 12" A.F.F.								●	●	
	STRUCTURAL TUBE BRACING AT LOW WALL			●	●						
	FIBERGLASS REINFORCEMENT PANEL				●			●	●	●	●
	STAINLESS STEEL PANEL								●		

NOTE: G.C. TO PROVIDE 5/8" PLYWOOD BACKING AS DIRECTED BY OWNER IN PLACE OF 5/8" GYPSUM BOARD.
REFER TO DETAILS 16/A3.0 AND 17/A3.0 FOR WALL CONNECTIONS.

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03/16/22

DICKEY'S BARBEQUE PIT

FRANDOR SHOPPING CENTER

300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

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DIMENSIONED AND NOTED FLOOR PLAN

SHEET NUMBER:

A1.0

ID54 PROJECT NUMBER:

DBQ21015

FINISH LEGEND (FOR REF. ONLY)

TAG	MANUF.	DESCRIPTION	LOCATION	COLOR	FINISH	REMARKS
WAINSCOT AND WALLS						
P-1	SHERWIN WILLIAMS	SW6285- TRICORN BLACK	CUSTOMER AREA, INTERIOR DOORS & FRAMES	TRICORN BLACK	LATEX- ACRYLIC SEMI-GLOSS FINISH, 3 COATS	
P-2	BEHR PREMIUM	ULTRA PURE WHITE #2450	KITCHEN SIDE DOORS & FRAMES	ULTRA PURE WHITE	LATEX- ACRYLIC SEMI-GLOSS FINISH, 3 COATS	
WP-1	STANFORD SONOMA	RECLAIMED WOOD SLATS	CUSTOMER AREA,	RECLAIMED WOOD SLATS		ALL DINING ROOM WALLS, LOW WALLS & HALLWAY WALLS
WP-2	STANFORD SONOMA	ROLLED METAL PANEL AND DECORATIVE TRIM, ATTACH #6 METAL FINISH SCREWS	SERVICE LINE			G.C. TO INSTALL, VENDOR PROVIDED
WP-3	STAINLESS STEEL VENDOR	STAINLESS STEEL PANEL	SMOKER	STAINLESS STEEL	SMOOTH	REFER TO PLANS FOR LOCATION
FRP	MARLITE (OR APPROVED EQUAL)	4'x10' FIBERGLASS REINFORCED PANEL	KITCHEN WALLS & KITCHEN SIDE OF PARTIAL HEIGHT WALLS	P-100 WHITE 4'x10' FIBERGLASS REINFORCED PANEL	PEBBLE	CONTRACTOR TO PROVIDE ALL NECESSARY AND/OR REQUIRED TRIM AND ACCESSORIES
GRAPHICS	FURNISHED BY OWNER	GRAPHIC WALLPAPER	CUSTOMER AREA	FURNISHED BY OWNER	FURNISHED BY OWNER	FIELD VERIFY MEASUREMENTS BEFORE ORDERING
MISC.						
CT-1	WOOD TOP	STANFORD SANOMA	HALF WALL			VERIFY WITH DICKEY'S CM.

NOTES

1. G.C. MUST VERIFY ALL FINISHES WITH TENANT PRIOR TO ORDERING AND INSTALLATION.
2. FRP & CEILING TILE SUPPLIED AND INSTALLED BY G.C.

FINISH LEGEND (FOR REF. ONLY)

TAG	MANUF.	DESCRIPTION	LOCATION	COLOR	FINISH	REMARKS
FLOOR						
F-1	MOHAWK GROUP	6"x48" TILE PLANK RESILIENT FLOORING	CUSTOMER AREA	MESQUITE ETCHWOORKS C0064, 12MIL COLOR: REALIST 258	RESILIENT TILE, SLIP RESISTANT	
F-2	DALTILE PAVERS	6" QUARRY TILE, GROUT: MAPEI ULTRAFLEX 2, #47 CHARCOAL	KITCHEN	RED QQ84	SMOOTH FINISH	
F-3	LATICRETE - HP SPARTACOTE	1/8" EPOXY FLOOR	KITCHEN & COOLER FLOOR	#46 QUARRY RED	SPARTA-GRIP TRACTION ADDITIVE	
BASE						
B-1	DALTILE PAVERS	6" QUARRY TILE, GROUT: MAPEI ULTRAFLEX 2, #47 CHARCOAL	KITCHEN	RED QQ84	SMOOTH FINISH	
B-2	STANFORD SONOMA	2"x6" WOOD BASE	ALL CUSTOMER AREA WALLS	WOOD BASE	2"x6" WOOD BASE PAINTED BLACK	2 COATS OF CABOT BROWN MAHOGANY STAIN AND 1 COAT OF CLEAR FINISH STAIN
B-3	DALTILE	4 1/4"x12 3/4" COVE BASE	RESTROOM	0190A34C1MOD1 P2 COVE BASE	ARCTIC WHITE 0190	
B-4	LATICRETE - HP SPARTACOTE	1/8" EPOXY INTEGRATED COVE BASE	KITCHEN & COOLER FLOOR	#46 QUARRY RED	SPARTA-GRIP TRACTION ADDITIVE	PREPARE FLOOR AS REQUIRED PER MANUFACTURERS SPECIFICATIONS
CEILING						
C-1	USG OR APPROVED EQUAL	GYP. BD, 2x2 NON-PERFORATED LAY-IN WITH HEAVY DUTY 'T' BAR GRID	CUSTOMER AREA, CORRIDOR	FLAT BACK (205) 2'X2' FISSURED	15/16" GRID: DONN HEAVY DUTY DX/DXL FLAT BLACK	REFER TO DETAIL 9/A3.0
C-2	USG OR APPROVED EQUAL	VINYL CLAD, GYP. BD, 2x4 NON-PERFORATED LAY-IN WITH HEAVY DUTY 'T' BAR GRID	KITCHEN, SERVICE AREA & RESTROOMS	3270 CLEAN ROOM CLIMAPLUS, WHITE (50)	15/16" GRID: DONN HEAVY DUTY DX/DXL FLAT WHITE	SMOOTH AND WASHABLE. REFER TO DETAIL 9/A3.0
C-3	USG OR APPROVED EQUAL	5/8" TYPE "X" GYPSUM BOARD CEILING	SOFFITS	REFER TO RCP	P-2	

GENERAL NOTES

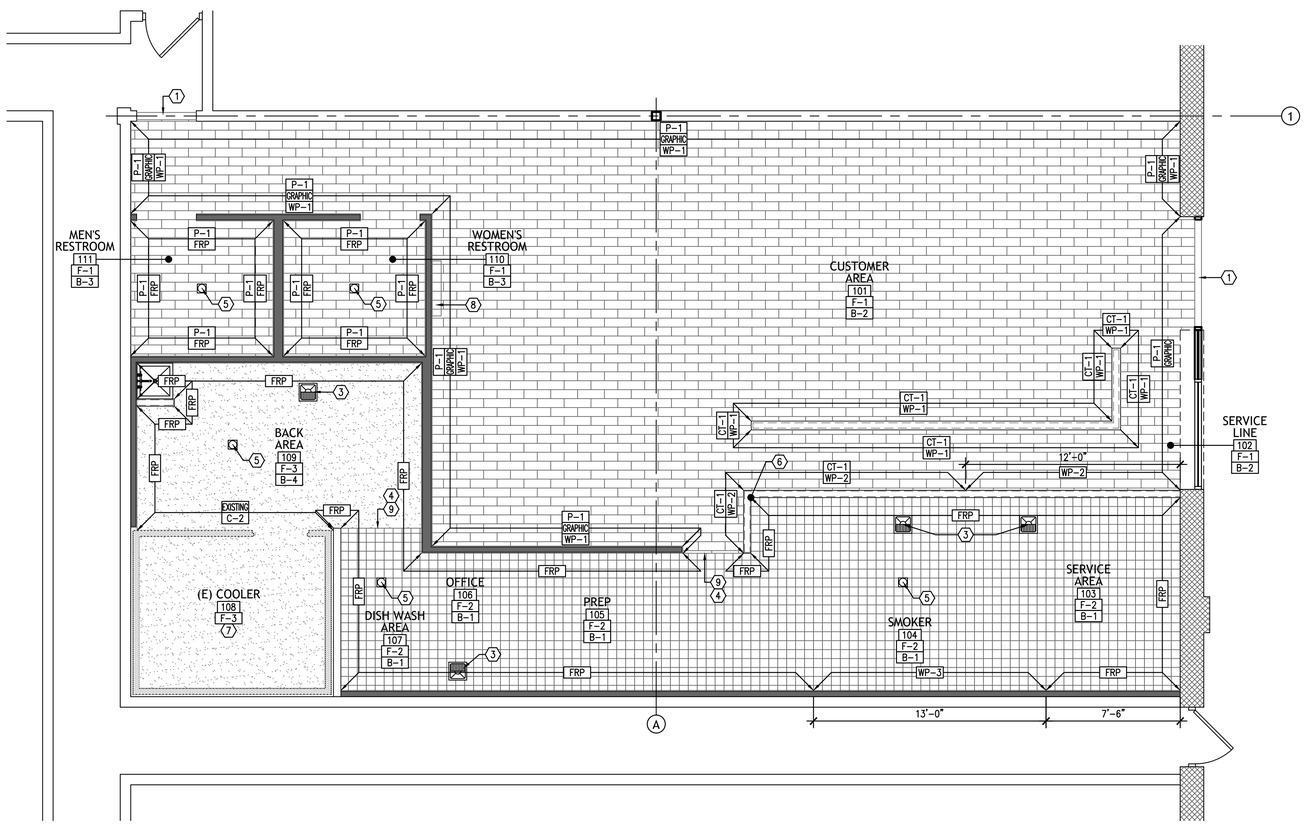
1. REFER TO FLOOR FINISH PLAN
2. REFER TO WALL SECTIONS FOR PLACEMENT OF WATERPROOFING AT ALL WALLS WITH CEMENTITIOUS BACKER BOARD.
3. PROVIDE WOOD BLOCKING AT ALL HUNG EQUIPMENT AND RESTROOM.
4. REFER TO FINISH SCHEDULE AND DETAILS FOR APPLIED FINISHES.
5. REFER TO KITCHEN PLANS FOR ALL FLOOR DRAINS/FLOOR SINKS/TRENCH DRAINS LOCATIONS.
6. ALL RECESSED FIXTURE TRIMS TO BE PAINTED TO MATCH ADJACENT CEILING.
7. ALL SURFACE MOUNTED EMERGENCY FIXTURES TO BE PAINTED TO MATCH ADJACENT CEILING.
8. ALL A/C GRILLS, SPEAKERS, ETC. TO BE PAINTED TO MATCH ADJACENT CEILING.

KEY NOTES:

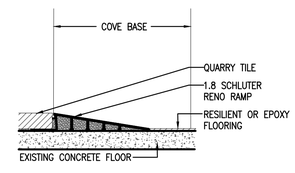
1. ALUMINUM THRESHOLD, REFER TO DETAIL 5/A3.0.
2. MOP SINK, REFER TO PLUMBING SHEETS.
3. FLOOR SINK, REFER TO DETAIL 1/A3.0 AND PLUMBING SHEETS.
4. LINE OF FLOOR CHANGE.
5. FLOOR DRAIN, REFER TO PLUMBING SHEETS.
6. STARTING POINT OF FLOOR.
7. PREFABRICATED WALK-IN COOLER BY VENDOR.
8. LETTER "D" INTERIOR LIGHTED SIGN. REFER TO DETAIL 12/A3.0 AND ELECTRICAL SHEETS..
9. TRANSITION STRIP. REFER TO DETAIL 2/A1.1.

FLOOR FINISH LEGEND

	4"x48" TILE PLANK RESILIENT FLOORING (F-1)
	6" QUARRY TILE (F-2)
	EPOXY FLOORING (F-3)



FLOOR FINISH PLAN 1/4"=1'-0" | 1



FLOOR TRANSITION DETAIL 6"=1'-0" | 2

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FLOOR FINISH PLAN AND SCHEDULES

SHEET NUMBER:

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DBQ21015

FURNISHING NOTES	
1.	HEIGHT OF TABLES AND COUNTERS SHALL BE 28" MINIMUM–34" MAXIMUM
2.	MANEUVERING CLEARANCE SHALL BE 30"X48"
3.	KNEE CLEARANCE SHALL BE 27" HIGH, 19" DEEP AND 30" WIDE

CLEAR FLOOR EXIT SPACE

EXIT PATH

KEY NOTES	
1	OCCUPANCY LOAD SIGN, VERIFY LOCATION WITH FIRE MARSHALL PRIOR TO INSTALL.
2	TACTILE "EXIT ROUTE" SIGN, VERIFY LOCATION WITH FIRE MARSHALL PRIOR TO INSTALL.
3	ADDRESS NUMBER SHALL BE MINIMUM OF 6 INCHES (152.4 MM) HIGH WITH A MINIMUM STROKE WIDTH 0.5 INCH (12.7 MM).
4	5'–0" TURNING RADIUS

BUILDING DATA			
LEASE AREA	2442	SQ. FT.	
SEATING COUNT			
2 TOPS TABLES x	19	=	38
4 TOPS TABLES x	3	=	12
TOTAL DINING:			50
H.C. SEATING REQUIRED			
50	X .05	=	3 SPACES REQ'D

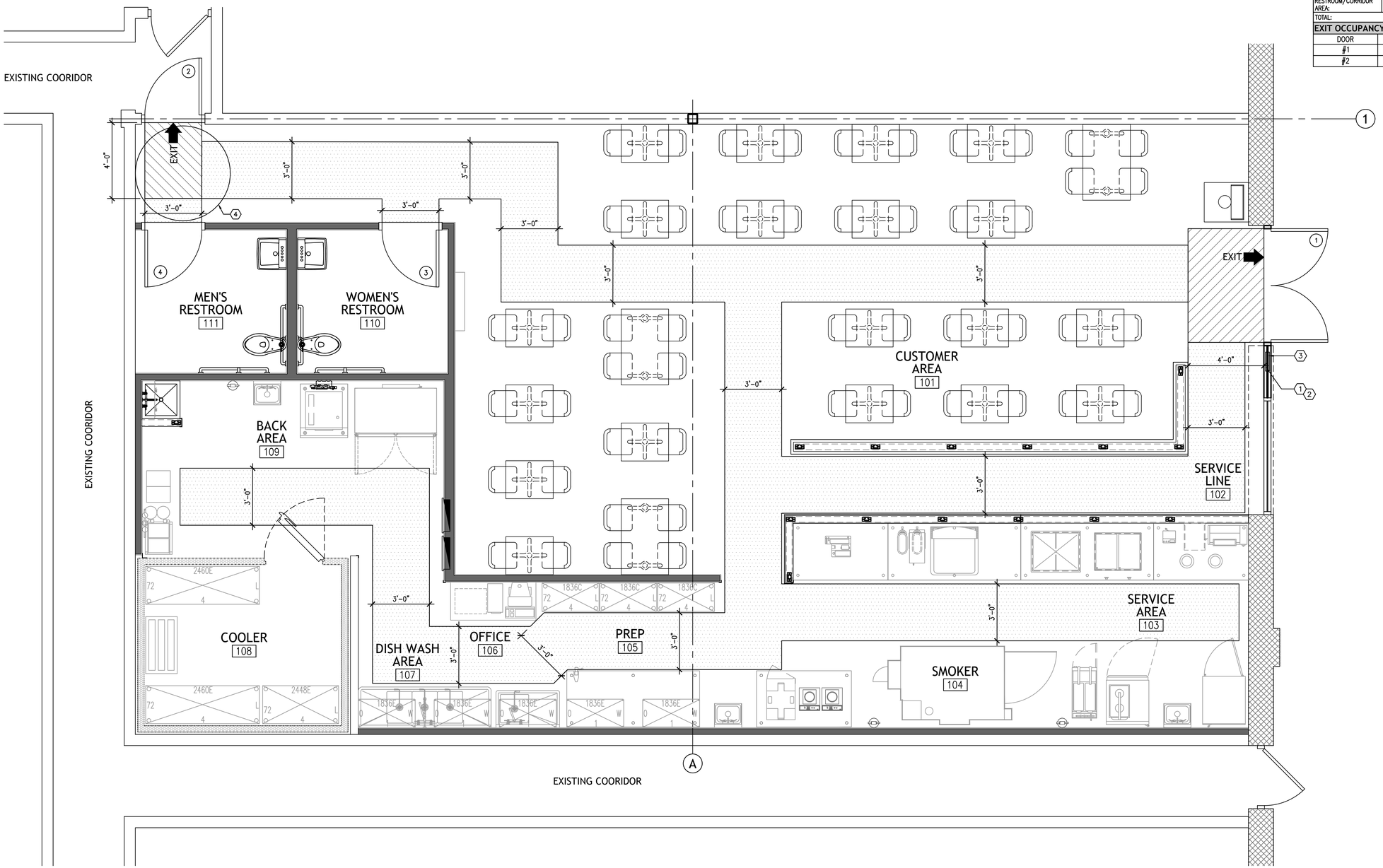
EGRESS LAYOUT NOTES	
1	TACTILE EXIT SIGNS SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS.
A)	EACH GRADE LEVEL EXTERIOR DOOR SHALL BE IDENTIFIED BY A TACTILE EXIT WITH THE WORD "EXIT"
B)	EACH EXIT, EXIT ACCESS DOOR FROM AN INTERIOR ROOM OR AREA TO A CORRIDOR OR HALLWAY THAT IS REQUIRED TO HAVE A VISUAL EXIT SIGN, SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS, "EXIT ROUTE"

EGRESS CALCULATION		
REQUIRED (79 X .2)	16	IN.
PROVIDED	96	IN.

OCCUPANCY LOAD CALCULATION

USE	SQUARE FOOTAGE	OCCUPANT LOAD FACTOR	OCCUPANCY AMOUNT
CUSTOMER AREA:	800	15	53
SERVICE LINE:	106	5	21
SERVICE AREA:	145	100	2
STORAGE/PREP AREA:	445	200	3
WALK–IN COOLER:	105	0	0
RESTROOM/CORRIDOR AREA:	210	0	0
TOTAL:			79

EXIT OCCUPANCY LOADS		
DOOR	EGRESS WIDTH	OCCUPANCY LOAD
#1	60 IN.	53
#2	36 IN.	26



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SHEET TITLE:

EGRESS FLOOR PLAN

SHEET NUMBER:

A1.2

IDS4 PROJECT NUMBER:

DBQ21015

EGRESS FLOOR PLAN
3/8"=1'-0"

1

FINISH LEGEND (FOR REF. ONLY)

TAG	MANUF.	DESCRIPTION	LOCATION	COLOR	FINISH	REMARKS
B-3	DALTILE	4 1/4"x12 3/4" COVE BASE	RESTROOM	0190A34C1MOD1 P2 COVE BASE	ARCTIC WHITE 0190	
B-4	LATICRETE – HP SPARTACOTE	1/8" EPOXY INTEGRATED COVE BASE	KITCHEN & COOLER FLOOR	#46 QUARRY RED	SPARTA-GRIP TRACTION ADDITIVE	PREPARE FLOOR AS REQUIRED PER MANUFACTURERS SPECIFICATIONS
CEILING						
C-1	USG OR APPROVED EQUAL	GYP. BD, 2x2 NON-PERFORATED LAY-IN WITH HEAVY DUTY 'T' BAR GRID	CUSTOMER AREA, CORRIDOR	FLAT BACK (205) 2'X2' FISSURED	15/16" GRID: DONN HEAVY DUTY DX/DXL FLAT BLACK	REFER TO DETAIL 9/A3.0
C-2	USG OR APPROVED EQUAL	VINYL CLAD, GYP. BD, 2x4 NON-PERFORATED LAY-IN WITH HEAVY DUTY 'T' BAR GRID	KITCHEN, SERVICE AREA & RESTROOMS	3270 CLEAN ROOM CLIMAPLUS, WHITE (50)	15/16" GRID: DONN HEAVY DUTY DX/DXL FLAT WHITE	SMOOTH AND WASHABLE. REFER TO DETAIL 9/A3.0
C-3	USG OR APPROVED EQUAL	5/8" TYPE "X" GYPSUM BOARD CEILING	SOFFITS	REFER TO RCP	P-2	
WAINSCOT AND WALLS						
P-1	SHERWIN WILLIAMS	SW6285- TRICORN BLACK	CUSTOMER AREA, INTERIOR DOORS & FRAMES	TRICORN BLACK	LATEX- ACRYLIC SEMI-GLOSS FINISH, 3 COATS	
P-2	BEHR PREMIUM	ULTRA PURE WHITE #2450	KITCHEN SIDE DOORS & FRAMES	ULTRA PURE WHITE	LATEX- ACRYLIC SEMI-GLOSS FINISH, 3 COATS	

GENERAL NOTES

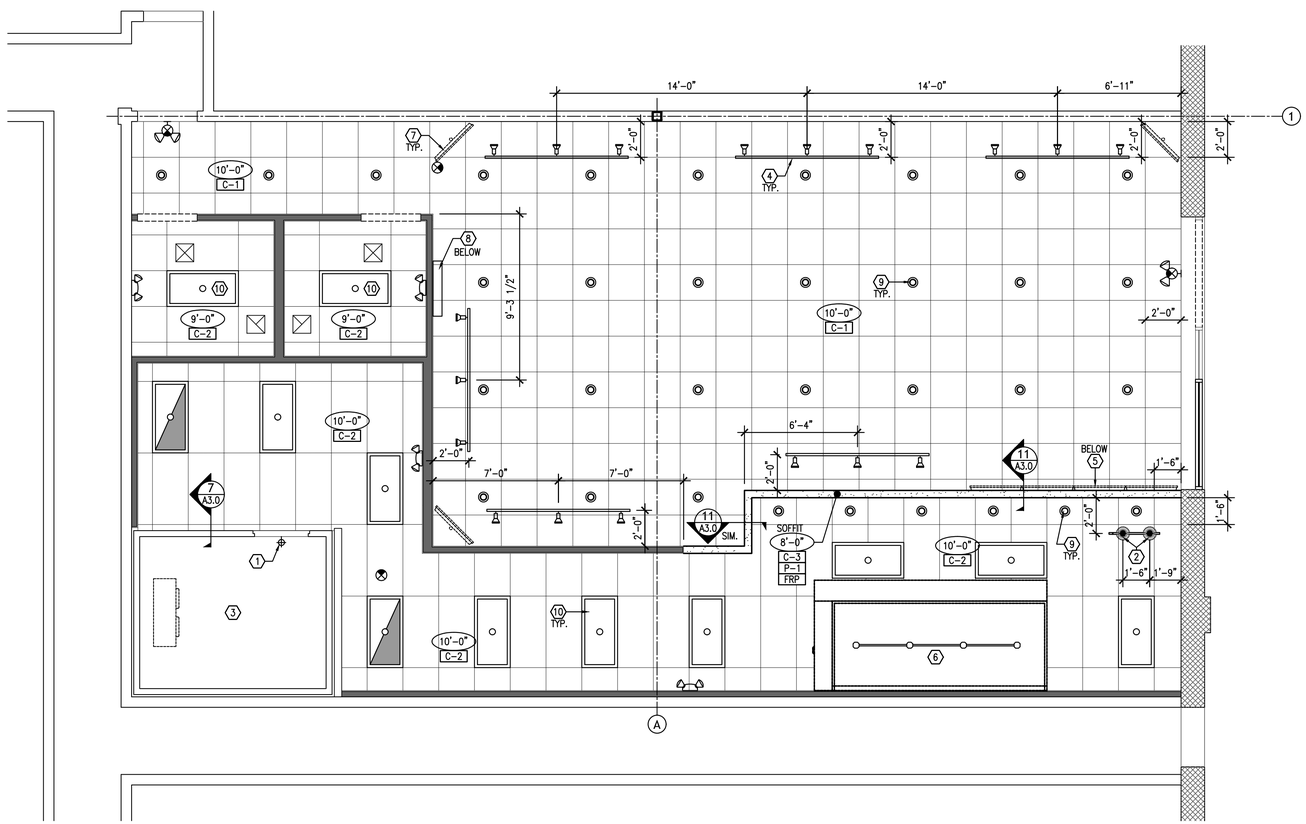
1. ALL RECESSED FIXTURE TRIMS TO BE PAINTED TO MATCH ADJACENT CEILING.
2. ALL SURFACE MOUNTED EMERGENCY FIXTURES TO BE PAINTED TO MATCH ADJACENT CEILING.
3. ALL A/C GRILLS, SPEAKERS, ETC. TO BE PAINTED TO MATCH ADJACENT CEILING.
4. GENERAL CONTRACTOR SHALL LOCATE ALL EXISTING POST-TENSIONING STRANDS IN EITHER DIRECTION PRIOR TO INSTALL OF ANCHORS. IT IS IMPERATIVE THAT NO STRANDS BE DAMAGED BY THE USE OF ANCHORS. PENETRATION OF ANCHORS INTO SLAB SHALL NOT EXCEED 1 1/2".
5. REFER TO ELECTRICAL FOR ALL LIGHT FIXTURES.

KEY NOTES:

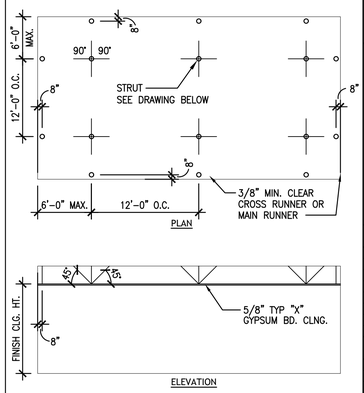
1. EXISTING LIGHT FIXTURE IN COOLER, REFER TO ELECTRICAL.
2. WARMING LIGHT, REFER TO SHEETS K1.0, K1.1 AND ELECTRICAL SHEETS, VERIFY HEIGHT WITH OWNER.
3. NO CEILING ABOVE COOLER.
4. NEW TRACK LIGHTS. REFER TO ELECTRICAL SHEETS.
5. MENU MONITOR BOARD (40" TV'S). REFER TO DETAIL 11/A3.0 AND ELECTRICAL SHEETS. MOUNTS PROVIDED AND INSTALLED BY VENDOR.
6. NEW MECHANICAL HOOD, REFER TO MECHANICAL SHEETS.
7. CEILING MOUNTED 40" TELEVISION, REFER TO DETAIL 8/A3.0 AND ELECTRICAL SHEETS. PROVIDED BY OWNER AND INSTALLED BY G.C.
8. DICKEY'S "D" SIGN BELOW. REFER TO DETAIL 12/A3.0 AND ELECTRICAL SHEETS. VERIFY LOCATION WITH OWNER.
9. RECESSED LIGHT FIXTURE CENTERED IN CEILING TILE, TYPICAL (U.N.O.).
10. NEW LIGHT FIXTURE. REFER TO ELECTRICAL SHEETS.

LIGHT FIXTURE LEGEND

	2x4 LED FIXTURE
	RECESSED CAN LIGHT
	8' TRACK LIGHT MOUNTED TO CEILING
	EXIT SIGN, REFER TO ELECTRICAL SHEETS
	EMERGENCY LIGHT, REFER TO ELECTRICAL SHEETS
	EMERGENCY LIGHT AND SIGN COMBO, REFER TO ELECTRICAL SHEETS
	SUPPLY DIFFUSER, REFER TO MECHANICAL SHEETS
	RETURN GRILL, REFER TO MECHANICAL
	EXHAUST GRILL, REFER TO MECHANICAL SHEETS
	TELEVISION/MENU BOARD



REFLECTED CEILING PLAN 1/4"=1'-0" | 1



SUSPENDED CEILING NOTES:

(ALL HANGERS TO BE #8 GALV. WIRE AT 2'-0" O.C. IF CEILING SYSTEMS ARE NOTE CONNECTED TO PARTITIONS)

A. PROVIDE LATERAL SUPPORT WITH NO.12 GA. WIRES SPLAYED IN 4 DIRECTIONS, 90° APART. CONNECT AT MAIN RUNNER WITH 2'-0" OF CROSSRUNNER AND TO STRUCTURE ABOVE AT ANGLE NOT TO EXCEED 45 DEGREES FROM PLANE OF CEILING. THESE LATERAL SUPPORTS TO BE 12'-0" O.C. WITH FIRST POINT 4'-0" FROM EACH WALL

B. ALLOWANCE TO BE PROVIDE FOR LATERAL MOVEMENT OF SYSTEM. MAIN AND CROSS RUNNERS MAYBE ATTACHED TO ADJACENT WALLS WITH CLEARANCE BETWEEN WALL AND RUNNER AT REMAINING 2 WALLS. LIGHT FIXTURES RECESSED NOT OVER 56 LBS. AND PENDANT NOT OVER 20 LBS. MAY BE POSITIVELY ATTACHED TO CEILING SYSTEM RUNNERS WITH SCREWS OR BOLTS

AIR DIFFUSERS NOT OVER 20 LBS. MAY BE POSITIVELY ATTACHED TO CEILING SYSTEM RUNNERS WITH SCREWS OR BOLTS

C. AIR DIFFUSERS NOT OVER 30 LBS. RECEIVING NO EXTRA LOAD FROM DUCTWORK MAY BE POSITIVELY ATTACHED TO CEILING WITH SCREWS OR BOLTS. LIGHTING FIXTURES, FURNISH AND INSTALL COMPLETE WITH LAMPS BALLASTS AND REQUIRED MOUNTING HARDWARE. PRIOR TO ORDERING FIXTURES, VERIFY MOUNTING METHODS AND FINISHES. ALL FLOURESCENT FIXTURES MOUNTED IN "T-BAR" CEILINGS TO BE INDEPENDENTLY SUSPENDED WITH 2 #10 STEEL WIRES DIAGONALLY. INSTALLATIONS IN FIRE-RATED AREAS TO BEDONE ACCORDING TO CODE

D. CONTRACTOR TO PROVIDE COMPRESSION UNIT STRUT AT 12" O.C.

TYPICAL, SUSPENDED CEILING DIAGRAMS 1/8"=1'-0" | 2

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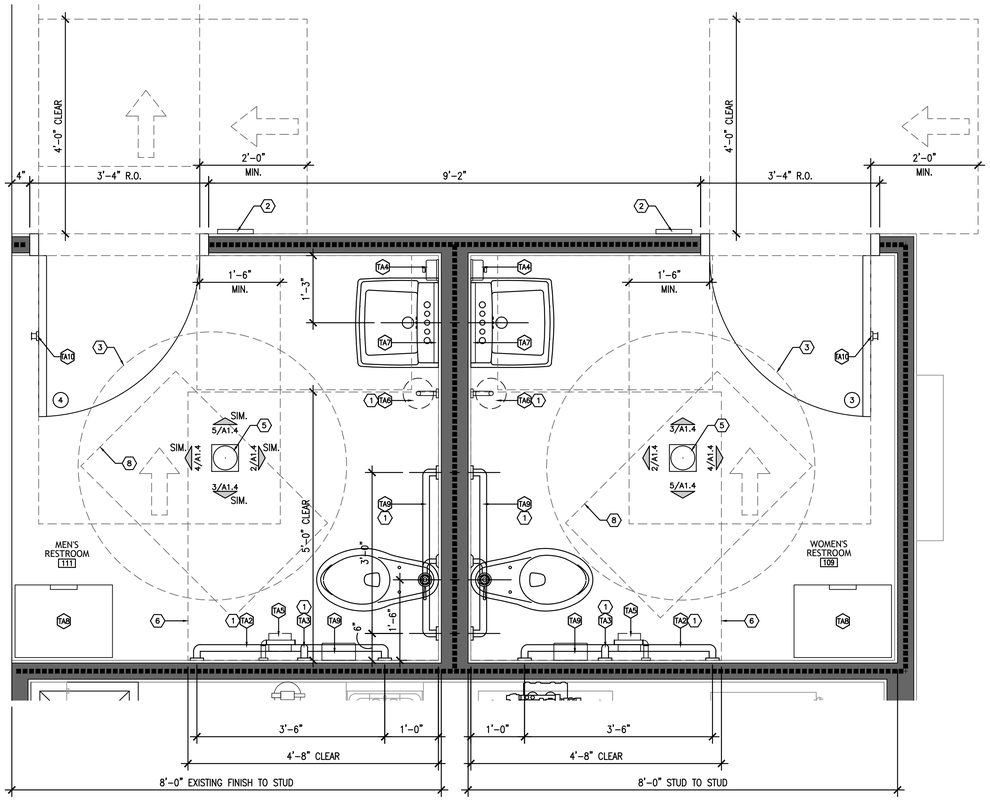
IDS4 PROJECT NUMBER:

DBQ21015



**NOTE: ALL FIXTURE AND CLEAR DIMENSIONS ARE FROM FINISH FACE U.N.O.

ENLARGED RESTROOM PLAN 1
1"=1'-0"

GENERAL NOTES

1	ALL DIMENSIONS ARE SHOWN TO FACE OF STUD UNLESS NOTED OTHERWISE.
2	REFER TO FINISH SCHEDULE A1.1 AND DETAILS FOR APPLIED FINISHES.
3	PROVIDE SOLID WOOD BLOCKING IN WALL SPACE TO ENSURE ALL FIXTURES AND ACCESSORY SECURELY FASTENED.
4	REFERENCE A0.2 AND A0.3 FOR ALL MOUNTING HEIGHTS, AS PER ADA REQUIREMENTS.
5	PAPER TOWEL AND SOAP DISPENSERS INSTALLED BY CONTRACTOR.

KEY NOTES

1	PROVIDE BLOCKING FOR ALL WALL MOUNTED EQUIPMENT/SHELVES, REFER TO 6/A1.4.
2	INTERNATIONAL SYMBOL OF ACCESSIBILITY SIGN, REFER TO A0.3.
3	5'-0" DIA. CLEAR FLOOR SPACE.
4	WRAP INSULATE DRAIN PIPING
5	FLOOR DRAIN, REFER TO PLUMBING.
6	60" X 56" CLEAR FLOOR PER ADA CLEARANCE SPACE.
7	1x4 WOOD CHAMFERED TRIM, RE: 7/A1.4.
8	30" X 48" CLEAR FLOOR SPACE.

TOILET ACCESSORY SCHEDULE

TAG	ITEM	DESCRIPTION
TA1	REAR GRAB BAR	BOBRICK, MODEL: B5806.99, 42" LONG, 1 1/2" DIA. STAINLESS STEEL CONCEALED
TA2	SIDE GRAB BAR	BOBRICK, MODEL: B5806.99, 36" LONG, 1 1/2" DIA. STAINLESS STEEL CONCEALED
TA3	VERTICAL GRAB BAR	BOBRICK, MODEL: B5806.99, 18" LONG, 1 1/2" DIA. STAINLESS STEEL CONCEALED
TA4	LIQUID SOAP DISPENSER	KIMBERLEY CLARK, MODEL: 92145, BLACK
TA5	TOILET PAPER HOLDER	STANFORD SONOMA, MODEL: CUSTOM, BLACK IRON
TA6	PAPER TOWEL HOLDER	STANFORD SONOMA, MODEL: CUSTOM, BLACK IRON
TA7	MIRROR	BRADLEY, MODEL: 780-1836, WALL MOUNT, STAINLESS STEEL FRAME
TA8	TRASH RECEPTACLE	BOBRICK, MODEL: B-43644, RECESSED
TA9	SAN NAPKIN DISPOSAL	BOBRICK, MODEL: B-270, SURFACE MOUNTED
TA10	COAT HOOK	BOBRICK, MODEL: B-76717, STAINLESS STEEL, HEAVY DUTY

(SEE SHEET A2.0 FOR MOUNTING HEIGHTS)

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4514 COLE AVENUE, SUITE 1100
DALLAS, TEXAS 75205
972.248.9899

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03/16/22

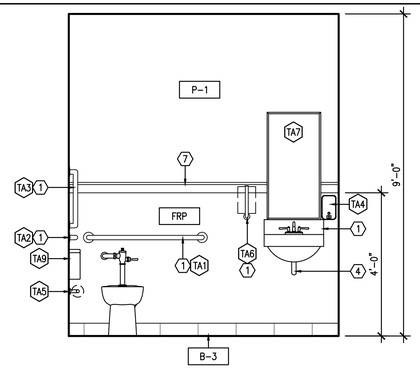
DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

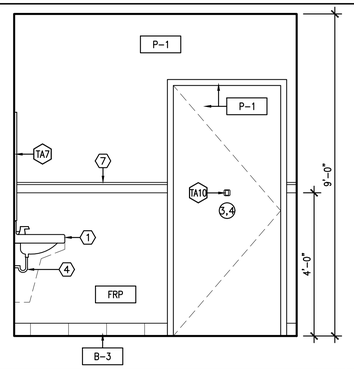
DICKEY'S BARBECUE PIT est. 1941

MI-2077

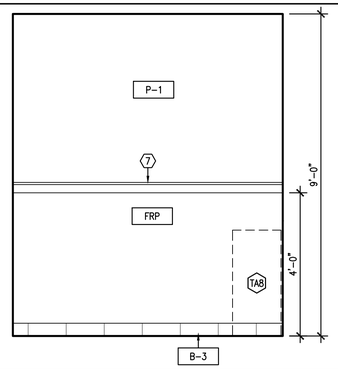
DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE



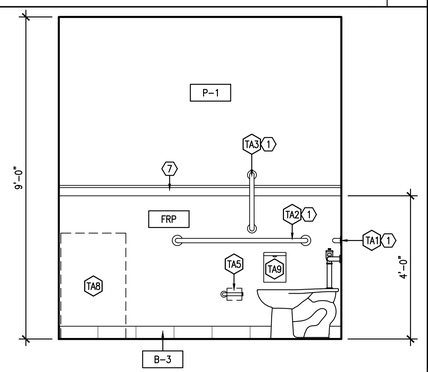
ELEVATION 2
1/2"=1'-0"



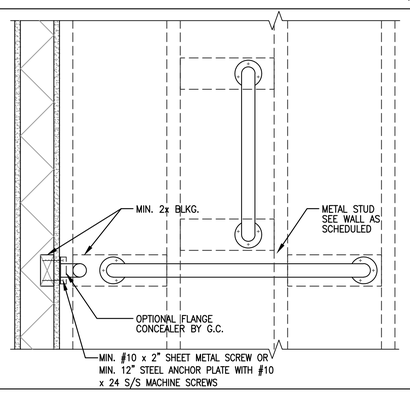
ELEVATION 3
1/2"=1'-0"



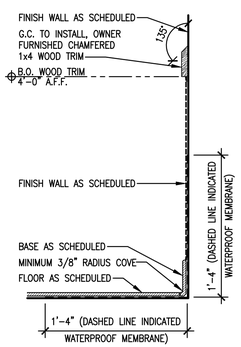
ELEVATION 4
1/2"=1'-0"



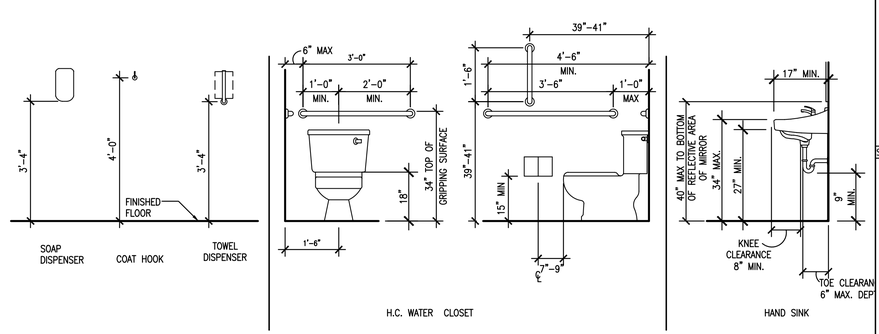
ELEVATION 5
1/2"=1'-0"



GRAB BAR BLOCKING DETAIL, TYPICAL 6
1 1/2"=1'-0"

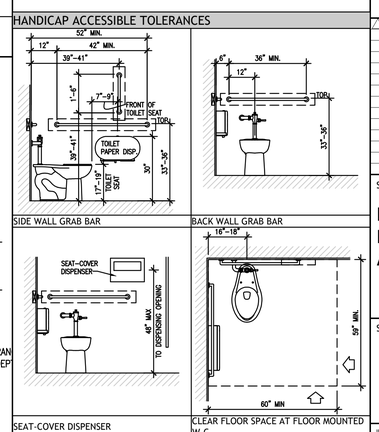


WAINSCOT DETAIL 7
1 1/2"=1'-0"



ADA REQUIREMENTS 8
1/2"=1'-0"

HANDICAP ACCESSIBLE TOLERANCES



NOTES:
1. DIMENSIONS SHOWN HERE ARE FROM FACE OF WALL OR FLOOR FINISH.
2. DIMENSIONS SHOWN ON RESTROOM INTERIOR ELEVATIONS TAKE PRIORITY.

	DATE	DESCRIPTION

SHEET TITLE:

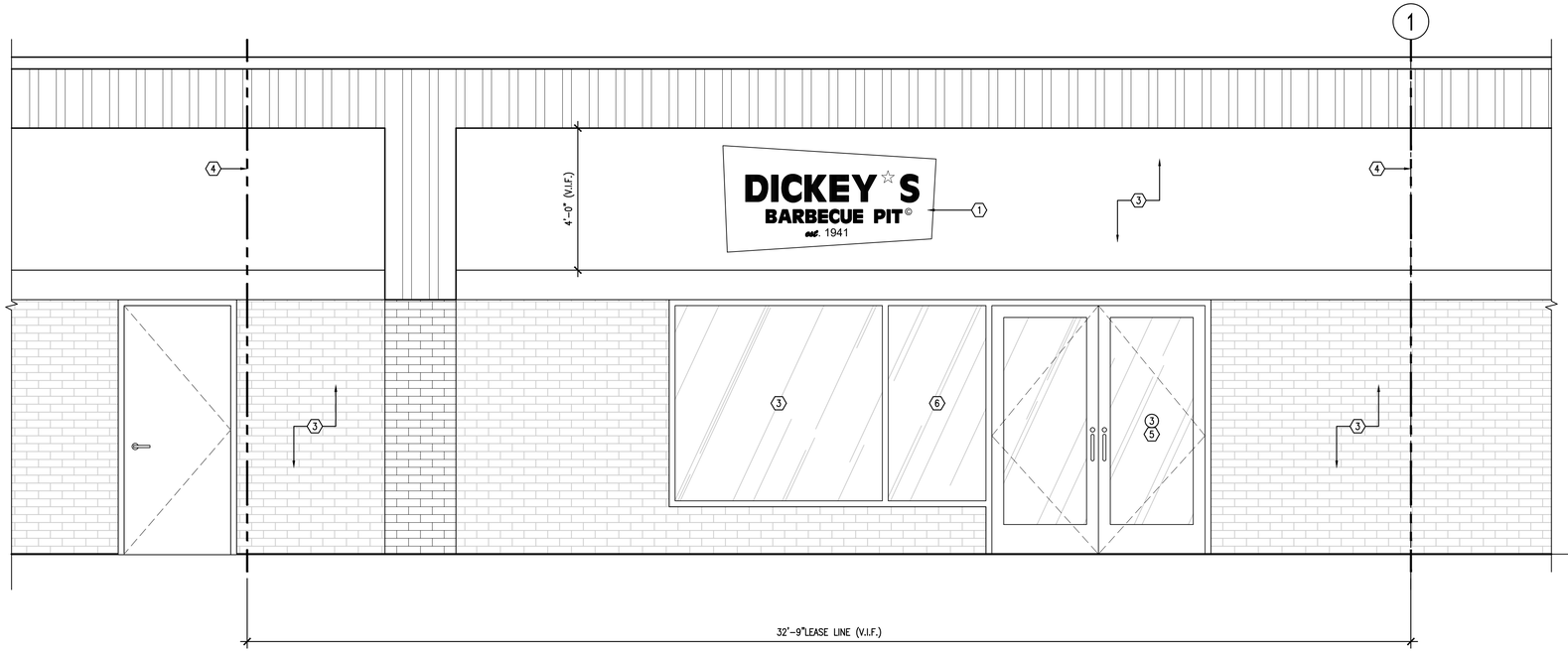
ENLARGED RESTROOM PLAN AND ELEVATIONS

SHEET NUMBER:

A1.4

ID54 PROJECT NUMBER:

DBQ21015



EXTERIOR ELEVATION
1/2"=1'-0"
1

	KEY NOTES:
1	NEW SIGNAGE SHOWN FOR REFERENCE ONLY. FINAL SIZE AND LOCATION TO BE DESIGNED BY SIGN VENDOR AND SUBMITTED TO DICKEY'S, LANDLORD AND CITY UNDER SEPARATE PERMIT. DIMENSIONS SHOW ARE FOR BIDDING PURPOSES ONLY. FINAL DIMENSIONS WILL NEED TO BE VERIFIED IN FIELD.
2	EXISTING STOREFRONT GLAZING SYSTEM TO REMAIN. G.C. TO HAVE GLAZING PROFESSIONALLY CLEANED PRIOR TO TURNOVER, TYPICAL.
3	EXISTING EXTERIOR FINISHES TO REMAIN, G.C. TO PATCH AND REPAINT ANY HOLES OR OLD PATCHES NOT DONE TO BASE BUILDING STANDARD, TYPICAL. COORDINATE WITH LANDLORD.
4	LEASE LINE.
5	NEW STOREFRONT DOORS AND GLAZING SYSTEM TO MATCH EXISTING STOREFRONT.
6	NEW STOREFRONT GLAZING SYSTEM TO MATCH EXISITNG.

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XX/XX/22	PERMIT ISSUE

	DATE	DESCRIPTION

SHEET TITLE:

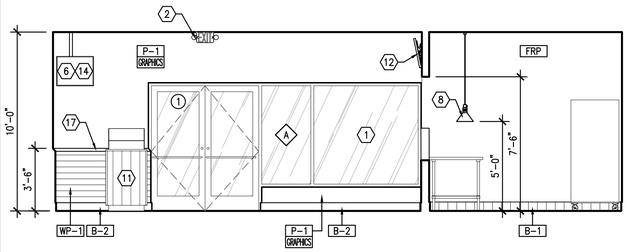
EXTERIOR ELEVATIONS

SHEET NUMBER:

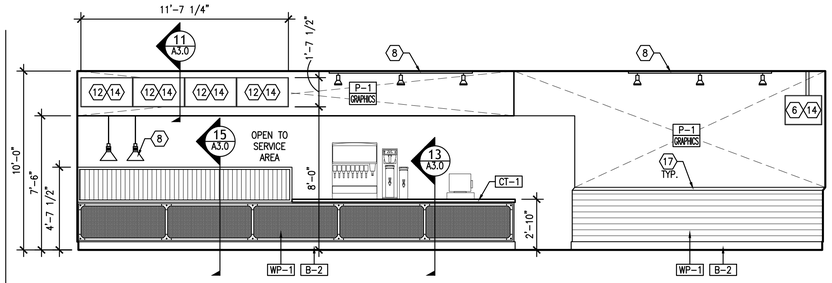
A2.0

ID54 PROJECT NUMBER:

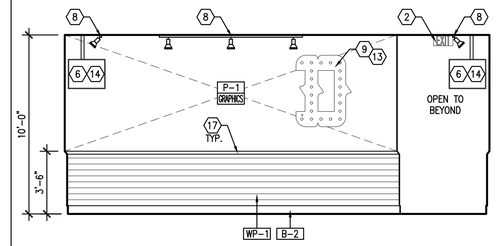
DBQ21015



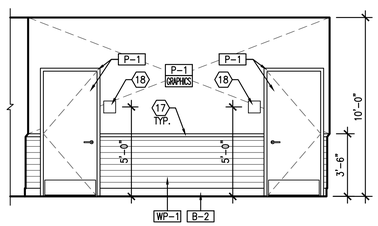
ELEVATION 1/4"=1'-0" 1



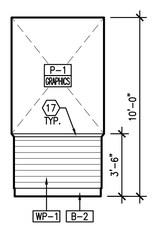
ELEVATION 1/4"=1'-0" 2



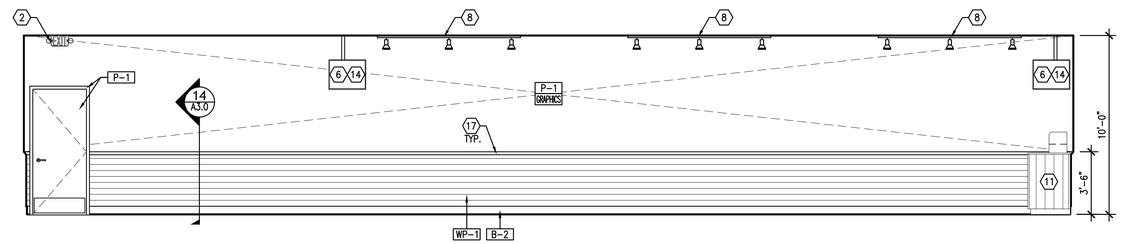
ELEVATION 1/4"=1'-0" 3



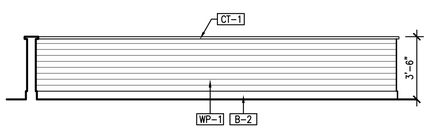
ELEVATION 1/4"=1'-0" 4



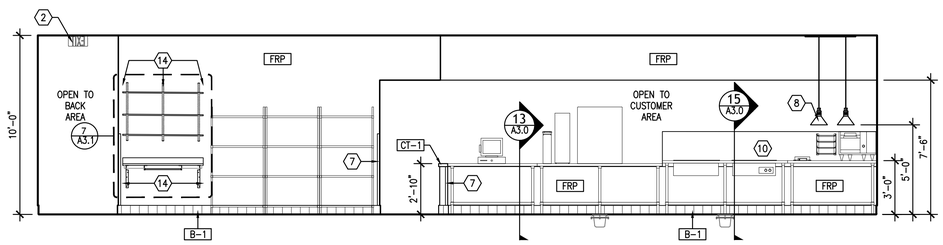
ELEVATION 1/4"=1'-0" 5



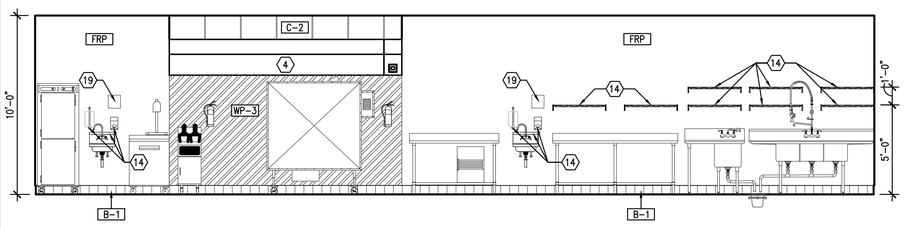
ELEVATION 1/4"=1'-0" 6



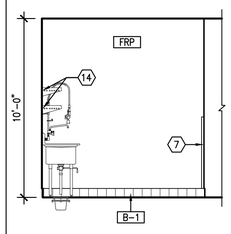
ELEVATION 1/4"=1'-0" 7



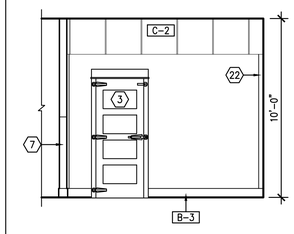
ELEVATION 1/4"=1'-0" 8



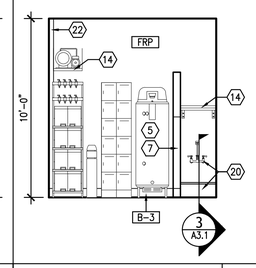
ELEVATION 1/4"=1'-0" 9



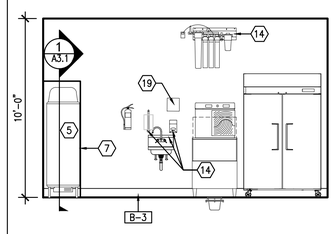
ELEVATION 1/4"=1'-0" 10



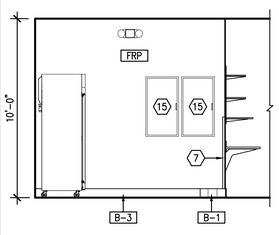
ELEVATION 1/4"=1'-0" 11



ELEVATION 1/4"=1'-0" 12



ELEVATION 1/4"=1'-0" 13



ELEVATION 1/4"=1'-0" 14

⟨1⟩	KEY NOTES:
1	EXISTING STOREFRONT DOORS FRAMES AND GLAZING TO REMAIN.
2	EXIT SIGN. REFER TO ELECTRICAL SHEETS
3	WALK-IN COOLER, N.I.C.
4	MECHANICAL HOOD, REFER TO MECHANICAL SHEETS
5	NEW WATER HEATER, REFER TO PLUMBING SHEETS.
6	NEW WALL 55" MOUNTED TELEVISION, REFER TO ELECTRICAL SHEETS.
7	STAINLESS STEEL CORNER GUARD OR END CAP, REFER TO DETAIL 4/A3.0.
8	LIGHT FIXTURES, REFER TO ELECTRICAL SHEETS.
9	DECORATIVE "D" SIGN, REFER TO DETAIL 12/A3.0 AND ELECTRICAL SHEETS.
10	STAINLESS STEEL BACKSPLASH.
11	TRASH CAN, REFER TO SHEETS K1.0 AND K1.1.
12	(4) 40" DIGITAL MENU BOARD. MOUNT PROVIDED AND INSTALLED BY VENDOR. TV'S PROVIDED BY OWNER. REFER TO SHEETS K1.0, K1.1 AND DETAIL 11/A3.0.
13	ELECTRICAL OUTLET. REFER TO ELECTRICAL.
14	PROVIDE FRT BLOCKING FOR ALL MOUNTED EQUIPMENT OR SHELVES.
15	ELECTRICAL PANELS, REFER TO ELECTRICAL SHEETS.
16	NEW HOLLOW METAL DOOR.
17	G.C. TO INSTALL CHAMFERED WOOD TRIM AT WAINSCOT. REFER TO DETAIL 14/A3.0.
18	NEW TACTILE SIGN. REFER TO SHEET A0.2.
19	EMPLOYEE HAND WASHING SIGN BY OWNER.
20	NEW MOP SINK AND FAUCET, REFER TO PLUMBING SHEETS.
21	LINE OF FINISH CHANGE.

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DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

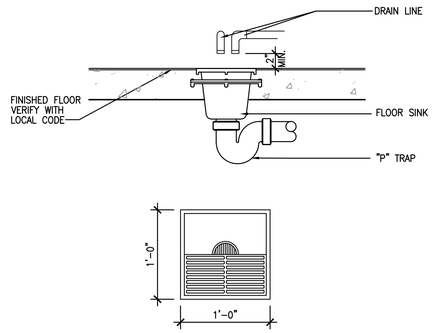
INTERIOR ELEVATIONS

SHEET NUMBER:

A2.1

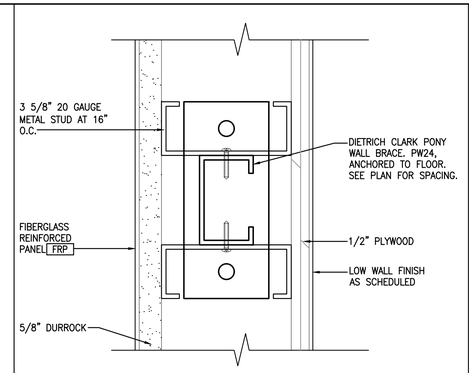
ID54 PROJECT NUMBER:

DBQ21015

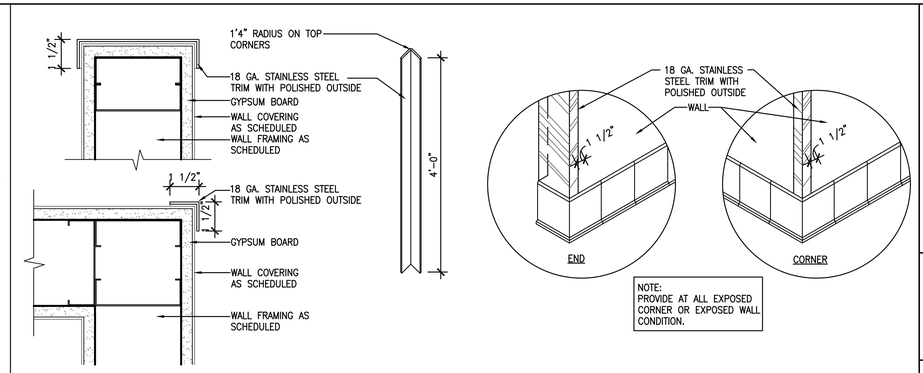


FLOOR SINK DETAIL 1
1"=1'-0"

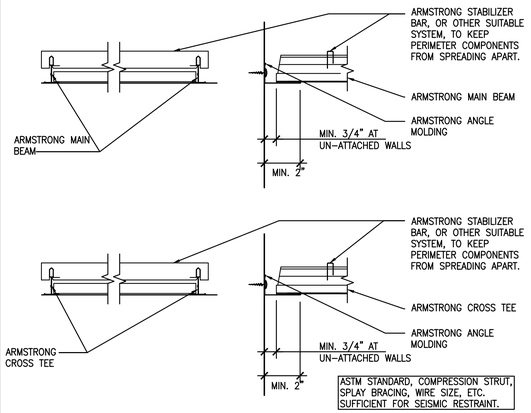
NOT USED 2



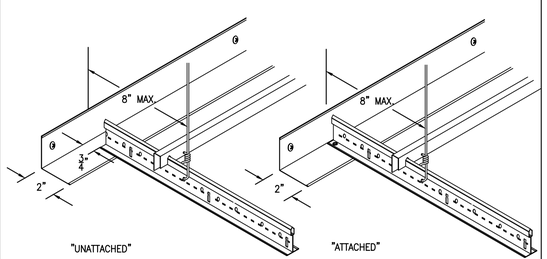
PARTIAL HEIGHT WALL SUPPORT DETAIL 3
6"=1'-0"



CORNER GUARD DETAILS 4
3"=1'-0"

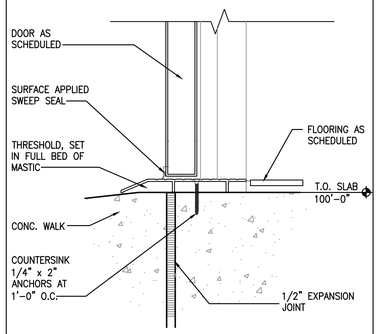


SIDE VIEW CATEGORY D, E & F DETAILS

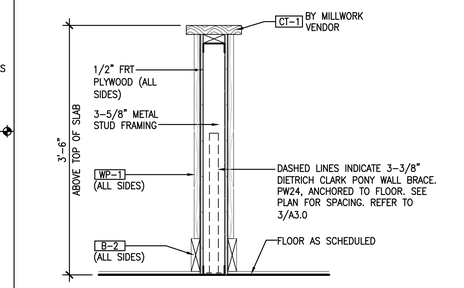


IBC CATEGORY "D" "E" "F" STANDARD

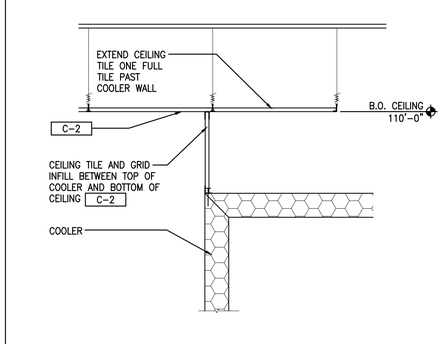
DETAIL 9
3"=1'-0"



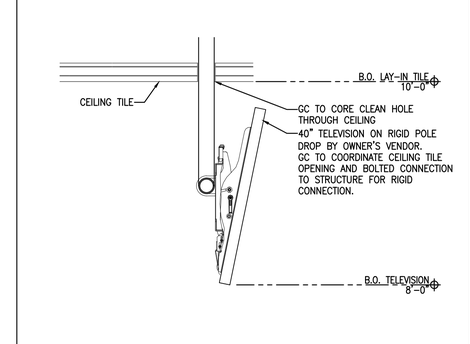
(EXISTING) ALUMN. THRESHOLD DETAIL 5
3"=1'-0"



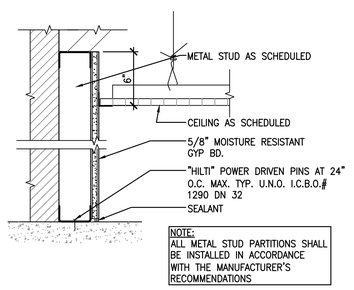
LOW WALL SECTION 6
1"=1'-0"



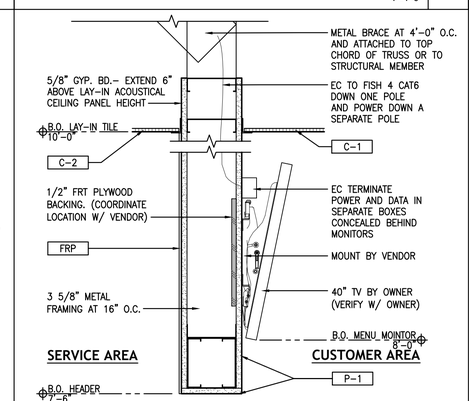
CEILING CLOSURE AT EXISTING COOLER 7
N.T.S.



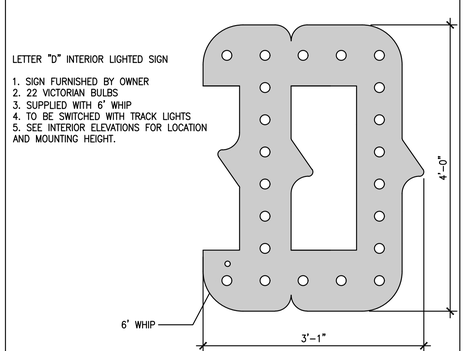
POLE MOUNTED TELEVISION DETAIL 8
1 1/2"=1'-0"



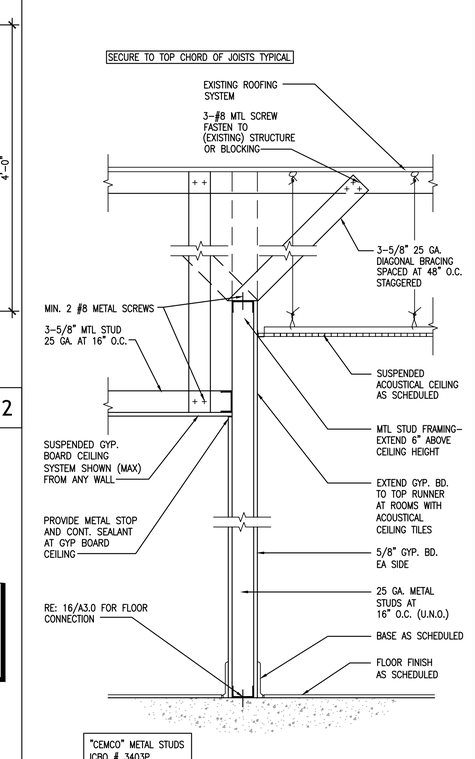
TYPICAL WALL FURRING DETAIL 10
1 1/2"=1'-0"



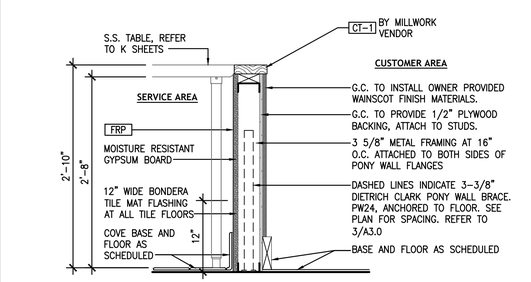
MENU BOARD DETAIL 11
1 1/2"=1'-0"



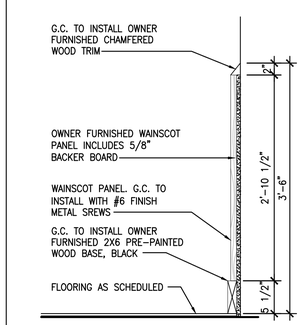
INTERIOR DECORATIVE SIGN 12
N.T.S.



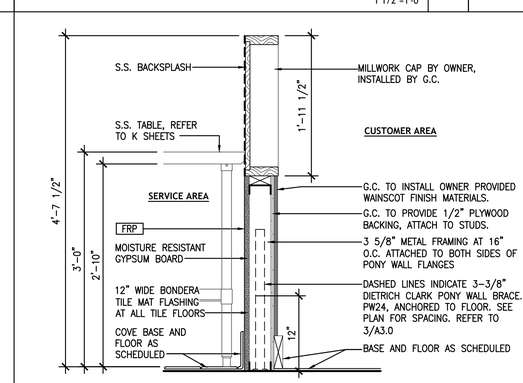
TYPICAL NON-BEARING WALL DETAIL 17
1"=1'-0"



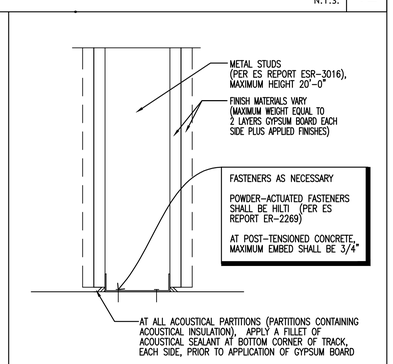
POS COUNTER DETAIL 13
1"=1'-0"



WAINSCOT DETAIL 14
1"=1'-0"



LOW WALL DETAIL 15
1"=1'-0"



PARTITION TO FLOOR CONNECTION 16
3"=1'-0"

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CORPORATE:
DICKEY'S BARBECUE RESTAURANT, INC.
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DALLAS, TEXAS 75205
972.248.9899

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03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

MI-2077

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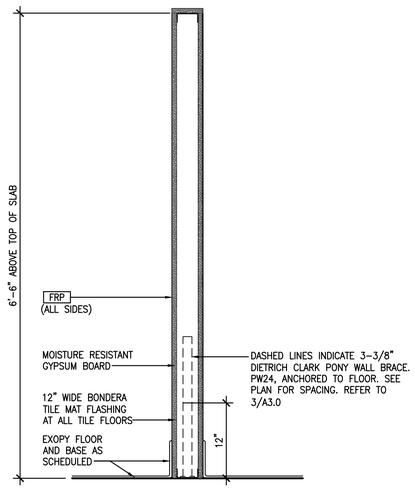
INTERIOR DETAILS

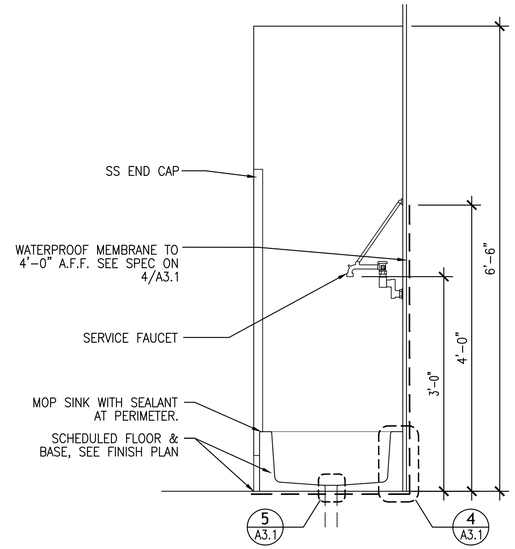
SHEET NUMBER:
A3.0

ID54 PROJECT NUMBER:
DBQ21015

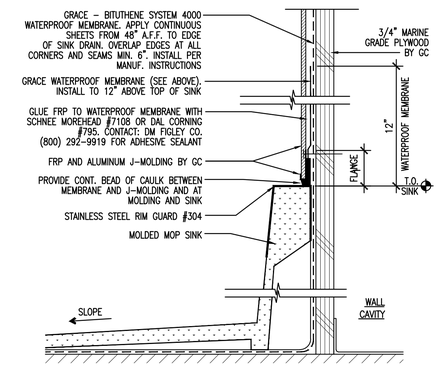


MOP SINK LOW WALL DETAIL 1
1"=1'-0"

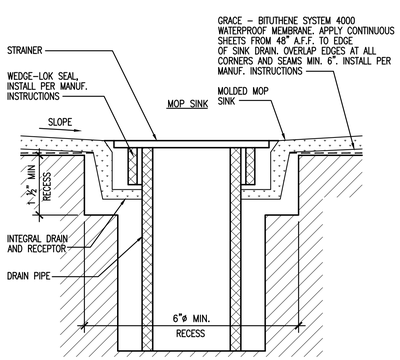
NOT USED 2



MOP SINK DETAIL 3
3/4"=1'-0"



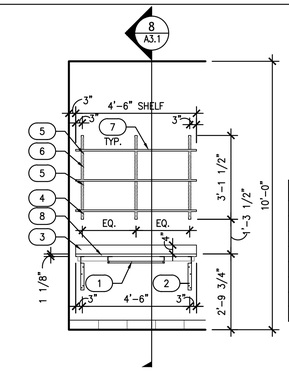
SECTION AT MOP SINK 4
6"=1'-0"



SECTION AT MOP SINK DRAIN 5
6"=1'-0"

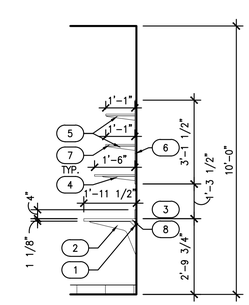
NOT USED 6

NOT USED 7



#	OFFICE DESK KEYED NOTES
1	KEYBOARD TRAY HDL #WWC400
2	SUPPORT BRACKET, HDL #AM1521W
3	3/4"x4" WHITE MELAMINE BACK SPLASH
4	DECORATIVE BRACKET, HDL #KV0182 WHITE - 14.5"
5	DECORATIVE BRACKET, HDL #KV0182 WHITE - 12.5"
6	DECORATIVE STANDARDS, HDL #KV0082 WHITE
7	WHITE MELAMINE SHELF
8	PLASTIC LAMINATE - WILSONART #1573-60 "WHITE"

OFFICE DESK ELEVATION 7
3/8"=1'-0"



#	OFFICE DESK KEYED NOTES
1	3/4"x2" WHITE MELAMINE WALL CLEAT
2	SUPPORT BRACKET, HDL #AM1521W
3	3/4"x4" WHITE MELAMINE BACK SPLASH
4	DECORATIVE BRACKET, HDL #KV0182 WHITE - 14.5"
5	DECORATIVE BRACKET, HDL #KV0182 WHITE - 12.5"
6	DECORATIVE STANDARDS, HDL #KV0082 WHITE
7	WHITE MELAMINE SHELF
8	PLASTIC LAMINATE - WILSONART #1573-60 "WHITE"

OFFICE DESK SECTION 8
3/8"=1'-0"

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FRANDOR SHOPPING CENTER

300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

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SHEET TITLE:

INTERIOR DETAILS

SHEET NUMBER:

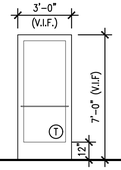
A3.1

IDS4 PROJECT NUMBER:

DBQ21015

REMARKS:
1. EXISTING STOREFRONT FRAME
2. PLACE SIGN OVER DOOR STATING, "THIS DOOR TO REMAIN UNLOCKED WHILE THE BUILDING IS OCCUPIED."

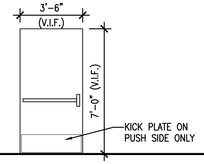
(T) =TEMPERED GLASS



DOOR #1	
EX	STOREFRONT DOOR AND FRAME
HARDWARE - DOOR #1	
EX	HARDWARE

EXISTING STOREFRONT DOOR ELEVATION 1
1/4"=1'-0"

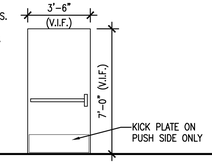
REMARKS:
1. WELDED DOOR FRAME FOR ALL EXTERIOR DOORS.
2. FIELD VERIFY R.O. BEFORE ORDERING DOOR.



DOOR #2		
1 3/4" HOLLOW METAL DOOR WITH HOLLOW METAL FRAME		
HARDWARE - DOOR #2		
3	CONT. HINGE,	HAGER – 780–112HD DKB 83"
1	PANIC	VON DUPRIN – 99NL 313AN 42"
1	CLOSER	LCN – P4041–H
1	THRESHOLD	NGP – 327DKB–42"
1	WEATHERSTRIP	KA – SEAL PAIR BULB
1	GASKETING	NGP – 100BDKB
1	EXIT ALARM	DETEX – EAX500 – BLACK
1	MORTISE CYLINDER	SCHLAGE – 20–001 C KEYWAY

NEW REAR DOOR ELEVATION 3
1/4"=1'-0"

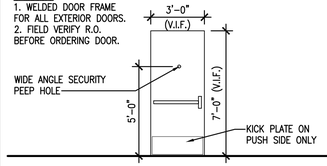
REMARKS:
1. WELDED DOOR FRAME FOR ALL EXTERIOR DOORS.
2. FIELD VERIFY R.O. BEFORE ORDERING DOOR.



DOOR #2		
1 3/4" HOLLOW METAL DOOR WITH HOLLOW METAL FRAME		
HARDWARE - DOOR #2		
3	CONT. HINGE,	HAGER – 780–112HD DKB 83"
1	PANIC	VON DUPRIN – 99NL 313AN 42"
1	CLOSER	LCN – P4041–H
1	THRESHOLD	NGP – 327DKB–42"
1	WEATHERSTRIP	KA – SEAL PAIR BULB
1	GASKETING	NGP – 100BDKB
1	EXIT ALARM	DETEX – EAX500 – BLACK
1	MORTISE CYLINDER	SCHLAGE – 20–001 C KEYWAY

NEW REAR DOOR ELEVATION 3
1/4"=1'-0"

REMARKS:
1. WELDED DOOR FRAME FOR ALL EXTERIOR DOORS.
2. FIELD VERIFY R.O. BEFORE ORDERING DOOR.

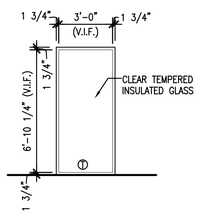


DOOR #3		
1 3/4" HOLLOW METAL DOOR WITH HOLLOW METAL FRAME		
HARDWARE - DOOR #3		
3	CONT. HINGE,	HAGER – 780–112HD DKB 83"
1	PANIC	VON DUPRIN – 99NL 313AN 36"
1	CLOSER	LCN – P4041–H
1	THRESHOLD	NGP – 327DKB–36"
1	WEATHERSTRIP	KA – SEAL PAIR BULB
1	GASKETING	NGP – 100BDKB 42"
1	DOOR SCOPE	DOOR SCOPE – DS/1000 – BLACK
1	EXIT ALARM	DETEX – EAX500 – BLACK
1	MORTISE CYLINDER	SCHLAGE – 20–001 C KEYWAY

NEW RESTROOM DOOR ELEVATION 4 5
1/4"=1'-0"

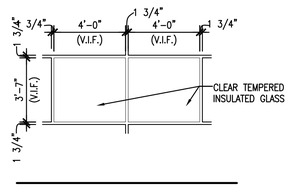
REMARKS:
1. FIELD VERIFY OPENING BEFORE ORDERING STOREFRONT.

(T) =TEMPERED GLASS



WINDOW ELEVATION A
1/4"=1'-0"

REMARKS:
1. FIELD VERIFY OPENING BEFORE ORDERING STOREFRONT.
2. EXISTING FRAMES



WINDOW ELEVATION B
1/4"=1'-0"

GENERAL NOTES

1. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR NEATLY CAULKING THE FOLLOWING LOCATIONS:
   - –ALL EXTERIOR WINDOWS TO INTERIOR WOOD TRIM.
   - –ALL WALLCOVERING TO WOOD TRIM TRANSITIONS.
   - –ALL CERAMIC TILE INSIDE CORNERS.
   - –ALL DOOR JAMBS TO CERAMIC TILE, WOOD TRIM OR WALLCOVERING
   - –ALL KITCHEN CEILING GRID TO F.R.P.
   - –ALL CERAMIC TILE BASE TOP GROUT JOINT.
   - –ALL RESTROOM ACCESSORIES TO WALL SURFACE.
   - –ALL WOOD TRIM TO WAINSCOT.
   - –ALL FIBERGLASS REINFORCEMENT PANEL STARTS ON TOP OF THE BASE TILE.

   *WHERE APPLICABLE, CAULK SHALL BE PAINTED TO MATCH ADJACENT TRIM.

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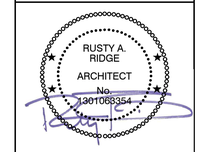

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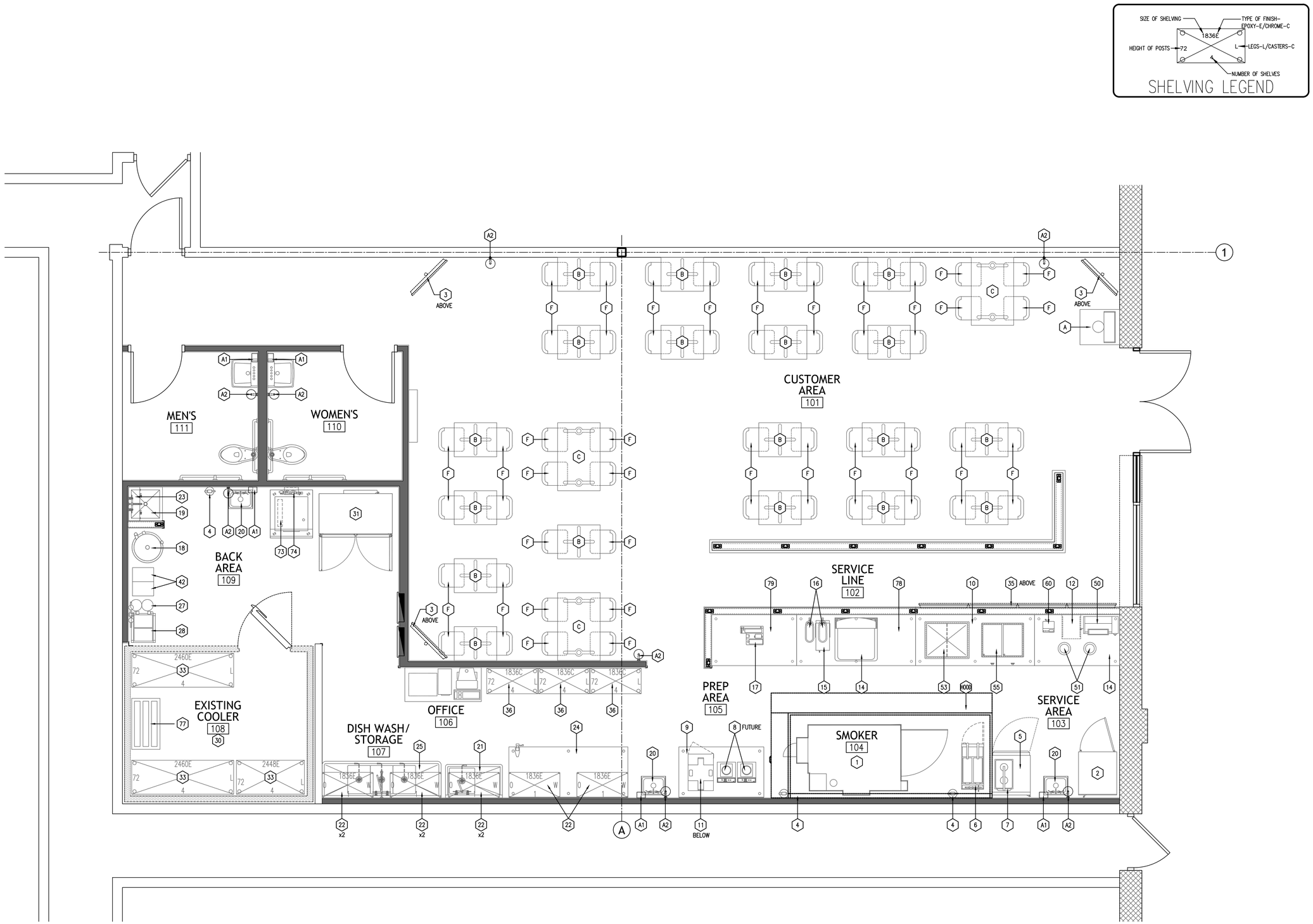
DOOR, WINDOW AND HARDWARE SCHEDULES

SHEET NUMBER:

A4.0

IDS4 PROJECT NUMBER:

DBQ21015



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SHEET TITLE:

EQUIPMENT PLAN

SHEET NUMBER:

K1.0

IDS4 PROJECT NUMBER:

DBQ21015

EQUIPMENT PLAN
3/8"=1'-0"

1

EQUIPMENT SCHEDULE

#	QTY.	ITEM NAME	MANUFACTURER	MODEL NO.	PLUMBING				ELECTRICAL					SUPPLIED BY	INSTALLED BY	NOTES
					CW	HW	DRAIN	GAS	VOLTS	PHASE	AMPS	HP	KW			
HOOD	1	MECHANICAL HOOD	ACCUREX											OWNER	GC	RE: MECHANICAL
1	1	SMOKER OVEN	COOKSHACK	FEC300					120		14.0		1.6	OWNER	GC	
	1	2 YEAR LIMITED WARRANTY												OWNER	GC	
	1	CLEANING KIT		SK045										OWNER	GC	
2	1	MOBILE HEATED CABINET	FOOD WARMING EQUIP. COMP., INC.	PHTT-12DB					120	1	18.3			OWNER	GC	
3	3	40" POLE MOUNTED TELEVISION	TBD	TBD										OWNER	GC	
4	3	FIRE EXTINGUISHER	10 LB B.C.	PER CODE										GC	GC	
5	1	UNDERCOUNTER FREEZER	ATOSA USA, INC.	MGF8405GR					115	1	1.8	1/5		OWNER	GC	
6	1	GAS FLOOR FRYER	ATOSA USA, INC.	ATFS-40				3/4"						OWNER	GC	
7	1	FRENCH FRY WARMER	HATCO	GRFFB-120-QS					120	1	6.3			OWNER	GC	
8	2	(FUTURE) COUNTERTOP INDUCTION RANGE	GLOBE	GIR18					120	1	15			OWNER	GC	
	2	(FUTURE) PREMIUM INDUCTION STOCK POT	WINCO	SST-24										OWNER	GC	
9	1	STAINLESS STEEL WORK TABLE	JOHN BOOS	ST6R1.5-3060GSK-X										OWNER	GC	
10	1	STAINLESS STEEL WORK TABLE	JOHN BOOS	ST6-3684GSK-X										OWNER	GC	
11	1	CABINET, ENCLOSED, BUN / FOOD PAN	CAMBRO	UPCH400110					110	1	2.0			OWNER	GC	
12	1	WALL MOUNTED BUN RACK	STANFORD SONOMA	STAINLESS STEEL										OWNER	VENDOR	
13	1	STAINLESS STEEL WORK TABLE	JOHN BOOS	ST6-3660GSK-X										OWNER	G.C.	
14	1	BEVERAGE DISPENSER (8 VALVES)	LANCER CORP.	IBD25					115	1	3.0			OWNER	VENDOR/GC	
15	1	TEA BREWER	BUNN	ITCB-DV-DBC										OWNER	VENDOR/GC	
16	2	TEA DISPENSER	BUNN											OWNER	VENDOR/GC	
17	1	POS SYSTEM	DETECTO	ASP160										OWNER	GC	
18	1	WATER HEATER (GAS)	SEE PLUMBING	SEE PLUMBING										OWNER	GC	
19	1	MOP SINK AND FAUCET	SEE PLUMBING	SEE PLUMBING										OWNER	GC	
20	3	WALL MOUNTED HAND SINK	JOHN BOOS	PBHS-W-1410-P-SSLR-X	1/2"	1/2"	1 1/2"							OWNER	GC	3
21	1	ONE (1) COMPARTMENT SINK	JOHN BOOS	1B184-1D18L-X			3 1/2"							OWNER	GC	
	1	DRAIN LEVER	KROWNE	22-204										OWNER	GC	
	1	WALL/ SPLASH MOUNT FAUCET	KROWNE	12-808L	1/2"	1/2"								OWNER	GC	
22	4	WALL MOUNTED CHROME PLATED WIRE SHELF	WINCO	VC-1836										OWNER	GC	2 PER CASE
	8	WIRE SHELF MOUNTING BRACKET	WINCO	VCB-18										OWNER	GC	2 PER CASE
23	1	MOP SINK SHELF	JOHN BOOS	PB-MSS824-X										OWNER	GC	
24	1	STAINLESS STEEL WORK TABLE	JOHN BOOS	ST6-3684GSK-X										OWNER	GC	
	1	CAN OPENER	WINCO	CO-3N										OWNER	GC	
25	1	THREE (3) COMPARTMENT SINK	JOHN BOOS	E3S8-1620-14T18			3 1/2"							OWNER	GC	
	3	DRAIN LEVER	KROWNE	22-204										OWNER	GC	
	1	PRE-RINSE FAUCET	KROWNE	17-109WL	1/2"	1/2"								OWNER	GC	
27	1	CO2	COMPRESS GAS TANKS	WITH GAUGES										OWNER	VENDOR/GC	
28	1	BAG-N-BOX SODA SYSTEM	BY PURVEYOR											EXISTING	EXISTING	
30	1	WALK-IN COOLER	EXISTING											OWNER	GC	
31	1	REACH-IN FREEZER	ATOSA USA, INC.	MBF8002GR					115	1	8.6			OWNER	GC	W/ CASTER SET
33	4	EPOXY COATED WIRE SHELVING	WINCO	VEX-2460										OWNER	GC	2 PER CASE
	2	EPOXY COATED, GREEN SHELF POSTS	WINCO	VEX-72P										OWNER	GC	4 PER CASE
34	2	EPOXY COATED WIRE SHELVING	WINCO	VEX-2448										OWNER	GC	2 PER CASE
	1	EPOXY COATED, GREEN SHELF POSTS	WINCO	VEX-72P										OWNER	GC	4 PER CASE
35	4	DIGITAL MENU BOARD (40" TV'S)	UNITED MEDIA SOLUTIONS	VENDOR										VENDOR	VENDOR	
36	6	CHROME PLATED WIRE SHELVING	WINCO	VC-1836										OWNER	GC	2 PER CASE
	3	CHROME PLATED SHELF POSTS	WINCO	VC-72P										OWNER	GC	4 PER CASE
42	2	LOCKER	OMCAN USA	13132										OWNER	GC	
50	1	TOASTER, CONTACT GRILL, CONVEYOR TYPE	APW WYATT	M-95-2					208	1	13.4			OWNER	GC	
	1	BUN SLIDE	APW WYATT	83997										OWNER	GC	
51	2	DECORATIVE HEAT LAMPS (COPPER)	HATCO	DL-775					120	1				OWNER	GC	2
53	1	COLD WELL UNIT, DROP-IN, REFRIGERATED	ATLAS	RM-2					120	1	6	1/4		OWNER	GC	
55	1	HOT WELL UNIT, DROP-IN, ELECTRIC	ATLAS	WIH-2					120	1	14.2		1.7	OWNER	GC	
60	1	PRICE COMPUTING SCALE	GLOBE	GLS30					115	1	0.1			OWNER	GC	
73	1	NUGGET ICE MAKER	ICE-O-MATIC	GEM0450A					115	1	12.9			OWNER	GC	
	1	ICE BIN	ICE-O-MATIC	B42FS										OWNER	GC	
74	1	FILTER SYSTEM	EVERPURE	EV932401										OWNER	GC	
77	1	DUNNAGE RACK	WINCO	ADRK-2036										OWNER	GC	
78	1	36"X84" STAINLESS WORK TABLE	JOHN BOOS													34" HGT. A.F.F.
79	1	36"X60" STAINLESS WORK TABLE	JOHN BOOS													34" HGT. A.F.F.
ACCESSORY SCHEDULE																
A1	5	LIQUID SOAP DISPENSER	KIMBERLEY CLARK	92145, BLACK										OWNER	GC	
A2	6	WALL MOUNTED PAPER TOWEL HOLDER	STANFORD SANOMA	CUSTOM BLACK IRON										OWNER	GC	4

NOTES:

1. NOT USED.
2. (RT)-MOUNTING STYLE, (R)-SWITCH LOCATION, (DL-CORD-BK)-BLACK CORD, (DL-TRACK-BB)-TRACK MOUNT BAR, (DL-ADAPT-BL)-TRACK ADAPTER.
3. FAUCET INCLUDED.
4. LOCATIONS SHOWN FOR REFERENCE. VERIFY LOCATION W/ OWNER.
5. NOT USED
6. (1) 10" CTO-Q10 CARTRIDGE & (1) 15" CTO-QCR CARTRIDGE, 20,000 GALLON CAPACITY, 2.5 GPM FLOW RATE, REDUCES CHLORINE, TASTE & ODOR – 6,000 GALLON CAPACITY, 0.5 GPM, REDUCES CHLORAMINE, 0.5 MICRON PARTICULATE.
7. WATER FILTER INSTALLATION – MUST BE PURCHASED WITH CORRESPONDING UNIT LONG.LIFE4 AND INSTALLATION MUST TAKE PLACE AT SAME TIME AS UNIT INSTALLATION (NOTE: INSTALLATION CAN ONLY BE PURCHASED WHEN THE WATER FILTRATION IS ALSO PURCHASED FROM UNOX) (NET)

TABLE & CHAIR SCHEDULE

#	QTY.	ABBREVIATION	ITEM NAME	SIZE OR MODEL NUMBER		SUPPLIED BY	INSTALLED BY	NOTES
A	1	SS T.C.	TRASH CANS	TRASH CAN	SEE PLAN	OWNER	GC	
B	19	2 TBL	2 TOP TABLE	24"x30"	SEE PLAN	OWNER	GC	
C	3	4 TBL	4 TOP TABLE – ADA	30"x48"	SEE PLAN	OWNER	GC	ACCESSIBLE TABLE
D	0	B TBL	BAR TABLE	42" HIGH	SEE PLAN	OWNER	GC	
E	0	B CHR.	BAR CHAIR	TBD	SEE PLAN	OWNER	GC	
F	50	CHR.	CHAIR	TBD	SEE PLAN	OWNER	GC	

NOTES:

1. GENERAL CONTRACTOR TO UNLOAD AND PROTECT FURNISHING AND EQUIPMENT– FORKLIFT AND PALLET JACK IS REQUIRED.
2. GENERAL CONTRACTOR TO SELECT ALL FASTENERS AND SECURE ALL FURNISHINGS AND EQUIPMENT TO WITHSTAND A 200# POINT LOAD IN ANY DIRECTION

GENERAL FOOD SERVICE HEALTH DEPARTMENT NOTES

1	ALL NEW EXHAUST HOODS WILL BE CONSTRUCTED TO MEET THE FOLLOWING STANDARDS, "NSF, UL, AND NFPA-96". ALL NEW HOODS TO BEAR UL CLASSIFIED LABEL WITHOUT DAMPERS IN EXHAUST VENT COLLARS. HOODS ARE DESIGNED TO MEET OR EXCEED 50 FPM CAPTURE VELOCITY AT THE COOKING SURFACE EDGE AND HAVE 6" MINIMUM OVERHANG AT ALL EXPOSED COOKING AREAS.
2	ALL COOKING EQUIPMENT UNDER EXHAUST HOODS ARE EITHER ON CASTERS WITH FLEXIBLE UTILITY QUICK DISCONNECTS OR FIXED ON STAINLESS STEEL LEGS AND SEALED TO WALLS WITH CLEAR SILICONE SEALANT.
3	THE HOODS AND EXHAUST DUCT SYSTEMS WILL BE PROVIDED WITH AN AUTOMATIC FIRE EXTINGUISHING SYSTEM.
4	ALL REFRIGERATION EQUIPMENT SHALL HAVE THERMOMETERS WHICH ARE EASILY READABLE, IN PROPER WORKING CONDITION AND ACCURATE WITHIN A RANGE OF PLUS OR MINUS TWO (2) DEGREES.
5	COUNTER TOP EQUIPMENT NOT READILY MOVABLE, WEIGHING OVER 80 POUNDS, WILL BE PROVIDED WITH LEGS OR FEET AT LEAST FOUR (4") INCHES HIGH.
6	ALL CHEMICAL INJECTION SYSTEMS MUST BE INSTALLED DOWNSTREAM FROM A VACUUM BREAKER OR AIR GAP, TO PREVENT POSSIBLE BACK SIPHONING TO THE CHEMICALS INTO THE WATER LINE SYSTEM.
7	ALL CUTTING BOARDS AND WORK SURFACES SHALL BE OF NON-WOOD CONSTRUCTION.
8	AN AISLE SPACE OF THIRTY (30") INCHES OR MORE SHALL BE PROVIDED WITHIN ALL WORK AND STORAGE AREAS.
9	BACK SPLASHES OF EQUIPMENT SHALL BE SEALED TO WALLS WITH CLEAR SILICONE.
10	VACUUM BREAKERS, WHEN USED, TO BE MINIMUM OF SIX (6") INCHES ABOVE THE FLOOD LEVEL RIM WITH NO SHUT OFF DEVICES BEYOND THE DISCHARGE OF THE VACUUM BREAKER.
11	A MINIMUM OF 50 FOOT CANDLES OF LIGHTING IS PROVIDED IN ALL FOOD PREPARATION AREAS, AND WALK-IN BOXES. LIGHTING TO BE SHIELDED OVER EXPOSED FOOD AND UTENSIL AREAS. A MINIMUM OF 35 FOOT CANDLES OF LIGHTING OVER FOOD SERVING AREAS.
12	ALL OPENINGS IN CONSTRUCTION WILL BE SEALED TO WITHIN 1/32 OF AN INCH.
13	THE USE OF SEALANTS MUST BE LISTED AS APPROVED BY THE NATIONAL SANITATION FOUNDATION (NSF) UNDER STANDARD C-2.
14	SEALANTS MAY BE USED ONLY IN STRUCTURALLY SOUND JOINTS AND SEAMS. SEALANTS MAY NOT BE UTILIZED IN FOOD AND SPLASH CONTACT SURFACES TO FILL OPEN SPACES OR VOIDS WHICH RESULT DUE TO IMPROPER FABRICATION. ANY OPENING IN EXCESS OF 1/8 INCH SHALL BE CONSIDERED EXCESSIVE AND MUST BE CLOSED USING PROPER FIELD JOINT.
15	OPENINGS AROUND SERVICE AND UTILITY LINES SHOULD BE CLOSED AS FAR AS POSSIBLE WITH COLLARS, GROMMETS AND FLEXIBLE FORM GASKETS. SEALANTS MAY NOT BE USED TO SEAL SERVICE AND UTILITY LINES TO WALLS OR ADJACENT PIECES OF EQUIPMENT.

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03/16/22

DICKEY'S BARBEQUE PIT

FRANDOR SHOPPING CENTER

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CLIENT: KEVING GRIFFIN
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HOWARD CITY, MI 49329

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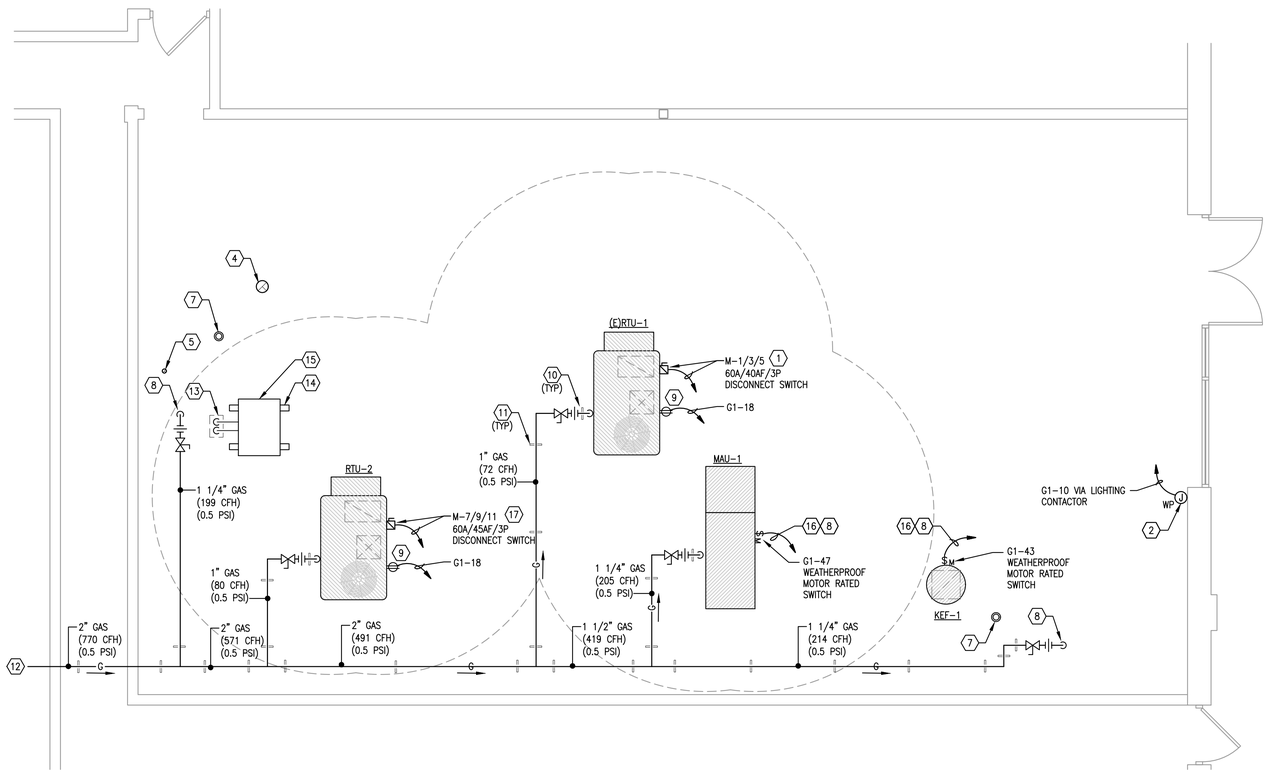

MEP ROOF PLAN
1/4"=1'-0"
1

GENERAL NOTES

A.	WEATHERPROOF JUNCTION BOX FOR EXTERIOR SIGNAGE. VERIFY EXACT LOCATION WITH THE OWNER PRIOR TO INSTALLATION. INSTALLATION PER NEC AND LOCAL AHJ.
B.	FIELD FABRICATED ROOF JACK FOR REFRIGERATION PIPING AND POWER CONDUIT(S) SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. REFER TO ARCHITECTURAL DETAILS FOR DIRECTION. THE MC, EC AND GC SHALL COORDINATE FOR A COMPLETE INSTALLATION.
C.	ALL EXISTING OUTDOOR AIR INTAKES BY MECHANICAL EQUIPMENT SHALL HAVE A MINIMUM 10'-0" HORIZONTAL CLEARANCE FROM THE DISCHARGE OF ANY EXHAUST FAN, COMBUSTION EXHAUST OR PLUMBING VENT. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY REMEDIATION WORK IS REQUIRED.

KEYED NOTES

1.	FIELD VERIFY EXISTING FACTORY PROVIDED AC UNIT CONTROL PANEL. HACR BREAKER / DISCONNECT SWITCH FURNISHED WITH EQUIPMENT ARE IN GOOD WORKING ORDER AND REPLACE IF FOUND TO BE FAULTY OR SHOWS SIGNS OF WEAR.
2.	VERIFY LOCATION & NUMBER OF SIGNS WITH SIGN VENDOR. RUN SIGN CIRCUITS THROUGH CONTACTOR, CONTROLLED THROUGH PHOTOCELL/TIMECLOCK. PROVIDE FLUSH MOUNTED WEATHERPROOF J-BOX ON EXTERIOR FACE OF WALL. PROVIDE DISCONNECTING MEANS PER NEC AND LOCAL AUTHORITY HAVING JURISDICTION.
3.	VERIFY EXISTING GAS CONNECTION TO RTU IS IN GOOD WORKING CONDITION. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY REMEDIATION WORK IS REQUIRED.
4.	PROVIDE NEW ROOF CAP FOR RESTROOM EXHAUST DUCT. PROVIDE WEATHER PROOF FLASHING AT PENETRATION.
5.	CONCENTRIC COMBUSTION AIR VENTS FOR THE EXISTING GAS FIRED WATER HEATER BELOW. IF WITHIN 10'-0" OF THE NEW MAKEUP AIR UNIT INTAKE, RELOCATE TO OUTSIDE THE 10'-0" CLEARANCE. COORDINATE THE ROOF PENETRATION, FLASHING AND COUNTER-FLASHING WITH THE GENERAL CONTRACTOR.
6.	GAS PIPING (0.5 PSI) SHALL BE ROUTED DOWN THROUGH THE ROOF. PROVIDE WEATHER TIGHT SEAL AT PIPE PENETRATION. REFER TO THE WATER GAS PLUMBING PLAN FOR CONTINUATION OF PIPING BELOW THE ROOF.
7.	FIELD COORDINATE LOCATION OF THE ROOF MOUNTED VTR. THE LOCATION SHALL BE A MINIMUM OF 10'-0" FROM ANY OUTDOOR AIR INTAKE.
8.	WEATHERPROOF DISCONNECT SWITCH, 600V, DISCONNECT SWITCH, 3#12,#12G., IN 3/4"C. DOWN TO PRE-WIRED ELECTRICAL CONTROL PANEL ON KITCHEN HOOD.
9.	WEATHER-PROOF, WEATHER RATED, GFCI RECEPTACLE PROVIDED WITH RTU TO BE WIRE TO CIRCUIT NOTED. CONDUIT AND WIRING TO RUN IN ATTIC SPACE AND UP IN ROOF CURB TO RECEPTACLE ON RTU.
10.	GAS CONNECTION TO UNIT COMPLETE WITH GAS COCK, UNION & 6" DIRT LEG.
11.	ALL PIPING INSTALLED ON THE ROOF SHALL BE SUPPORTED WITH PRE-MANUFACTURED ADJUSTABLE PIPE SUPPORTS AT MAXIMUM 5'-0" ON CENTER AND EVERY CHANGE OF DIRECTION.
12.	EXTEND NEW GAS LINE (0.5 PSI) TO EXISTING TENANT'S GAS METER. GENERAL DISTRIBUTION OF NATURAL GAS PIPING SHALL BE 0.5 PSI PRESSURE. VERIFY EXACT LOCATION, SUFFICIENT SIZE & PRESSURE PRIOR TO BID. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY REMEDIATION WORK IS REQUIRED.
13.	PREMANUFACTURED PIPE PORTAL FOR ROOF PENETRATIONS. THE MC, EC AND GC SHALL COORDINATE FOR A COMPLETE INSTALLATION.
14.	REMOTE CONDENSING UNIT SHALL BE INSTALLED ON MANUFACTURER APPROVED SLEEPERS. FIELD COORDINATE THE COMPLETE INSTALLATION.
15.	FIELD VERIFY CONDITION OF INTERWIRE SERVICE FROM COMPRESSOR AND TIMECLOCK TO BLOWER COIL FOR AUTOMATIC DEFROST SYSTEM TO STOP COMPRESSOR BLOWER COIL FANS AND START HEATERS IN COIL. IF FOUND TO BE FAULTY, REMOVE AND REPLACE WITH SIMILAR.
16.	CONTRACTOR SHALL PROVIDE ALL ELECTRICAL CONNECTIONS, WIRING AND CONDUITS NECESSARY FOR THE INTERLOCKING OF THE EXISTING KITCHEN EXHAUST FANS AND THE EXISTING MAKEUP AIR UNIT THROUGH THE KITCHEN CONTROL PANEL.
17.	WEATHER-PROOF DISCONNECT SWITCH TO ARRIVE FACTORY INSTALLED ON RTU.

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ROOF PLAN

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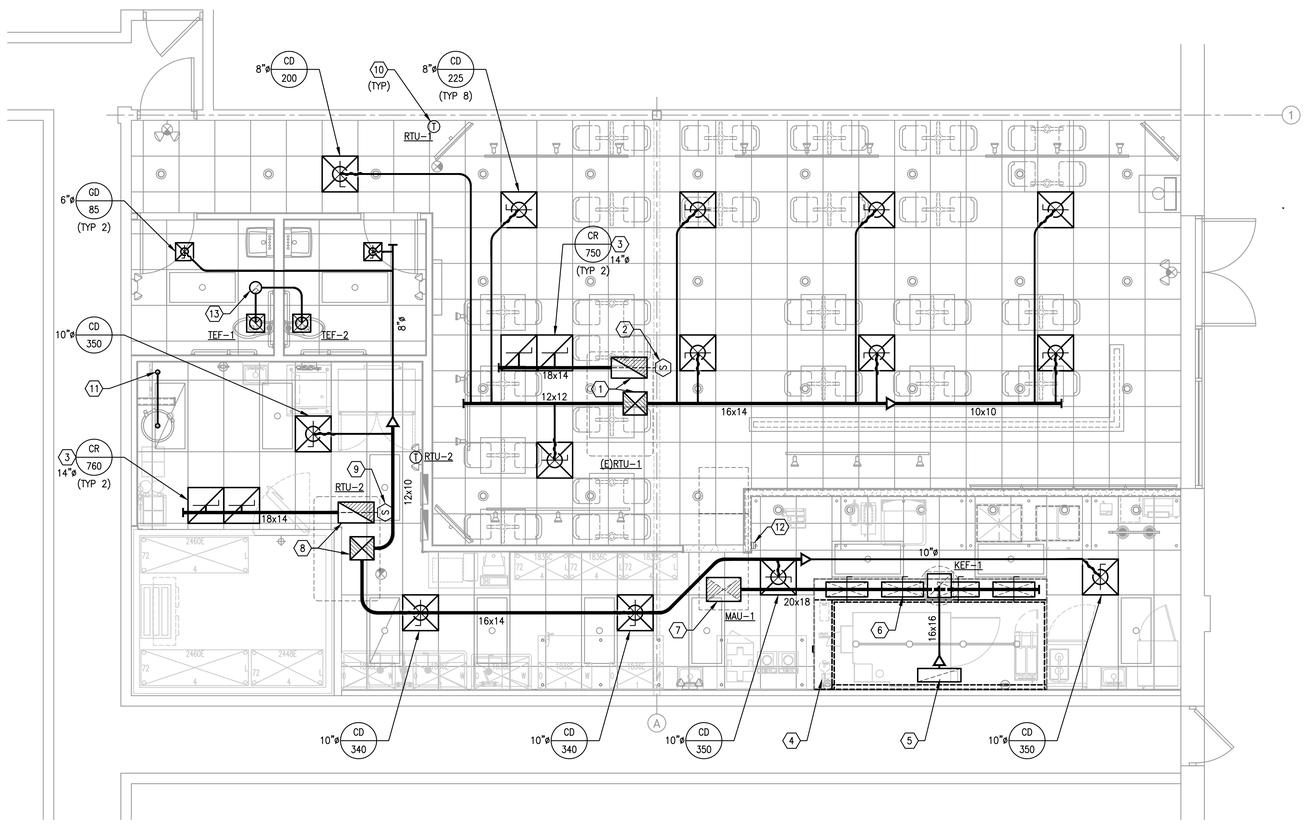

GENERAL NOTES

A.	ALL OUTDOOR AIR INTAKES BY MECHANICAL EQUIPMENT SHALL HAVE A MINIMUM 10'-0" HORIZONTAL CLEARANCE FROM THE DISCHARGE OF ANY EXHAUST FAN, COMBUSTION EXHAUST OR PLUMBING VENT.
B.	PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE DUCT/ PIPING CONNECTIONS TO ALL MOVING MACHINERY NOT INTERNALLY ISOLATED.
C.	ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
D.	THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER LOCATIONS WITH LIGHT FIXTURES AS WELL AS SPRINKLER PIPING AND HEADS (WHERE INCLUDED IN THE PROJECT) FOR A COMPLETE INSTALLATION.
E.	LOCATIONS FOR THERMOSTATS AND REMOTE SENSORS SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL-MOUNTED DECOR OR PROXIMITY TO HEAT PRODUCING EQUIPMENT.
F.	ALL HVAC AND RESTROOM EXHAUST DUCTWORK SHALL BE INSTALLED AS HIGH AS POSSIBLE UNDER THE ROOF STRUCTURE.
G.	ALL RECTANGULAR, ROUND, AND FLEXIBLE DUCTWORK SHALL BE SIZED AS SHOWN ON THESE DRAWINGS; AND SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE MOST RECENTLY PUBLISHED SMACNA STANDARDS. ALL JOINTS, SEAMS, AND CONNECTIONS MUST BE SECURELY FASTENED & SEALED BY APPROVED METHODS.
H.	ANY FLEXIBLE DUCTS SHALL BE INSTALLED IN CONCEALED SPACES ONLY. THE MAXIMUM ALLOWABLE LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0". ALL FLEXIBLE DUCTS SHALL BE CONNECTED TO BRANCH RUNS AND FITTINGS WITH A PANDUIT-TYPE BAND, AND SHALL NOT BE ATTACHED DIRECTLY TO THE AIR DEVICE COLLAR.
I.	SUPPLY, RETURN, EXHAUST DUCT CONSTRUCTION SHALL BE GALVANIZED STEEL. GAUGES, SWAY BRACING AND SUSPENSION SHALL CONFORM TO SMACNA STANDARDS. SEAL ALL SEAMS AND JOINTS AIR AND WATERTIGHT. FLEXIBLE ALUMINUM DUCTWORK OR FIBERGLASS DUCTBOARD IS NOT ALLOWED (UNO).
J.	THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING THE AIR FILTERS AT THE AIR HANDLING UNITS WITH PLEATED MERV 8 THROW AWAY TYPE AIR FILTERS AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO AIR BALANCE AND STORE TURNOVER.
K.	AT THE START OF CONSTRUCTION, THE MECHANICAL CONTRACTOR SHALL FIELD VERIFY THE VERTICAL CLEARANCE REQUIRED FOR INSTALLATION OF EQUIPMENT AND DUCTWORK IN COORDINATION WITH EXISTING CONDITIONS, INCLUDING ROOF STRUCTURE, AND PROVIDE DIRECTION TO THE GENERAL CONTRACTOR FOR FINISHED CEILING HEIGHTS AND ROOF OPENINGS. ANY REQUIRED DEVIATION FROM THE HEIGHTS SHOWN IN THE ARCHITECTURAL CEILING PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND TENANT'S CONSTRUCTION MANAGER.

KEYED NOTES

1.	EXISTING SUPPLY AND RETURN DUCTS DOWN FROM THE RTU CONNECTIONS TO REMAIN.
2.	FIELD VERIFY EXISTING HVAC SMOKE DETECTOR CAPABLE OF SHUTTING DOWN THE RESPECTIVE MECHANICAL UNIT UPON ACTIVATION. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL IF NEEDED, THE ELECTRICAL CONTRACTOR SHALL COORDINATE FOR POWER.
3.	RETURN GRILLE AIR QUANTITIES LISTED ARE FOR STANDARD OPERATING HOURS. REFER TO SHEET M2.0 FOR AIR BALANCE REPORT ON DESIGN AIRFLOW RATES. REBALANCE AS NECESSARY.
4.	THE UTILITY AND FIRE SUPPRESSION CABINETS ARE TO BE FURNISHED WITH THE HOOD PACKAGE, AND INSTALLED COMPLETE WITH THE HOOD ASSEMBLY.
5.	EXTEND THE GREASE EXHAUST DUCT UP FROM THE HOOD COLLAR AND OFFSET HORIZONTALLY BEFORE ROUTING UP THRU ROOF TO THE EXHAUST FAN. HORIZONTAL DUCTWORK SHALL PITCH A MINIMUM 1/4" PER FOOT BACK TOWARDS THE HOOD. GREASE EXHAUST DUCT SHALL BE OF THE SAME SIZE AS THE HOOD COLLAR. FIELD COORDINATE THE REQUIRED TRANSITIONS OF EXHAUST DUCT FROM COMBUSTIBLE MATERIALS TO MAINTAIN THE MINIMUM CLEARANCES REQUIRED PER APPLICABLE CODE(S) AND FIRE WRAP MANUFACTURER'S INSTRUCTIONS.
6.	ROUTE MAKEUP AIR SUPPLY BRANCH TO PERFORATED SUPPLY PLENUM COLLAR CONNECTION. MAKEUP AIR DUCT CONNECTION SHALL BE OF THE SAME SIZE AS THE PLENUM COLLAR AND INSTALLED COMPLETE WITH THE MANUAL VOLUME DAMPER FURNISHED WITH THE HOOD. BALANCE AIRFLOW PER THE HOOD MANUFACTURER'S DESIGN DOCUMENTS.
7.	ROUTE MAKEUP AIR DUCTWORK FULL SIZE FROM THE UNIT CONNECTION THROUGH THE ROOF AND TRANSITION TO SIZE SHOWN. PROVIDE SMACNA TYPE 2 STATIONARY SPLITTER AT BOTTOM OF DUCT DROP. PROVIDE FLEXIBLE CONNECTION AT EQUIPMENT.
8.	ROUTE SUPPLY AND RETURN DUCTS DOWN FROM THE RTU CONNECTIONS AND TRANSITION THROUGH THE ROOF AS SHOWN. INSTALL COMPLETE WITH FLEXIBLE CONNECTIONS AT EQUIPMENT. FIRST 10'-0" OF SUPPLY AND RETURN DUCTWORK SHALL BE INTERNALLY LINED.
9.	FACTORY INSTALLED HVAC SMOKE DETECTOR CAPABLE OF SHUTTING DOWN THE RESPECTIVE MECHANICAL UNIT UPON ACTIVATION. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL IF NEEDED, THE ELECTRICAL CONTRACTOR SHALL COORDINATE FOR POWER.
10.	PROVIDE NEW WALL MOUNTED 24/7 AUTO-CHANGEOVER PROGRAMMABLE THERMOSTATS COMPATIBLE WITH EXISTING HVAC UNIT MOUNTED AT 48" A.F.F. COORDINATE LOCATION WITH FIXTURES AND DECOR. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION.
11.	GC SHALL FURNISH AND INSTALL COMBUSTION EXHAUST AND INTAKE AIR VENT THRU THE ROOF. A MANUFACTURER AVAILABLE CONCENTRIC VENT KIT IS REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE THE ROOF PENETRATION, FLASHING AND COUNTER-FLASHING WITH THE GENERAL CONTRACTOR AND LL ROOFING CONTRACTOR. EXHAUST SHALL BE A MINIMUM OF 10'-0" CLEAR FROM ALL OA INTAKES.
12.	MANUAL PULL STATION FOR KITCHEN HOOD FIRE SUPPRESSION SYSTEM ACTIVATION AND GAS SUPPLY SHUT-OFF. COORDINATE THE COMPLETE INSTALLATION WITH OTHER TRADES.
13.	MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL CEILING MOUNTED TOILET EXHAUST FAN. PROVIDE EXHAUST DUCT FROM FAN TO 8"ø EXHAUST RISER AND ROOF CAP.

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FAN SCHEDULE

MARK	SERVICE	CFM	E.S.P. "WG	RPM	MOTOR HP	VOLTS/PH	MANUFACTURER	MODEL	TYPE	WEIGHT	NOTES
KEF-1	KITCHEN HOOD	3000	0.65	1379	2.0	208/3	ACCUREX	XCUE-160-VG	ROOF UPBLAST FAN	121	1,2,4,5,6
MAU-1	COOKLINE HOOD	2400	0.5	2331	1.0	115/1	ACCUREX	A1-D.250-15D	MAKEUP AIR FAN	466	1,3,4,5,6,9
TEF-1	RESTROOMS	100	0.5	1100	1/10	120/1	GREENHECK	SP-100	CEILING CABINET FAN	54	4,7,8
TEF-2	RESTROOMS	100	0.5	1100	1/10	120/1	GREENHECK	SP-100	CEILING CABINET FAN	54	4,7,8

NOTES:

1. PROVIDE INTERLOCK SWITCH BETWEEN KITCHEN HOOD EXHAUST FAN AND MAU-1. COORDINATE REQUIRED WORK WITH THE ELECTRICAL CONTRACTOR.
2. THE FAN SHALL BE FACTORY EQUIPPED WITH AN INDEPENDENT WEATHER PROOF DISCONNECT SWITCH IN SIGHT OF THE EQUIPMENT.
3. WEATHER PROOF DISCONNECT SWITCH AND INTERNAL WIRING SHALL BE FACTORY INSTALLED.
4. PROVIDE GRAVITY BACKDRAFT DAMPER.
5. PROVIDE FACTORY AVAILABLE GREASE BOX.
6. FURNISHED WITH THE KITCHEN EQUIPMENT PACKAGE, INSTALLED BY THE MECHANICAL CONTRACTOR.
7. ELECTRICAL CONTRACTOR SHALL INTERLOCK WITH RESPECTIVE RESTROOM LIGHT SWITCH FOR SIMULTANEOUS OPERATION.
8. FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
9. FAN IS FACTORY EQUIPPED WITH DIRECT FIRED GAS COMBUSTION HEAT EXCHANGER, RATED FOR 205 MBH INPUT / 188 MBH OUTPUT.

AIR BALANCE SCHEDULE

MARK	DINING (CFM)			KITCHEN (CFM)		
	S/A	O/A	E/A	S/A	O/A	E/A
(E)RTU-1	2000	500	–	–	–	–
RTU-2	–	–	–	1900	380	–
KEF-1	–	–	–	–	–	3000
MAU-1	–	–	–	–	2400	–
(E)TEF-1			100			
(E)TEF-2			100			
TOTAL	2000	500	200	1900	2780	3000

DINING PRESSURIZATION
(O/A) – (E/A)= +300 CFM

KITCHEN PRESSURIZATION
(O/A) – (E/A)= –220 CFM

NET BUILDING PRESSURIZATION (DINING + KITCHEN)= +80 CFM

*NOTE: EXISTING AHU CFMS ARE ASSUMED VALUES BASED ON EXISTING DRAWINGS.

TEST AND BALANCE NOTES

1. THE GENERAL CONTRACTOR SHALL SUBCONTRACT TO AN INDEPENDENT AIR TEST AND BALANCE CONTRACTOR FOR THE TESTING, ADJUSTING AND BALANCING OF ALL ENVIRONMENTAL SYSTEMS SHOWN OR SPECIFIED ON THE CONTRACT DOCUMENTS. THIS SHALL INCLUDE EQUIPMENT OPERATION IN COOLING, HEATING, AND DEHUMIDIFCATION OPERATIONAL MODES. THE WORK SHALL BE PERFORMED BY A FIRM CERTIFIED BY EITHER AABC OR NEBB, AND FOUR (4) COPIES OF THE FINAL REPORT, SUBMITTED ON CERTIFYING AGENCY FORMS, SHALL BE SUBMITTED TO THE DICKEY'S CONSTRUCTION MANAGER FOR APPROVAL. THE REPORT SHALL BEAR THE CERTIFICATION SEAL OF THE TAB SUPERVISOR IN CHARGE. REPORTS SHALL CONTAIN ALL AIR SIDE BALANCING DATA, INSTRUMENTS USED AND THEIR LATEST CALIBRATION DATES, PERSON(S) PERFORMING THE WORK AND A WRITTEN GUARANTEE THAT ALL TAB WORK WAS PERFORMED IN ACCORDANCE WITH THE CERTIFYING AGENCY STANDARDS AND PROCEDURES.
2. THE TEST AND BALANCE REPORT SHALL INCLUDE OPERATIONAL DATA FOR EVERY COMPONENT OF THE COMPLETE MECHANICAL SYSTEM INCLUDING HVAC EQUIPMENT, HVAC AIR DEVICES, RESTROOM FANS, ETC. THIS DATA SHALL INCLUDE THE BALANCED OPERATING DATA FOR EQUIPMENT AS COMPARED TO THE DESIGN AIR BALANCE SCHEDULE ON THIS SHEET.
3. FOR CLARIFICATION, THE ENGINEER OF RECORD WILL NOT BE ABLE TO REVIEW THE INSTALLED MECHANICAL SYSTEMS FOR POTENTIAL OPERATIONAL ISSUES OR INSTALLATION DEFICIENCIES WITHOUT THE FULL AND COMPLETE TEST AND BALANCE REPORT.

ROOFTOP SCHEDULE

	MARK	(E)RTU-1	RTU-2
GENERAL	SERVING	SERVICE/DINING	DINING/RR
	MANUFACTURER	BRYANT	TRANE
	MODEL NO.	559KP06	YSC060
	TYPE	GAS/ELEC	GAS/ELEC
	OPERATING WEIGHT, LBS.	EXISTING	797
	LENGTH, WIDTH, HEIGHT	EXISTING	70x45x41
	MINIMUM EER/SEER	–/14.0	12.0/14.0
ELECTRICAL	VOLTS/ PH/ HZ	208/3/60	208/3/60
	MCA (AMPS)	28	30.0
	MOCP (AMPS)	40	45.0
SUPPLY FAN	SUPPLY AIR CFM	2000	1900
	OUTSIDE AIR CFM	500	380
	ESP ("W.C.)	1.0	0.80
	FAN RPM	EXISTING	1077
	MOTOR HP	EXISTING	0.80
COOLING	NOMINAL SIZE TONS	5.0	5.0
	TOTAL CAPACITY (MBH)	60.0	58.5
	SENSIBLE CAPACITY (MBH)	48.0	46.0
	OUTSIDE AIR DB/WB, °F.	89	100
	ENTERING AIR DB/WB, °F.	80/67	80/67
HEATING	TYPE OF HEAT	GAS	GAS
	HEATING INPUT (MBH)	72	80
	HEATING OUTPUT (MBH)	59	64
	OUTSIDE AIR DB/WB, °F.	–3	17
	LEAVING AIR DB/WB, °F.	103.5	98.1
NOTES		10–12	1–9

NOTES: (NOT ALL MAY APPLY)

1. PROVIDE A FACTORY AVAILABLE UN-INSULATED 14" FLAT ROOF CURB THAT SHALL BE FIELD ASSEMBLED AND SHIMMED SUCH THAT THE TOP OF THE CURB SETS LEVEL. CURB SHALL MEET THE REQUIREMENTS OF THE 2018 IMC. ROOF CURBS TO BE INSTALLED BY THE GENERAL CONTRACTOR, AND FIELD INSULATED BY THE MECHANICAL CONTRACTOR.
2. PROVIDE WITH LOW AMBIENT CONTROLS (DOWN TO 0°F), MICROPROCESSOR CONTROLS, CONDENSER COIL HAIL GUARD (FOR 'A' AND 'B' SIZED CABINETS), FRESH AIR TEMPERING KIT, HINGED ACCESS PANELS, CRANK CASE HEATER, AND FROSTAT.
3. PROVIDE WITH MANUFACTURER'S PROGRAMMABLE 24/7 THERMOSTAT AND REMOTE TEMPERATURE CAPABLE OF AUTOMATIC COOLING/ HEATING CHANGEOVER.
4. PROVIDE FACTORY INSTALLED ENTHALPY CONTROLLED ECONOMIZER WITH MOTORIZED OUTSIDE AIR DAMPER.
5. PROVIDE FACTORY AVAILABLE RETURN AIR SMOKE DETECTOR(S), CAPABLE OF SHUTTING DOWN THE ROOFTOP UNIT UPON ACTIVATION.
6. PROVIDE FACTORY INSTALLED NON-FUSED ELECTRICAL DISCONNECT. CONVENIENCE RECEPTACLE SHALL BE FIELD WIRED BY THE E.C. AND POWERED SEPARATELY FROM THE UNIT.
7. PROVIDE SINGLE POINT ELECTRICAL POWER CONNECTION INCLUDING STARTERS AND CONTROLS.
8. UNIT SELECTIONS ARE BASED ON R-410A REFRIGERANT AND HIGH EFFICIENCY OPERATION.
9. CONTACT BOB VAN GUILDER (TRANE) AT (214)-957-3692 FOR PRICING AND VERIFY FINAL SELECTIONS FOR EQUIPMENT SELECTION INFORMATION AND ORDERING.
10. HVAC EQUIPMENT IS EXISTING TO BE REUSED.
11. CONTRACTOR SHALL BRING SYSTEMS TO "LIKE NEW" CONDITION, INCLUDING BUT NOT LIMITED TO REPLACING OR ADJUSTING FAN BELTS & PULLEYS, RECHARGING REFRIGERANT, COMBING FINS, ETC.
12. BALANCE AIRFLOWS FOR S/A AND O/A TO VALUES NOTED ABOVE.

O/A VENTILATION SCHEDULE

AREA SERVED	VENTILATION (OCCUPANCY)			VENTILATION (AREA)		
	# OF PPL	CFM/PERSON	CFM	SF	CFM/SF	CFM
CUSTOMER	52	7.5	390	1060	0.18	191
KITCHEN/BOH	6	7.5	45	632	–	–
RESTROOMS	–	–	–	134	–	–
SUBTOTALS			435			191
TOTAL O/A REQUIRED						626 CFM

NOTES:
1. CALCULATIONS ARE BASED ON 2015 INTERNATIONAL MECH. CODE
2. OUTDOOR AIR DEMAND IS: – 626 CFM
   OUTDOOR AIR PROVIDED IS: + 880 CFM

   OUTDOOR AIR DIFFERENCE IS: + 254 CFM

MECHANICAL LEGEND

SYMBOL	ABBR.	DESCRIPTION
	CD	CEILING DIFFUSER – SUPPLY
	CD	CEILING DIFFUSER BELOW DUCT – SUPPLY
	SAD	RISER – SUPPLY AIR DUCT
	SAD	DROP – SUPPLY AIR DUCT
	CR	CEILING REGISTER – RETURN
	CR	CEILING REGISTER BELOW DUCT – RETURN
	RAD	RISER – RETURN AIR DUCT
	RAD	DROP – RETURN AIR DUCT
	CE	CEILING REGISTER – EXHAUST
	CE	CEILING REGISTER BELOW DUCT – EXHAUST
	EAD	RISER – EXHAUST AIR DUCT
	(L)	LINED DUCTWORK
	VD	MANUAL VOLUME DAMPER
	FC	FLEXIBLE CONNECTION
		NEW DUCT
TAG / CFM		AIR DEVICE DESIGNATION
T	TSTAT	PROGRAMMABLE THERMOSTAT
S	SENS	REMOTE TEMPERATURE SENSOR
S	SD	SMOKE DETECTOR
	POC	POINT OF CONNECTION
	CFM	CUBIC FEET PER MINUTE
	S/A	SUPPLY AIR
	R/A	RETURN AIR
	O/A	OUTSIDE AIR
	E/A	EXHAUST AIR
	S.P.	STATIC PRESSURE
	FOH	FRONT OF HOUSE
	BOH	BACK OF HOUSE
	VIF	VERIFY IN FIELD
	(E)	EXISTING

GENERAL NOTES

1. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR SHALL MAKE USE OF ALL DATA THROUGHOUT THE CONTRACT DOCUMENTS AND VERIFY THIS INFORMATION PRIOR TO ORDERING, FABRICATING OR INSTALLING ANY MATERIALS.
2. THE MECHANICAL CONTRACTOR SHALL PROVIDE COMPLETE INFORMATION AND COOPERATE WITH THE OTHER CONTRACTORS AND TRADES AS REQUIRED FOR THE COMPLETION AND COORDINATION OF THE COMPLETE PROJECT.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING ALL WARRANTIES ON EQUIPMENT WHICH THEY FURNISH AND INSTALL. PROVIDE WRITTEN WARRANTY TO REPLACE ALL FAULTY MATERIALS AND/OR LABOR, AT NO COST TO TENANT, FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY THE OWNER. WARRANTIES SHALL BEGIN ON THE DATE OF SUBSTANTIAL COMPLETION.
4. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES ALL REQUIRED OPENINGS AND PENETRATIONS. ALL REQUIRED OPENINGS IN FOUNDATIONS, FLOORS, WALLS AND ROOF SHALL BE CONSTRUCTED INTO THE STRUCTURE WITH THE USE OF SLEEVES, CURBS, ETC. CUTTING AND PATCHING SHALL BE HELD TO A MINIMUM.
5. THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER LOCATIONS WITH SPRINKLER PIPING, SPRINKLER HEADS AND LIGHT FIXTURES AS REQUIRED FOR A COMPLETE INSTALLATION.
6. PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE DUCT/ PIPING CONNECTIONS TO ALL MOVING MACHINERY NOT INTERNALLY ISOLATED.
7. ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH CURBS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR. ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER.
8. ALL OUTDOOR AIR INTAKES BY MECHANICAL EQUIPMENT SHALL HAVE A MINIMUM 10'-0" HORIZONTAL CLEARANCE FROM THE DISCHARGE OF ANY EXHAUST FAN, COMBUSTION EXHAUST OR PLUMBING VENT.
9. HVAC UNITS SHALL BE SET TO RUN IN "FAN CONTINUOUS" MODE DURING OCCUPIED HOURS. DURING NIGHT SET-BACK HOURS, THE HVAC UNITS SHALL RUN IN "FAN AUTO" MODE.
10. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL 4" HIGH BLACK OVER WHITE LAMINATE NAMEPLATE WITH 2" LETTERS VISIBLE ADJACENT TO DISCONNECT SWITCH FOR HVAC UNITS AND FANS.
11. ANY FLEXIBLE DUCTS SHALL BE INSTALLED IN CONCEALED SPACES ONLY. THE MAXIMUM ALLOWABLE LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0". ALL FLEXIBLE DUCTS SHALL BE CONNECTED TO BRANCH RUNS AND FITTINGS WITH A PANDUIT-TYPE BAND, AND SHALL NOT BE ATTACHED DIRECTLY TO THE AIR DEVICE COLLAR.
12. SUPPLY, RETURN, RESTROOM EXHAUST DUCT CONSTRUCTION SHALL BE GALVANIZED STEEL (UNO.) GAUGES, SWAY BRACING AND SUSPENSION SHALL CONFORM TO SMACNA STANDARDS. SEAL ALL SEAMS AND JOINTS AIR AND WATERTIGHT. FLEXIBLE ALUMINUM DUCTWORK OR FIBERGLASS DUCTBOARD IS NOT ALLOWED.
13. ALL HVAC SUPPLY AND RETURN EXPOSED RIGID DUCTWORK SHALL BE INTERNALLY LINED AND PINNED WITH MINIMUM R-8, 1-1/2" INSULATION WITH VAPOR BARRIER PER THE 2015 INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS. INSULATION SHALL HAVE MAXIMUM RATINGS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED. REFER TO ARCHITECTURAL DRAWINGS FOR DUCT PAINT OR COLOR SPECIFICATION
14. ALL HVAC SUPPLY AND RETURN CONCEALED RIGID DUCTWORK TO BE EXTERNALLY WRAPPED AND SECURED WITH MINIMUM R-8, 2" INSULATION WITH VAPOR BARRIER PER THE 2015 INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS. INSULATION SHALL HAVE MAXIMUM RATINGS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED.
15. ALL PENETRATIONS IN FIRE RATED WALL ASSEMBLIES SHALL BE SEALED WITH UL LISTED FIRE STOPPING MATERIAL.
16. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
17. ALL RECTANGULAR, ROUND, AND FLEXIBLE DUCTWORK SHALL BE SIZED AS SHOWN ON THESE DRAWINGS; AND SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE MOST RECENTLY PUBLISHED SMACNA STANDARDS. ALL JOINTS, SEAMS, AND CONNECTIONS MUST BE SECURELY FASTENED & SEALED BY APPROVED METHODS.
18. THERMOSTAT(S) SHALL BE LOCATED AT 48" A.F.F. EXACT LOCATIONS SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL-MOUNTED WORK OR PROXIMITY TO HEAT PRODUCING EQUIPMENT.
19. PER THE 2015 INTERNATIONAL MECHANICAL CODE WITH CITY AMENDMENTS WHEN REQUIRED, EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2000 CUBIC FEET PER MINUTE SHALL BE EQUIPPED WITH AN AUTOMATIC SHUTOFF. AUTOMATIC SHUTOFF SHALL BE ACCOMPLISHED BY INTERRUPTING THE POWER SOURCE OF THE AIR MOVING EQUIPMENT DEVICES WHICH WILL DETECT PRODUCTS OF COMBUSTION OTHER THAN HEAT, AND WHICH COMPLY WITH THE BUILDING CODE, SHALL BE LABELED BY AN APPROVED AGENCY FOR AIR DUCT INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. SUCH DEVICES SHALL BE COMPATIBLE WITH THE OPERATING VELOCITIES, PRESSURES, TEMPERATURES AND HUMIDITIES OF THE SYSTEM WHERE FIRE DETECTION OR ALARM SYSTEMS ARE PROVIDED FOR THE BUILDING, SMOKE DETECTORS SHALL BE SUPERVISED BY SUCH SYSTEMS.
20. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING THE AIR FILTERS AT THE AIR HANDLING UNITS WITH PLEATED MERV 8 THROW AWAY TYPE AIR FILTERS AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO AIR BALANCE AND STORE TURNOVER.
21. MECHANICAL CONTRACTOR SHALL BE ON SITE AND PRESENT AT THE DATE OF STORE TURNOVER.
22. REFER TO MANUFACTURER SHEETS FOR THE HOOD CONTROL WIRING DIAGRAM FOR OPERATION OF THE KITCHEN HOOD EQUIPMENT.

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03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

	DATE	DESCRIPTION

SHEET TITLE:

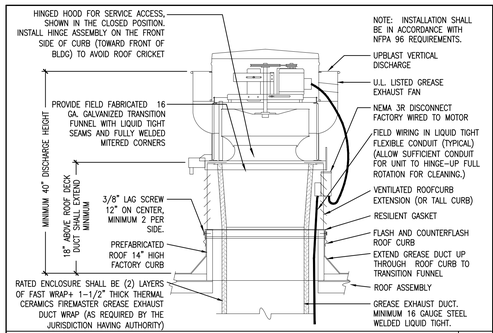
MECHANICAL SCHEDULES AND DETAILS

SHEET NUMBER:

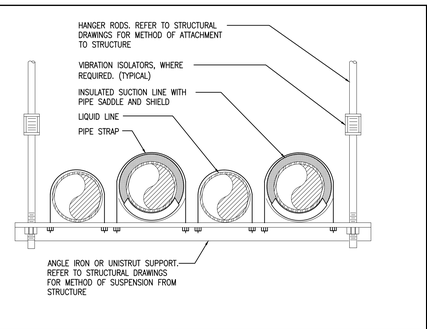
M2.0

ID54 PROJECT NUMBER:

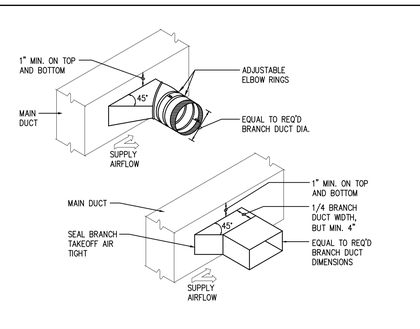
DBQ21015



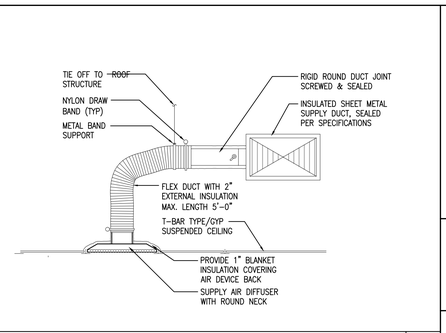
KITCHEN UPBLAST GREASE EXHAUST FAN DETAIL | 1
SCALE: NONE



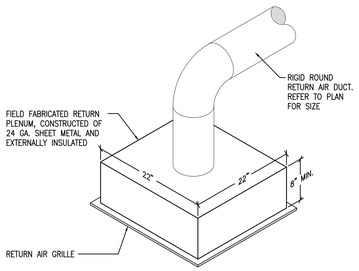
HORIZONTAL REFRIGERANT PIPE SUPPORT DETAIL | 2
SCALE: NONE



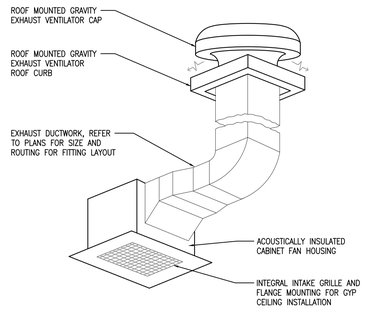
BRANCH TAKE-OFF FITTING DETAIL | 3
SCALE: NONE



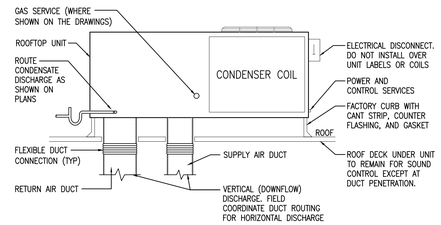
CEILING MOUNTED SUPPLY AIR DIFFUSER DETAIL | 4
SCALE: NONE



CEILING MOUNTED RETURN AIR GRILLE DETAIL | 5
SCALE: NONE



CEILING MOUNTED CABINET FAN DETAIL | 6
SCALE: NONE



PACKAGED ROOFTOP UNIT DETAIL | X
SCALE: NONE

ENGINEER:

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MECHANICAL DETAILS

SHEET NUMBER:

M3.0

DS4 PROJECT NUMBER:

DBQ21015

HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.) LENGTH	WIDTH	HEIGHT	HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST TOTAL CFM	COLLAR(S) WIDTH	LENGTH	DIA.	CFM	S.P.	SUPPLY MUA CFM	AC CFM	TOTAL WEIGHT LBS.	SECTION LOCATION
1	HOOD 1	XXEW-144-S	144	60	24	430 SS WHERE EXPOSED	MEDIUM	3000	9	29		3000	0.654	2400		395.388	SINGLE

HOOD INFORMATION

HOOD NO.	MARK	LIGHTING DETAILS FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	GREASE FILTRATION DETAILS TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L	H	UTILITY CABINET(S) LOCATION	FIRE SYSTEM TYPE	SIZE	CONTROLS MODEL	INTERFACE
1	HOOD 1	INCANDESCENT (GLOBE) 100W A19 (BULBS NOT INCL.)	4	43.67	X-TRACTOR STAINLESS STEEL	4 4	16 20	20	RIGHT	ANSUL R102	3	XKC	TOUCHSCREEN

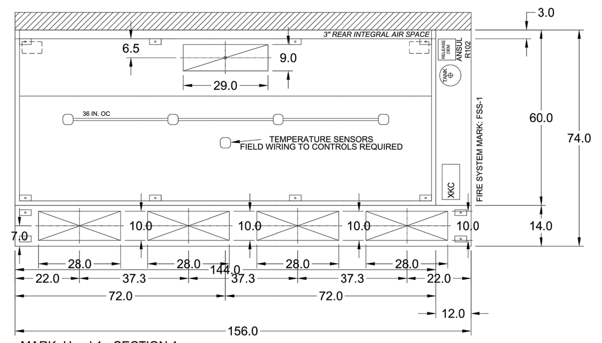
SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.) L	W	H	INSULATED	DAMPER(S)	LED LIGHT(S) SUPPLIED	QTY	TOTAL CFM	COLLARS TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	HOOD 1	FRONT	ASP	156	14	10	NO	YES	NO		2400	MUA	FACTORY	4	10	28		600	0.15	309

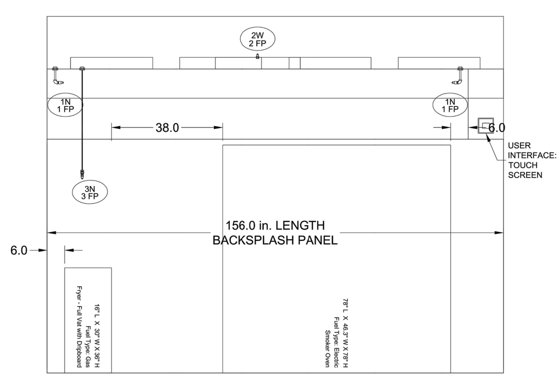
HOOD OPTIONS

- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED
- FACTORY MOUNTED EXHAUST COLLAR(S)
- BACKSPLASH 80.00 IN HIGH 156.00 IN LONG
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

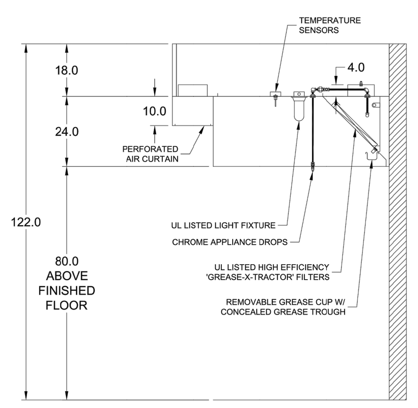
DESIGNED AS A NON SOLID FUEL APPLICATION. VERIFY HOOD REQUIREMENTS WITH LOCAL JURISDICTION. AN ELECTRIC WOOD PELLET SMOKER COULD BE CONSIDERED A SOLID FUEL APPLICATION WHICH WILL ALTER THIS DESIGN. ACCUREX WILL NOT BE RESPONSIBLE FOR ANY REQUIRED CHANGES TO DESIGN AFTER HOODS ARE SUBMITTED FOR PRODUCTION



MARK: Hood 1 - SECTION 1
PLAN VIEW

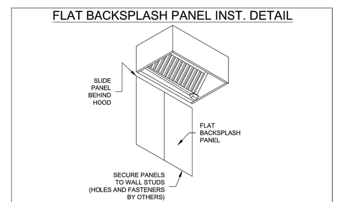


MARK: Hood 1 - SECTION 1
ELEVATION VIEW

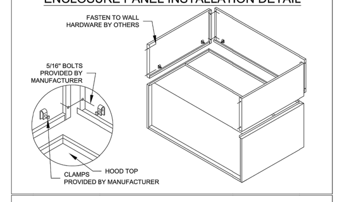


MARK: Hood 1
SECTION VIEW

FLAT BACKSPLASH PANEL INST. DETAIL



ENCLOSURE PANEL INSTALLATION DETAIL



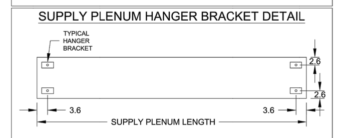
HOOD HANGING HEIGHT FOR FIRE SYSTEMS

VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

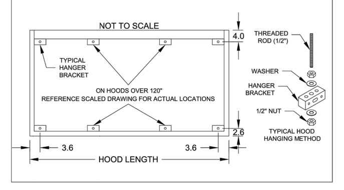
☐ RECOMMENDED HANGING HEIGHT = 80" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.

☐ OTHER HANGING HEIGHT = ________" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.

SUPPLY PLENUM HANGER BRACKET DETAIL



HOOD HANGER BRACKET DETAIL



DICKEYS BBQ - LANSING MI
HOOD 1
PROJECT 2/10/2022
MARK
ACCUREX NORTH TX OK AR
TIM REAMS
TYLER.FRANCISCO@ACCUREX.COM
(214)632-7239
ACCUREX

Direct Drive Upblast Centrifugal Roof Exhaust Fan

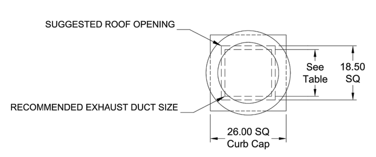
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	KEF-1	XCUE-160-VG	3,000	1	1,379	0.98	121	2	208/60/3	TF	1725	1	7.5

(MARK INFORMATION: QTY, MARK; FAN INFORMATION: MODEL through WEIGHT; MOTOR INFORMATION: SIZE through NEC FLA*)

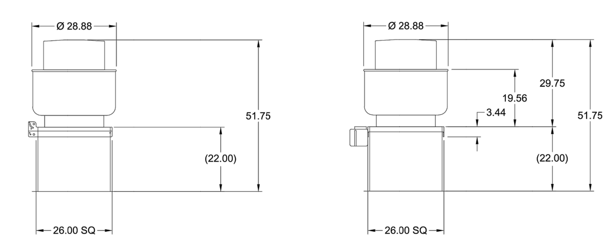
NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory

KEF-1 : SELECTED OPTIONS AND ACCESSORIES

- One piece fully welded windband
- Tapered bushing wheel hub
- Breather tube outlet area min. 4.4 sq. in. (sizes 99-480), 2.0 sq. in. (sizes 60-95)
- Min. windband material thickness: 0.051" aluminum (060-240), 0.064" aluminum (240HP, 240XP), 0.080" aluminum (sizes 300-480)
- Larger Curb Cap Size - 26 Square
- UL/cUL 762 Listed - "Power Ventilators for Rest. Exh. Appliances"
- Switch, NEMA-3R, Toggle, Shipped with Unit
- Hinge, Factory Installed
- High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
- Grease Trap (PN 475538)

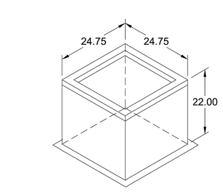


DUCT TYPE	SIZE
STANDARD	16 SQ
FIRE-WRAPPED	8 SQ



DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB. CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



DICKEYS BBQ - LANSING MI
KEF-1
PROJECT 2/10/2022
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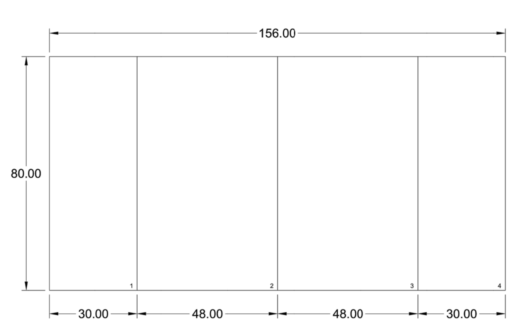
(214)632-7239
ACCUREX



BACK SPLASH

Dickeys BBQ - Lansing MI
Hood 1 - SPLASH PANEL LAYOUT
PROJECT 2/10/2022
MARK
ACCUREX NORTH TX OK AR
Tim Reams
tyler.francisco@accurex.com
(214)632-7239
ACCUREX

EQUIPMENT SCHEDULE

Tempered Make-Up Air Unit — Mark: HMUA-1

Qty	Accurex Model	Volume	External SP	Total SP	FRPM	Operating Power	Weight
1	XDGX-P112-H12-MF	2,400 CFM	0.5 in. wg	1.244 in. wg	2331	0.91 hp	618 lb

Motor Information

Size	V/C/P	Enclosure	Motor with Shaft Grounding	Motor RPM	Windings	MCA	MOP
1 1/2 hp	208/60/3	ODP	No	1725	1	8.9	15

Heating

Type	Gas Type	Temperature Winter DB	Max Δ	Max LAT	Energy Input	Output	Efficiency	Connection Gas	Building Gas Pressure	Control Access
Direct Gas	Natural	-2.5 F	72.5 F	70.0 F	204.3 MBH	187.9 MBH	92%	3/4"	1/2 PSI	11a

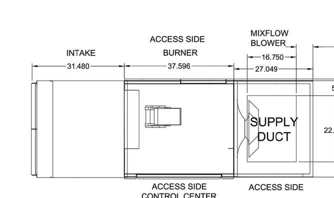
Outlet Sound Power By Octave Band

62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
74	70.2	73.9	70.2	75.6	76.1	74.2	68.2	81.3	70.3	17.3

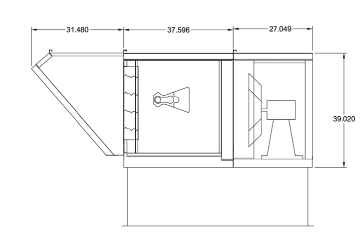
• LwA - A weighted sound power level based on ANSI S1.4
• dBA - A weighted sound pressure level base on 11.5 dB attenuation per octave band at 5.0 ft.
• Noise Criteria (NC) based on an average attenuation of 11.5 dB per octave band at 5.0 ft.

OPTIONS AND ACCESSORIES

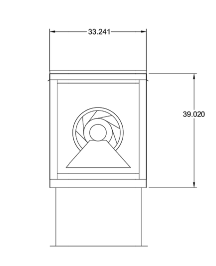
- Air Flow Arrangement: Outdoor Air Only
- Weatherhood: Aluminum Mesh, 16x20x2 - (4)
- Damper: Inlet
- Outdoor Air Intake Position: End
- Discharge Position: Bottom
- Coating: Galvanized
- Insulation: Double Wall - Tempering On
- Supply Fan Control: VFD
- VFD Control: Constant Volume
- Access Side: Right-Hand
- Control Center
- Heat Inlet Air Sensor
- Unit Controls: Terminal Strip
- Temperature Control: Discharge
- Direct Gas Options/Accessories
- Approvals: ETL
- FM Compliant
- Flame Sensing: Flame Rod
- Ignition Control: Pilot
- Unit Rated Gas Pressure: 1/2 PSI
- Unit Warranty: 1 Yr (Standard)



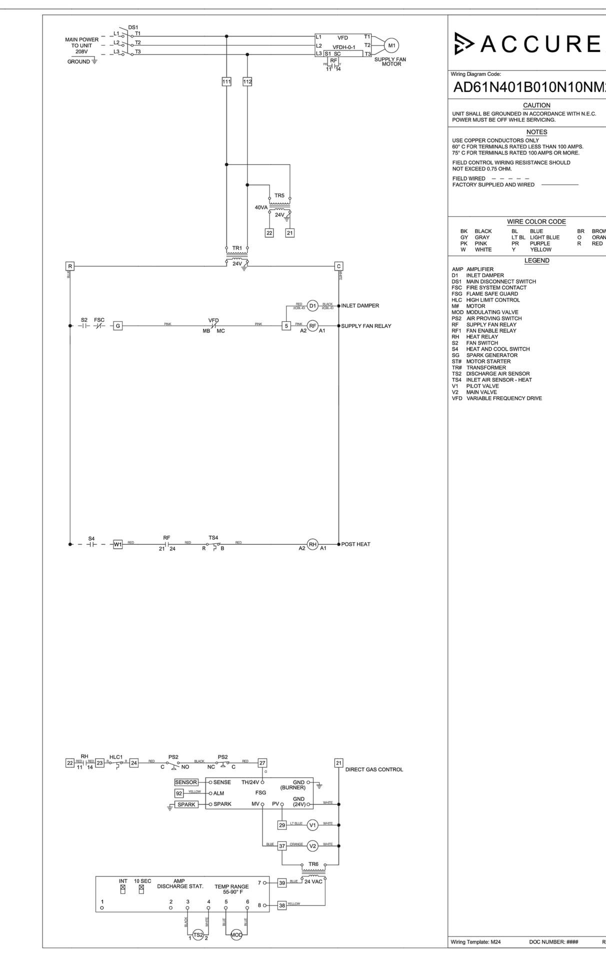
PLAN VIEW



ELEVATION VIEW



END VIEW

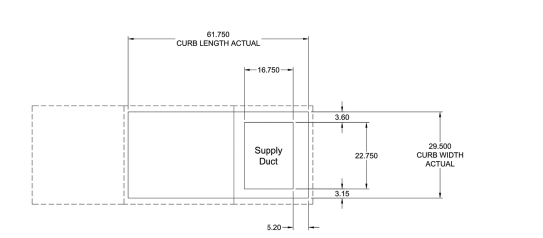


NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides. For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

Maximum Roof Opening: There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb. For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

NOTE: The weatherhood and filter sections of the make-up air unit are not supported by the curb. This is by design, in order to help alleviate water infiltration issues.



FOOTPRINT

DICKEYS BBQ - LANSING MI
HMUA-1
PROJECT 2/10/2022
MARK
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03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

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7776 GREEN ROAD
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DICKEY'S BARBECUE PIT est. 1941

MI-2077

DATE	DESCRIPTION
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△	DATE	DESCRIPTION

HOOD DRAWINGS

M4.0

IDS4 PROJECT NUMBER:
DBQ21015

FIRE SYSTEM INFORMATION

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
FSS-1	ANSUL R-102 WET CHEMICAL	CABINET – RIGHT END OF HOOD 1	7 UTILIZED 11 AVAILABLE		CONTINUOUS	FUSIBLE LINK	HOOD 1 SECTION 1

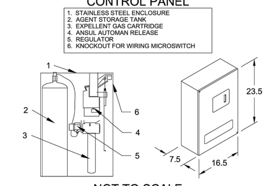
FIRE SYSTEM OPTIONS AND ACCESSORIES

- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
- HOOD SUPPRESSION TANK - INCLUDED - 3 GAL. - [(1) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FSSC

CONTROL PANEL

1. STAINLESS STEEL ENCLOSURE
2. AGENT STORAGE TANK
3. EXPELLENT GAS CARTRIDGE
4. ANSUL AUTOMAN RELEASE
5. REGULATOR
6. KNOCKOUT FOR WIRING MICROSWITCH



NOT TO SCALE

NOTES:

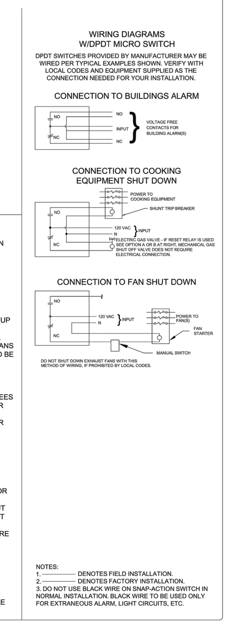
WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.
-VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
-ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
-ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:
-GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
-MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

THE BASIC FIRE SYSTEM DOES NOT INCLUDE THE FOLLOWING:
-FULL DUMP TEST OTHER THAN WHT IS SPECIFIED PER THE INSTALLATION MANUAL, OR TO SATISFY A STATE OR LOCAL CODE. PERMIT AND TESTING FEES ARE NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
-MORE THEN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS.
-INSTALLATION OF GAS SHUT-OFF VALVE.
-SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR FS APPROVAL STAMP.
-UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
-ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTIVATE AN ALARM SYSTEM, ETC.
-ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
-ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
-INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M.)
-PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS. OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THEN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

WIRING DIAGRAMS
W/DPDT MICRO SWITCH

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN. VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.



NOTES:
1. ———— DENOTES FIELD INSTALLATION.
2. ———— DENOTES FACTORY INSTALLATION.
3. DO NOT USE BLACK WIRE ON SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

DICKEYS BBQ - LANSING MI

FSS-1

PROJECT 2/10/2022 | MARK

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CONTROL INFORMATION

MARK	ELECTRICAL CONTROL PACKAGE		USER INTERFACE	
	MODEL	LOCATION	TYPE	LOCATION
CONTROLS	XKC-CV-S-11-1-1-0	RIGHT CABINET ON HOOD 1	FULL COLOR TOUCHSCREEN	CABINET – RIGHT CABINET ON HOOD 1

FANS CONTROLLED

FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
1	SUPPLY	S1	HMUA-1	1	2400	1.5	208	60	3	NO	NO
2	EXHAUST	E1	KEF-1	1	3000	2	208	60	3	NO	NO

CONTROL FEATURES

- HOOD LIGHT CONTROL
- TEMP SENSORS (FACTORY INSTALLED) - QTY. 1
- DRY FIRE CONTACTS - QTY. 2
- LIGHTS OFF DURING FIRE
- EXHAUST MAX DURING FIRE
- SUPPLY OFF DURING FIRE

ACCUREX

DOC NUMBER: #### | REV: ####

CAUTION: UNIT MUST BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

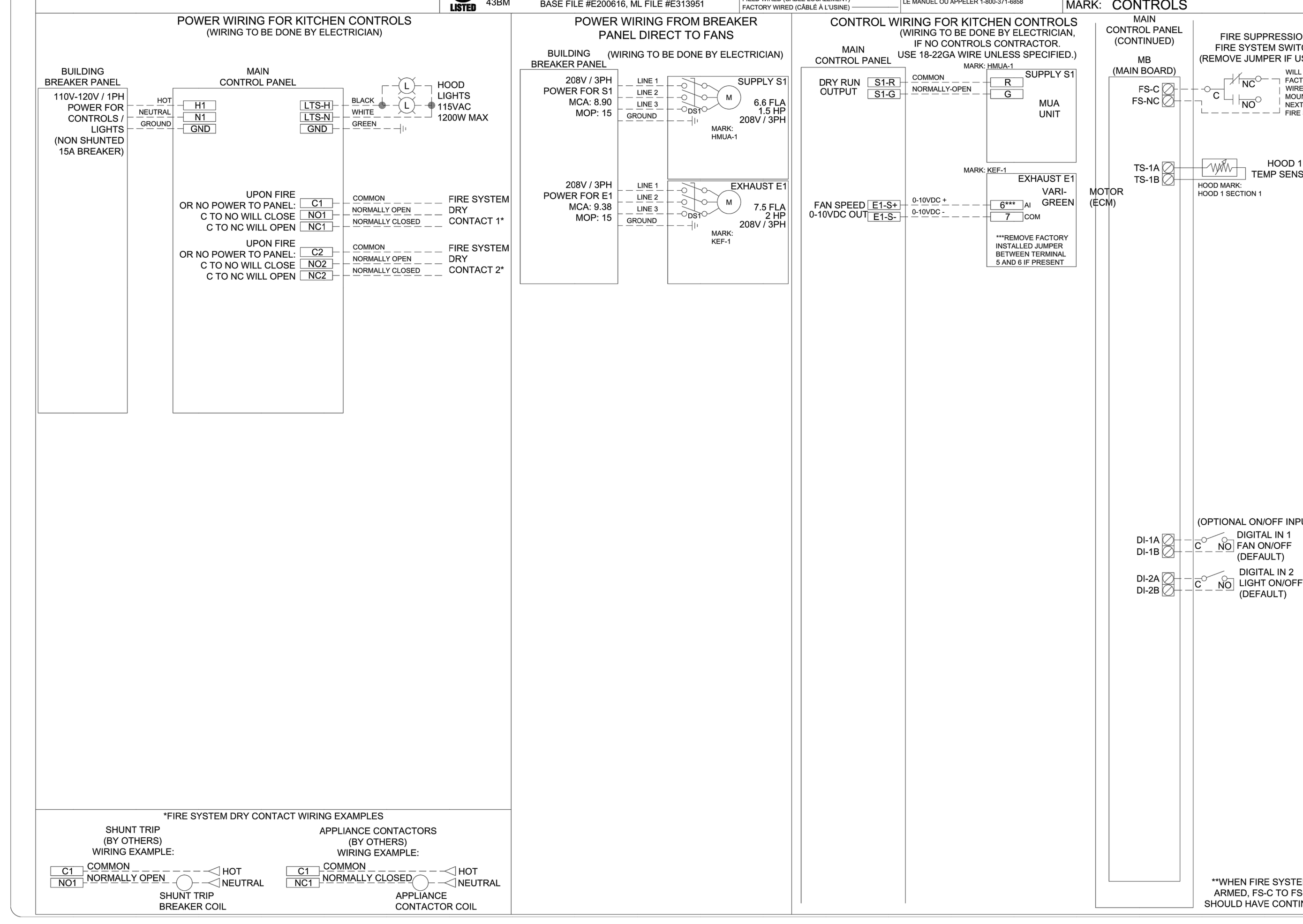
ATTENTION: L'APPAREIL DOIT ÊTRE MIS À LA TERRE CONFORMÉMENT AU CODE C.E. L'AUMENTATION DOIT ÊTRE COUPÉE DURANT L'ENTRETIEN.

c UL us LISTED 43BM
COMMERCIAL APPLIANCE OUTLET CENTER
ELECTRICAL RATINGS: 110-240V,1PHASE, 50-60HZ,15A
BASE FILE #E200616, ML FILE #E313951

THESE DRAWINGS SHALL NOT BE REMOVED FROM THIS EQUIPMENT. USE COPPER CONDUCTORS RATED TO 90°C UNLESS SPECIFIED. TORQUE CONTROL & GROUND BLOCKS TO 8 LBS. IN. TORQUE POWER LUGS/SCREWS TO COMPONENT RATINGS LISTED. TORQUE CONTROL BOARD SCREW TERMINALS TO 3.5 LBS. IN. FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM. SEE IOM FOR ADDITIONAL INFORMATION, OR CALL FACTORY AT 1-800-371-6858.
PRG VERSION: V4
FIELD WIRED (CÂBLÉ LOCALEMENT)
FACTORY WIRED (CÂBLÉ À L'USINE)

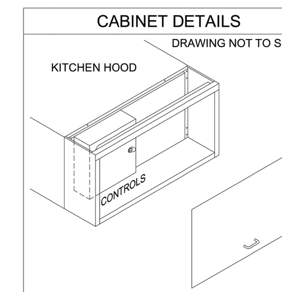
NE PAS RETIRER CES DESSINS DE CET ÉQUIPEMENT. SAUF INDICATION CONTRAIRE, UTILISER DES CONDUCTEURS EN CUIVRE CLASSÉS 90 °C. SERRER LES BORNES DE COMMANDE ET DE MISE À LA TERRE À 8 LB-PO. SERRER LES COSSES/VIS D'ALIMENTATION AUX COUPLES INDIQUÉS POUR LE COMPOSANT. SERRER LES BORNES À VIS DE LA CARTE DE COMMANDE À 3,5 LB-PO. LA RÉSISTANCE DU CÂBLAGE DE COMMANDE LOCAL NE DOIT PAS DÉPASSER 0,75 OHM. POUR PLUS D'INFORMATION, CONSULTER LE MANUEL OU APPELER 1-800-371-6858

WIRING DIAGRAM CODE: ####
JOB NAME: DICKEYS BBQ - LANSING MI
MODEL: XKC-CV-S-11-1-1-0
SERIAL NUMBER: WDSN#
MARK: CONTROLS



CABINET DETAILS

DRAWING NOT TO SCALE



MOUNTING LOCATION:
UTILITY CABINET ON HOOD
(INNER CONTROL BOX: 12 X 20 X 6)

NOTES:
1) WHEN CONTROLS ARE MOUNTED IN HOOD-MOUNTED OR WALL-MOUNTED UTILITY CABINET, FOR HOOD OR WALL CABINET DIMENSIONS SEE HOOD SUBMITTAL.

2) MINIMUM OF 36" OF CLEARANCE RECOMMENDED IN FRONT OF CONTROL CABINET

USER INTERFACE DETAILS

MOUNTING TYPE
FACTORY MOUNTED:
UTILITY CABINET - RIGHT END OF HOOD

USER INTERFACE CONTROL
FANS AND LIGHTS

INTERFACE CABLE LENGTH
7FT (FACTORY PROVIDED)

ZONE CONFIGURATION

ZONE #	ZONE	ROOM TEMP
1	Z1	PRESET

HOOD CONFIGURATION

HOOD #	HOOD	HOOD MARK	ZONE	EXHAUST	SUPPLY	MB-TEMP SENSORS	HCB
1	H1	HOOD 1 SECTION 1	Z1	E1	S1	TS1	NO

WIRING DIAGRAM CODE: ####
JOB NAME: DICKEYS BBQ - LANSING MI
MODEL: XKC-CV-S-11-1-1-0
SERIAL NUMBER: WDSN#
MARK: CONTROLS
DOC NUMBER: #### | REV: ####

DEFAULT SETTINGS / PARAMÈTRES PAR DÉFAUT

FACTORY SETTINGS
TYPE: CV
CONFIGURATION: STANDARD
ZONES: 1
HOODS: 1
SUMPS: 0
EXHAUST FANS: 1
SUPPLY FANS: 1
MB ROOM SENSOR: NO
MB TEMP SENSORS: 1
HIGH TEMP FAULT: NO
FREEZE PROTECTION: YES
GAS RESET: NO
FAN PROVING: NO
BMS: NONE

ZONE SETTINGS
SEE ZONE CONFIGURATION IN TABLE ON LEFT

HOOD SETTINGS
SEE HOOD CONFIGURATION IN TABLE ON LEFT

EXHAUST FAN SETTINGS
SEE FAN CONFIGURATION IN TABLE ON LEFT

SUPPLY FAN SETTINGS
SEE FAN CONFIGURATION IN TABLE ON LEFT

SENSOR SETTINGS
SEE HOOD CONFIGURATION IN TABLE ON LEFT

USER INTERFACE SETTINGS (MB)
FAN & LIGHT BUTTONS: SHOW BOTH (SEPERATE)

USER INTERFACE SETTINGS (HCB)
NA

GENERAL SETTINGS
TIME ZONE: CENTRAL DAYLIGHT (DEFAULT)

FIRE/FAULT SETTINGS
EXHAUST DURING FIRE: MAX
SUPPLY DURING FIRE: OFF
LIGHTS DURING FIRE: OFF

BMS SETTINGS
NA

PRG VERSION: V4

FAN CONFIGURATION

FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODBUS VFD	VFD ADDRESS	MIN FREQ.	MAX FREQ.	MIN VDC	MAX VDC
1	SUPPLY	S1	HMUA-1	Z1	-	2400	NO	-	-	-	-	10.0
2	EXHAUST	E1	KEF-1	Z1	-	3000	NO	-	-	-	-	10.0

DICKEYS BBQ - LANSING MI

CONTROLS

PROJECT 2/10/2022 | MARK

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03/16/22

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CLIENT: KEVING GRIFFIN
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DICKEY'S BARBECUE PIT est. 1941

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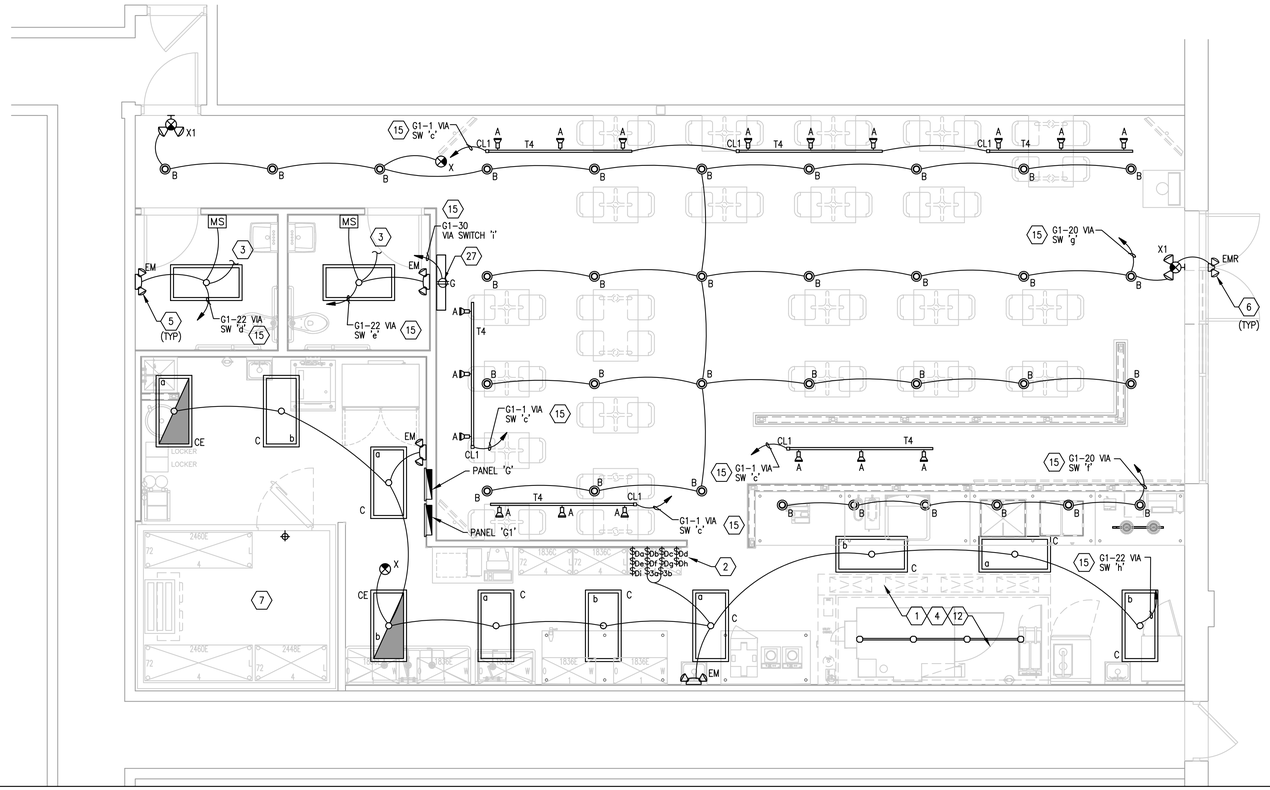
HOOD DRAWINGS

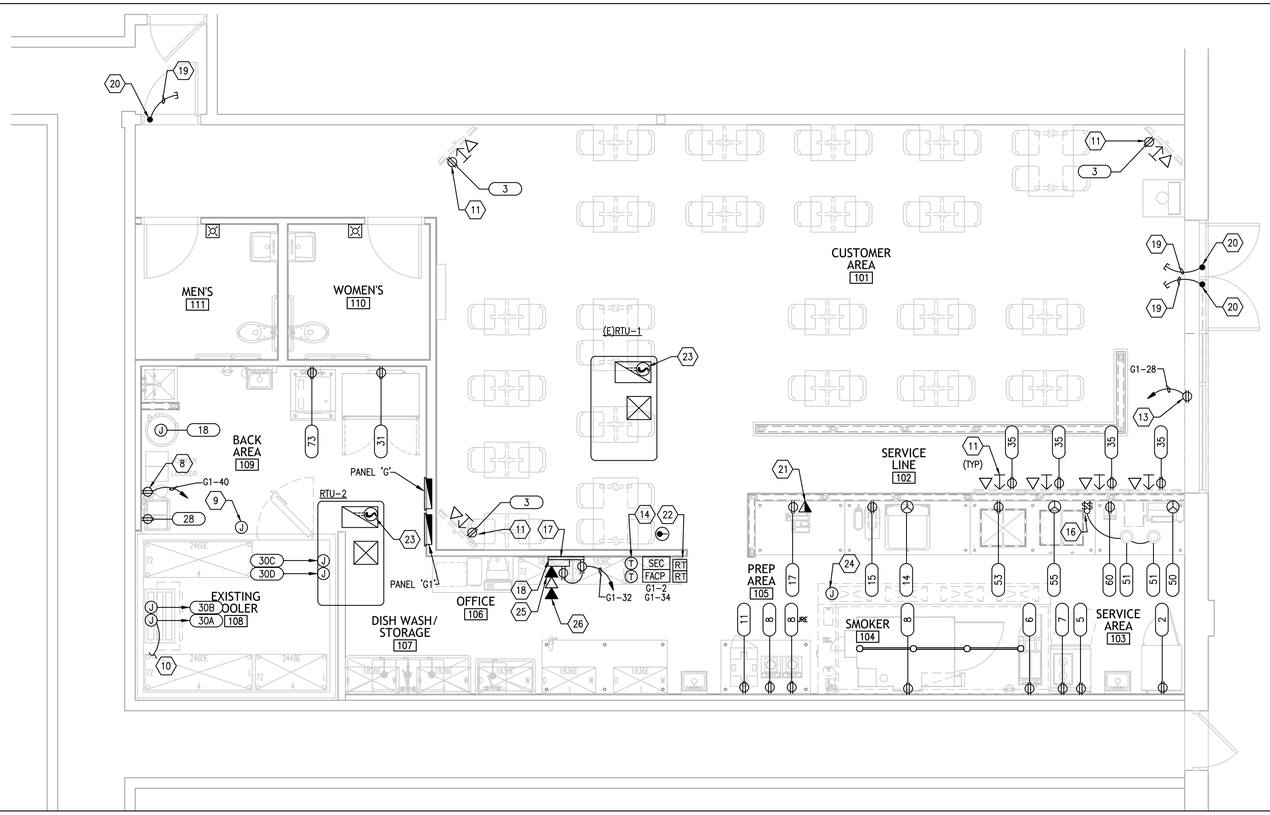
M4.1

IDS4 PROJECT NUMBER:

DBQ21015



LIGHTING FLOOR PLAN 1/4"=1'-0" | 1



POWER FLOOR PLAN 1/4"=1'-0" | 2

GENERAL NOTES

A.	ALL WIRING SHALL BE IN CONDUIT, EMT OR RIGID FLEXIBLE CONDUIT MAY ONLY BE USED FOR FINAL CONNECTIONS FROM OUTLET BOXES TO LIGHT FIXTURES, MOTORS, APPLIANCES, ETC. MAXIMUM LENGTH 6 FEET. NO BX, ROMEX, ARMORED CABLE, ETC. ALLOWED.
B.	IT'S THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO BALANCE ALL CIRCUITS BETWEEN THE PHASES OF THE SYSTEM, REGARDLESS OF CIRCUITS INDICATED.
C.	IN PUBLIC AREAS BATTERY PACKS FOR EXIT AND EMERGENCY LIGHTS MUST BE REMOTE OR RECESSED. PAINT EXPOSED SURFACE TO MATCH ADJACENT FINISH.
D.	ALL PENETRATIONS IN FIRE RATED WALL ASSEMBLIES SHALL BE SEALED WITH UL LISTED FIRE STOPPING MATERIAL.
E.	SECURE ALL LIGHTS, CEILING, HVAC DUCT WORK, ETC. TO TOP CHORD OF JOISTS, TYPICAL.
F.	ALL CONDUIT ON THIS SHEET FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
G.	VERIFY AND FIELD COORDINATE ALL EQUIPMENT ROUGH-IN REQUIREMENTS.
H.	ALL EMPTY CONDUIT TO HAVE NYLON PULLSTRINGS INSTALLED.
I.	ROUTE ALL EXPOSED CONDUIT PARALLEL AND PERPENDICULAR TO TRUSSES BETWEEN BOTTOM OF TOP CHORD AND TOP OF BOTTOM CHORD AS REQUIRED. PAINT AS DIRECTED.
J.	CAT 5e CABLE (GRAY) FOR VOICE/DATA/POS CABLE PROVIDED BY I.T. VENDOR.
K.	ALL EMPTY CONDUITS FOR, DATA/VOICE, ETC. SHALL HAVE BUSHINGS AND PULL STRINGS.
L.	ALL POS PHONE/DATA SHALL BE ROUTED TO MANAGER'S DESK UNLESS NOTES OTHERWISE.

LIGHTING KEYED NOTES

1.	INTERLOCK HOOD LIGHT WITH HOOD ON/OFF SWITCH. CIRCUIT TO SHUT OFF THRU SHUNT CIRCUIT BREAKER IN PANEL 'G1'.
2.	FIELD VERIFY LOCATION OF SWITCH BANK. LABEL ALL SWITCHES PER AREA SERVED.
3.	PROVIDE ALL NECESSARY CONTACTORS, RELAYS, ETC. TO CIRCUIT THE EXHAUST FAN TO THE OCCUPANCY SENSOR FOR A COMPLETE OPERATIONAL SYSTEM.
4.	HOOD LIGHTS FURNISHED & INSTALLED WITH HOOD.
5.	CONNECT EXIT LIGHT, EMERGENCY FIXTURE, EXTERIOR EMERGENCY FIXTURE, EMERGENCY BATTERY PACK AND NIGHT LIGHT AHEAD OF ALL SWITCHING.
6.	FIELD VERIFY THAT THE LANDLORD HAS PROVIDED AN EMERGENCY EGRESS LIGHT FIXTURE ON THE EXTERIOR DOOR. IF NONE SHOWN PROVIDE A LITHONIA #AFB-OEL-DDBTXD-UVOLT-N-WT-CW BELOW EXTERIOR DOOR AWNINGS.
7.	COOLER LIGHTING SHALL BE PROVIDED BY COOLER MANUFACTURER.
8.	RECEPTACLE FOR CO2 ALARM. COORDINATE LOCATION WITH CO2 PROVIDER AND OWNER. COORDINATE ALARM WITH OWNER.
9.	PROVIDE 4" HEXAGON RECESSED JUNCTION BOX MOUNTED AT 48" AFF TO BOTTOM FOR HOOD SUPPRESSION SYSTEM MANUAL PULL STATION. PROVIDE WITH 3/4" CONDUIT TO A MINIMUM OF 12" ABOVE THE CEILING. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. VERIFY LOCATION WITH SUPPLIER AND FIRE MARSHAL.
10.	PROVIDE ALL INTERCONNECTION WIRING BETWEEN COOLER EVAPORATOR AND COOLER REMOTE CONDENSING UNIT LOCATED ON ROOF PER MANUFACTURER'S INSTRUCTIONS.
11.	MOUNT TELEVISION OUTLET AT 96"AFF. COORDINATE REQUIREMENTS WITH OWNER AND TELEVISION PROVIDER PRIOR TO ROUGH-IN. ROUTE COAXIAL CABLE BACK TO TELEPHONE BOARD. PROVIDE ADDITIONAL DATA DROP.
12.	CONTRACTOR SHALL PROVIDE ALL ELECTRICAL CONNECTIONS, WIRING AND CONDUITS NECESSARY FOR THE INTERLOCKING OF KITCHEN EXHAUST FANS AND MAKEUP AIR UNIT THROUGH THE KITCHEN CONTROL PANEL.
13.	MOUNT "SHOW WINDOW" RECEPTACLES ON CEILING OR ON WALL ABOVE WINDOW. COORDINATE LOCATION WITH OWNER.
14.	TWO (2) ROOF TOP UNIT THERMOSTAT LOCATION. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
15.	CIRCUIT LIGHTING TO BRANCH CIRCUIT SHOWN VIA NEW DIMMER SWITCHES LOCATED IN FRONT OF HOUSE.
16.	MOUNT SWITCHES FOR HEAT LAMPS HORIZONTALLY AND ABOVE COUNTER. COORDINATE LOCATION WITH OWNER. ONE SWITCH PER LAMP.
17.	TELEPHONE TERMINAL BOARD LOCATION. CONTRACTOR TO TERMINATE ALL CAT-5 CABLE AT PHONE BOARD.
18.	DMARK PATCH PANEL LOCATION. POS HUB E.C. TO TERMINATE ALL CAT-5 CABLES FOR POS EQUIPMENT.
19.	PROVIDE 1/2" CONDUIT ONLY FOR SECURITY SYSTEM WIRES. STUB INTO ACCESSIBLE CEILING SPACE FOR ROUTING TO SECURITY PANEL.
20.	PROVIDE STUB CONDUIT DOWN TO TOP OF DOOR JAMB AS DIRECTED BY SECURITY SYSTEM CONTRACTOR FOR CONNECTION TO SECURITY SENSOR CONTACTS.
21.	1" CONDUIT WITH PULL STRING FOR POS DATA CABLES. STUB INTO WALL AND EXTEND TO TELEPHONE BOARD. COORDINATE ROUTING PRIOR TO CONSTRUCTION.
22.	PROVIDE RESET/TEST/ALARM SWITCH AT MANAGERS DESK FOR EACH RTU SMOKE DETECTOR. COORDINATE LOCATION OF SWITCH WITH OWNER. COORDINATE EXACT LOCATION WITH OWNER.
23.	SMOKE DETECTORS INDICATED SHALL BE FACTORY MOUNTED WITHIN EACH ROOFTOP UNIT.
24.	JUNCTION BOX FOR HOOD CONTROLS. COORDINATE REQUIREMENTS WITH HOOD MANUFACTURER AND INSTALLER PRIOR TO ROUGH-IN.
25.	PROVIDE AND INSTALL CAT-5 CABLE IN DEDICATED 3/4" CONDUIT FROM POS DATA OUTLET LOCATION TO DMARK AT TELEPHONE BOARD.
26.	PROVIDE AND INSTALL CAT-5 CABLE IN DEDICATED 3/4"CONDUIT TO TELEPHONE BACKBOARD.
27.	COORDINATE MOUNTING HEIGHT OF RECEPTACLE FOR "D" SIGN LIGHTING WITH OWNER AND LIGHTING PROVIDER. CIRCUIT VIA DIMMER SWITCH LOCATED IN THE KITCHEN.

FIRE ALARM GENERAL NOTE

1. AN APPROVED MANUAL FIRE ALARM SYSTEM MONITORED BY A LISTED CENTRAL STATION, REMOTE STATION OR PROPRIETARY STATION SHALL BE PROVIDED, DESIGNED PER NFPA STD. 72. PRIOR TO INSTALLATION A LICENSED CONTRACTOR SHALL SUBMIT TO THE FIRE DEPARTMENT, ONE (1) SET OF MANUFACTURER'S CUT SHEETS AND STATE FIRE MARSHALL LISTING SHEETS FOR EACH DEVICE, THREE (3) SETS OF SHOP DRAWINGS, A COMPLETED PERMIT APPLICATION, AND APPLICABLE FEES FOR REVIEW. ELECTRICAL CONTRACTOR SHALL INSTALL CONDUIT ONLY AND OUTLET BOXES. WIRING AND DEVICES SHALL BE BY OWNER'S FIRE ALARM SYSTEM CONTRACTOR. FIRE ALARM SYSTEM CONTRACTOR SHALL SUBMIT FINAL FIRE ALARM SYSTEM SHOP DRAWINGS TO LOCAL FIRE DEPARTMENT PLAN CHECK FOR APPROVAL PRIOR TO INSTALLATION.

   PROVIDE DOCUMENTATION TO FIRE INSPECTOR VERIFYING SERVICE CONTRACTS OF FIRE ALARM SYSTEM.

ENGINEER:

DPCE

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CORPORATE:

DICKEY'S BARBECUE RESTAURANT, INC.
4514 COLE AVENUE, SUITE 1100
DALLAS, TEXAS 75205
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FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT

FRANDOR SHOPPING CENTER

300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

	DATE	DESCRIPTION

SHEET TITLE:

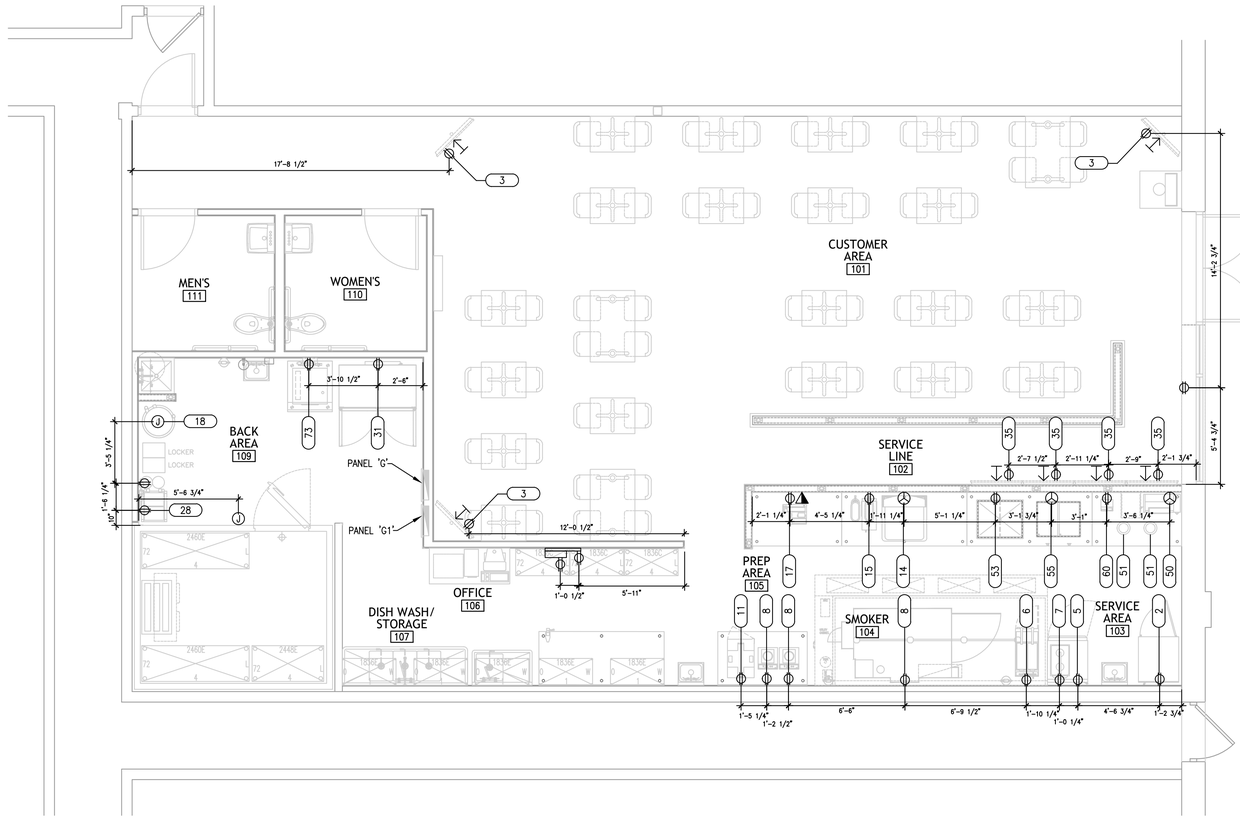
LIGHTING AND POWER FLOOR PLAN

SHEET NUMBER:

E1.0

ID54 PROJECT NUMBER:

DBQ21015



PO ER ROUGH-IN FLOOR PLAN
1 4" 1 -0"

1

GENERAL ROUGH-IN NOTES

1. ALL ELECTRICAL OUTLETS SHOWN ON THIS PLAN ARE FOR FIXTURES AND EQUIPMENT SPECIFIED AS FURNISHED OWNER UNLESS OTHERWISE NOTED. FOR ADDITIONAL OUTLETS, SEE THE POWER PLAN.
2. ALL DIMENSIONS GIVEN ARE FROM COLUMN CENTERLINE AND/OR FINISHED WALLS.
3. ELECTRICIAN TO BRANCH TO CONNECTION WHERE REQUIRED TO CONNECT ALL ELECTRICAL EQUIPMENT AND FIXTURES AND DO ANY INTERNAL WIRING REQUIRED IN THE FIXTURES INCLUDING INTER-WIRING TO APPLIANCES AS REQUIRED BY THE SPECIFICATIONS AND/OR DRAWINGS.
4. CONTRACTOR TO PROVIDE AND INSTALL GALVANIZED JUNCTION BOXES IN FIXTURE CUTOUTS AS REQUIRED BY THE ITEM SPECIFICATION AND INCLUDE APPROPRIATE ELECTRICAL RECEPTACLE, WITH S/S FACEPLATE.
5. ELECTRICIAN TO CONNECT ALL ELECTRICAL EQUIPMENT AND FIXTURES AND DO ANY INTERNAL WIRING REQUIRED IN THE FIXTURES AS REQUIRED BY THE SPECIFICATIONS. ALL ELECTRICAL OUTLET COVER PLATES ARE TO BE STAINLESS STEEL AND ARE TO BE FURNISHED BY THE ELECTRICIAN, AS WELL AS THE RECEPTACLE, UNLESS OTHERWISE SPECIFIED IN THE ITEM SPECIFICATIONS. ALL DISCONNECT SWITCHES ARE TO BE FURNISHED AND INSTALLED BY THE ELECTRICIAN AT TIME OF INSTALLATION.
6. ALL OUTLETS WITHIN KITCHEN AREA AND PREP AREA SHALL BE GFI PER NEC.
7. ELECTRICAL CONTRACTOR TO PROVIDE CONTROL WIRING AND ELECTRICAL SERVICE FOR REMOTE REFRIGERATION SYSTEMS FOR WALK-IN BOXES, AND INSTALL ALL LIGHTS IN WALK-IN COOLER AS REQUIRED THRU DOOR SWITCH.

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SHEET TITLE:

POWER
ROUGH-IN
FLOOR PLAN

SHEET NUMBER:

E2.0

ID54 PROJECT NUMBER:

DBQ21015

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
	2 X 4 LED FIXTURE
	2 X 4 LED FIXTURE WITH BATTERY BACKUP
	1 X 4 LED FIXTURE
	1 X 4 LED FIXTURE WITH BATTERY BACKUP
	4' LED STRIP FIXTURE
	4' LED STRIP FIXTURE WITH BATTERY BACKUP
	SURFACE MOUNTED TRACK AND TRACK HEAD
	PENDANT MOUNTED LIGHT FIXTURE
	RECESSED DOWNLIGHT FIXTURE
	RECESSED WALLWASH LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	HOOD LIGHT
	CEILING MOUNTED EXIT SIGN, SHADE INDICATES FACE
	WALL/CEILING MOUNTED EMERGENCY BUGEYE FIXTURE
	COMBINATION EXIT SIGN/EMERGENCY BUGEYE
	EMERGENCY REMOTE HEAD LIGHT FIXTURE
	JUNCTION BOX
	WALL MOUNTED DUPLEX RECEPTACLE
	FLOOR MOUNTED DUPLEX RECEPTACLE
	WALL MOUNTED SINGLE RECEPTACLE
	FLOOR MOUNTED SINGLE RECEPTACLE
	SPECIAL RECEPTACLE
	WALL MOUNTED QUADRUPLEX RECEPTACLE
$	SINGLE POLE SWITCH
$3	THREE POLE LIGHT SWITCH
$P	PILOT LIGHT SWITCH
$T	SINGLE THROW THERMAL SWITCH
$M	MOTOR RATED SWITCH
MS	MOTION SENSOR
	BUZZER
	BELL
	PUSHBUTTON (MOMENTARY)
	MOTOR
	TELEPHONE BACKBOARD
	TELEPHONE OUTLET
	FLOOR MOUNTED TELEPHONE OUTLET
	POS CONNECTION
	FLOOR MOUNTED POS CONNECTION
	COMBINATION DATA AND PHONE JACK
	FLOOR MOUNTED COMBINATION DATA AND PHONE JACK
	DISCONNECT SWITCH
P	PAGER OUTLET
S	SECURITY JUNCTION BOX
	TELEVISION JACK (PROVIDE 3/4" CONDUIT WITH PULL WIRE)
K	KEYED SWITCH
	PANELBOARD
T	TRANSFORMER
LT	LOW VOLTAGE DOORBELL TRANSFORMER
	SWITCHED CIRCUITRY BURIED OR IN SLAB
	CIRCUITRY IN WALL OR CEILING
	HOMERUN BACK TO PANEL
	POINT OF CONNECTION
IG	ISOLATED GROUND
WP	WEATHERPROOF
GFI	GROUND FAULT CIRCUIT INTERRUPTER
MCT	MOTOR CONTROL TERMINAL
PTR	PRIOR TO ROUGH-IN
IFS	INTEGRATED FACILITY STRUCTURE (SWITCHGEAR)
IPC	INTEGRATED POWER CENTER (SWITCHGEAR)
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
F	FIRE ALARM PULL STATION
	FIRE ALARM HORN/STROBE DEVICE
	FIRE ALARM STROBE DEVICE
	FIRE ALARM SMOKE DETECTOR
	FIRE ALARM HEAT DETECTOR
	FIRE ALARM DUCT SMOKE DETECTOR
RT	REMOTE TEST SWITCH
TS	TAMPER SWITCH
FS	FLOW SWITCH
S	CEILING MOUNTED SPEAKER

NOTE: NOT ALL SYMBOLS MAY APPEAR ON DRAWINGS.

EMERGENCY LIGHTING FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	LAMPS	REMARKS
A		LED TRACK HEAD CONTECH LIGHTING #CTL8070F30-B-BLACK	9W LED	
T4		TRACK STEEL IN BLACK CONTECH LIGHTING 6' TRACK WITH REGULATOR END FEED #LT6B W/LA23-R-B AND REG1-B	---	
B		LED CEILING MOUNTED LIGHT, 120V 6" BLACK TRIM CONTECH LIGHTING #RL38SA335KC12D W/CTR3002-CLR TRIM	12W LED	
C		2X4 RECESSED LAY-IN LED TROFFER LITHONIA #2TL4 60L-EZ1-EL14L	47W LED	RECESSED GRID TROFFER WITH #12 ACRYLIC LENS, 90 MINUTE EMERGENCY BATTERY BACK-UP
CE		2X4 RECESSED LAY-IN LED TROFFER LITHONIA #2TL4 60L-EZ1	47W LED	RECESSED GRID TROFFER WI TH #12" CLEAR PRISMATIC ACRYLIC LENS
EM		EMERGENCY WALL MOUNTED BUG-EYE WITH 90 MIN. BATTERY PACK. CHLORIDE #VU6R	PROVIDED WITH FIXTURE	120V, BLACK COLOR
EMR		REMOTE HEAD, EXTERIOR WALL MOUNTED EMERGENCY LIGHT WITH 90 MIN. BATTERY PACK. CHLORIDE #VRHP	PROVIDED WITH FIXTURE	120V, BLACK COLOR, WEATHERPROOF
X		EMERGENCY EXIT SIGN WITH EMERGENCY LIGHTS. WALL MOUNT, SINGLE FACE, 90 MIN. BATTERY PACK. CHLORIDE #ER46L-1-B-G	PROVIDED WITH FIXTURE	120V, BLACK FACE, GREEN LETTERS
X1		COMBINATION EMERGENCY EXIT SIGN WITH EMERGENCY LIGHTS. UNIVERSAL MOUNT 90 MIN. BATTERY PACK. CHLORIDE #VLTCR3R	PROVIDED WITH FIXTURE	120V, GREEN LETTERS, BLACK COLOR
CL1		120V CURRENT LIMITER WITH END FEED, BLACK CONTECH #LA-23-R-B-REG1-B	120W LED	

1. ALL LIGHT FIXTURES ARE TO BE PROVIDED BY CONTRACTOR.
2. CONTRACTOR SHALL COORDINATE ALL FIXTURE REQUIREMENTS FOR WITH MARLIN CONTROLS FOR DIMMING, 0-10V., INCANDESCENT AND ELECTRONIC LOW VOLTAGE DIMMING REQUIREMENTS, PRIOR TO ORDERING LIGHTING PACKAGE.
3. CONTRACTOR SHALL INSTALL ALL LAMPS.
4. CONTRACTOR SHALL INSTALL ALL NECESSARY MOUNTING HARDWARE, TRIM RINGS, ETC. FOR THE TYPE OF CEILING SPECIFIED. COORDINATE WITH THE ARCHITECTURAL ROOM FINISH SCHEDULE.
5. CONTRACTOR SHALL INSTALL ALL NECESSARY MOUNTING HARDWARE, FITTINGS, CONNECTORS, PENDENT FEEDS, END CAPS, ETC. TO PROVIDE A COMPLETE LIGHT TRACK SYSTEM.
6. CONTRACTOR SHALL INSTALL ALL NECESSARY LOW VOLTAGE DIMMABLE TRANSFORMERS, CONNECTORS, MOUNTING CLAMPS, ETC.
7. VERIFY THICKNESS OF CEILINGS SYSTEMS AND PROVIDE EXTENSION AS REQUIRED FOR ALL DOWN LIGHTS.
8. WALK-IN REFRIGERATOR LIGHTS SHALL BE FURNISHED BY LIGHTING VENDOR AND INSTALLED BY G.C. & FULLY CONNECTED BY THE ELECTRICAL CONTRACTOR.
9. TRIM COLOR BY ARCHITECT.
10. MANUFACTURER SHALL LABEL FIXTURE BASE WITH MAXIMUM WATTAGE SHOWN ON THIS LIGHT FIXTURE SCHEDULE.
11. ALL LIGHT FIXTURES ARE TO BE FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
12. JUNCTION BOX HEIGHT FOR OPEN CEILING FIXTURES TO BE 12' ABOVE FINISHED FLOOR.
13. CONTRACTOR TO PROVIDE ARCHITECT WITH LIGHTING CUT SHEETS FOR APPROVAL PRIOR TO ORDERING ANY LIGHTS.
14. ALL FRONT OF HOUSE LIGHTING TO BE DIMMABLE.
15. CONTRACTOR TO COORDINATE WITH DIMMING PANEL VENDOR TO PROVIDE COMMISSIONING AND 'AIM AND FOCUS' SERVICES.
16. GC TO VERIFY COMPATIBILITY AND COORDINATE WITH DIMMING SYSTEM MANUFACTURER FOR ALL RETROFITTED INCANDESCENT LIGHTS WITH LED EQUIVALENT BULBS.

KITCHEN EQUIPMENT SCHEDULE

TAG	QTY	DESCRIPTION	MANUFACTURER	MODEL	ELECTRICAL	CIRCUIT
1	1	SMOKER OVEN	COOKSHACK	FEC300	120V, 14.0 AMPS	G1-36
2	1	MOBILE HEATED CABINET	FOOD WARMING EQUIP. COMP., INC.	PHTT-12	120V, 18.3 AMPS	G1-3
3	2	40" POLE MOUNTED TELEVISION	TBD	TBD		G1-33
5	1	UNDERCOUNTER FREEZER	ATOSA USA, INC.	MGF8405GR	115/60/1, 1.8 AMPS	G1-5
6	1	GAS FLOOR FYER	GLOBE	GFF35G	120/60/1	G1-25
7	1	FRENCH FRY WARMER	HATCO	GRFFB-120-QS	120V, 6.3 AMPS	G1-39
8	2	COUNTERTOP INDUCTION RANGE	GLOBE	GIR18	120V, 15 AMPS	G1-7; G1-21
11	1	CABINET, ENCLOSED, BUN / FOOD PAN	CAMBRO	UPCH400110	120V, 1P, 2 AMPS	G1-11
14	1	BEVERAGE DISPENSER (8 VALVES)	LANCER CORP.	IBD25	115/60/1, 3 AMPS	G1-38
15	1	TEA BREWER	BUNN	ITCB-DV-DBC	120V, 15 AMPS	G1-29
17	1	POS SYSTEM	DETECTO	ASP160	100-240V, 1 AMPS	G1-31
18	1	WATER HEATER	SEE PLUMBING	SEE PLUMBING		G1-26
28	1	BAG-N-BOX SODA SYSTEM	BY PURVEYOR			G1-12
30A	1	WALK-IN COOLER EVAPORATOR	EXISTING	PX7-0808-CT		G1-48/50
30B	1	WALK-IN COOLER CONDENSER				G1-44/46
30C	1	WALK-IN COOLER LIGHTS & DOOR HEATER				G1-16
30D	1	WALK-IN COOLER HEAT TAPE				G1-24
31	1	REACH-IN FREEZER	ATOSA USA, INC.	MBF8002GR	115/60/1, 8.6 AMPS	G1-9
35	4	DIGITAL MENU BOARD (40" TV'S)	UNITED MEDIA SOLUTIONS	VENDOR		G1-35; G1-37
50	1	TOASTER, CONTACT GRILL, CONVEYOR TYPE	APW WYATT	M-95-2	208V, 13.4 AMPS	G1-6/8
51	2	DECORATIVE HEAT LAMPS (COPPER)	HATCO	DL-775	120V, 2.6 AMPS	G1-15, G1-17
53	1	COLD WELL UNIT, DROP-IN, REFRIGERATED	WELLS MANUFACTURING	RCP-200	115V, 5.5 AMPS	G1-41
55	1	HOT WELL UNIT, DROP-IN, ELECTRIC	WELLS MANUFACTURING	MOD-200TDM	120V, 14.2 AMPS	G1-19
60	1	PRICE COMPUTING SCALE	GLOBE	GLS30	115/60/1, 0.1 AMPS	G1-42
73	1	NUGGET ICE MAKER	SCOTSMAN	NH0422A-1	115/60/1, 12.9 AMPS	G1-27

PANEL: G

BUS: 225A TIN PLATED COPPER
MAIN SIZE AND TYPE: 200A MCB

VOLTAGE: 120/ 208 V, 3PH, 4W.+GRND.
MOUNTING: RECESSED
NEMA 1 ENCLOSURE

FAULT CURRENT AT PANEL= 8750.87
PANEL S.C. RATING: 22K AIC
AIC RATED: FULLY

CCT	SERVES	VA	OCP	WIRE	PHASE	WIRE	OCP	VA	SERVES	CCT
1	RTU-1 (EXISTING)	3360	40/3	3#8, #10G-3/4"C.	A	4#1, #8G-1-1/2"C.	100/3	13979	PANEL "G1"	2
3	---	3360	HACR	---	B	---	-	13483	---	4
5	---	3360	-	---	C	---	-	12886	---	6
7	RTU-2 (NEW)	3600	45/3	3#6, #10G-3/4"C.	A	---	-		SPACE	8
9	---	3600	HACR	---	B	---	-		SPACE	10
11	---	3600	-	---	C	---	-		SPACE	12
13	SPACE		-	---	A	---	-		SPACE	14
15	SPACE		-	---	B	---	-		SPACE	16
17	SPACE		-	---	C	---	-		SPACE	18
19	SPACE		-	---	A	---	-		SPACE	20
21	SPACE		-	---	B	---	-		SPACE	22
23	SPACE		-	---	C	---	-		SPACE	24
25	SPACE		-	---	A	---	-		SPACE	26
27	SPACE		-	---	B	---	-		SPACE	28
29	SPACE		-	---	C	---	-		SPACE	30
31	SPACE		-	---	A	---	-		SPACE	32
33	SPACE		-	---	B	---	-		SPACE	34
35	SPACE		-	---	C	---	-		SPACE	36
37	SPACE		-	---	A	---	-		SPACE	38
39	SPACE		-	---	B	---	-		SPACE	40
41	SPACE		-	---	C	---	-		SPACE	42

NOTES:
1 PROVIDE BOLT ON BREAKERS

LOAD SUMMARY	CONN	NEC	DEM
1-LIGHTING	9251	1.25	11564
2-RECEPTACLES	1000	NEC	1000
3-HEATING- (1 PHASE)	4400	0.65	2860
4-HEATING - (3 PHASE)	5412	1	5412
5-HVAC - (1 PHASE)	0	1	0
6-HVAC - (3 PHASE)	20880	1	20880
7-WATER HEATING - (1 PHASE)	600	1	600
8-WATER HEATING - (3 PHASE)	0	1	0
9-KITCHEN - (1 PHASE)	11739	0.65	7630
10-KITCHEN - (3 PHASE)	0	0.65	0
11-REFRIGERATION - (1 PHASE)	3996	0.65	2597
12-REFRIGERATION - (3 PHASE)	0	0.65	0
13-NON-CONT - (1 PHASE)	3950	1	3950
14-NON-CONT - (3 PHASE)	0	1	0
LARGEST MOTOR 5 HP	0	0.25	0
TOTAL VA	61228		56494
TOTAL AMPS	170.0		156.8

LOAD BALANCE PER PHASE		
PHASE A		20939
PHASE B		20443
PHASE C		19846
LOWEST PHASE PLUS 10%		
19846	+ 10%	21830.6
PHASES ARE BALANCED		

ABBREVIATIONS:

GFI	GROUND FAULT INTERRUPTER
ST	SHUNT TRIP
AIC	AMPS INTERRUPTING CAPACITY
V	VOLTAGE
W	WIRE
GRND	GROUND
C	CONDUIT

PANEL: G1

BUS: 100A TIN PLATED COPPER
MAIN SIZE AND TYPE: 100A MLO

VOLTAGE: 120/ 208 V, 3PH, 4W.+GRND.
MOUNTING: RECESSED
NEMA 1 ENCLOSURE

FAULT CURRENT AT PANEL= 8750.87
PANEL S.C. RATING: 22 K AIC
AIC RATED: SERIES

CCT	SERVES	VA	OCP	WIRE	PHASE	WIRE	OCP	VA	SERVES	CCT
1	LIGHTING	300	20/1	2#12,#12G,3/4"C.	A	2#12,#12G,3/4"C.	20/1	500	SECURITY PANEL	2
3	MOBILE HEATED CABINET (2)	2196	30/1 GFI	2#10, #10G-3/4"C.	B	2#12,#12G,3/4"C.	20/1	250	TIMECLOCK	4
5	UNDERCOUNTER FREEZER (5)	216	20/1 GFI	2#12,#12G,3/4"C.	C	2#12,#12G,3/4"C.	20/2 GFI	1395	TOASTER (50)	6
7	COUNTERTOP INDUCTION RANGE (8)	1800	20/1 GFI	2#12,#12G,3/4"C.	A	---	-	1395	---	8
9	REACH IN FREEZER (31)	1032	20/1 GFI	2#12,#12G,3/4"C.	B	2#12,#12G,3/4"C.	20/1	1200	BUILDING SIGNAGE	10
11	CABINET BUN FOOD PAN (11)	240	20/1 GFI	2#12,#12G,3/4"C.	C	2#12,#12G,3/4"C.	20/1 GFI	200	BAG-IN-BOX SYSTEM (28)	12
13	DINING RM LIGHTS	500	-	---	A	2#12,#12G,3/4"C.	20/1	800	HOOD CONTROLS	14
15	HEAT LAMPS (51)	500	20/1	2#12,#12G,3/4"C.	B	2#12,#12G,3/4"C.	20/1 GFI	500	WALK-IN CLR DOOR HTR/LGTS (30C)	16
17	HEAT LAMPS (51)	500	20/1	2#12,#12G,3/4"C.	C	2#12,#12G,3/4"C.	20/1	200	MAINT. RCPT	18
19	FOOD WARMER (55)	1700	20/1 GFI	2#12,#12G,3/4"C.	A	2#12,#12G,3/4"C.	20/1	600	LIGHTING	20
21	COUNTERTOP INDUCTION RANGE (8)	1800	20/1 GFI	2#12,#12G,3/4"C.	B	2#12,#12G,3/4"C.	20/1	800	LIGHTING	22
23	EXISTING RESTROOM LIGHTS	200	-	---	C	2#12,#12G,3/4"C.	20/1 GFI	250	WALK-IN COOLER HEAT TRACE (30D)	24
25	GAS FLOOR FRYER (6)	250	20/1 GFI	2#12,#12G,3/4"C.	A	2#12,#12G,3/4"C.	20/1 GFI	600	WATER HEATER	26
27	ICE MAKER (73)	1550	20/1 GFI	2#12,#12G,3/4"C.	B	2#12,#12G,3/4"C.	20/1	400	SHOW WINDOW RECEPTACLES	28
29	TEA BREWER (15)	1800	20/1 GFI	2#12,#12G,3/4"C.	C	2#12,#12G,3/4"C.	20/1	1200	SIGN 'D'	30
31	POS SYSTEM (17)	400	20/1	2#12,#12G,3/4"C.	A	2#12,#12G,3/4"C.	20/1	1200	TELEPHONE BOARD	32
33	TELEVISION (3)	200	20/1	2#12,#12G,3/4"C.	B	2#12,#12G,3/4"C.	20/1	500	RRE ALARM CONTROL PANEL	34
35	MENU DISPLAY (35) (2)	400	20/1	2#12,#12G,3/4"C.	C	2#12,#12G,3/4"C.	20/1 GFI	1680	SMOKER OVEN (1)	36
37	MENU DISPLAY (35) (2)	400	20/1	2#12,#12G,3/4"C.	A	2#12,#12G,3/4"C.	20/1 GFI	360	BEVERAGE DISPENSER (14)	38
39	FRENCH FRY WARMER (7)	756	20/1 GFI	2#12,#12G,3/4"C.	B	2#12,#12G,3/4"C.	20/1	800	CO2 ALARM	40
41	REFRIGERATED COLD PANS (53)	800	20/1 GFI	2#12,#12G,3/4"C.	C	2#12,#12G,3/4"C.	20/1 GFI	250	DIGITAL SCALE (60)	42
43	KEF-1	1176	20/1	2#12,#12G,3/4"C.	A	2#12,#12G,3/4"C.	20/2	999	WALK-IN COOLER COND. (30B)	44
45	SPACE		20/1		B	---	-	999	---	46
47	MAU-1	2556	35/1	2#8,#10G,3/4"C.	C	2#12,#12G,3/4"C.	20/2	999	WALK-IN COOLER EVAP. (30A)	48
49	SPACE		-	---	A	---	-	999	---	50

NOTES:
1 PROVIDE BOLT ON BREAKERS

LOAD SUMMARY	CONN	NEC	DEM
1-LIGHTING	9251	1.25	11564
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4-HEATING - (3 PHASE)	5412	1	5412
5-HVAC - (1 PHASE)	0	1	0
6-HVAC - (3 PHASE)	0	1	0
7-WATER HEATING - (1 PHASE)	600	1	600
8-WATER HEATING - (3 PHASE)	0	1	0
9-KITCHEN - (1 PHASE)	11739	0.65	7630
10-KITCHEN - (3 PHASE)	0	0.65	0
11-REFRIGERATION - (1 PHASE)	3996	0.65	2597
12-REFRIGERATION - (3 PHASE)	0	0.65	0
13-NON-CONT - (1 PHASE)	3950	1	3950
14-NON-CONT - (3 PHASE)	0	1	0
LARGEST MOTOR 5 HP	0	0.25	0
TOTAL VA	40348		35614
TOTAL AMPS	112.0		98.9

LOAD BALANCE PER PHASE		
PHASE A		13979
PHASE B		13483
PHASE C		12886
LOWEST PHASE PLUS 10%		
12886	+ 10%	14174.6
PHASES ARE BALANCED		

ABBREVIATIONS:

GFI	GROUND FAULT INTERRUPTER
ST	SHUNT TRIP
AIC	AMPS INTERRUPTING CAPACITY
V	VOLTAGE
W	WIRE
GRND	GROUND
C	CONDUIT

FAULT CURRENT CALCULATION - 208V

SERVICE VOLTAGE 120/ 208
SERVICE FAULT CURRENT [ ] AMPERES OR UTILITY TRANSFORMER [300] KVA

MAIN SWITCH LET-THRU
FUSE SIZE= 200
FUSE TYPE= LPN-RK_SP

I = kVA x 1000 / E L-L X 1.732 =
KVA = 300
E = 360.26
TRANS. FLA = 833

Isca = TRANS. FLA x 100 / TRANSFORMER Z =
83274
2.5 %
Isca = 33,310 AMPERES
DESIGN POINT: A

Isca = AMPERE SHORT-CIRCUIT CURRENT RMS SYMMETRICAL.

FAULT AT PRIMARY SIDE OF FUSE= 33,310
LET THRU OF FUSE= 13000
DESIGN POINT: B

FAULT AT:		PANEL G	PANEL G1
LENGTH (DISTANCE)	L=	40	10
AVAILABLE SHORT CIRCUIT	Isca=	13000	9722
NO. CONDUCTORS PER PHASE	N=	1	1
PHASE CONDUCTOR		3/0	1
PHASE CONDUCTOR CONSTANT	C=	12844	7293
VOLT - LINE TO LINE	EL-L=	208	208
F FACTOR=1.732xLxI / NxCxEL-L	F=	0.337	0.111
MUTILPLIER = 1 / 1+F	M=	0.748	0.900
Isca x M = FAULT CURRENT AT TERMINALS OF THE PANEL LINE-LINE =		9722	8751
DESIGN POINT:		C	D

NOTES:
1. CONTRACTOR SHALL VERIFY ALL GROUND FAULT INFORMATION PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER PRIOR TO ORDERING ANY EQUIPMENT.

VOLTAGE DROP SCHEDULE
MAIN FEEDER (2% MAX DROP REQUIRED)

WIRE MATERIAL	COPPER
WIRE SIZE	600KCMIL
CONDUIT MATERIAL	STEEL
POWER FACTOR (PF)	0.85
VOLTAGE	208
PHASE	3
NUMBER OF SETS	1
ESTIMATED LENGTH	310
LOAD CURRENT	156.8
VOLTAGE DROP	4
VOLTAGE DROP %	1.9
VOLTAGE AT THE END	204

PRIOR TO BID: CONTRACTOR TO FIELD VERIFY EXACT FEEDER LENGTH OF FEEDER AND IF LENGTH IS OVER THE ESTIMATED LENGTH NOTED ABOVE, CONTRACTOR IS RESPONSIBLE TO PERFORM AN UPDATED VOLTAGE DROP CALCULATION AND UPGRADE FEEDER SIZE AS REQUIRED.

VOLTAGE DROP RECOMMENDED CIRCUIT LENGTHS

120 VOLT, SINGLE PHASE, MAX 3% DROP

WIRE SIZE	T BREAKER OR FUSE IN AMPS									
	15	20	30	40	50	60	70	80	90	100
14	50									
12	65	50								
10	105	60	55							
8	160	120	80	60						
6	200	195	130	100	80					
4	410	305	205	155	120	100	85			
2	665	500	330	250	200	165	140	120	110	100

ENGINEER:
DP CE
1301 Solana Blvd.
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WWW.DONPENN.COM

CORPORATE:
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972.248.9899

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DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER

300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT 1941

MI-2077

DATE	DESCRIPTION
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XX/XX/22	PERMIT ISSUE

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SHEET TITLE:
ELECTRICAL SCHEDULES

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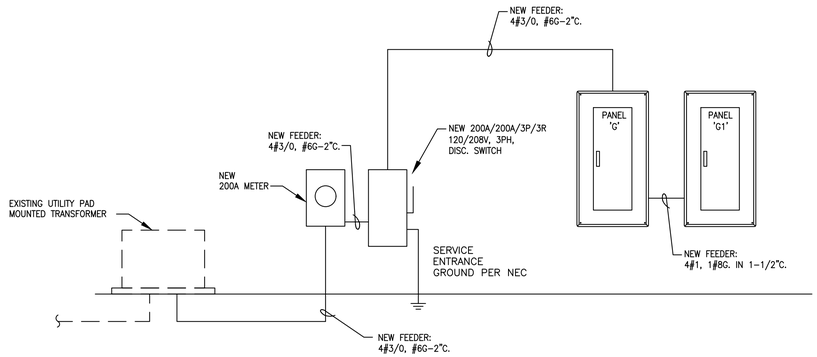
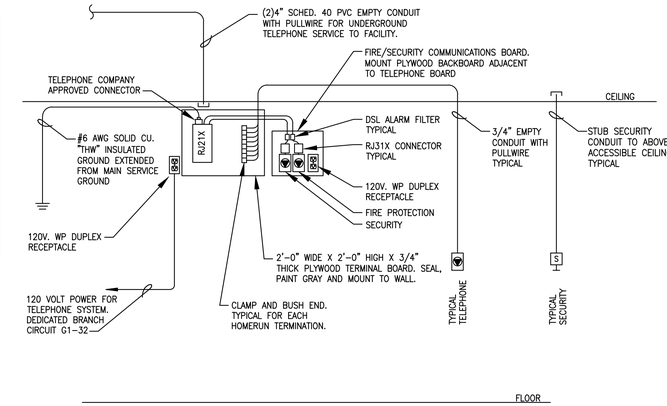
DBQ21015



ELECTRICAL RISER DIAGRAM 1
SCALE: NONE

TELEPHONE SYSTEM RISER DIAGRAM NOTES

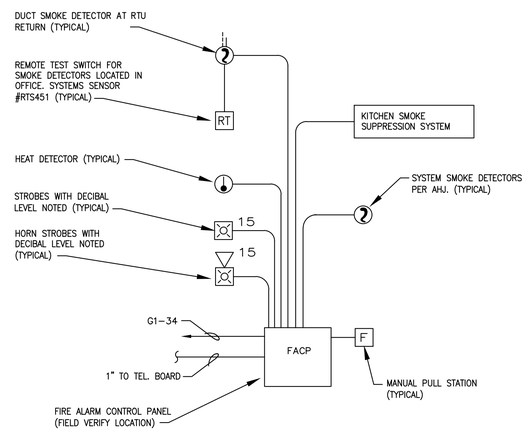
A.	VERIFY, COORDINATE AND INCORPORATE THE REQUIREMENTS OF THE TELE. CO. AND ALL GOVERNING CODES IN FORCE, PRIOR TO COMMENCEMENT OF WORK.
B.	FURNISH AND INSTALL A RACEWAY SYSTEM OF CABLE AND 3/4" CONDUIT AND PROPERLY SIZED JUNCTION BOXES WITH COVERPLATES FOR THE TELEPHONE SYSTEM AS SHOWN ON THE DRAWINGS AND IN THE DIAGRAM.
C.	ALL CONDUIT SHALL ORIGINATE AT THE JUNCTION BOXES, BE NO SMALLER THAN 3/4" ELECTRICAL TRADE SIZE, BE CONTINUOUS AND TERMINATE AT THE SYSTEM TERMINAL BOARD NEATLY CLAMPED AND WITH BUSHED ENDS. HOME RUNS SHALL BE LIMITED TO ONE (1) TELEPHONE OUTLET IN ONE 3/4" CONDUIT.
D.	THERE ARE MULTIPLE DEDICATED TELEPHONE LINES AND THEY SHALL BE SEGREGATED FROM EACH OTHER AND SHALL BE SEGREGATED FROM THE STANDARD TELEPHONE LINES.
E.	FURNISH AND INSTALL A 200 LB'Z TEST NYLON PULL LINE IN ANY EMPTY CONDUIT. TAG EACH END OF PULL LINE AS TO SERVICE AND THE LOCATION OF THE OPPOSITE TERMINUS OF THE CONDUIT.
F.	ALL CONDUITS SHALL CONTAIN ONE (1) HIGH QUALITY 4 PAIR CAT III PLENUM CABLE TELEPHONE LINES PULLED WITH PROPER INSTALLED JACKS. LINES MUST BE LABELED AT TELEPHONE BOARD.



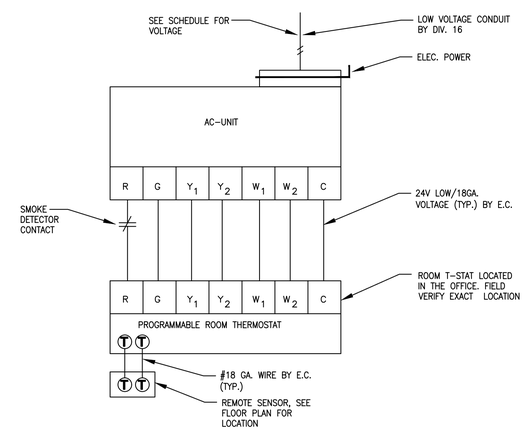
TELEPHONE SYSTEM RISER DIAGRAM 2
SCALE: NONE

FIRE ALARM SCHEMATIC GENERAL NOTES

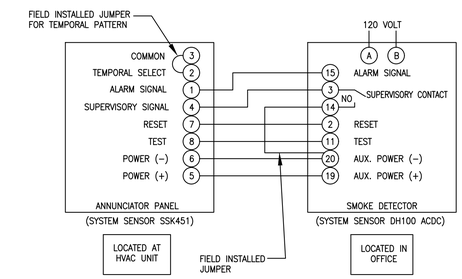
A.	HVAC DUCT MOUNTED SMOKE DETECTORS SHALL BE PROVIDED BY OTHERS.
B.	FIRE ALARM CONTRACTOR SHALL BE CURRENTLY LICENSED WITH THE STATE AND SUBMIT A COMPLETE FIRE ALARM SUBMITTAL (PLANS, SPECS., CUT SHEETS ETC.) PREPARED BY THE STATE REGISTERED FIRE PROTECTION CONTRACTOR, AND SUBMITTED TO AUTHORITY HAVING JURISDICTION FOR APPROVAL. INFORMATION SHALL NOT BE LIMITED TO THE FOLLOWING. -SEQUENCE OF OPERATION -CATALOG CUT SHEETS -POINT TO POINT DIAGRAM -HORN,STROBE LIGHTS -MANUAL PULL STATION LAYOUT -CANDELA OF STROBES -BATTERY CALCULATIONS INCLUDING TOTAL STANDBY -ALARM CURRENT.
C.	CONTRACTOR SHALL PROVIDE ADDITIONAL FIRE ALARM DEVICES PER AHJ AND INCLUDE ALL EXPENSES IN BID TO COMPLETE AN OPERABLE FIRE ALARM SYSTEM AS REQUIRED BY AUTHORITY HAVING JURISDICTION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
D.	PROVIDE THE NUMBER OF ACTIVE AND SPARE ADDRESSES AS REQUIRED TO THE FIRE ALARM PANEL TO ACCOMMODATE ALL DEVICES
E.	PROVIDE DEDICATED TELEPHONE LINE FOR 24-HOUR MONITORING SYSTEM PER CITY REQUIREMENT.
F.	CONTRACTOR SHALL FURNISH/INSTALL FIRE ALARM DEVICES, SYSTEM COMPONENTS, WIRING/CONDUITS AND CONTROLS AS REQUIRED AND COMPLETE THE FIRE ALARM SYSTEM PER NFPA 72 AND AUTHORITY HAVING JURISDICTION "AHJ". FIRE ALARM DEVICES SHALL BE MONITORED FROM AN APPROVED CENTRAL STATION PER AHJ.
G.	PROVIDE ALL APPURTENANCES AS REQUIRED TO INTERFACE WITH KITCHEN SMOKE SUPPRESSION SYSTEM.
H	FIRE ALARM SYSTEM (PULL STATION, HORN AND STROBE). ELECTRICAL CONTRACTOR SHALL ROUTE SIGNAL CABLES BACK TO BUILDING FIRE ALARM CONTROL PANEL AND INSTALL AS REQUIRED BY LOCAL CODE. ELECTRICAL CONTRACTOR SHALL VERIFY LOCATION, REQUIREMENTS WITH FIRE MARSHALL AND OWNER PRIOR TO BID AND ROUGH-IN.



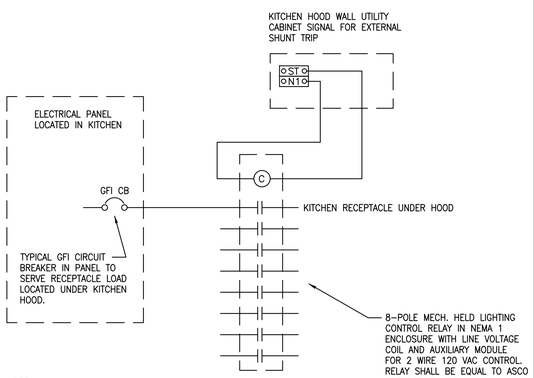
FIRE ALARM RISER DIAGRAM AND ELEVATION 3
SCALE: NONE



THERMOSTAT WIRING DIAGRAM 4
SCALE: NONE

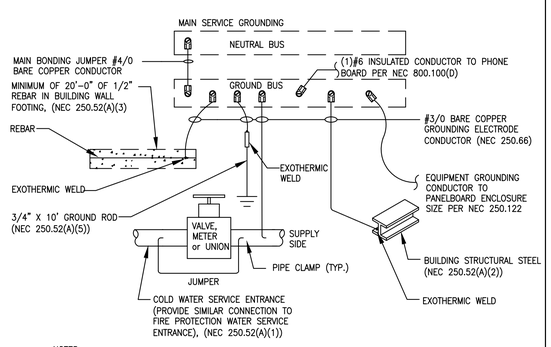


SMOKE DETECTOR WIRING DIAGRAM 5
SCALE: NONE



NOTE:
CONTACTOR COIL SHALL BE WIRED TO SHUNT-TRIP CONTACTS LOCATED IN HOOD CONTROL PANEL TO OPEN CONTACTOR COIL UPON ACTIVATION OF ANSUL SYSTEM. REFER TO HOOD CONTROL CABINET WIRING DIAGRAM FOR CONTACT LOCATION.

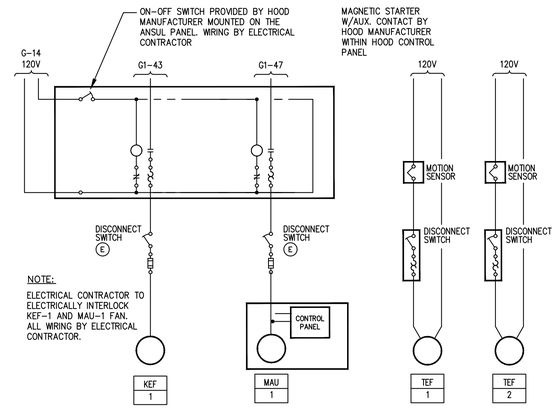
SHUNT-TRIP CONTACTOR CONTROL 6
SCALE: NONE



NOTES:

1. ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. ALL GROUNDING ELECTRODE CONDUCTORS SHALL BE COPPER #3/0 UNLESS NOTED OTHERWISE.
3. REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL GROUNDING REQUIREMENTS.

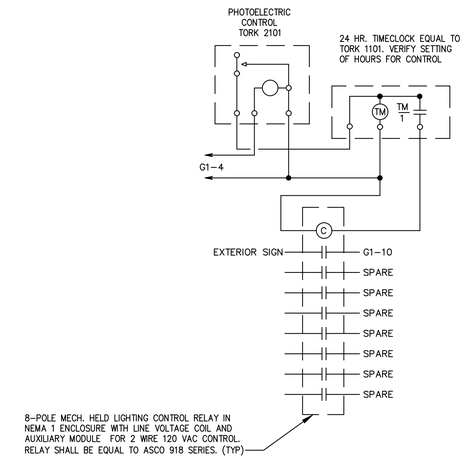
EXISTING GROUNDING OF MAIN SERVICE ENTRANCE 7
SCALE: NONE



NOTE:
ELECTRICAL CONTRACTOR TO ELECTRICALLY INTERLOCK KEF-1 AND MAU-1 FAN. ALL WIRING BY ELECTRICAL CONTRACTOR.

(E) INDICATES PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR

EXHAUST & MAKE-UP AIR INTERLOCK WIRING DIAGRAM 8
SCALE: NONE



EXTERIOR LIGHTING CONTROL DIAGRAM 9
SCALE: NONE

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DICKEY'S BARBECUE PIT est. 1941

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ID54 PROJECT NUMBER:
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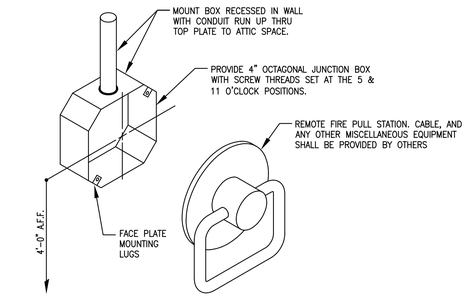
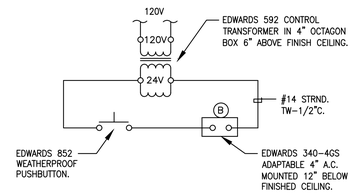
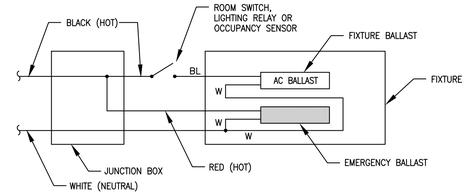


4/0 BOX WITH 1/2" TABS POSITIONED AS SHOWN WITH TABS IN UPPER RIGHT AND LOWER LEFT OF BOX. BOX TO BE 4'-0" A.F.F., 1/2" E.M.T. TO RUN FROM BOX TO 12" ABOVE CEILING LINE. ONE(1) 4/0 BOX IS TO BE PROVIDED FOR EACH PULL STATION. 4/0 BOX, 1/2" TABS, AND CONDUIT TO BE FURNISHED BY THE ELECTRICAL CONTRACTOR.

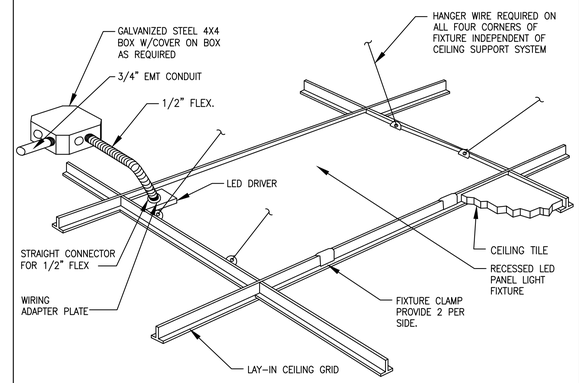
ANSUL PULL STATION DETAIL 1
SCALE: NONE



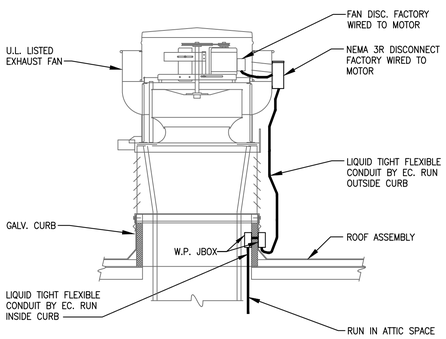
DOOR BELL WIRING DIAGRAM 2
SCALE: NONE



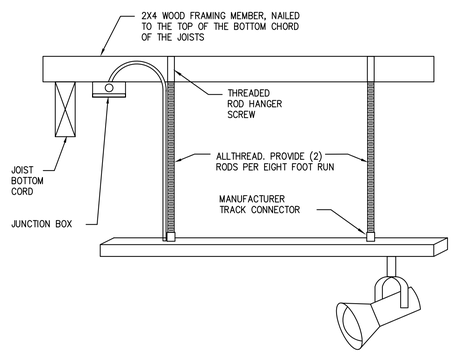
EMERGENCY LIGHTING WIRING DIAGRAM 3
SCALE: NONE



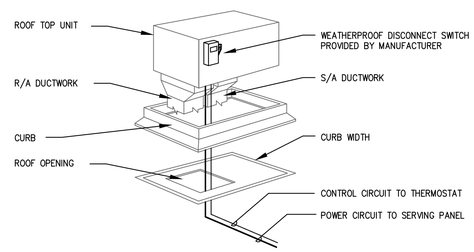
TYPICAL LAY-IN LED PANEL FIXTURE MOUNTING DETAIL 4
SCALE: NONE



EXHAUST FAN ELECTRICAL CONNECTION DETAIL 5
SCALE: NONE

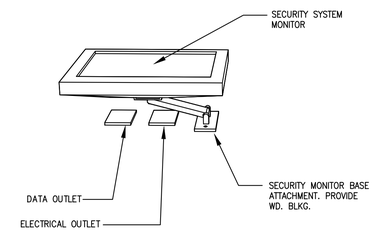


TRACK LIGHTING MOUNTING DETAIL 6
SCALE: NONE

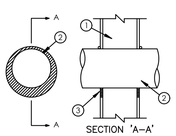


NOTE:
ALL WIRING BY ELECTRICAL CONTRACTOR.

ROOF TOP UNIT WIRING DIAGRAM 7
SCALE: NONE



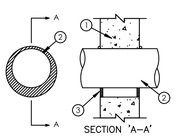
POWER-DATA SECURITY MONTOR 8
SCALE: NONE



NOTES:

1. RATED GYPSUM WALLBOARD ASSEMBLY.
2. MAX. 4" EMT OR 1" FLEXIBLE METALLIC CONDUIT. THE ANNULUS SPACE WITHIN THE FIRESTOP SYSTEM SHALL RANGE FROM POINT OF CONTACT TO 1-3/4" MAX.
3. SPECSEAL SERIES 100 SEALANT INSTALLED WITHIN ANNULUS TO 5/8" DEPTH. AT POINT CONTACT, INSTALL A 3/8" BEAD AT PENETRANT/GYPSUM WALLBOARD INTERFACE.

TYPICAL 1-HOUR PENETRATION

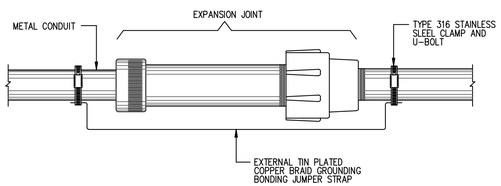


NOTES:

1. CONCRETE OR CONCRETE BLOCK WALL.
2. MAX. 4" EMT OR 1" FLEXIBLE METALLIC CONDUIT. THE ANNULUS SPACE WITHIN THE FIRESTOP SYSTEM SHALL RANGE FROM POINT OF CONTACT TO 1-3/4" MAX.
3. SPECSEAL SERIES 100 SEALANT INSTALLED WITHIN ANNULUS TO 5/8" DEPTH. AT POINT CONTACT, INSTALL A 3/8" BEAD AT PENETRANT/GYPSUM WALLBOARD INTERFACE.

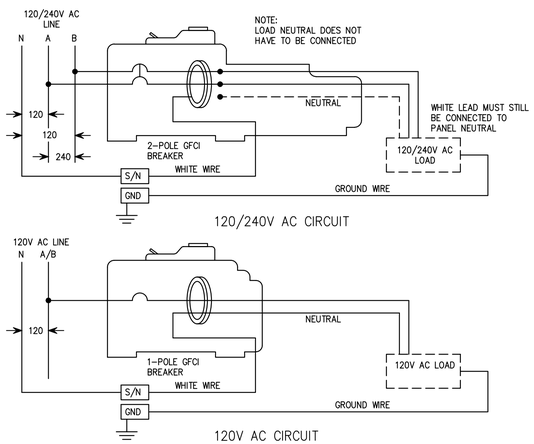
TYPICAL 2-HOUR PENETRATION

FIRE RATED WALL PENETRATION DETAIL 9
SCALE: NONE

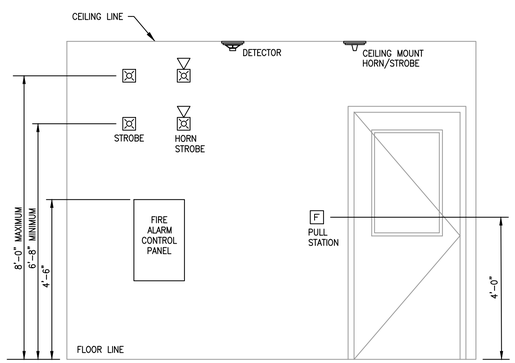


NOTE:
PROVIDE FLEXIBLE EXPANSION JOINTS FOR CONDUIT AT LOCATIONS CROSSING THE BUILDING EXPANSION JOINT.

EXPANSION JOINT DETAIL 10
SCALE: NONE



120V-1 POLE AND 208V-2-POLE GFCI BREAKER WIRING DIAGRAM 11
SCALE: NONE



NOTE: HORN STROBE AND STROBE TO BE 80" TO BOTTOM OF LENSE.

FIRE ALARM MOUNTING HEIGHT DETAIL 12
SCALE: NONE

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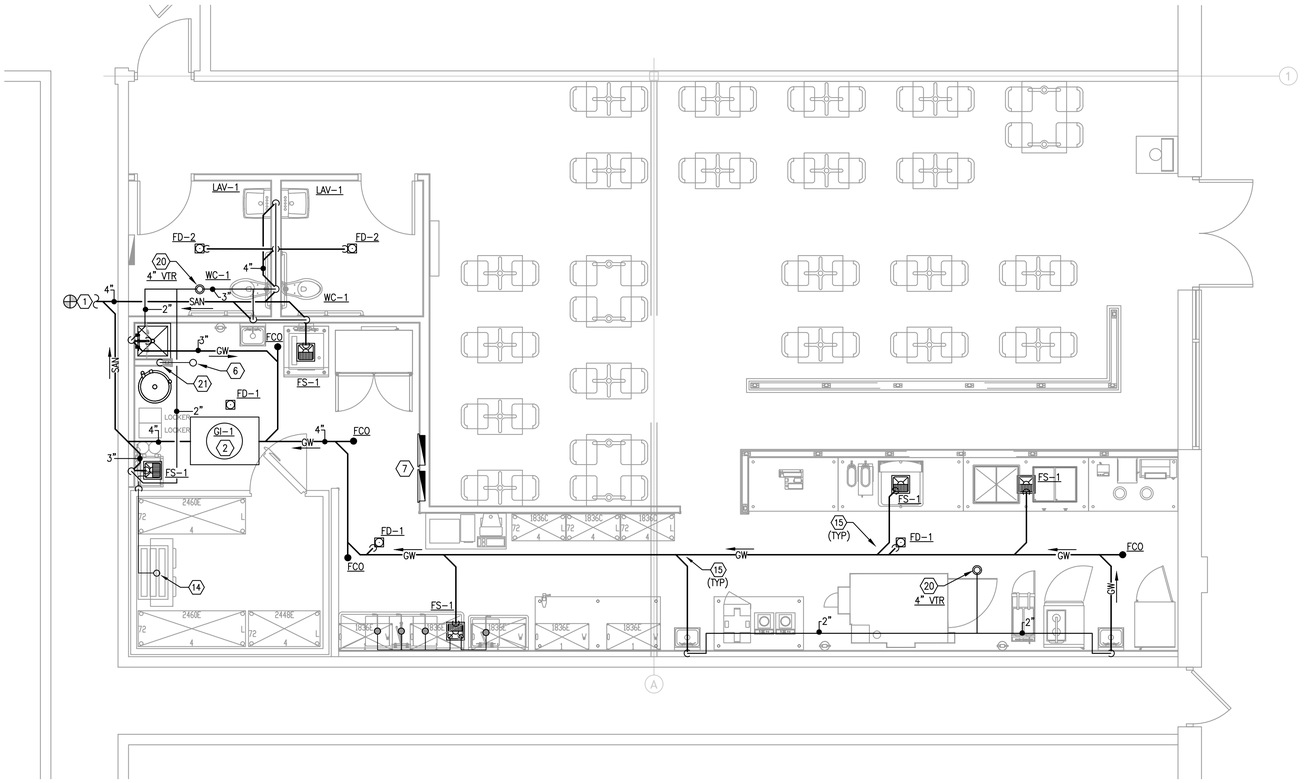
LAV-1
FD-2
WC-1
4" VTR
SAN
GW
FCO
FS-1
FD-1
GI-1
LOCKER
2460E
2448E
1836E
1836G
1836L
1836W
1836V
1836S
1836A
1836B
1836C
1836D
1836I
1836J
1836K
1836N
1836P
1836R
1836T
1836U
1836X
1836Y
1836Z
1836AA
1836AB
1836AC
1836AD
1836AE
1836AF
1836AG
1836AH
1836AJ
1836AK
1836AL
1836AM
1836AN
1836AP
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1836AU
1836AV
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1836AY
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1836BD
1836BE
1836BF
1836BG
1836BH
1836BJ
1836BK
1836BL
1836BM
1836BN
1836BP
1836BR
1836BS
1836BT
1836BU
1836BV
1836BW
1836BX
1836BY
1836BZ
1836CA
1836CB
1836CC
1836CD
1836CE
1836CF
1836CG
1836CH
1836CJ
1836CK
1836CL
1836CM
1836CN
1836CP
1836CR
1836CS
1836CT
1836CU
1836CV
1836CW
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1836DY
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1836ED
1836EE
1836EF
1836EG
1836EH
1836EJ
1836EK
1836EL
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1836ER
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PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	ROUGH-IN-SIZE S/W	V	CW	HW	DESCRIPTION/REMARKS
WC-1	WATER CLOSET (ADA)	4"	2"	1 1/2"	–	AMERICAN STANDARD #3461.001.002 WHITE VITREOUS CHINA, FLOOR MOUNTED, ADA COMPLIANT, ELONGATED WATER CLOSET WITH SLOAN #WES-111 FLUSH VALVE, 1.6 GPF. KOHLER #K-4731-SA WHITE ELONGATED OPEN FRONT SEAT-LESS COVER WITH CHECK HINGE STOPS.
LAV-1	LAVATORY	2"	1 1/2"	1/2"	1/2"	AMERICAN STANDARD #0355.012 WALL MOUNTED WHITE VITREOUS CHINA LAVATORY WITH FRONT OVERFLOW. INSTALL COMPLETE WITH AMERICAN STANDARD #5400.172H POLISHED CHROME PLATED FAUCET & VANDAL RESISTANT LEVERS, 0.5 GPM AERATOR, GRID DRAIN STRAINER, BRASSCRAFT "COMMERCIAL" RIGID SUPPLIES, ANGLE STOPS & CHROME PLATED 17GA. L.A. PATTERN CAST BRASS P-TRAP WITH SECURED ESCUTCHEON. P-TRAP AND WATER SUPPLIES SHALL BE WRAPPED WITH TRUEBRO LAVGUARD #102 FOR ADA PROTECTION.
FD-1	FLOOR DRAIN	3"	2"	–	–	ZURN #LC-P3S PVC BODY FLOOR DRAIN WITH #LC-CS CAST IRON ADAPTOR THREADED SHANK, COMPLETE WITH #LC-FR05NI 5" ROUND POLISHED NICKEL FRAME TOP GRATE.
FD-2	FLOOR DRAIN	3"	2"	–	1/2"	ZURN #LC-P3S PVC BODY FLOOR DRAIN AND TRAP PRIMER, WITH #LC-CS CAST IRON ADAPTOR THREADED SHANK, COMPLETE WITH #LC-FR05NI 5" ROUND POLISHED NICKEL FRAME TOP GRATE.
FS-1	FLOOR SINK	3"	2"	–	–	ZURN #FD-2370 12"x12" RADIUSED PVC BODY FLOOR SINK WITH FULL RIM AND SEDIMENT BUCKET STRAINER. COORDINATE GRATE CONFIGURATION WITH KITCHEN ROUGH IN PLANS.
WCO	WALL CLEANOUT	LINE SIZED	–	–	–	ZURN #1443 SQUARE WALL CLEANOUT, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT TAPERED THREAD PLUG, AND NICKEL BRONZE SECURED SQUARE, SMOOTH WALL ACCESS COVER AND FRAME.
FCO	FLOOR CLEANOUT	LINE SIZED	–	–	–	ZURN #1400 ADJUSTABLE FLOOR CLEANOUT, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT TAPERED THREAD PLUG, AND 5"ø ROUND POLISHED NICKEL BRONZE TOP.
GCO	GROUND CLEANOUT	LINE SIZED	–	–	–	ZURN #1400 ADJUSTABLE FLOOR CLEANOUT, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT TAPERED THREAD PLUG, AND 5"ø CAST IRON TOP.
DCO	DOUBLE CLEANOUT	LINE SIZED	–	–	–	ZURN #CO-2448, PVC CLEANOUT WITH ROUND ADJUSTABLE SCORIATED SECURED CAST IRON TOP, GASKET SEAL CAST IRON PLUG WITH RECESSED SOCKET. INSTALL IN MINIM OF 12"x12"x4" REINFORCED CONCRETE PAD WITH BEVELED EDGES.
HD-1	HUB DRAIN	3"	2"	–	–	FIELD FABRICATED PVC BODY HUB DRAIN WITH BOTTOM OUTLET AND PVC REDUCER. TOP OF THE HUB SHALL BE 6" AFF.
MS-1	MOP SINK	3"	2"	1/2"	1/2"	ZURN #Z1996-24 MOP SINK,. INSTALL COMPLETE WITH #Z-1196-SF CHROME PLATED SERVICE FAUCET W/ VACUUM BREAKER, WALL BRACE, PAIL HOOK & HOSE HOLDER, MOP HANGER & 3" DRAIN WITH DEEP SEAL P-TRAP.

PLUMBING EQUIPMENT SCHEDULE

MARK	FIXTURE	ROUGH-IN-SIZE S/W	V	CW	HW	DESCRIPTION/REMARKS
WH-1	TANK TYPE WATER HEATER	–	–	1 1/4"	1 1/4"	A.O. SMITH #BTH-199, LOW NOX NATURAL GAS FIRED TANK TYPE UNIT COMPLETE WITH T&P VALVE, 100 GAL. CAPACITY, 199,000 BTUH INPUT, 92% EFFICIENCY WITH A 230 GPH RECOVERY AT A 100°F RISE. PROVIDE HOT AND COLD WATER HEAT TRAP FITTINGS/ RISERS.
ET-1	EXPANSION TANK	–	–	3/4"	–	WATTS #PLT-12, WITH STEEL BODY AND BUTYL RUBBER DIAPHRAGM FOR 4.5 GALLONS TOTAL CAPACITY/ 4.8 GALLONS ACCEPTANCE CAPACITY, 40 PSI FACTORY PRE-CHARGED.
RCP-1	RECIRCULATION PUMP	–	–	–	3/4"	GRUNDFOS #UP15-10B7 INLINE HOT WATER OPEN SYSTEM RECIRCULATING PUMP, CAPABLE OF 4.0 GPM (140°F) @ 4' HEAD, 1/25 HP, 115V/1PH, INTEGRAL ATTACHED TIMER FOR OPERATION CONTROLS, AND ATTACHED POWER CORD.
TP-1	TRAP PRIMER	–	–	1/2"	–	PPP, INC. #PR-500 "PRIME RITE" TRAP PRIMER, BRONZE CONSTRUCTION WITH VACUUM PORTS, ADJUSTABLE WITH 1/2" COPPER TYPE "L" TO RECEPTOR. PROVIDE DISTRIBUTION UNIT AS REQUIRED FOR SUPPLY TO MULTIPLE DRAINS. INSTALL VALVE RECESSED IN WALL A MINIMUM 12" AFF, PROVIDE ACCESS PANEL.
WHA-1	WATER HAMMER ARRESTER	–	–	LINE SIZED	–	PPP, INC. SERIES SC, FULLY MECHANICAL WATER HAMMER ARRESTER SIZED AND LOCATED PER THE MANUFACTURER SPECIFICATIONS.
MXV-1	MIXING VALVE	–	–	1/2"	1/2"	WATTS REGULATOR #LFMMV UNDER SINK THERMOSTATIC MIXING VALVE, WITH BRASS BODY AND INTEGRAL MOUNTING HOLES, TAMPER RESISTANT ENCLOSURE. MOUNTED TO STRUCTURE. SET AT 110°F.
RPZ-1	REDUCED PRESSURE BACKFLOW PREVENTER	–	–	LINE SIZED	–	WATTS REGULATOR SS009 REDUCED PRESSURE ZONE ASSEMBLY WATER SUPPLY SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER AND SHALL BE RATED FOR 150 PSI, THE BODY & ADAPTERS ARE OF STAINLESS STEEL CONSTRUCTION, ALL RUBBER COMPONENTS COMPLY WITH FDA FOOD ADDITIVE REGULATIONS. THE MODEL IS SUBJECT TO LOCAL HEALTH DEPARTMENT APPROVAL WATTS SB-2.
BFP-1	BACKFLOW PREVENTER	–	–	LINE SIZED	–	WATTS REGULATOR LF007 DOUBLE CHECK VALVE ASSEMBLY WATER SERVICE SHALL BE PROTECTED BY AN APPROVED BACKFLOW PREVENTER AND SHALL BE RATED FOR 150 PSI, TWO POSITIVE SEATING CHECK MODULES WITH CAPTURED SPRINGS AND RUBBER SEAT DISCS. VERIFY APPROVAL WITH UTILITY AND JURISDICTION PRIOR TO INSTALLATION.
BFP-2	BACKFLOW PREVENTER	–	–	LINE SIZED	–	WATTS REGULATOR SD-3 DUAL CHECK WITH ATMOSPHERIC PORT. WATER SUPPLY TO BEVERAGE FIXTURE APPLIANCES, SHALL BE PROTECTED BY AN APPROVED BACKFLOW PREVENTER AND SHALL BE RATED FOR CONTINUOUS OR INTERMITTENT PRESSURE, STAINLESS STEEL BODY CONSTRUCTION AND ALL RUBBER INTERNAL COMPONENTS.
GI-1	GREASE INTERCEPTOR	4"	2"	–	–	SCHIER PRODUCTS GB-75 POLYETHYLENE GREASE INTERCEPTOR RATED AT 75 GPM / 616 LBS GREASE CAPACITY. COORDINATE WITH LANDLORD & TENANT FOR LOCATION AND LAYOUT RELATIVE TO THE BUILDING.

GAS DEMAND LOAD

NO.	DESCRIPTION	CONN. SIZE	QTY.	INPUT (MBH/EA)	TOTAL (MBH)
4	FRYER	3/4"	1	214	214
RTU-1	ROOFTOP UNIT 1	3/4"	1	72	72
RTU-2	ROOFTOP UNIT 2	3/4"	1	80	80
MUA-1	MAKE UP AIR UNIT 1	3/4"	1	205	205
WH-1	WATER HEATER	3/4"	1	199	199
		COOKING APPLIANCE SUB-TOTAL			214
		WATER HEATING SUB-TOTAL			199
		HVAC SUB-TOTAL			357
		GAS DEMAND TOTAL (MBH)			770,000
		GAS DEMAND TOTAL (BTUH)			770,000
		GAS DEMAND TOTAL (CFH)			770

NOTE(S):
1. THE ACTUAL LENGTH TO THE MOST REMOTE APPLIANCE CONNECTION IS 125'-0". THE SYSTEM IS SIZED FOR A TOTAL DEVELOPED LENGTH OF MAXIMUM 200'-0".
2. THE SERVICE TO THE TENANT SPACE SHALL BE INSTALLED AS A LOW PRESSURE SUPPLY (INLET PRESSURE OF 0.5 PSI) AND A 0.5" WC PRESSURE DROP.
3. PIPE SIZES SHOWN ON THE RISER DIAGRAM ARE BASED ON THE 2018 INTERNATIONAL PLUMBING CODE, WITH CITY AMENDMENTS. VERIFY FIELD CONDITIONS FOR ACTUAL DEVELOPED LENGTH AND POSSIBLE ADJUSTMENTS TO PIPE SIZES.
4. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY FOR THE PROVISION OF THE COMPLETE METER ASSEMBLY INCLUDING REGULATOR AND VENTING REQUIREMENTS.

KITCHEN H.W. DEMAND

ITEM	QTY.	GPH	TOTAL GPH
LAVATORY	2	5	10
KITCHEN HAND SINK	2	5	20
1 COMP SINK	1	20	20
3 COMPARTMENT SINK	1	60	60
SERVICE SINK FAUCET	1	15	15
TOTAL			125

HOT WATER CALCULATIONS:

PEAK DEMAND
1. 125 GPH (PEAK DEMAND) X 0.40 (DEMAND FACTOR) = 50 GPH.
2. 50 GPH (PEAK DEMAND) / 60 MIN./HR = .8 GPM.
3. 50°F DOMESTIC SUPPLY WATER TEMPERATURE.
4. 140°F DESIGN SUPPLY HOT WATER FOR KITCHEN.
5. 500 GPM X Δ T = MIN. OUTPUT BTUH REQUIRED AT WATER HEATER. (500)(.8)(90) = 36,000 BTUH.

PROBABLE DEMAND
1. 50 GPH (PROBABLE DEMAND) X 0.40 (DEMAND FACTOR) = 20 GPH.
2. 20 GPH (DEMAND) X 1.0 (STORAGE FACTOR) = 20 GALS.
3. 34 GPH (PROBABLE DEMAND) / 60 MIN./HR = 0.5 GPM.
4. 50°F DOMESTIC SUPPLY WATER TEMPERATURE.
5. 140°F DESIGN SUPPLY HOT WATER FOR KITCHEN.
6. 500 GPM X Δ T = MIN. OUTPUT BTUH REQUIRED AT WATER HEATER. (500)(.5)(90) = 22,500 BTUH.

CAPACITY PROVIDED
1. (1) GAS FIRED TANK TYPE WATER HEATER WITH 199 CFH INTPUT CAPACITY AND 100 GALLON CAPACITY.

PIPING MATERIAL SCHEDULE

1.	WATER PIPE (ABOVE GROUND)	UPONOR CROSSLINKED POLYETHYLENE (PEX-a) PIPING MEETING ASTM F 877, SDR 9 STANDARDS WITH MANUFACTURER AVAILABLE ENGINEERED POLYMER (EP) COLD EXPANSION FITTINGS AND PEX REINFORCING RINGS MEETING ASTM F 1960. PIPING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE INSTALLED WHERE IT IS EXPOSED TO SUNLIGHT. FIELD COORDINATE THE INSTALLATION OF MANUFACTURED PIPING COLOR AND PIPING LENGTHS TO RUN AS STRAIGHT AS POSSIBLE UTILIZING PEX-a PIPE SUPPORTS. ALL PIPING AND FITTINGS SHALL BE BY THE SAME MANUFACTURER.
2.	WATER PIPE (BELOW GROUND)	UPONOR CROSSLINKED POLYETHYLENE (PEX-a) PIPING MEETING ASTM F 877, SDR 9 STANDARDS. NO JOINTS OR FITTINGS SHALL BE INSTALLED BELOW THE BUILDING SLAB. FIELD COORDINATE THE INSTALLATION OF MANUFACTURED PIPING COLOR AND PIPING LENGTHS TO RUN AS STRAIGHT AS POSSIBLE. ALL PIPING AND FITTINGS SHALL BE BY THE SAME MANUFACTURER.
3.	WATER PIPE (INSULATION)	BOTH HOT AND COLD WATER PIPING SHALL BE INSTALLED COMPLETE WITH INSULATION EITHER IN CONCEALED OR EXPOSED LOCATIONS. REFER TO GENERAL NOTES FOR INSULATION THICKNESS INFORMATION.
4.	SEWER AND VENT PIPE (ABOVE AND BELOW GRADE)	DWV SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PIPING.
5.	CONDENSATE DRAIN PIPE AND INDIRECT DRAINAGE PIPE (INTERIOR TO BUILDING)	TYPE 'M' COPPER WITH 95/5 SILVER SOLDER JOINT FITTINGS. INSULATE CONDENSATE PIPING WITH 1/2" ARMAFLEX CLOSED CELL PIPE INSULATION WITH SELF SEALING ADHESIVE JOINTS, OR EQUIVALENT.
6.	CONDENSATE DRAIN PIPE (EXTERIOR TO BUILDING)	TYPE 'M' COPPER WITH 95/5 SILVER SOLDER JOINT FITTINGS.
7.	GAS PIPE	SCHEDULE 40 BLACK STEEL WITH MALLEABLE IRON FITTINGS. WELDED JOINTS FOR PIPE 2-1/2" AND LARGER AND FOR ALL JOINTS BELOW GRADE.
8.	SUSPENDED PIPING SUPPORT	SUPPORT PIPING WITH CLEVIS OR SPLIT RING TYPE PIPE HANGERS 3/8" ALL THREAD ROD AND BEAM CLAMPS. "PLUMBERS TAPE AND WIRE" NOT PERMITTED.

BACKFLOW DEVICE SCHEDULE

ITEM/ FIXTURE	ITEM/ EQUIPMENT #	BACKFLOW DEVICE
ICE MAKER(S)	73	RPZ-1
IN COMING WATER	--	BFP-1
BAG-N-BOX SODA SYSTEM	28	BFP-2
TEA BREWER(S)	15	
SODA DISPENSER(S)	14	
MOP SINK	19	INTERGAL

PLUMBING LEGEND

SYMBOL	ABBREV.	DESCRIPTION
SAN	S OR W	SOIL OR WASTE (BELOW GRADE)
GW	GW	GREASE WASTE
V	V	VENT
CD	CD	CONDENSATE DRAIN
ST	ST	STORM DRAIN
CW	CW	COLD WATER
FW	FW	FILTERED WATER
SW	SW	SOFTENED WATER
FSW	FSW	FIRE SERVICE WATER
HW	HW	HOT WATER
HWR	HWR	HOT WATER RETURN
RCL	RCL	RECLAIMED HEAT WATER
G	G	GAS, NATURAL OR PROPANE
	UP	PIPE UP
	DN.	TEE DOWN
	DN.	PIPE DOWN
	FCO	FLOOR CLEANOUT
	DCO	DOUBLE CLEANOUT
	CO	CLEANOUT, WALL OR PIPE
	SOV	SHUT-OFF VALVE
NO	SOV	SHUT-OFF VALVE, NORMALLY OPEN
NC	SOV	SHUT-OFF VALVE, NORMALLY CLOSED
	C.V.	CHECK VALVE
	B.V.	BALANCING VALVE
	U	UNION
	P.V.	MECHANICAL PLUG VALVE (GAS)
	SOC	SHUT-OFF COCK (GAS)
	EAAV	EARTHQUAKE ACTUATED AUTOMATIC VALVE (GAS)
	S.V.	ELECTRIC SOLENOID VALVE (GAS)
R	P.R.	PRESSURE REGULATOR (GAS)
	POC	POINT OF CONNECTION
	T&P	TEMPERATURE & PRESSURE RELIEF VALVE
	VTR	VENT TO ROOF
	HD	HUB DRAIN
	FD	FLOOR DRAIN (COORDINATE GRATE REQS)
	FS	FLOOR SINK (COORDINATE GRATE REQS)
	RP	RECIRCULATION PUMP
	HB	HOSE BIBB
	KEC	KITCHEN EQUIPMENT CONTRACTOR
	BTUH	BRITISH THERMAL UNITS PER HOUR
	MBH	BTUH X 1000
	CFH	CUBIC FEET PER HOUR (1 MBH = 1 CFH)
	(E)	EXISTING
	I.E.	INVERT ELEVATION
	CONN	CONNECTION
	FU	FIXTURE UNITS
	GPM	GALLONS PER MINUTE
	GPH	GALLONS PER HOUR
	HP	HORSEPOWER
	PSI	POUNDS PER SQUARE INCH
	AP	ACCESS PANEL
	W/	WITH
	FLR	FLOOR
	CLG	CEILING
	ABV	ABOVE
	BEL	BELOW
	UG	UNDERGROUND
	DN	DOWN
	CONT.	CONTINUE
	TYP.	TYPICAL
	FOH	FRONT OF HOUSE
	BOH	BACK OF HOUSE
	A.D.A.	AMERICAN DISABILITIES ACT
	A.F.F.	ABOVE FINISH FLOOR
	B.F.F.	BELOW FINISH FLOOR

TESTING PROCEDURES

1.	TEST INSTALLED WATER PIPING AT 100 PSI FOR A PERIOD OF 8 HOURS, OBSERVING FOR ANY VISIBLE LEAKS. TEST PIPING AGAIN WITH FIXTURES INSTALLED.
2.	CHLORINATE ALL WATER PIPING FOR A PERIOD OF 8 HRS, BY CHARGING WITH A HYPOCHLORINATE SOLUTION TO ACHIEVE A 5 PPM STRENGTH AT THE FIXTURE FURTHEST FROM THE POINT OF APPLICATION. UPON COMPLETION OF THE CHLORINATION, FLUSH ALL PIPING UNTIL NO CHLORINE CAN BE DETECTED BY TASTE. CLEAN ALL STRAINERS AND SET WATER FLOWS FROM FIXTURES IN ACCORDANCE WITH MANUFACTURER AND LOCAL REQUIREMENTS.
3.	TEST INSTALLED GAS PIPING AT 60 PSI FOR A PERIOD OF 2 HRS, USING SOAP AND WATER OBSERVING FOR ANY VISIBLE LEAKS AT ALL JOINTS.
4.	TEST INSTALLED WASTE AND VENT PIPING FOR A PERIOD OF 8 HRS, BY CAPPING OR PLUGGING ALL JOINTS TO A LEVEL OF THE HIGHEST FIXTURE OR FITTING. FILL THE SYSTEM WITH WATER AND OBSERVE FOR ANY LEAKS.

PLUMBING GENERAL NOTES

1. NOTE: FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS AND VERIFY THIS INFORMATION PRIOR TO ORDERING, FABRICATING OR INSTALLING ANY MATERIALS.
2. THE PLUMBING SYSTEM DESIGN, INSTALLATION AND MATERIALS SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
3. PLUMBING QUALITY, WEIGHTS OF MATERIALS AND ALTERNATE METHODS OF CONSTRUCTION SHALL CONFORM TO THE 2018 INTERNATIONAL PLUMBING CODE, WITH CITY AMENDMENTS.
4. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON THESE DRAWINGS AND SPECIFICATIONS WITH ALL DISCIPLINES AND TRADES PRIOR TO SUBMITTAL OF BID AND INSTALLATION OF SYSTEM.
5. CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR SERVICE AND CONNECTIONS AND SHALL PAY FOR ALL FEES, CHARGES, PERMITS AND METERS.
6. THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND LABOR (INCLUDING THE COMPLETE PLUMBING SYSTEM) FOR A PERIOD OF ONE YEAR FROM WRITTEN ACCEPTANCE BY THE TENANT. ANY DEFECTS IN MATERIALS AND OR LABOR FOUND WITHIN THE GUARANTEE PERIOD SHALL BE REMEDIED OR REPAIRED BY THIS CONTRACTOR IN A TIMELY FASHION, AT NO COST TO THE TENANT.
7. ALL PLUMBING FIXTURE LOCATIONS (WATER CLOSETS, LAVATORIES ETC.) ARE DIAGRAMMATIC. CONTRACTOR SHALL REFER TO FOOD SERVICE AND ARCHITECTURAL DRAWINGS FOR EXACT PLACEMENT AND MOUNTING HEIGHTS.
8. ANY DEVIATIONS FROM THE DRAWINGS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
9. CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTAL OF BID AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS. SUBMITTAL OF BID WILL VERIFY THAT THE CONTRACTOR HAS VISITED THE SITE.
10. PIPING SHALL BE INSTALLED PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. THE INSTALLATION SHALL MEET ALL CONSTRUCTION CONDITIONS AND ALLOW FOR THE INSTALLATION OF OTHER TRADES.
11. SUPPORT PIPING WITH CLEVIS OR SPLIT RING TYPE PIPE HANGERS WITH 3/8" ALL THREAD ROD AND BEAM CLAMPS. "PLUMBERS TAPE AND WIRE" NOT PERMITTED.
12. TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS AND WATER HAMMER ARRESTORS TO BE INSTALLED AS PER THE 2018 INTERNATIONAL PLUMBING CODE, WITH CITY AMENDMENTS AND THE LATEST EDITION OF THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION REQUIREMENTS.
13. ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED BEHIND AN ACCESS PANEL.
14. ALL SERVICE WATER HEATING EQUIPMENT TO BE IN COMPLIANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE, WITH CITY AMENDMENT REQUIREMENTS.
15. ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH CURBS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR. ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER.
16. ALL WATER PIPING TO BE INSULATED AS PER THE 2018 INTERNATIONAL PLUMBING CODE, WITH CITY AMENDMENT REQUIREMENTS:

PIPE SIZE	INSULATION THICKNESS	INSULATION VALUE
1/2" THRU 1 1/4"	1"	R = 6.0
1-1/2" THRU 2"	1 1/2"	R = 6.0

17. CONTRACTOR SHALL PROVIDE: FAUCETS, TRAPS, STOPS, BALL VALVES, BACKFLOW DEVICES FOR KITCHEN EQUIP. GASCOCKS, WATER HAMMER ARRESTORS, CLEANOUT COVERS AND INDIRECT WASTE TO AN APPROVED RECEPTOR AND ALL NECESSARY TRIM FOR A COMPLETELY CONNECTED PLUMBING SYSTEM.
18. ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE AND LOCATED AS PER CODE REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE ALL CLEAN OUT LOCATIONS WITH EQUIPMENT, MILLWORK, ETC., PRIOR TO INSTALLATION.
19. ALL PLUMBING FIXTURE VENTS TO TERMINATE A MINIMUM OF 12 INCHES FROM ANY VERTICAL SURFACE AND 10'-0" FROM OR 3'-0" ABOVE ANY MECHANICAL EQUIPMENT OUTSIDE AIR INTAKE.
20. ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS CONNECTED SUPPLY LINE UNLESS OTHERWISE NOTED ON DRAWINGS.
21. UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE AND PRIOR TO EQUIPMENT CONNECTIONS.
22. PIPING SHALL BE INSTALLED COMPLETE WITH DIELECTRIC UNIONS BETWEEN CONNECTIONS OF NON-FERROUS MATERIALS.
23. PROVIDE ACCESSIBLE WATER SUPPLY STOP VALVE(S) AT EACH FIXTURE.
24. PROVIDE A LINE SIZED PRESSURE REDUCING VALVE AT THE BUILDING SERVICE CONNECTION SHOULD THE SUPPLY PRESSURE EXCEED 80 PSI.
25. ALL UNDERGROUND METALLIC PIPE AND FITTINGS SHALL BE PROTECTED IN ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS.
26. NO PIPING SHALL BE DIRECTLY EMBEDDED IN CONCRETE, MASONRY WALLS, OR CONCRETE FOOTINGS.
27. THE PLUMBING CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR ALL POINTS OF CONNECTION WITH THE GENERAL CONTRACTOR AND OTHER TRADES PRIOR TO START OF WORK.
28. VERIFY EXACT LOCATIONS, DEPTH AND SIZE OF ALL PIPING TO WHICH CONNECTIONS ARE REQUIRED. COORDINATE ALL CONNECTIONS WITH SITE CONDITIONS AND SITE UTILITY CONTRACTOR/ REPRESENTATIVE.
29. ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS AND NOT LESS THAN 6" ABOVE THE FLOOR TO PROVIDE CLEARANCE FOR CLEANING.
30. ALL CUTTING OF EXISTING PAVING, WALKS AND/OR FLOORS SHALL UTILIZE MACHINE SAW CUTTING EQUIPMENT. HOLES FOR PIPES IN CONCRETE WALLS OR FLOORS SHALL UTILIZE CORE DRILLING EQUIPMENT. COORDINATE WITH ARCHITECTURAL DETAILS FOR FLOOR CUTTING AND PATCHING.
31. THE PLUMBING CONTRACTOR IS TO PROVIDE ALL ADDITIONAL STEEL, HANGER MATERIALS, RODS AND CLAMPS AS REQUIRED FOR COORDINATION WITH WORK OF OTHER TRADES.
32. PIPING LAYOUT IS SCHEMATIC ONLY, EXACT ROUTING AND INSTALLATION OF PIPES TO BE COORDINATED WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER CONTRACTORS. NO WATER OR DRAIN LINES ARE PERMITTED TO BE INSTALLED OVER OR UNDER ELECTRICAL PANELS.
33. NO LIQUID TRANSMISSION PLUMBING PIPING SHALL BE INSTALLED ABOVE ELECTRICAL SWITCH GEAR, EQUIPMENT, OR PANELS. MAKE ADJUSTMENTS NECESSARY TO REROUTE PIPING FOR ACTUAL INSTALLATION OF ELECTRIC EQUIPMENT.
34. WHENEVER FOUNDATION WALLS, EXTERIOR WALLS, ROOFS, ETC. ARE PENETRATED FOR THE INSTALLATION OF PLUMBING SYSTEMS, THEY SHALL BE PATCHED TO MATCH EXISTING CONSTRUCTION AND SEALED WEATHER TIGHT.
35. EXPOSED PIPING IN THE GUEST AREAS SHALL BE PAINTED TO MATCH THE WALL COLOR. EXPOSED GAS PIPING IN THE KITCHEN SHALL BE PAINTED WHITE.
36. DURING THE PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF ALL CHANGES MADE IN THE PLUMBING SYSTEMS. THE RECORD DRAWING SHALL SHOW CHANGES IN MANUFACTURER (WITH NUMBERS AND TRADE NAMES). MATERIALS, SIZES, LOCATIONS AND HOOK-UP POINTS. AS-BUILTS SHALL BE GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB.
37. UPON COMPLETION OF JOB, THIS CONTRACTOR SHALL INSPECT ALL EXPOSED PORTIONS OF THE PLUMBING INSTALLATION AND COMPLETELY REMOVE ALL EXPOSED LABELS, SOIL MARKINGS AND FOREIGN MATERIAL EXCEPT PRODUCT LABELS AND THOSE REQUIRED BY LAW.
38. PLUMBING CONTRACTOR SHALL BE ON SITE AND PRESENT AT THE DATE OF STORE TURNOVER.
39. PLUMBING CONTRACTOR SHALL PROVIDE MANUFACTURER'S OPERATION LITERATURE FOR ALL INSTALLED EQUIPMENT AND FIXTURES AT THE DATE OF STORE TURNOVER.
40. ALL FIXTURES AND EQUIPMENT SHALL BE INSTALLED WITH WATER SUPPLY STOP VALVES IN ACCESSIBLE LOCATIONS. PROVIDE LINE SIZED BALL VALVES FOR BEVERAGE FIXTURES.
41. PROVIDE PIPE SUPPORTS AND EXPANSION LOOPS AS REQUIRED.
42. PLUMBING CONTRACTOR TO ARRANGE AND PAY FOR ALL REQUIRED FEES, PERMITS, AND MISCELLANEOUS COSTS ASSOCIATED WITH THE PLUMBING WORK PER LOCAL PLUMBING CODES.
43. ALL PENETRATIONS IN FIRE RATED WALL ASSEMBLIES SHALL BE SEALED WITH UL LISTED FIRE STOPPING MATERIAL.

ENGINEER:

DP CE

1301 Solana Blvd.
Bldg. 1, Suite 1420
Westlake, TX 76262
+1 817 410 2858

WWW.DONPENN.COM

CORPORATE:

DICKEY'S BARBECUE RESTAURANT, INC.
4514 COLE AVENUE, SUITE 1100
DALLAS, TEXAS 75205
972.248.9899

FOR REFERENCE ONLY.
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03/16/22

DICKEY'S BARBEQUE PIT
FRANDORADO SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT® est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

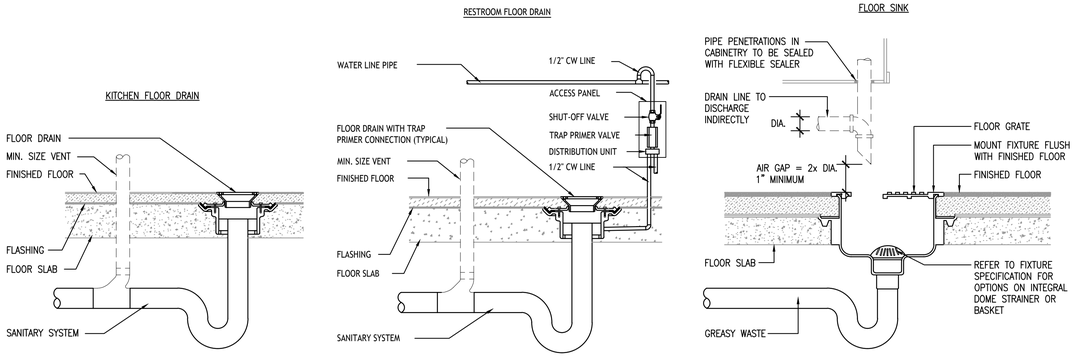
PLUMBING SCHEDULES

SHEET NUMBER:

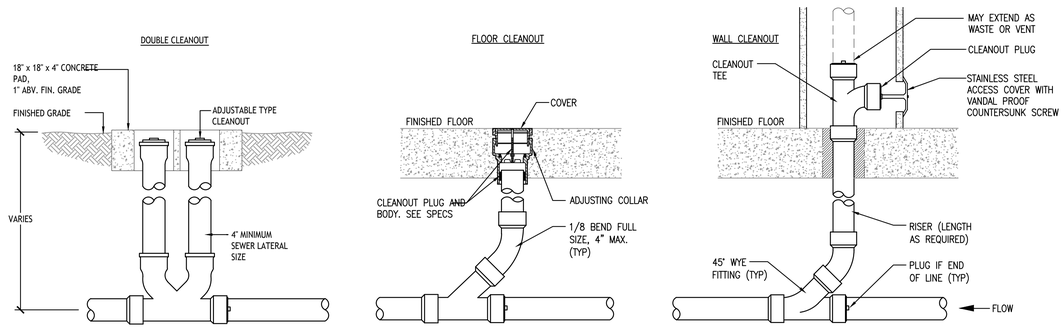
P2.0

ID54 PROJECT NUMBER:

DBQ21015



DRAINAGE DETAILS 1
SCALE: NONE

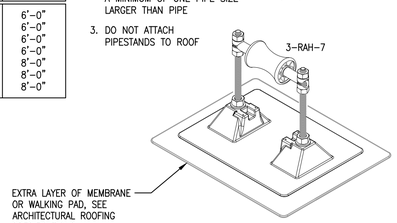


CLEANOUT DETAILS 2
SCALE: NONE

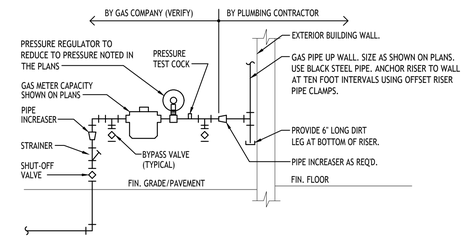
ROOF PIPE SUPPORT SCHEDULE	
PIPE SIZE	MAXIMUM SPACING
1"	6'-0"
1 1/4"	6'-0"
1 1/2"	6'-0"
2"	6'-0"
2 1/2"	8'-0"
3"	8'-0"
4"	8'-0"

NOTES:
1. SUPPORTED PIPE AT ALL ELBOWS AND AT SPACING SPECIFIED.
2. PIPE SUPPORT BLOCK SHALL BE A MINIMUM OF ONE PIPE SIZE LARGER THAN PIPE
3. DO NOT ATTACH PIPESTANDS TO ROOF

MIRO INDUSTRIES, INC.
170 WEST COTTAGE AVE
SANDY, UTAH 84070
(801) 566-3680

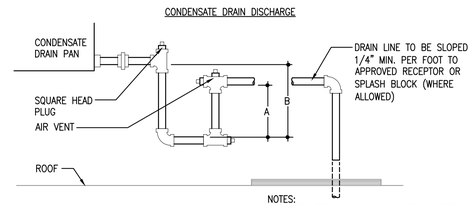


ROOF PIPING SUPPORT DETAIL 3
SCALE: NONE



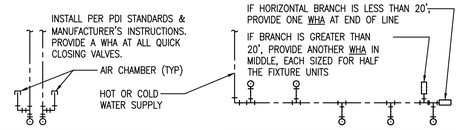
NOTE:
VERIFY REQUIREMENTS FOR METERING AND PIPING WITH GAS COMPANY. INSTALL OTHER UTILITIES A MINIMUM OF 10'-0" FROM GAS LINE. PLUMBING CONTRACTOR SHALL PAY ALL GAS COMPANY FEES FOR INSTALLATION. USE WELDED OR SCREWED PIPE AND FITTINGS PER PLUMBING SPECS. GAS COMPANY SHALL EXCAVATE, BACKFILL AND REPAIR ANY PAVING OR SOD FOR GAS SERVICE LINE INSTALLATION FROM MAIN TO BUILDING.

GAS SERVICE CONNECTION 4
SCALE: NONE



NOTES:
1. FILL TRAP MANUALLY ON INITIAL START-UP.
2. TRAP EACH COMPONENT DRAIN CONNECTION.
3. A = NEGATIVE STATIC PRESSURE = 2"
4. B = 2x NEGATIVE STATIC PRESSURE = 4"

CONDENSATE DRAIN DETAIL 5
SCALE: NONE

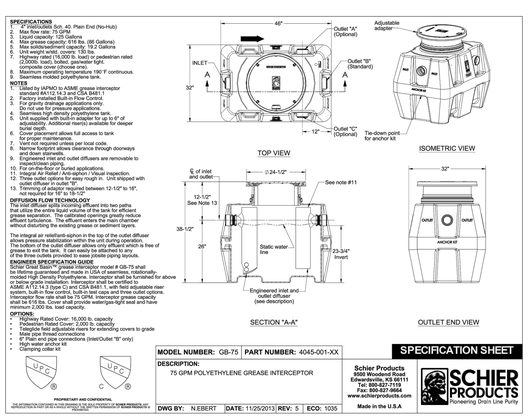


	PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
SINGLE/DOUBLE FIXTURE	A	1/2"	1-11
	B	3/4"	12-32
	C	1"	33-60
	D	1-1/4"	61-113
	E	1-1/2"	114-154
	F	2"	154-330

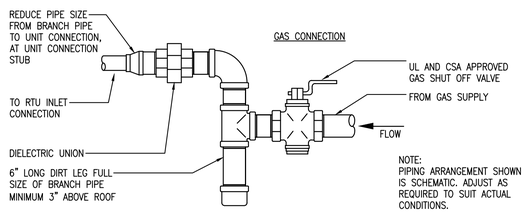
	FIXTURE UNIT TABULATION		
	FIXTURE	COLD	HOT
MULTIPLE FIXTURES	VALVE WATER CLOSET	10	--
	TANK WATER CLOSET	5	--
	URINAL	5	--
	LAVATORY/SINK	1.5	1.5
	JANITOR'S SINK	3	3
	SHOWER/BATHTUB	2	2

NOTE:
FOR BATTERIES OF FIXTURES, PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON & O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 & ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE. PROVIDE ACCESSIBILITY WHERE REQUIRED BY LOCAL CODE.

WATER HAMMER ARRESTOR DETAIL 6
SCALE: NONE

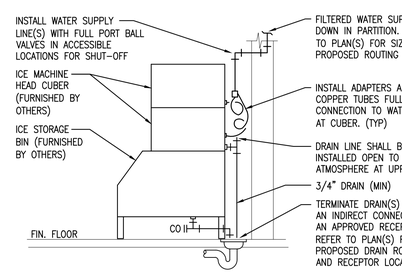


GREASE INTERCEPTOR DETAIL 7
SCALE: NONE



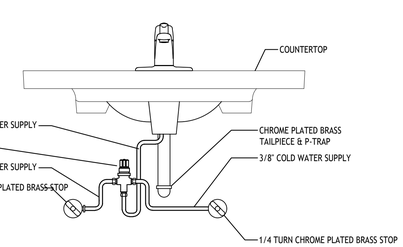
NOTE:
PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED TO SUIT ACTUAL CONDITIONS.

GAS LINE CONNECTION DETAIL 8
SCALE: NONE

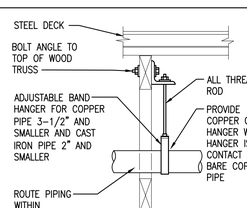


NOTE:
PROVIDE COLD WATER ROUGH-IN AT TOP OF ICE MACHINE. ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED TO SUIT CONDITIONS. VERIFY CONNECTIONS WITH MANUFACTURER.

ICE MACHINE CONNECTION DETAIL 9
SCALE: NONE



LAVATORY TEMPERING VALVE DETAIL 10
N.T.S.

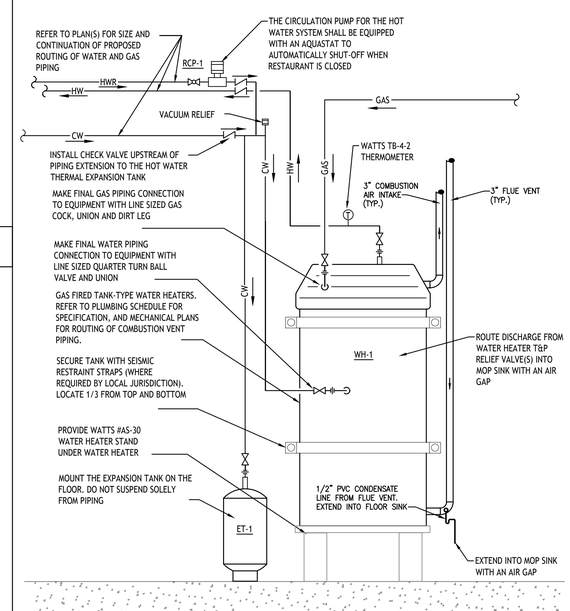


PIPE SIZE	PEX HANGER SPACING	STEEL PIPE HANGER SPACING
1/2"	8'	7'
3/4"	8'	7'
1"	8'	7'
1-1/4"	8'	8'
1-1/2"	8'	9'
2"	8'	10'
2-1/2"	8'	11'
3"	8'	12'
4"	8'	12'

NOTE:
PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. SLOPE ALL WATER PIPING SLIGHTLY TOWARD DRAINABLE LOCATIONS. HANGER SPACING FOR PIPE SIZE: AS INDICATED ON TABLE. CAST IRON: 10' AND WITHIN 1'-0" OF ALL JOINTS. ROD SIZES FOR PIPE SIZE: 2" AND SMALLER=3/8", 2 1/2" TO 3"=1/2", 4"=5/8", 6"=3/4", 8" AND LARGER=7/8". LOCATE HANGERS WITHIN 1'-0" OF VALVES AND FITTINGS. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS WITHIN 1'-0" OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. CHAINS AND PERFORATED STRAP IRON AND STEEL ARE NOT ACCEPTABLE. DO NOT SUSPEND PIPE FROM JOIST BRACING MEMBERS. REFER TO CODE AND SPECIFICATIONS FOR FURTHER INFORMATION. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES, SEE "TRAPEZE PIPE HANGER DETAIL."

WOOD TRUSS PIPE HANGER DETAIL 11
SCALE: NONE

WATER HEATER NOTES:
1. PROVIDE PRESSURE (EQUAL TO OMEGA #PGS-25L-100) AND TEMPERATURE GAUGE (EQUAL TO WEKSLER #AA5H-9) AT WATER HEATER IF REQUIRED BY STATE OR LOCAL CODE.
2. WATER HEATER AND EXPANSION TANK SHALL BE ASME RATED AND LABELED.
3. WATER HEATER SHALL HAVE DRAIN VALVE, HIGH LIMIT CONTROL, LOW-WATER FUEL CUT-OFF, AND FLAME FAILURE CONTROL.
4. PROVIDE TEMPERATURE ALARM KIT. REFER TO ELECTRICAL PLANS FOR ALARM LOCATION.
5. SUPPORT VENT PIPING EVERY 3 FT. VERTICALLY AND 4 FT. HORIZONTALLY.
6. INSTALL WATER HEATER, PIPING, VALVES & APPURTENANCES FOR EASE OF MAINTENANCE AND REPLACING WATER HEATER IN FUTURE. WATER HEATER FOR EASY REMOVAL. THE CIRCULATION PUMP FOR THE HOT WATER SYSTEM SHALL BE EQUIPPED WITH
7. AN AQUASTAT TO AUTOMATICALLY SHUT-OFF WHEN RESTAURANT IS CLOSED. INSTALL WITH MANUFACTURER AVAILABLE MANIFOLD KIT.



GAS FIRED TANK TYPE WATER HEATER DETAIL 12
SCALE: NONE

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4514 COLE AVENUE, SUITE 1100
DALLAS, TEXAS 75205
972.248.9899

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DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

DATE	DESCRIPTION

SHEET TITLE:
PLUMBING DETAILS

SHEET NUMBER:
P3.0

IDS4 PROJECT NUMBER:
DBQ21015

DICKEY'S INTERIOR FINISH OUT

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Not Used

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Division 0 - Contract and Bid Information

Section 00100 - Instructions to Bidders

1. AIA Document A701, latest Edition, "Instructions to Bidders" are included as part of these specifications as if herein reprinted in full.
   a. A copy of AIA A701, latest edition may be obtained from Owner, Architect, or directly from:
   The American Institute of Architects
   1735 New York Avenue,
   N.W. Washington, D.C. 20006.

2. Contractor shall utilize the following documents, latest edition, in the negotiation and execution of the project:
   a. AIA Document A701 – Instructions to Bidders
   b. AIA Document G702 – Application and Certificate for Payment
   c. AIA Document G703 – Continuation Sheet
   d. AIA Document G701 – Change Order
   e. AIA Document G705 – Certificates of Insurance
   f. AIA Document G706 – Contractor's Affidavit of Payment of Debts and Claims
   g. AIA Document A706 – Contractor's Affidavit of Release of Liens
   h. AIA Document A201 – General Conditions of the Contract for Construction
   i. AIA Document A107 – Standard Abbreviated Owner–Contractor Agreement Form

Section 00120 - Supplementary Instructions To Bidders

The following supplements modify, change, delete from, or add to the instructions to Bidders (AIA A701, latest Edition) Where any article of the instruction to Bidders is modified or any paragraph, sub–paragraph, or clause thereof is modified or deleted by these Supplemental Instructions the unaltered provisions of the article, paragraph, sub–paragraph, or clause shall remain in effect.

1. Article 1, Paragraph 1.8; add:
   Bidding is by invitation from the Owner, only.

2. Article 3, Paragraph 3.1.1 delete and insert the following:
   Owner will provide each invited Bidder a complete set of electronic files (.pdf format) of the Bidding Documents. Bidding contractor will be responsible for printing and distribution.

3. Article 4, Paragraph 4.1.1 delete and insert the following:
   4.1.1 Bids shall be submitted on forms Identical to the Bid Form provided by the Owner, one (1) original with original signature(s). Bids transmitted via facsimile or e–mail; provided they are received by the prescribed deadline, are acceptable. Originals shall be sent by overnight service for next day delivery.

4. Article 4, Paragraph 4.2:
   Delete this paragraph in its entirety, as no bid security will be required

5. Article 4, Paragraph 4.4.1:
   The stipulated time period shall be construed as 90 calendar days.

6. Article 6, Paragraph 6.2:
   Delete this paragraph in its entirety.

7. Article 7, Paragraph 7.1.1:
   Bond requirement will be an option reserved by the Owner.

8. Article 7, paragraph 7.2.2:
   Delete "unless otherwise provided," and substitute "unless otherwise acceptable to the Owner."

Section 00300 - Bid Form

1. The form of proposal will be furnished separately by the Owner.

Section 00430 - Unit Prices

1. UNIT PRICES
   A. Unit Prices will be exercised at the option of the Owner. Prices stated for each Unit Price shall be valid for the duration of the contract and shall include all cost including Overhead and Profit.
   B. Unit–Price No. 1: Leveling of Existing Floor Slab
      1. State the price for leveling and filling existing exposed floor substrate to specified tolerances, in accordance with Section 03340 – Self Leveling Underlayment. Price shall include labor, materials and equipment necessary to recondition the floor including preparation, priming and filling as specified.
      2. Unit Measure: Per square foot to a depth of ¼ inch.
   C. Unit–Price No. 2: Tile Floor Crack Isolation Membrane.
      1. State the price for providing crack isolation membrane as specified in Section 09300 – Tile.
      2. Unit Measure: Per square foot.

Section 00700 - General Conditions

1. AIA Document A201, Latest Edition, "General Conditions of the Contract for Construction" are included as part of these specifications same as if herein reprinted in full.
   a. A copy of AIA A201, may be obtained from Owner; Architect, or directly from:
   The American Institute of Architects
   1735 New York Avenue, N.W.
   Washington, D.C. 20006.

Section 00800 - Supplementary Conditions

The following supplements, modify, change, delete from, or add to General Conditions (AIA A201), Where any article of the General Conditions is modified or any paragraph, sub–paragraph, or clause thereof is modified or deleted by these Supplemental Instructions, the unaltered provisions of the article, paragraph, sub–paragraph, or clause shall remain in effect.

1. Article 7, Paragraph 7.3.6 is further clarified as follows:

   When the Owner authorizes the Contractor to perform changes or additions involving extra labor and material, and if the Contractor is directed to proceed on the basis of the actual cost of labor and material by Change Order, the following allowances will be allowed for Overhead (including Bond and Insurances) & Profit:

   (1)For the Contractor: To be noted in the General Contractor's Bid submittal.

   (2)Extra work covered by unit prices as requested in the Bid Form, include Contractors overhead and profit.

   (3)Superintendents time shall not be included in T & M extra work.

2. Article 8, add Paragraph 8.3.4:

   8.3.4 The Contractor shall have no claim for an extension of time unless such time is stated on the face of a written Change Order and approved and accepted in writing by the Owner on such Change Order. Any attempted reservation by the Contractor or the right to subsequently claim any extension of time not stated on the face of a written Change Order approved and accepted by the Owner shall be null and void.

3. Article 9, Paragraph 9.3.1; add the following:

   Payment requests must be received by the Owner no later than the 26th day of each month, and must be accompanied by a lien waiver in full for each participating contractor, subcontractor, and supplier seeking payment. Owner will not be required to make any payment without the required lien waivers.

4. Article 9, Paragraph 9.6.1: Delete and substitute:

   9.6.1 Upon receipt of Contractor's Application for Payment, Owner will make such payment to the Contractor within 30 days or as soon as practical thereafter.

5. Article 9, add Paragraphs 9.10.6 and 9.10.7:

   9.10.6 Before Owner issues final payment hereunder, the Contractor shall submit to the Owner; (a)an affidavit that all payroll and bills for material and equipment, and, other indebtedness connected with the work for which the Owner or its property might in any way be responsible, have been paid or otherwise satisfied, (b) the consent of surety to final payment and (c) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract Documents, to the extent and in such form as may be designated by the Owner. If any Subcontractor and/or Material man refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond, at its expense, satisfactory to the Owner to indemnify the Owner against such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the Owner may be compelled to pay in discharging such lien, including, without limitation, all costs and reasonable attorneys' fees.

   9.10.7 All waivers and subordination agreements required hereunder shall be in the form acceptable to the Owner.

6. Article11, delete first paragraph of 11.1.1 beginning with "The Contractor" ending with " be liable", and substitute the following:

   11.1.1 Prior to the commencement of the Work, Contractor shall procure, and Contractor shall maintain, all insurance required under this Paragraph 11.1.1. Contractor shall require each Subcontractor to provide coverage adequate to protect Subcontractor and its employees. If the terms of coverage of such policies are unacceptable to Owner, Contractor and/or subcontractor shall revise the coverage or obtain additional coverage as reasonably requested by Owner. Owner's approval of Contractor's and any Subcontractor's insurance shall not relieve or limit their liability under the Contract Documents. In the event of the failure of Contractor to furnish and maintain such insurance, then the Owner shall have the right, but not the obligation, to take out and maintain such insurance for and in the name of Contractor and Contractor shall pay the cost thereof and furnish all necessary information to permit the Owner to take out and maintain such insurance for the account of Contractor. Contractor shall not allow any Subcontractor to commence work on its subcontract until all insurances required of Subcontractor have been obtained. Contractor shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out of or result from Contractors operations under the Contract Documents, whether such operations be by Contractor or by Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

7. Article 11; delete paragraph 11.1.2 and substitute the following:

   11.1.2 The liability insurance purchased and maintained by Contractor pursuant to this paragraph and 11.1.1 shall include the types and be in the minimum amounts as follows:

   (a) Workman's Compensation
      (i) Workers' or workman's compensation – maximum permitted by statue, unlimited if permitted. The policy shall contain a Waiver of Subrogation in favor of Landlord Indemnitees.
      (ii) Employer's Liability – $1 million.
   (b) Comprehensive General Liability
      Bodily injury and property damage having a combined single limit of $2 Million and including the following coverage's:
      (i) Comprehensive Form
      (ii) Premises – Operations
      (iii) Explosion and Collapse Hazard
      (iv) Underground Hazard
      (v) Products – Completed Operations. Hazard (which must be maintained for 2 years commencing with issuances of the final Certificate of Payment)
      (vi) Broad Form Contractual Insurance
      (vii) Broad Form Property Damage (extended to apply to completed operations)
      (viii) Independent Contractors
      (ix) Personal Injury (with employees and contractual exclusions deleted)
   (c) Automobile Liability (Comprehensive Form) insuring contractor for operations of all owned, hired, and non–owned vehicle limit of $2 Million.
   (d) Umbrella Excess Liability: $2 Million per occurrence / aggregate.

8. Article 11, paragraph 11.3:
   Delete all references to Owner furnished property insurance.

   The Owner shall furnish Builders Risk Insurance, including the perils of fire, extended coverage, vandalism, and malicious mischief In an amount of not less than 100% of the insurable value of all the work, and the coverage written on Builders Risk Coverage Form CP0020, Including Causes of Loss Basic Form CP1010 or Causes of Loss – Broad Form CP1020 or Causes of Loss – Special Form CPl030 or an acceptable inland Marine "All Risk" installation floater form, with a company authorized to do business in the state in which the project is located.

9. Article 12, add paragraph 12.2.2.1(a):

   12.2.2.1(a) If during the Contractors one (1) year warranty after completion the Owner requests that tests be performed to determine if corrections in the Work need to be made, the expense of such tests shall be borne by (a) the Owner, if the results of the tests indicate that no corrections are necessary, or (b) the Contractor, if the results of the test indicate that corrections are necessary.

10. Article 13, paragraph 13.6.1:

   13.6.1 Interest rate shall be ten percent (10%).

Division 01 - General Requirements

Section 01100 - Summary of Work

1. PROJECT
   A. Project Name: Jamba Juice – J9 Prototype.
   B. Owner's Name: Focus Brands.

2. CONTRACT DESCRIPTION
   A. Contract Type: A single prime contract based on a Stipulated Price as provided By Owner in Bid Package

3. WORK RESPONSIBILITY
   A. Not In Contract (NIC): Items shown or noted "(NIC)" on the drawings and/or in the specifications shall be furnished and installed by Owner under separate contract, except as described hereinafter. The Contractor shall receive, unload as required, store, coordinate and accommodate the Owner's contractors during the Work and be responsible to the extent of carrying necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage. Contractor shall provide all conduits, boxes, chases, etc. as indicated on the drawings for a complete installation. Included, but not inclusive, in this category are:
      1. Illuminated Sign Package: Contractor shall be responsible for supplying individual electrical stub–ups at each site sign and/or each wall sign as required per plans and make final connection.
      2. Music, Intercom and A/V Systems: Contractor shall supply electrical service and wire chases with pull strings per plans and coordinate installation with Owner's agent. Contractor to provide adequate wood backing to install all necessary equipment.
      3. Point of Sale and Back Office Systems: All system equipment shall be provided by Owner, including computer cable. All equipment shall be installed by Owner's agent. All cable and wiring shall be installed in conduit installed by General Contractor as per plans. Contractor to provide 4 hours of carpentry and 4 hours of electrician labor on installation day for any changes that may arise.
      4. Security System: Contractor shall supply electrical service and wire chases with pull strings per plans and coordinate installation with Owner's agent. Contractor to provide adequate wood backing to install all necessary equipment.
      5. Telephones: Owner's agent will supply and install permanent telephone and jacks. Contractor shall supply and install junction boxes with pull strings per plans for said installation and coordinate with Owner's agent.
      6. Furnishings and decor shown on architectural drawings including, but not limited to, stools, chairs, booths, tables and decor. Note: All millwork items shown on architectural drawings including, but not limited to, cabinets, shelving and vanities shall be the responsibility of the Contractor. Contractor shall submit shop drawings of same for approval.
      7. Water Softener: Contractor shall install and plumb all soft water lines and stub–out for unit hook–up.
      8. Window Blinds.
   B. By Owner: Items shown or noted "By Owner" on the drawings and/or in the specifications shall be furnished by Owner to Contractor/subcontractor for installation by Contractor/subcontractor as part of the construction contract. Contractor shall coordinate delivery, furnish all labor, material, equipment, and tools required to receive, unload, store, protect, move from storage, uncrate, assemble, install, and level these items and shall carry necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage. Included, but not inclusive, in this category are:
      1. Food Service Equipment:
         a. Owner shall furnish food service equipment shown on food service drawings including, but not limited to the following:
            1) Kitchen equipment.
            2) Walk–in coolers and freezers.
            3) Stainless steel tables and shelves.
            4) Remote refrigeration units. All refrigeration unit lines, power supply, calibration, etc. shall be installed and performed by the Contractor. The foodservice suppliers will not furnish pre–charged lines.
            5) Booster heater.
            6) Stainless Steel Corner Guards.
      2. Safe in Office.
      3. I.T. Cabinet.
      4. Coat Hooks.
      5. File Cabinet.
      6. Lockers.
      7. Water Filter.
      8. Receiving and unloading of Owner furnished items:
         a. Prior to delivery and installation of the Owner's kitchen equipment, the following must be completed:
            1) Tile must be set and clean; Fiberglass Reinforced Panels (FRP) and/or tile shall be hung and trimmed; acoustical ceiling grid complete with all light fixtures, ductwork and diffusers installed; acoustical ceiling tile shall be installed; and all gypsum wall board ceilings shall be finished.
            2) Contractor shall provide motorized, hydraulic forklift at site to assist in the offloading of Owner provided kitchen equipment. The Contractor shall inventory the Owner furnished items delivered to the job site and check each item to ensure that the correct type and model number per the food service plans and kitchen equipment brochure provided at the beginning of the project has been delivered. The Contractor shall notify the Owner immediately if any discrepancies are found.
            3) Contractor to provide copies of all delivery tickets, bills of lading, etc. certifying receipt of the Owner furnished items.
            4) Inspection of all Owner furnished items upon delivery for evidence of damage is the responsibility of the Contractor. The Contractor shall repair or replace, at no cost to the Owner, any damaged equipment received at the job site and not noted on the bill of lading.
            5) The Contractor is solely responsible for care of the Owner furnished items once received until completion of the contract. Any lost or damage during his possession will be repaired or replaced at no cost to the Owner.
      9. Foodservice equipment installation:
         a. The Contractor shall off load and uncrate all food service equipment, set in place, level and scribe to walls, floor and base as required. Pull equipment tight and secure field joints and properly dispose of all packing material.
         b. Properly anchor or fasten to walls, floor, ceiling, and base as per installation recommendations of the food service equipment manufacturer.
         c. Provide silicone bead where equipment joins together or abuts wall surfaces. Color of silicone to be clear.
         d. Assemble and secure in place all loose components such as, but not limited to, the following examples: tops of base units, shelves, legs, dispensers, etc.
         e. Mounting of equipment: Equipment which is not provided with legs or casters meeting the applicable requirements should be mounted by the following method: Equipment designed and constructed to be mounted directly to the floor, without legs or casters, should be sealed around the entire perimeter of the equipment.
         f. Installation of all food service equipment shall comply with all applicable codes and standards required by the local health department.
         g. The Contractor shall provide rough in water, drainage and other service piping adjacent to food service equipment requiring same, capping drain outlets with suitable plugs and terminating water and other service with shut–off valves and cocks. After installing food service equipment, Contractor shall make all final connections.
         h. The Contractor shall supply one 14–inch diameter loop of soft copper coil at each water line for all applicable food service equipment and related cabinetry that may need to be repositioned for maintenance or repair.
         i. The Contractor shall provide rough–in electrical wiring terminated in outlet boxed adjacent to food service equipment and shall make all final connections. This includes supplying devices, cord and plugs, etc, as required to complete installation.
         j. Sealing of Penetrations:
            1) Contractor shall adequately seal with escutcheons and/or sealant all utility and service piping and other required openings through walls and floors.
            2) Contractor shall seal conduit/outlet penetrations with approved foam insulation.
         k. Workmanship:
            1) Graining: Where two metal surfaces are butt welded, grain shall run in the same direction.
            2) Cove all intersections of vertical and horizontal sheet metal on a 5/8" radius unless otherwise indicated.
         l. Fastening:
            1) Provide nuts, bolts, and screws of American Standard unified screw thread design in stainless steel, only when sanitary fastenings are impossible. In all instances, use counter–sunk, flat, or oval head fasteners. round head fasteners are not acceptable.
            2) Wherever bolt threads are exposed, or may come in contact with a wiping cloth, use stainless steel acorn nuts.
         m. Welding: All welding shall be per AWS standards by electric arc method with rod of same composition as parts welded. make welds complete, strong, and ductile with rubble ground off and joints finished smooth, polished, and re–grained. Welds shall not be visible on continuous appearance. All welding shall be of a non–toxic nature when used on surfaces exposed to unpackaged food.
         n. Grinding, Polishing, and Finishing: Any material sunken or depressed by welding operation shall be hammered and peened flush with adjacent surfaces and, if necessary, ground again to eliminate low spots. Surfaces showing evidence of warpage and/or burn discoloration will not be accepted. in all cases, textures from rough grinding shall be removed by successive finer polishing operations until the grain of the entire surface is homogeneous.
         o. Equipment Adjustment: Contractor shall operate all food service equipment, test for leaks, proper connections, inadequate or faulty performance, calibrate and correct and adjust for proper operation. All thermostatically controlled equipment and equipment with automatic features shall be operated for a sufficient length of time to prove controls are functioning as intended. All food service plans, shop drawings, and equipment brochures are to remain at the store and be handed over to the Owner for future reference.
         p. Testing: Contractor shall test all water and gas piping built within the food service equipment for leaks using approved testing procedures.
         q. Completion:
            1) Contractor shall remove all protective coverings, tags, labels, and tape from equipment.
            2) Contractor shall thoroughly clean and polish Owner furnished items.
            3) Contractor shall place protective coverings on all equipment after cleaning until final acceptance of building then shall remove protective coverings.

4. OWNER OCCUPANCY
   A. Owner intends to occupy the Project upon Substantial Completion. Contractor shall cooperate with Owner to minimize conflict and to facilitate Owner's operations and schedule the Work to accommodate Owner occupancy.
   B. Owner reserves right to occupy and to place and install equipment as necessary in completed areas of building before Substantial Completion, provided such occupancy does not interfere with completion of Work. Such placing of equipment and partial occupancy shall not constitute acceptance of total Work.
   C. Owner or Owner's agent to prepare Certificate of Substantial Completion for each specific portion of Work to be occupied before Owner occupancy.
   D. Contractor shall obtain Certificate of Occupancy from local building officials before Owner occupancy
   E. Mechanical and Electrical Systems:
      1. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational.
      2. Required inspections and tests shall have been successfully completed.
      3. On occupancy, Owner will provide operation and maintenance of mechanical and electrical systems in occupied portions of Building.

5. MISCELLANEOUS PROVISIONS
   A. Accessibility Compliance:
      1. Full compliance with Uniform Federal Accessibility Standards (UFAS), and Americans with Disabilities Act (ADA), prohibiting discrimination on basis of disability by public accommodations, is required for Work of this Project.
      2. This Project has been designed to and requires full compliance with ADA regulations, whether or not specific references or notes to regulations are made on Drawings or in Specifications.

6. PROJECT GENERAL NOTES
   A. Unless noted otherwise, all work in these drawings and specifications shall be performed by the Contractor.
   B. The Contractor shall field verify all conditions and dimensions prior to any work and shall be responsible for all work and materials including those furnished by subcontractors. Contractor shall accept premises as found, Owner assumes no responsibility for the condition of the existing site or existing structures at the time of bidding or thereafter.
   C. The Contractor is responsible for correcting any errors after the start of construction which has not been brought to the attention of the Architect. The means of correcting any error shall first be approved by the Architect and Owner.
   D. Dimensions take precedence over drawings. DO NOT SCALE DRAWINGS TO DETERMINE ANY LOCATIONS. The architect shall be notified if any discrepancy occurs prior to continuing with work.
   E. All plan dimensions are from face of stud or face of masonry unless noted otherwise.
   F. The Contractor shall report to the Owner and Architect any errors, inconsistencies, or omissions discovered.
   G. All construction shall comply with the applicable building codes and local restrictions. The Contractor must comply with the Contractor registration requirements of all governing authorities.
   H. The general building permits shall be paid for by the Owner. All other permits shall be secured and paid for by the subcontractor directly responsible. All required city, county, and/or state licenses shall be acquired and paid for by the individual subcontractor.
   I. It shall be the responsibility of the Contractor to locate all existing utilities whether shown herein or not and to protect them from damage. The Contractor shall bear all expense of repair or replacement of utilities or other property damaged by operations in conjunction with the prosecution of the work.
   J. The Contractor shall be responsible for and shall replace or remedy any faulty, improper, or inferior materials or workmanship which shall appear within one year or as otherwise specified for a specific component after the completion and acceptance of the wok under this contract.
   K. The Contractor is to provide blocking as required for mounting of booth tables, wall mounted shelves, cabinets, HC grab bars and partition braces, in addition to other requirements specified herein.

7. CONTRACTOR USE OF SITE AND PREMISES
   A. Provide access to and from site as required by law and by Owner:
      1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
      2. Do not obstruct roadways, sidewalks, or other public ways without permit.
   B. Utility Outages and Shutdown:
      1. Prevent accidental disruption of utility services to other facilities.

Section 01110 - Work Covered by Contract Documents

1. INTENT OF DRAWINGS AND SPECIFICATIONS
   A. The Contractor shall complete all Work as provided for in Contract Documents including Drawings and Specifications. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Project Manual, shall be furnished and installed as if shown and mentioned in both. The Contractor shall furnish all materials or labor required to complete Work shown on the Drawings and called out in the Project Manual, to include labor and material requirements reasonably inferable therefrom as being necessary to complete the work, whether each and every single item necessary to completion is specified or detailed or not.

2. CONTRACTOR RESPONSIBILITY FOR WORK REQUIRED
   A. The organization of the Specifications into Divisions, Sections and Paragraphs and the arrangement of the Drawings are not intended to control the Contractor in dividing the Work among Subcontractors or to establish the limits and extent of work to be performed by a particular trade. The Contractor alone is responsible for the completion of the entire work as drawn and specified, complete in place and in functional or operating conditions. The division of the Project Manual into sections and paragraphs is for convenience only and not for the purpose of limiting or restricting the performance of any portion of the Work to any particular trade.

Section 01300 - Administrative Requirements

1. PROJECT COORDINATION
   A. Cooperate with the Project Coordinator regarding allocation of mobilization areas on site; for field offices and sheds, for worker access, traffic, parking facilities and use of temporary utilities and construction facilities.
   B. Comply with Project Coordinator's procedures for intra–project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
   C. Coordinate field engineering and layout work with Owner's Project Coordinator.
   D. Make the following types of submittals to Architect/Engineer through the Project Coordinator:
      1. Requests for interpretation.
      2. Requests for substitution.
      3. Shop drawings, product data, and samples.
   E. Make the following types of submittals to Owner through the Project Coordinator:
      1. Test and inspection reports.
      2. Manufacturer's instructions and field reports.
      3. Applications for payment and change order requests.
      4. Progress schedules.
      5. Coordination drawings.
      6. Closeout submittals.

2. PRECONSTRUCTION MEETING
   A. Make arrangements for meetings, prepare agenda with copies for participants and preside at meetings.
   B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, as appropriate to agenda topics for each meeting.
   C. Agenda:
      1. Execution of Owner–Contractor Agreement.
      2. Submission of executed bonds and insurance certificates.
      3. Distribution of Contract Documents.
      4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
      5. Designation of personnel representing the parties to Contract, Major Sub–Contractors and Architect/Engineer.
      6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
      7. Scheduling.
   D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

3. SITE MOBILIZATION MEETING
   A. Owner will schedule a meeting at the Project site prior to Contractor occupancy.
   B. Attendance Required:
      1. Contractor and Superintendent
      2. Owner.
      3. Major Subcontractors.
   C. Agenda:
      1. Use of premises by Owner and Contractor.
      2. Owner's requirements and partial occupancy prior to completion.
      3. Construction facilities and controls provided by Owner.
      4. Survey and building layout.
      5. Security and housekeeping procedures.
      6. Schedules.
      7. Application for payment procedures.
      8. Procedures for testing.
      9. Procedures for maintaining record documents.
      10.Requirements for start–up of equipment.
      11.Inspection and acceptance of equipment put into service during construction period.

4. PROGRESS MEETINGS
   A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
   B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner,as appropriate to agenda topics for each meeting.
   C. Agenda:
      1. Review minutes of previous meetings.
      2. Review of Work progress.
      3. Field observations, problems, and decisions.
      4. Identification of problems which impede planned progress.
      5. Review of submittals schedule and status of submittals.
      6. Maintenance of progress schedule.
      7. Corrective measures to regain projected schedules.
      8. Planned progress during succeeding work period.
      9. Maintenance of quality and work standards.
      10.Effect of proposed changes on progress schedule and coordination.
      11.Other business relating to Work.
   D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

5. CONSTRUCTION PROGRESS SCHEDULE
   A. Within 10 days after joint review, submit complete schedule.
   B. Submit updated schedule with each Application for Payment.

6. PROGRESS PHOTOGRAPHS
   A. Submit digital, electronic photograph files with each application for payment, taken not more than 3 days prior to submission of application for payment.
   B. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.
   C. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to Architect/Engineer.
   D. In addition to periodic, recurring views, take photographs of each of the following events:
      1. Completion of site clearing.
      2. Excavations in progress.
      3. Foundations in progress and upon completion.
      4. Structural framing in progress and upon completion.
      5. Enclosure of building, upon completion.
      6. Final completion, minimum of ten (10) photos.
   E. Views:
      1. Provide non–aerial photographs from four cardinal views at each specified time, until Date of Substantial Completion.
      2. Provide factual presentation.
   F. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
      1. Delivery Medium: Via email.
      2. File Naming: Include project identification, date and time of view, and view identification.
      3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.
      4. Hard Copy: Printed hardcopy (grayscale) of PDF file.

7. SUBMITTALS FOR REVIEW
   A. When the following are specified in individual sections, submit them for review:
      1. Product data.
      2. Shop drawings.
      3. Samples for selection.
   B. Submit to Architect/Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
   C. Samples will be reviewed only for aesthetic, color, or finish selection.
   D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES and for record documents purposes described in Section 01780 – CLOSEOUT SUBMITTALS.

8. SUBMITTALS FOR INFORMATION
   A. When the following are specified in individual sections, submit them for information:
      1. Design data.
      2. Certificates.
      3. Test reports.
      4. Inspection reports.
      5. Manufacturer's instructions.
      6. Manufacturer's field reports.
      7. Other types indicated.

9. SUBMITTALS FOR PROJECT CLOSEOUT
   A. When the following are specified in individual sections, submit them at project closeout:
      1. Project record documents.
      2. Operation and maintenance data.
      3. Warranties.
      4. Bonds.
      5. Other types as indicated.

10. NUMBER OF COPIES OF SUBMITTALS
   A. Documents for Review:
      1. Small Size Sheets, Not Larger Than 8–1/2 x 11 inches: Submit the number of copies which the Contractor requires, plus one copy which will be retained by the Architect/Engineer.
      2. Larger Sheets, Not Larger Than 30 x 42 inches: Submit the number of opaque reproductions which Contractor requires, plus one copy which will be retained by Architect/Engineer.
   B. Documents for Information: Submit two copies.
   C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.
   D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect/Engineer.
      1. After review, produce duplicates.
      2. Retained samples will not be returned to Contractor unless specifically so stated.

11. SUBMITTAL PROCEDURES
   A. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
   B. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
   C. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
   D. For each submittal for review, allow 7 days excluding delivery time to and from the Contractor.
   E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
   F. When revised for resubmission, identify all changes made since previous submission.
   G. Submittals not requested will not be recognized or processed.
   H. Do not make requests for deviations from contract documents via shop drawings, product data, or samples. Deviations will not be valid unless specifically approved under specified modification procedures.

Section 01320 - Change Order Procedures

1. GENERAL
   A. General Conditions of the Contract for Construction, AIA Document A201, Article 7, governs the work of this Section.

2. CHANGE ORDER FORM
   A. Change Orders will be issued on Architect's standard forms.

3. PRELIMINARY PROCEDURES
   A. Proposal Request: If a change to the Work is considered by the Owner, the Architect will issue a formal request for Contractor's proposal for changes to the Contract. Request includes: Detailed description of change with supplementary or revised Drawings and Specifications, projected time for executing change, with a stipulation of any overtime work required, and period of time during which requested price will be considered valid.
   B. Contractor Response: Respond with formal written proposal referencing Architect's request number, job name, date, specific items requested and indicate total amount of change imposed costs and construction time consideration for each request. Give each numbered request individual response. Do not lump two or more proposals on one response.

4. CONTRACT CHANGE METHODS
   A. Work Directive Change: Architect may issue a directive, signed by Owner, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Directive will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time. Promptly execute the change in Work.
   B. Lump Sum Change Order: Will be based on Proposal Request and Contractor's lump sum quotation.
   C. Unit Price Change Order:
      1. For pre_determined unit prices and quantities, Change Order will be executed on lump sum basis.
      2. For unit costs or quantities of units of work which are not predetermined, execute Work under a work directive change. Changes in Contract Sum or Contract Time will be computed as specified for time and material Change Order.
   D. Time and Material Change Order: Submit itemized account and supporting data with 10 working days after completion of change; Architect will determine change allowable in Contract Sum and Contract Time as provided in GENERAL CONDITIONS.

5. DOCUMENTATION OF CHANGE IN CONTRACT SUM AND TIME
   A. General: Document each quotation for a change in cost or time with sufficient data to allow evaluation of quotation.
   B. Time and Material Changes: Maintain detailed records of work done. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
   C. Additional Data: On request, provide additional data to support computations:
      1. Quantities of products, labor, and equipment. Taxes, insurance and bonds.
      2. Overhead and profit.
      3. Justification for any change in Contract Time.
      4. Credit for deletions for Contract, similarly documented.
   D. Additional Costs Claims: Support each claim for additional costs, and for work done on a time and material basis, with additional information:
      1. Origin and date of claim.
      2. Dates and times work was performed, and by whom.
      3. Time records and wage rates paid.
      4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

6. EXECUTION OF CHANGE ORDERS
   A. Architect will issue Change Orders for signatures of parties as provided in GENERAL CONDITIONS.

7. CORRELATION OF CONTRACTOR SUBMITTALS
   A. Schedule of Values: Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum as shown on Change Order.
   B. Progress Schedules: Promptly revise Progress Schedules to reflect any change in Contract Time, revise sub–schedules to adjust times for other items of work affected by change, and resubmit.
   C. Project Record Documents: Promptly enter changes in Project Record Documents.

Section 01400 - Quality Requirements

1. SUBMITTALS
   A. Test and Reports: After each test/inspection, promptly submit two copies of report to Architect/Engineer, Owner, and to Contractor.
      1. Include:
         a. Date issued.
         b. Project title and number.
         c. Name of inspector.
         d. Date and time of sampling or inspection.
         e. Identification of product and specifications section.
         f. Location in the Project.
         g. Type and Date of test/inspection.
         h. Results of test/inspection.
         i. Conformance with Contract Documents.
         j. When requested by Architect/Engineer, provide interpretation of results.
      2. Test reports are submitted for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
   B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or subcontractor, in quantities specified for Product Data.
      1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

2. REFERENCES AND STANDARDS
   A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the current standard, except when more rigid requirements are specified or are required by applicable codes.
   B. Should specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

3. TESTING AND INSPECTION AGENCIES
   A. General Contract shall employ services of an independent testing agency to perform specified testing. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

4. CONTROL OF INSTALLATION
   A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
   B. Comply with manufacturers' instructions, including each step in sequence.
   C. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
   D. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

5. TOLERANCES
   A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
   B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

6. TESTING AND INSPECTION
   A. Testing Agency Duties:
      1. Provide qualified personnel at site. Cooperate with Architect/Engineer and Contractor in performance of services.
      2. Perform specified sampling and testing of products in accordance with specified standards.
      3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
      4. Promptly notify Architect/Engineer and Contractor of observed irregularities or non–conformance of Work or products.
      5. Perform additional tests and inspections required by Architect/Engineer.
      6. Submit reports of all tests/inspections specified.

ARCHITECT:

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IRVING, TX 75063
PHONE 972.870.1288
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CORPORATE:

DICKEY'S BARBECUE RESTAURANT, INC.
4514 COLE AVENUE, SUITE 1100
DALLAS, TEXAS 75205
972.248.9899

FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT© est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

SPECIFICATION

SHEET NUMBER:

SP1.0

IDS4 PROJECT NUMBER:

DBQ21015

Section 01400 - Quality Requirements

C. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work, may not assume any duties of Contractor and has no authority to stop the Work.

D. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
a. To obtain and handle samples at the site or at source of Products to be tested/inspected.
b. To facilitate tests/inspections.
c. To provide storage and curing of test samples.
4. Notify Architect/Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect/Engineer.

7. DEFECT ASSESSMENT
A. Replace Work or portions of the Work not conforming to specified requirements.
B. If, in the opinion of Architect/Engineer, it is not practical to remove and replace the Work, Architect/Engineer will direct an appropriate remedy or adjust payment.

Section 01500 - Temporary Facilities and Controls

1. TEMPORARY UTILITIES
A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.

2. TELEPHONE SERVICE
A. Provide, maintain, and pay for telephone and facsimile services to field office at time of project mobilization.

3. TEMPORARY SANITARY FACILITIES
A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization. Maintain daily in clean and sanitary condition.

4. BARRIERS
A. Provide barriers to prevent unauthorized entry to construction areas, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

5. FENCING
A. Construction: Contractor's option.
B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

6. SECURITY
A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

7. VEHICULAR ACCESS AND PARKING
A. Coordinate access and haul routes with governing authorities and Owner.
B. Provide and maintain access to fire hydrants, free of obstructions.
C. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

8. WASTE REMOVAL
A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition. Provide containers with lids and remove trash from site.
B. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
C. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

9. FIELD OFFICES
A. Office: Weather tight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.
B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

10. REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS
A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
B. Remove underground installations to a minimum depth of 2 feet. Grade site as shown.
C. Clean and repair damage caused by installation or use of temporary work.
D. Restore existing facilities used during construction to original condition.

Section 01600 - Product Requirements

1. SUBMITTALS
A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

2. NEW PRODUCTS
A. Provide new products unless specifically required or permitted by the Contract Documents.

3. PRODUCT OPTIONS
A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

4. SUBSTITUTION PROCEDURES
A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
D. A request for substitution constitutes a representation that the submitter:
1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the substitution as for the specified product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

5. OWNER-SUPPLIED PRODUCTS
A. Contractor's Responsibilities:
1. Review Owner reviewed shop drawings, product data, and samples.
2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish products.
4. Repair or replace items damaged after receipt.

6. TRANSPORTATION AND HANDLING
A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
B. Transport and handle products in accordance with manufacturer's instructions.
C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

7. STORAGE AND PROTECTION
A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
B. Store and protect products in accordance with manufacturers' instructions with labels intact and legible.
C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
D. For exterior storage of fabricated products, place on sloped supports above ground.
E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
F. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

Section 01700 - Execution Requirements

1. EXAMINATION
A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
C. Verify that utility services are available, of the correct characteristics, and in the correct locations.
D. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

2. PREPARATION
A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3. LAYING OUT THE WORK
A. Verify locations of survey control points prior to starting work. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
B. Promptly report to Architect/Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
C. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
2. Grid or axis for structures.
3. Building foundation, column locations, ground floor elevations, and plumbing.
D. Maintain a complete and accurate log of control and survey work as it progresses.

4. CUTTING AND PATCHING
A. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.
B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing.
C. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
E. Restore work with new products in accordance with requirements of Contract Documents.
F. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
G. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of the penetrated element.
H. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

5. PROGRESS CLEANING
A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
D. Collect and remove waste materials, debris, and trash/rubbish from site weekly and dispose off-site; do not burn or bury.

6. PROTECTION OF INSTALLED WORK
A. Protect installed work from damage by construction operations.
B. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
C. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

7. SYSTEMS STARTUP
A. Coordinate schedule for start-up of various equipment and systems.
B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
D. Verify that wiring and support components for equipment are complete and tested.
E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

8. DEMONSTRATION AND INSTRUCTION
A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

9. FINAL CLEANING
A. Use cleaning materials that are non-hazardous.
B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
D. Clean filters of operating equipment.
E. Clean debris from roofs, gutters, downspouts, and drainage systems.
F. Clean site; sweep paved areas, rake clean landscaped surfaces.
G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

10. CLOSEOUT PROCEDURES
A. Accompany Owner on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.
B. Notify Owner when work is considered ready for Substantial Completion.
C. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
D. Notify Owner when work is considered finally complete.

11. PROJECT SUPERVISION AFTER SUBSTANTIAL COMPLETION
A. Project superintendent shall remain on site through completion of punch list.
B. Project superintendent shall be present on site for one week prior to store opening.

Section 01780 - Closeout Submittals

1. SUBMITTALS
A. Project Record Documents: Submit documents to Owner with claim for final Application for Payment.
B. Operation and Maintenance Data:
1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.
2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
3. Submit two sets of revised final documents in final form within 10 days after final inspection.
C. Warranties and Bonds:
1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

2. PROJECT RECORD DOCUMENTS
A. Maintain on site one set of the following record documents; record actual revisions to the Work:
1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.
6. Manufacturer's instruction for assembly, installation, and adjusting.
B. Ensure entries are complete and accurate, enabling future reference by Owner.
C. Store record documents separate from documents used for construction.
D. Record information concurrent with construction progress.
E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.
F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
4. Field changes of dimension and detail.
5. Details not on original Contract drawings.

3. OPERATION AND MAINTENANCE DATA
A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

4. OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES
A. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

5. OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS
A. For Each Item of Equipment and Each System:
1. Description of unit or system, and component parts.
2. Identify function, normal operating characteristics, and limiting conditions.
3. Complete nomenclature and model number of replaceable parts.
B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
E. Include manufacturer's printed operation and maintenance instructions.
F. Include sequence of operation by controls manufacturer.
G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
H. Provide framed information as follows. All information shall be framed in black metal frames.
1. Subcontractor list and service company contact information (to be located in office)
2. All warranty information (located in office)
3. Legend and locations of labels on valves and knobs in mechanical room (located in mechanical room)
4. Map of zones for irrigation system located with irrigation controls.

6. OPERATION AND MAINTENANCE MANUALS
A. Prepare instructions and data by personnel experienced in maintenance and operation of described products in the form of an instructional manual.
B. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
D. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
E. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
F. Contents: Prepare a Table of Contents for each volume, with each product or system description identified with tabbed dividers, in three parts as follows:
1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
a. Significant design criteria.
b. List of equipment.
c. Parts list for each component.
d. Operating instructions.
e. Maintenance instructions for equipment and systems.
f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
3. Part 3: Project documents and certificates, including the following:
a. Shop drawings and product data.
b. Certificates.

7. WARRANTIES AND BONDS
A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
B. Verify that documents are in proper form, contain full information, and are notarized.
C. Co-execute submittals when required.
D. Manual: Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic covers.
E. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
F. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
G. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

Division 02 - Sitework
Section 02060 - Minor Demolition for Remodeling

1. SECTION INCLUDES
A. Demolish portions of designated structures.
B. Removal of designated foundations.
C. Disconnect, cap, and identify utilities.
D. Removal of underground piping.
E. Removal of existing construction indicated on Drawings and/or required by work specified in other Sections of these Specifications.
F. Protection of persons and property.

2. SUBMITTALS
A. Submit demolition and removal procedures and schedule per SUBMITTALS Sections.

3. COORDINATION
A. Contractor is solely responsible for coordination of work of this Section with work of subcontractors and Owner's staff for work of other Sections of these Specifications.
B. Conduct operations with minimum interference to public or private thoroughfares. Maintain egress and access at all times. Use of explosives is prohibited.

4. PREPARATION
A. General: Protect existing items which are not indicated to be altered. Prevent movement or settlement of adjacent structures. Erect and maintain weatherproof closures for exterior openings. Erect and maintain temporary partitions to prevent spread of dust, fumes, noise, and smoke. Protect existing items which are not indicated to be altered.
B. Existing Utilities: Disconnect, remove and cap designated utility services within demolition areas. Mark location of disconnected utilities. Identify and indicate capping locations on Project Record Documents.

5. PROTECTION
A. Persons: Erect and maintain fences, planking, bridges, bracing, shoring, sheath piling, lights, barricades, warning signs and guards required for protection of workmen and the public. Access to South entry of existing educational building and West entry to Family Life Center must be maintained on Sundays throughout construction duration.
B. Property: Use care and appropriate means to protect construction and property which is not part of Work of Contract. Repair, refinish and/or replace damaged construction and property at no additional cost to Owner.

6. EXECUTION
A. General: Demolish in orderly and careful manner with least possible disturbance to public and to adjacent property.
B. Ownership of Items Removed: Equipment and materials resulting from demolition work is property of Contractor, unless noted otherwise on the Drawings.
C. Existing Construction:
1. Demolish designated structures and appurtenances in an orderly and careful manner.
2. Keep work sprinkled to minimize dust. Provide hoses and water main or hydrant connections for this purpose.
3. Back-fill areas excavated caused as a result of demolition.
4. Rough grade and compact areas affected by demolition to maintain new site grades.

7. CLEANING AND DISPOSAL
A. Except where noted otherwise, immediately remove and dispose of demolished materials away from site. Do not burn or bury materials on site.

Section 02361 - Termite Control

1. SUMMARY
A. This Section includes the following:
1. Soil treatment with termiticide.

2. REFERENCES
A. Title 7, United States Code, 136 through 136y – Federal Insecticide, Fungicide and Rodenticide Act; United States Code; 1947 (Revised 2001).

3. REGULATORY REQUIREMENTS
A. Conform to applicable code for requirements for application and comply with EPA regulations.
B. Provide certificate of compliance from authority having jurisdiction indicating approval of toxicants.

4. SEQUENCING AND REPORTING
A. Apply toxicant immediately prior to installation of vapor barrier under slabs-on-grade.
B. Soil Treatment Application Report: Include the following:
1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

5. WARRANTY
A. Provide five-year installer's warranty against damage to building caused by termites.
1. Include coverage for repairs to building and to contents damaged due to building damage. Repair damage and, if required, re-treat.
2. Inspect annually and report in writing to Owner. Provide inspection service for three (3) years from Date of Substantial Completion.

6. MANUFACTURERS
A. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Termiticides:
a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC or Equity.
d. FMC Corporation, Agricultural Products Group; Talstar, Prevair FT or Torpedo.
e. Syngenta; Demon TC.

7. MIXES
A. Toxicant Chemicals: EPA approved; synthetically color dyed to permit visual identification of soil treatment.
B. Diluent: Recommended by toxicant manufacturer.
C. Mix toxicant to manufacturer's instructions.

8. EXAMINATION
A. Verify that soil surfaces are unfrozen, sufficiently dry to absorb toxicant, and ready to receive treatment.
B. Verify final grading is complete.

9. SOIL TREATMENT
A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.
B. Preparation:
1. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.
2. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
C. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Crawlspaces: Soil under and adjacent to foundations as previously indicated. Treat adjacent areas including around entrance platform, porches, and equipment bases. Apply overall treatment only where attached concrete platform and porches are on fill or ground.
4. Masonry: Treat voids.
5. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.
D. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
E. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
F. Post warning signs in areas of application.
G. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.
H. Apply extra treatment to structure penetration surfaces such as pipe or ducts, and soil penetrations such as grounding rods or posts.
I. Do not permit soil grading over treated work.

Section 02505 - Concrete Paving, Walks, Curbs and Gutters

1. SECTION INCLUDES
A. Concrete pedestrian traffic surfaces (walks, ramps, etc.)
B. Concrete vehicular traffic surfaces
C. Concrete curbs and gutters

2. REFERENCE PUBLICATIONS AND STANDARDS
A. Governing Authority: Applicable standards and regulations of state and municipal agencies having governing authority over the work specified in this section shall take priority over items specified herein and shown on the drawings unless the requirements set forth herein require a superior quality work.
B. Material Standards: American Society for Testing Materials (ASTM).
C. Concrete Standards: American Concrete Institute (ACI): ACI_617 "Standard Specifications for Concrete Pavement and Bases" ACI_395 "Manual of Standard Practice for Detailing Reinforced Concrete"

3. SUBMITTALS
A. Testing Laboratory Reports: Furnish three copies of the test reports to the Owner indicating results of the cylinder test.

4. BASIC MATERIALS
A. Concrete and Reinforcing Steel: As Specified in CAST_IN_PLACE CONCRETE

5. MISCELLANEOUS MATERIALS
A. Air Entraining Agent: ASTM C0260, Master Builders or equal.
B. Dispersing Admixture: ASTM C_494, Master Builders or equal.
C. Curing Compound: ASTM C_309, No. 40W by A. C. Horn Company or equal.
D. Joint Filler: ASTM D1751, pre-molded fiber filler, unless shown otherwise on the drawings.
E. Joint Sealer: ASTM D_1190, Code 2351.

6. CONCRETE MIX DESIGN
A. Contractor shall employ and pay for, as a part of the contract price, the services of an Owner approved independent testing laboratory to determine actual design mix to be used, based on the following: All concrete: 3000 psi at 28 days.

7. INSPECTION OF SUBGRADE
A. Inspect subgrades prepared as specified elsewhere in these Specifications and report any deficiencies to the Owner before beginning work. Commencement of work shall indicate acceptance of subgrades by this Contractor.

8. CONSTRUCTION
A. General: Deliver and place concrete as specified in CAST_IN_PLACE CONCRETE.
B. Curbs and Gutters:
1. Configurations: Construct to cross_sectional details shown on drawings and at indicated locations. Curbs may be fully formed or pulled and troweled to configurations shown on the drawings.
2. Reinforcement: Reinforce as indicated on the drawings with continuous reinforcing bars lapped 30 bar diameters and securely tied at all splices. Metal chairs shall be used to hold the reinforcing steel in the proper plane.
3. Expansion Joints: Construct ½" wide expansion joints with joint filler across lengths of curb at all tangent points and at not more than twenty foot intervals. Construct one inch wide expansion joints with joint filler between curbs and concrete paving. All fixed objects, such as buildings, poles, pipes, catch basins, etc., within or abutting the concrete shall be separated from the concrete by expansion joints.
4. Finishing: Finish surfaces with dense uniform texture equal to burlap drag and cross_score with 1/4" deep cross joints at ten foot intervals with edges smoothed 1/8".
5. Joints: Fill expansion joints with joint filler except for space 3/4" deep at surface. After concrete has set, clean the open joint above filler and fill with joint sealer in accordance with instructions of sealer manufacturer.
C. Vehicular Traffic Surfaces:
1. Configuration: Construct to cross-sectional details shown on drawings and at indicated locations.
2. Reinforcement: Reinforce with #3 minimum size reinforcing bars 18 inches on center both ways, unless otherwise indicated or noted on the drawings.
3. Expansion and Construction Joints: At intentional points for stoppage of concrete placing, use expansion joints. At unintentional points of stoppage of concrete placing, use continuation of reinforcing through joints. Construct ½ inch wide expansion joints with joint filler at locations shown on the drawings or at not more than twenty foot intervals each way if not shown. Construct ½ inch wide expansion joints with joint filler between curbs and concrete paving. All fixed objects, such as buildings, poles, pipes, catch basins, etc., within or abutting the concrete shall be separated from the concrete by expansion joints.
4. Joint Filling and Sealing: Fill expansion joints with joint filler except for space 3/4" deep at surface. After concrete has set, clean the open joint above filler and fill with joint sealer in accordance with instructions of sealer manufacturer.
5. Finishing: Vibrate, screed and float concrete to level and test the surface, which shall not vary over 1/4" in ten feet when tested with ten foot straight edge. Finish surface to gritty texture with burlap drag or straight continuous strokes with a stiff bristle push broom. Finish all edges smooth with 1/8" or 1/4" radius.
D. Walks:
1. Configurations: Construct to cross-sectional details shown on drawings and at indicated locations.
2. Sand Cushion: Concrete shall be placed over a sand cushion placed on the stabilized subgrade as shown on the drawings or a minimum of 4" thick if not shown on the drawings.
3. Reinforcing: Reinforce with 6 x 6 x W1.4, WWF, minimum reinforcing unless otherwise indicated or noted on the drawings.
4. Expansion Joints: Construct expansion joints as detailed in locations shown on the drawings.
5. Finishing: Finish surfaces not noted on the drawings to be finished otherwise to a "broom" or "burlap drag" gritty surface. Tool all joints and all edges to provide a smooth border to each section or division of the walk. Finish all vertical surfaces in a manner that leaves the exposed surfaces free of "honeycombing" and form marks. Any damaged surfaces shall be repaired and stone-rubbed to match adjacent finished surfaces.

9. CURING CONCRETE
A. Apply a white_pigmented type curing compound at a uniform rate of approximately 200 sq. ft./ gallon, or as recommended by curing compound manufacturer as soon as the finishing operation has been completed and the concrete has lost its water sheen. The curing procedure must protect the concrete, including all exposed surfaces against loss of moisture and rapid temperature change for a period of not less than four days from the beginning of the curing operation and without damage to, or marking of the finished concrete surface. Traffic shall not be allowed on finished concrete for a minimum period of seven days.

10. TESTING
A. Independent Testing Laboratory: Contractor shall employ and pay for, as a part of the contract price, the services of an Owner_ approved independent testing laboratory to perform concrete cylinder testing. Test cylinders shall be taken and cured by the Contractor and tested by the testing laboratory for each different class of concrete poured in any one day. Cylinders shall be taken in accordance with ASTM C31, and cured and tested in accordance with ASTM C39. One set of three cylinders is required for each 50 cubic yards of concrete or less, placed in any one day. One cylinder shall be tested at 7 days, one cylinder shall be tested at 28 days and one cylinder shall be held as a spare from each set of three cylinders as specified above.
B. Contractor Tests:
1. Slump Tests: Slump tests shall be taken by the Contractor when cylinders are taken and shall show maximum slump 5" and minimum slump 3".
2. Air Entrainment: Air content by volume: 5% to 7% based on measurements made in concrete mixtures at point of discharge at job site at time slump tests are made. Air content by volume shall be determined in accord with ASTM C231.

11. CLEANING CONCRETE
A. Concrete approaches, sidewalks and related work shall be hosed down with water, scrubbed with fiber brushes, allowed to dry and be left broom clean and in condition acceptable to the Owner.

Section 02580 - Pavement Marking

1. GENERAL
a. Marking paint shall conform to AASHTO M248 (chlorinated rubber-alkyd), Type III. Apply as 4" wide stripes (or symbols as indicated) in one coat of 125 sq. ft. per gallon. Color shall be white. Handicapped details shall comply with the latest provisions of the Americans with Disabilities Act and local accessibility standards.
b. Dust, clay, silt, and excess sand shall be removed by sweeping from pavement to be marked prior to application of paint.

Section 02854 - Parking Bumpers (Wheel Stops)

1. SECTION INCLUDES
A. Parking bumper (wheel stop)

2. WHEEL STOPS
A. Precast concrete, semi_circular or beveled square in cross_section, 8'_0" long X 6" high X 8" wide, with holes for three dowels cast through each unit, and two 6 inch x 3/4 inch drainage slots.

3. DOWELS
A. Not less than 2 – 3/4" round X 12" long (minimum) steel dowels as recommended by wheel stop manufacturer.

4. GENERAL
A. Install wheel stops in locations and in accord with details shown on the drawings.

5. INSTALLATION
A. Countersink steel dowels to a point 1/2" to 3/4" below the top surface of the wheel stop and set in such a manner as to avoid chipping or cracking the concrete during installation, and seal reveal with silicone caulking flush.

6. CLEAN_UP
A. Upon completion of work of this section, remove related debris from premises.

Division 03 - Concrete
Section 03300 - Cast-In-Place Concrete

1. SCOPE
A. The Contractor shall furnish labor, materials and equipment necessary to install all items of cast-in-place concrete, and all necessary items as shown on the drawings, including anchor bolts for columns, items specified herein, and items required for a complete installation.

2. REFERENCES:
A. The ACI "Manual of Concrete Practice" and the CRSI "Manual of Standard Practice" shall apply unless modified herein.

3. MATERIALS
A. Cement: The cement used shall be Portland Cement, conforming to ASTM C 150, Type I. One brand shall be used for the complete project.
B. High early strength concrete may be used at General Contractor's discretion.
C. Aggregates:
1. Coarse aggregate shall conform to ASTM C-33 specifications with maximum size No. 57. The material shall consist of crushed stone, gravel, or other hard, strong, durable, uncoated pieces.
2. Fine aggregate shall conform to ASTM C-33 and may be natural sand or manufactured sand.
D. Admixtures:
1. Air entrainment agents conforming to ASTM C-260 shall be used in concrete exposed to weather and may be used in all concrete on this project. Air entraining admixtures shall be used to produce 3% to 6% air by volume in the concrete.
2. High-range water reducing admixture (Super Plasticizer) meeting requirements of ASTM C 494 may be used at the discretion of the Contractor.
E. Concrete Sealers:
1. Materials:
a. Base Sealer: Micro Guard Concrete Clear Waterproofing Sealer, # AD702.
b. Surface Sealer: Micro Guard Hard Tile Clear Matte Finish Treatment, #AD708.
c. Admixture: Micro Grip Anti-Skid Floor Media Additive, # AD5-050.
F. Water: Water used for mixing of concrete shall be potable.
G. Reinforcing Bars: All reinforcing bars shall conform to ASTM A615 – Grade 60. All bars shall be free of loose and/or excessive rust or other materials which will prevent bond.
H. Fly Ash:
1. Fly ash, Class C or F, conforming to the requirements of ASTM C618. The use of fly ash shall be subject to review and approval by the Architect of Record. When used in the mix design, fly ash shall comprise no more than 20% of the mix design's total cementitious material, by weight. Fly ash shall not be used in concrete exposed for architectural/aesthetic purposes.
I. Expansion Joint Material: Expansion joint material shall conform to ASTM D1751.
J. Mill Tests: Reports may be required on any and all material at the Engineer's discretion and direction. Costs of these reports shall be borne by the Contractor.
K. No calcium chloride shall be used on this project.

4. CONCRETE QUALITY
A. Strength: All cast-in-place concrete shall have a maximum weight of 150 pounds per cubic foot and minimum strength at 28 days (ultimate strength of 3000 psi).
B. Proportioning of the Concrete Mixture:
1. The proportion of the aggregate to cement for any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement with the method of placing employed on the work, but without permitting the materials to segregate or excess free water to collect on the surface.
2. The materials used for the concrete shall be measured by weight. Maximum slump shall be 4".
3. Measure, batch, mix and deliver concrete with pigments, where noted, in accordance with manufacturer's written instructions.
C. Tests:
1. The Contractor shall assist testing laboratory to receive, mark, cure, and test cylinders in accordance with ASTM C-39. The test report by the laboratory shall identify the location of the concrete sampled, date, slump, air content and other necessary information. The laboratory shall send electronic copies of the reports to the Owner.
2. Equipment needed at the site shall be furnished by the Contractor.
3. Routine tests of concrete shall consist of:
a. Slump test for each load of ready-mixed concrete.
b. Compressive strength test for each day's pour and/or each 50 cubic yards of concrete poured. This test shall conform to ASTM C-31 and consist of 4 cylinders.

5. INSPECTIONS
A. Owner's Approval: The Contractor shall notify the Owner 48 hours prior to schedule placement of concrete. The forms, steel and other conditions must be approved prior to placement of concrete.

6. MIXING AND PLACING CONCRETE
A. All concrete for this project shall be from an approved central mixing plant. Mixing and delivery shall conform to ASTM C-94.
B. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of materials.
C. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. When concreting is once started, it shall be carried on as a continuous operation until the placing of the panel or section is completed.
D. Concrete shall be maintained in a moist condition for seven (7) days after placing by one of the following methods:
a. Wet coverings
b. Spraying
c. Curing compound
1. Curing method shall be compatible with floor coatings or coverings.
2. Ashford formula may be used in lieu of curing compound (Part 3). This material shall be applied according to manufacturer's recommendations.
E. Adequate precautions shall be taken for cold weather or hot weather concreting. (ACI 306 or ACI 305).

7. FORM WORK AND CONSTRUCTION DETAILS
A. Forms
1. Forms shall conform to shapes, lines and dimensions of the members as called for on the plans and shall be sufficiently tight to prevent the leakage of mortar. They shall be properly braced or tied together so as to maintain position and shape.
2. Form material shall be of:
a. Plywood: APA Plyform conforming to PS 174
b. Metal Forms
3. Before placing the concrete and reinforcing steel, the contact surfaces of all forms shall be thoroughly wetted with water or coated with approved form oil. The form oil shall be applied with a brush or spray so as to cover the form evenly without excess drip. Form coating material used to coat formwork to facilitate the removal thereof shall not cause softening or permanent staining of the concrete surface.
B. Removal of Forms: Forms not required for structural support may be removed as soon as concrete has hardened sufficiently to resist damage during removal of forms.

8. FINISHES
A. Steel trowel finish shall be applied to all floor slabs in the building, unless otherwise noted.
B. Light broom finish perpendicular to traffic shall be applied to all exterior walkways. A 3/4" transverse contraction joint shall be formed with a tool designed for that purpose at equal intervals not exceeding the width of the walkway. All edges adjoining the final ground line shall be rounded with a 1/4" edger. Expansion joints shall not exceed 20'.
C. Concrete Sealer:
1. Step One, Concrete Clear Sealer:
a. Concrete to be sealed must have aged a minimum of 28 days prior to sealer installation.
b. Immediately prior to applying concrete sealer, the concrete must be thoroughly cleaned. The surface should be swept then scrubbed using rotary floor machine. The surface must be rinsed after cleaning until the rinse water is completely clean. After drying, it should be inspected closely, and additional or spot cleaning should be performed if necessary.
c. Surfaces must be properly prepared as prescribed in manufacturer's instructions. Surrounding areas and adjacent surfaces must be masked or protected from overspray, spills, tracking, and equipment contact. The work area should be roped off and closed to traffic.
d. Immediately prior to use, the liquid material must be thoroughly power-mixed as described in manufacturer's instructions. Application must be made full strength (un-thinned) at the coverage rate recommended and with equipment recommended by manufacturer's instructions.
e. Base sealer must be applied thinly and uniformly. A wet edge should be maintained and overlap controlled. Material should not be over-applied or allowed to puddle or collect in joint indentations.
f. Base sealer must be allowed to dry completely, normally a minimum of 12 to 48 hours, before it is subjected to temperatures below 42 degrees Fahrenheit or to water from any source.
2. Final Step, Clear Sealer:
a. Immediately prior to use, the liquid material must be thoroughly power-mixed as described in manufacturer's instructions. Application must be made full strength (un-thinned) at the coverage rate recommended and with equipment recommended by manufacturer's instructions.
b. Hard Tile Sealer shall be applied thinly and uniformly utilizing a conventional fine mist sprayer per manufacturers written instructions.
c. While spraying clear sealer, broadcast Anti-Skid Floor Media additive using manufacturer's special application gun, with cover layer of hard tile sealer to coat surface.
d. The final coat may be walked on the next day, but five days should elapse before the surface is subjected to heavy use or rough treatment.
D. Variation in concrete slabs shall not exceed 1/8" in ten feet from true grade.
E. All exposed concrete, except patio, walkways and floor slabs, shall have a rubbed finish, satisfactory to the Owner's Construction Manager. "White Washing" by use of separately mixed grout will not be permitted.

9. SHOP DRAWINGS
A. The Contractor shall prepare and submit for review shop drawings according to the requirements of the General conditions.

10. REINFORCEMENT
A. Reinforcement shall be accurately placed and securely supported on metal or plastic chairs.

ARCHITECT:

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972.248.9899

FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

SPECIFICATION

SHEET NUMBER:

SP1.1

IDS4 PROJECT NUMBER:

DBQ21015

Section 03340 - Self Leveling Underlayment

1. SECTION INCLUDES
   A. Self Leveling Underlayment Concrete
   B. Primer
   C. Moisture Control

2. QUALITY ASSURANCE
   A. Underlayment shall be able to be installed from 1/8" tp 1/4" in one pour. It should also be feathered to match existing elevations.
   B. Underlayment to be applied to a minimum thickness of 1/8" over highest point in the subfloor, with an average typical thinkness of ¼".
   C. Underlayment compressive strength shall be 4100 psi after 28 days per ASTM C109/mod (air cure only).
   D. Underlayment shall be walkable after 2 hours and allow floor covering to be installed after 16 hours at 70 F.

3. DELIVERY, STORAGE AND HANDLING
   A. Deliver materials in their unopened packages and protect them from extreme temperatures and moisture. Protect liquids from freezing.

4. SITE CONDITIONS
   A. Self leveling underlayment is a cementitous material. Observe the basic rules of concrete work. Do not install below 50 F surface temperature. Install quickly if floor is warm and follow hot weather precautions available from the manufacturer's Technical Service Department. Never mix with cement or additivies other than manufacturer approved products.

5. MATERIALS
   A. The cement based self leveleing underlayment shall be ARDEX K 25 Self Leveling Underlayment Concrete.
   B. Primer for standard asorbent concrete shall be ARDEX P 51 Primer.
   C. Aggregate shall be well graded, washed gravel (1/8" to 1/4" or larger) for use when underlayment is installed over 1-1/2" thick.
   D. Water shall be clean, potable, and sufficently cool (not wamer than 70 F).
   E. Moisture vapor suppression: ARDEX MC Moisture Control System (ARDEX MC, MC RAPID or MC PLUS). For complete installation instructions, please refer to the appropriate ARDEX MC Mositure Control Technical Brochure.

6. MIX DESIGNS
   A. Standard mixing ratio: ARDEX K 15 is mixed in 2 bag batches at one time. Mix each bag of ARDEX K 15 (55 lb) with 7 quarts of water per manufacturer's written standards.

7. PREPARATION
   A. All subfloors must be sound, solid, cleaned and primed.
      1. All concrete subfloors must be of adequate strength, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bondbreaker before priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compunds and solvents are not acceptable.
      2. All cracks in the subfloor shall be repaired to mimimize telegraphing through the underlayment.
   B. JOINT PREPARATION
      1. Moving joints – honor all expansion and isolation joints up throught he underlayment or Moisture Control System.
      2. Saw Cuts and Control Joints – fill all non-moving joints with ARDEX FEATHER FINISH or ARDEX SD-P as required.
      3. For MC Moisture Control System, follow instructions provided in the manufacturer's Moisture Control Technical Brochure for the treatment of saw cuts, control joints and dormant cracks.
   C. PRIMING
      1. Primer for standard absorbent concrete subfloors: Mix ARDEX P 51, 1:1 with water and apply evenly with a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, thin film (min 3 hours, max 24 hours). Underlayment shall not be applied until the primer is dry. Primer coverage is approximately 400 to 600 sq. ft. per gallon.
      2. Note: When using an ARDEX MC Moisture Control System, the ARDEX MC will act as the primer layer for ARDEX K 15.

8. APPLICATION OF UNDERLAYMENT
   A. INSTALLATION
      1. Pour or pump the liquid ARDEX K-15 and spread in place with the ARDEX T-4 Spreader. Use the ARDEX T-5 smoother for featheredge and touch up. Wear baseball shoes with non metallic cleats to avoid leaving marks in the liquid ARDEX K-15. Underlayment can be walked on in 2-3 hours at 70 F.

9. PROTECTION
   A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, masonite or other suitable protection course.

Section 03530 - Polished Concrete Floor System

1. SUMMARY
   A. Polished Concrete System, Level 2 (salt and pepper) reveal with a Low Sheen finish.
   B. Complete installation details are provided in the HTC Superfloor Technical Brochures available at https://www.htc-floorsystems.com.
   C. HTC Superfloor polished concrete finish includes: bonded abrasive diamond tooling that mechanically grind, hone and polish; combined with chemical treatments to produce a fully refined surface that's dust proof, durable, stain resistant, light reflective and easy to maintain.

2. SECTION INCLUDES
   A. Products and procedures for the installation of the Polished Concrete System using a multi-step dry mechanical process and accessories indicated, specified or required to complete system and achieve specified finish.
   B. Products and procedures for maintenance of the Polished Concrete System.

3. SUBMITTALS
   A. Product Data: Submit Manufacturer's technical literature for each product indicated, specified or required. Include manufacturer's technical data, application instructions, recommendations and MSDS.
   B. Installer Qualifications: Data for company, principal personnel, experience, and training. Provide a letter documenting installer's accreditation and certification compliance, as specified under quality assurance.
   C. Maintenance Data: Provide manufacturer's instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under intended use. These instructions should contain precautions against cleaning products and methods, which may be detrimental to finishes and performance.

4. QUALITY ASSURANCE / WARRANTY
   A. Manufacturer Qualifications: The HTC Superfloor Polished Concrete System consists of a process and products engineered and manufactured by HTC-America. Any substitutions are not permitted and void warranty.
   B. Installer Qualifications:
      1. Installer must be an HTC Superfloor installer for the Polished Concrete System.
      2. Installer must be experienced in performing specified work similar in design, products and scope of this project, with a documented track record of successful, in-service performance and with sufficient production capabilities, facilities and personnel to produce specified work.
   C. Mock-Up: Before performing the work in this section, an adequate on-site mock-up of the Polished Concrete System representative of specified process, surface, finish, color and joint design/treatments must be installed for review and approval. These mock-ups should be installed using the same Installer personnel who will perform work. Approved mock-ups may become part of completed work, if undisturbed at time of substantial completion.
   D. Static Coefficient of Friction: A reading of not less than 0.5 for level floor surfaces shall be achieved and documented, as determined by certified an NFSI walkway auditor using the ANSI B-101 quality control test.
   E. Test Reports: Comply with the provisions of the following specifications and standards, except as otherwise noted or specified, or as accepted or directed by the Owner and/or Architect. All test data shall be recorded and submitted upon completion of job.
      1. Section 03 30 00, Cast-In-Place Concrete
      2. ASTM E1155, Standard Test Method for Determining Floor Flatness and Levelness using the F number system
      3. ASTM D-523, Standard Test Method for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry
      4. ACI 302 1 R-04 Guide for Concrete Floor and Slab Construction
      5. ACI 310 R-13 Guide to Decorative Concrete
   F. Pre-Installation Conference: Prior to the installation of the Polished Concrete System, an on-site conference shall be conducted to review specification requirements.
      1. Required attendees include the Owner, Architect, General Contractor, Polished Concrete System Subcontractor, and DMS representative.

5. DELIVERY, STORAGE AND HANDLING
   A. Deliver all materials in original containers, bearing manufacturer's labels indicating brand name and directions for storage, factory numbered and sealed until ready for installation.
   B. Maintain copies of all chemical MSDS, and Technical data sheets for all products.
   C. Store all materials in a dry, climate-controlled environment at a minimum of 55°F (13°C) and maximum of 85°F (29°C).

6. SITE CONDITIONS
   A. Comply with manufacturers written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting the floor finish.
   B. Close areas to traffic during and after Polished Concrete System application for a time period recommended by manufacturer.
   C. Inspect the existing substrate and document unsatisfactory conditions in writing. Verify that surfaces and site conditions are ready to receive work.
   D. Existing concrete must be cured for a sufficient time period as recommended by manufacturer before the application can begin, typical 28 days.
   E. Protect existing concrete and the new Polished Concrete System from contamination by petroleum, oil, hydraulic fluid, acid and acidic detergents, paint and other liquid dripping from trades and equipment working over these substrates.
   F. Prohibit the placement and storage of construction materials over new Polished Concrete System, to include ferrous metals and steel members.
   G. Prohibit vehicle parking and pipe cutting operations over concrete before and after the Polished Concrete System installation.
   H. Moisture Vapor Testing
      1. Test existing concrete for moisture vapor transmission according to methods indicated in ASTM F1869. Acceptable results: not more than 5 pounds per 1,000 square feet in 24 hours.
      2. Test existing concrete for relative humidity using in situ probes according to ASTM F2170. Acceptable results: not more than 80%.

7. SYSTEM INTEGRITY
   A. The HTC Superfloor Polished Concrete System is an engineered and integrated complete installation system requiring strict adherence to all specified installation processes, equipment, diamond abrasives, concrete preparation, joint treatment and chemicals to achieve the intended result. Any substitutions from the specified products and/or processes will void the system warranty.

8. MATERIALS
   A. EQUIPMENT
      1. Planetary Grinder and Polisher, Large Platform: 32" planetary floor polisher. Head pressure of 600 lbs.
      2. Micro Polisher/Burnisher: Specific weight and RPM are required to reach temperature of 100 F for application of flooring application.
      3. Vacuums: Dust Collection must be designed for filtering of concrete dust. Minimum air speed of 300 CFM for Large and Medium Platform equipment.
      4. Power generator capable of supplying a minimum output of 45kw and above and capable of generating 480/240 Volt three phase power.
      5. Diamond Bonded Abrasives
         a. Metal Bonded Diamonds – 30/40, 60/80, Grit of soft, medium and hard bonded metal.
            1. Concrete has hardness levels of soft, medium and hard. The hardness of the concrete will determine the required hardness of the metal bonded diamonds:
               a. Hard Concrete: Soft metal bonded diamonds
               b. Medium Concrete: Medium metal bonded diamonds
               c. Soft Concrete: Hard metal bonded diamonds
               d. Transitional Diamonds, – #0, #1, #2 Grit.
               e. Hybrid Flex-res Resin Bonded Diamonds -50, 100, 200, 400, Grit.
               f. Diamond Impregnated Pads – 200, 400, Grit.
   B. CONCRETE TREATMENT CHEMICALS
      1. Lithium Densifier for standard concrete surfaces as recommended by manufacturer.
      2. Micronized Water Borne High Performance Dye
         a. Color to be selected by architect from manufacturers standards.
      3. Stain and Wear Protection Treatment (low-gloss) as recommended by manufacturer.
   C. FLOORING PROTECTION MATERIALS
      1. To prevent minor damage from light trade traffic during build out of site, Protective Floor Covering for the flooring shall be installed.

9. EXAMINATION
   A. Inspect all concrete substrates and conditions under which the Polished Concrete System to be installed.
   B. Verify that all surfaces and site conditions are ready to receive work; document and correct conditions detrimental to timely and proper installation of work. Beginning work constitutes acceptance of substrate condition.
   C. Verify that existing concrete has cured a minimum of 28 days and meets finish and surface profile requirements in Division 03 Section "Cast-In-Place Concrete," before installing the Polished Concrete System.
   D. Inspect to mock-up panel to insure it is satisfactory and meets all of the owner's requirements.

10. PREPARATION
   A. DEMOLITION
      1. Clear surfaces of any debris and construction materials.
      2. Using the appropriate mechanical means and methods, remove existing floor coverings and coatings. Adhesives must be removed to their penetrated depth.
      3. Prepare the existing concrete mechanically via scarification, shot blasting or other means, including diamond grinding by using aggressive, metal bonded Polycrystalline diamonds (18/20 Grit or 30/40 Grit), to remove all contaminants and provide a sound concrete surface free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants.
      4. Chemical preparation of the substrate is NOT acceptable, including but not limited to acid etching, sweeping compounds, solvents and adhesive removers.
      5. Suppress dust during demolition with the use of dust collection equipment to reduce or eliminate airborne concrete and substrate dust.
      6. Where existing concrete is cracked, damaged, spalled, not within specified tolerance, or contains unacceptable levels of contaminates or moisture vapor, the Installer shall evaluate conditions and proceed with appropriate HTC Superfloor System components.
   B. Joint Fill (Indoor)
      1. All joint fill materials shall be installed in accordance with the written recommendations provided in the approved manufacturer's technical data.
      2. For the best results all joints should be filled after the first pass of metal bonded diamonds, but before any further grinding continues.
      3. If the joint filling will occur after the polishing process, apply densifier or tape, or soap to the edge of the concrete to keep the joint filler from staining the concrete.

11. GLOSS ATTAINMENT
   A. Gloss readings are not to be obtained through the use of any microfilming products, sealers, coatings, enhancers or as the result of resin transfer from resin bond abrasives.
   B. Readings shall be taken not less than 10' (3 m) on center in field areas and within 1' (0.3 m) of floor area perimeters. In no case shall a reading be below 2% of specified minimum sheen:
      1. Level A Sheen – Low Gloss reading of 30 to 40. 400 grit diamond finish.

12. POLISHING
   A. CUT LEVEL
      1. Level 2 Cut / A slightly deeper cut to expose the sand/fine aggregate and begin to expose the coarse aggregate.
   B. LEVEL 2 CUT – SALT & PEPPER
      1. GRIND/POLISH #1: 30/40 Grit Metal Bonded Diamonds. Cross hatch until level of aggregate exposure has been achieved.
      2. Broom and vacuum the floor to remove all residual dust.
      3. GRIND/POLISH #2: 60/80 Grit Metal Bonded Diamonds
      4. Broom and vacuum the floor to remove all residual dust.
      5. GRIND/POLISH #3: Transitional Diamonds, Ceramic Bonded.
      6. Broom and vacuum the floor to remove all residual dust.
      7. GRIND/POLISH #4: 200 Grit Resin Bonded Diamonds.
      8. Broom and vacuum the floor to remove all residual dust.
      9. Apply concrete densifier per Manufacturer's written instructions at a rate of 400 square feet per gallon.
      10. Allow densifier to dry 1 hour before continuing on to the next step.
      11. GRIND/POLISH #5: Continue with resin bond steps to achieve the specified level of gloss.
      12. Apply Ameripolish Stain Protector per application instructions
      13. High speed propane burnish with natural pad to keep shine low.
   C. SPECIFIED POLISHED FLOOR DETAILS
      1. Specified Floor Finish shall have a Cut Level of " 2"
      2. Specified Floor Finish shall have a Gloss Level of "A"

13. ACCEPTANCE
   A. Remove all installation materials and any foreign materials from site.
   B. Clean adjacent surfaces and materials.
   C. Perform post job walk to ensure that the Concrete Polishing System has been completed per the process spec.

14. PROTECTION
   A. Prevent any spills or stains from coming into contact with the floor. Clean any spills that may occur as quickly as possible.
   B. Protect the finished Polished Concrete System from continuing construction and build out as needed by installing a Protective Floor Covering.

Division 05 - Metals

Section 05500 - Metal Fabrications

1. SUMMARY
   A. Section Includes: Work of this Section consists of installing all materials furnished under this Section, including all equipment, labor, services, and incidental items required to complete Work as shown on Drawings and specified in this Section.
      1. Miscellaneous Framing and Supports for Work in other Sections to include applications where framing and supports are not specified in other Sections.
      2. Steel Pipe Bollards for Site.
      3. Metal Handrails.
      4. Unistrut Metal Framing.

2. SUBMITTALS
   A. Welder certificates signed by Contractor certifying welders comply with requirements of this Section

3. QUALITY ASSURANCE
   A. Qualifications:
      1. Welding and Welders:
         a. Qualify welding processes and welding operators in accordance with AWS DI .1, Structural Welding Code – Steel; DI .3, Structural Welding Code Sheet Steel; and DI .2, Structural Welding Code – Aluminum.
         b. Certify each welder has satisfactorily passed AWS qualification tests for welding processes involved and if pertinent, has undergone recertification.

4. MATERIALS
   A. Ferrous Metals:
      1. Metal Surfaces – General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names, and roughness.
      2. Steel Plates, Shapes and Bars: ASTM A36.
      3. Steel Tubing: Cold-formed, ASTM A500: Grade A, unless otherwise indicated or required for design loading.
      4. Steel Tubing: Hot-formed, ASTM A501 for exterior installations and where indicated, provide with hot-dip galvanized coating per ASTM A53.
      5. Brackets, Flanges and Anchors: Cast or formed metal of same type material and finish as supported rails, unless otherwise indicated.
      6. Concrete Inserts:
         a. Threaded or wedge-type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM ~7.
         b. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM AI 53.
   B. Unistrut:
      1. Unistrut Corporation, Wayne MI (800/521-7730) "P1000 Series"; 12 Gage, Galvanized Finish; Submit alternate products for approval.
      2. Provide compatible matching fittings for complete installation indicated on the drawings, and as indicated.
   C. Threaded Rod: ASTM A575, and A576; Threaded, hot-rolled steel; Sizes as indicated on approved shop drawings.
   D. Grout:
      1. Nonshrink Nonmetallic Grout:
         a. Premixed, factory packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621.
         b. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this Section.
   E. Fasteners:
      1. General:
         a. Provide hot-dipped galvanized fasteners for exterior use or where built into exterior walls.
         b. Select fasteners for type, grade, and class required.
      2. Bolts and Nuts: Regular hexagon-head-type, ASTM A307, Grade A.
      3. Lag Bolts: Square-head-type, FS FF-B-561
      4. Machine Screws: Cadmium plated steel, FS FF-S-92.
      5. Wood Screws: Flat head carbon steel, FS FF-S-I 11.
      6. Plain Washers: Round, carbon steel, FS FF-W-92.
      7. Drilled-In Expansion Anchors: Comply with FS FF-S-325, Group III (anchors, expansion, non-drilling), Type I (internally threaded tubular expansion anchor); and machine bolts complying with FS FF-B-575, Grade 5.
      8. Toggle Bolts: Tumble-wing-type, FS FF-B-588, type, class, and style as required.
      9. Lock Washers: Helical-spring-type carbon steel, FS FF-W-84.

5. FABRICATION
   A. General:
      1. Form metal fabrications from materials of size, thickness, and shapes indicated, but not less than that needed to comply with performance requirements indicated.
      2. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support.
      3. Use type of materials indicated or specified for various components of each metal fabrication
      4. Form exposed Work true to line and level with accurate angles and surfaces and straight sharp edges.
      5. Shear and punch metals cleanly and accurately; remove burrs.
      6. Ease exposed edges to radius of approximately 1/32 in.
      7. Form bent-metal comers to smallest radius possible without causing grain separation or otherwise impairing Work.
      8. Remove sharp or rough areas on exposed traffic surfaces.
      9. Welding:
         a. Weld corners and seams continuously, complying with AWS recommendations.
         b. Exposed Connections: Grind exposed welds smooth and flush to match and blend with adjoining surfaces.
      10. Anchorage:
         a. Provide for anchorage of type indicated, coordinated with supporting structure.
         b. Fabricate and space anchoring devices to provide adequate support for intended use.
   B. Miscellaneous Framing and Supports:
      1. Provide miscellaneous steel framing and supports which are not part of structural steel framework, as required to complete Work.
      2. Fabricate miscellaneous units to sizes, shapes, and profiles indicated or, if not indicated, of required dimensions to receive adjacent other Work to be retained by framing.
      3. Except as otherwise indicated, fabricate from structural steel shapes. plates, and steel bars of welded construction using mitered joints for field connection.
      4. Cut, drill and tap units to receive hardware and similar items.
   C. Pipe Bollards: Fabricate pipe bollards from Schedule 80 steel pipe.

6. INSTALLATION
   A. General:
      1. Fastening to In-Place Construction:
         a. Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction.
         b. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors as required.
      2. Cutting, Fitting, and Placement:
         a. Perform as required for installation of miscellaneous metal fabrications.
         b. Set Work accurately in location, alignment, and elevation, level. true and free of rack. measured from established lines and levels.
         c. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.
         d. Fit exposed connections accurately together to form tight hairline joints.
         e. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations.
         f. Grind exposed joints smooth and touchup shop paint coat.
         g. Do not weld, cut, or abrade surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
      3. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with heavy coat of bituminous paint or zinc chromate primer.
   B. Unistrut:
      1. Unless indicated otherwise, install Unistrut items plumb and level. Install elements accurately in the positions indicated.
      2. Coordinate layout with Landlord requirements; Review overhead support locations with the Landlord prior to attempting installation.

7. ADJUSTING AND CLEANING
   A. Touch-Up Painting.
      1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.
      2. Apply by brush or spray to provide mm. 2.0 mit DFT.

Division 06 - Wood and Plastics

Section 06100 - Rough Carpentry (Blocking, etc.)

1. SECTION INCLUDES
   A. Miscellaneous wood blocking and framing as detailed on drawings.
   B. Preservative and Fire-Retardant treatment of wood.
   C. Miscellaneous framing and concealed wood blocking for support of toilet and bath accessories, wall cabinets, wood trim, and tables.

2. REFERENCES
   A. AWPA C20 – Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
   B. AWPA U1 – Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2005.
   C. PS 1 – Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.
   D. PS 20 – American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.
   E. SPIB (GR) – Grading Rules; Southern Pine Inspection Bureau, Inc.; 2002.
   F. WCLB (GR) – Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau; 2004.
   G. WWPA G-5 – Western Lumber Grading Rules; Western Wood Products Association; 2005.

3. QUALITY ASSURANCE
   A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
   B. Exposed-to-View Rough Carpentry: Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.
   C. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

4. DIMENSION LUMBER FOR CONCEALED APPLICATIONS
   A. Sizes: Nominal sizes as indicated on drawings, S4S unless rough lumber is specifically indicated otherwise.
   B. Moisture Content: S-dry or MC19.
   C. Joist, Rafter, and Small Beam Framing (2 x 6 through 4 x 16):
      1. Species: Douglas Fir, Southern Pine, Spruce-Pine-Fir (south), Western Cedars, or Western Woods.
      2. Grade: No. 2.
   D. Miscellaneous Blocking, Furring, and Nailers:
      1. Lumber: S4S, No. 2 or Standard Grade.

5. EXPOSED DIMENSION LUMBER
   A. Sizes: Nominal sizes as indicated on drawings, S4S.
   B. Moisture Content: S-dry or MC19.
   C. Post, Ledger, Joist, Rafter, and Small Beam Framing (2 x 6 through 4 x 16),:
      1. Species: Southern Pine.
      2. Grade: No. 1.

6. CONSTRUCTION PANELS
   A. Concealed Performance-Rated Structural Use Panels:
      1. General: where structural use panels are indicated for the following concealed types of applications, provide APA performance-rated panels complying with requirements designated under each application for grade, span rating, exposure-durability classifications, edge detail, where applicable.
      2. Wall Sheathing: APA RATED SHEATHING, exterior with span rating to suit stud spacing.
   B. Other Applications:
      1. Concealed Plywood: PS 1, C-C Plugged, exterior grade.
      2. Exposed Plywood: PS 1, A-D, interior grade.
      3. Electrical Component Mounting: APA rated sheathing, fire retardant treated.

7. ACCESSORIES
   A. Fasteners and Anchors:
      1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
      2. Nails, Wire, Brads, and Staples: FS FF-N-105.
      3. Power Driven Fasteners: National Evaluation Report NER-272
      4. Wood Screws: ANSI B18.6.1.
      5. Lag Bolts: ANSI B18.2.1
      6. Bolts: Steel bolts complying with ASTM A307, Grade A; with ASTM A563 hex nuts and, where indicated, flat washers.
   B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.

8. FACTORY WOOD TREATMENT
   A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 – Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   B. Fire Retardant Treatment: AWPA Treatment C20, Exterior Type, chemical treatment pressure impregnated; capable of providing a maximum flame spread/smoke development rating of 25 / 30 minute duration.
   C. Preservative Pressure Treatment of Lumber Above Grade: AWPA Use Category UC3B, Commodity Specification A (Treatment C2) using waterborne preservative to 0.25 lb/cu ft retention.
      1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      2. Treat lumber in contact with roofing, flashing, or waterproofing.
      3. Treat lumber in contact with masonry or concrete.
   D. Pressure Treatment of Lumber in Contact with Soil and Concrete: AWPA Treatment C2 using preservative to 0.4 lb/cu ft retention.
      1. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.

9. FRAMING INSTALLATION
   A. Set framing / blocking members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
   B. Make provisions for temporary construction loads and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
   C. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
   D. Install framing / blocking members full length without splices unless otherwise specifically detailed.

Section 06200 - Finish Carpentry

1. SECTION INCLUDES
   A. Finish carpentry items.

2. REFERENCES
   A. AWI/AWMAC (QSI) – Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.
   B. AWPA C2 – Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

3. QUALITY ASSURANCE
   A. Perform work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom grade.

4. DELIVERY, STORAGE, AND HANDLING
   A. Protect work from moisture damage.

5. LUMBER MATERIALS
   A. Softwood Lumber:
      1. Southern Yellow Pine #2, C&BTR
      2. Texture: Surfaced smooth, both sides.
   B. Hardwood Lumber:
      1. Species as indicated on the drawings
      2. Texture: Surfaced smooth, both sides.

6. ADHESIVE
   A. Adhesive: Type recommended by laminate manufacturer to suit application.

7. FASTENERS
   A. Hot dipped galvanized for exterior and high humidity locations, untreated steel elsewhere.
   B. Concealed Joint Fasteners: Threaded steel.

8. WOOD TREATMENT
   A. Wood Preservative by Pressure Treatment (PT Type): AWPA Treatment C2 using water borne preservative with 0.25 percent retainage.

9. FABRICATION
   A. Shop assemble work for delivery to site, permitting passage through building openings.
   B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

10. INSTALLATION
   A. Set and secure materials and components in place, plumb and level.
   B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

11. ERECTION TOLERANCES
   A. Maximum Variation from True Position: 1/16 inch.
   B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

12. SCHEDULE
   A. Exterior:
      1. Standing and Running Trim:
         a. Species and Grade: Western Red Cedar, WWPA or WCLIB, B & Better – 1 & 2 Clear Vertical Grain
         b. Texture: Surfaced
         c. Furnish surfaced lumber for trim indicated to receive painted or stained finish.
   B. Interior:
      1. Standing and Running Trim and Rails – Transparent Finish:
         a. Quality Standard: Comply with AWI 300 Premium Grade
         b. Backs: Back out or groove backs of flat trim members, kerf backs of other wide flat members except for members with ends exposed in finished work.
         c. Casings: Assemble in plant except where limitation of access to place of installation requires field assembly.
         d. Moldings:
            1) Assemble in plant to maximum extent possible
            2) Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.
         e. Wood Species: As noted on drawings.
      2. Interior Standing and Running Trim and Rails – Opaque Finish:
         a. Quality Standard: Comply with AWI 300 Custom Grade
         b. Backs: Back out or groove backs of flat trim members, kerf backs of other wide, flat members except for members with ends exposed in finished work.
         c. Casings: Assemble in plant except where limitation of access to place of installation requires field assembly.
         d. Moldings:
            1) Assemble in plant to maximum extent possible.
            2) Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.
         e. Wood Species: Poplar
      3. Wood Shelves:
         a. Solid wood for opaque finish (lumber boards, edge-glued where required to produce widths indicated):
            1) Grade: Custom
            2) Lumber Species: Poplar
         b. Panel product for transparent finish (wood veneer laminated over various cores):
            1) Grade: Premium
            2) Lumber Species: As noted on drawings.
            3) Matching of adjacent veneer leaves: Book Match
            4) Veneer m atching within panel face: Running Match
            5) Edge Treatment: Lumber matching wood veneer face for species and cut.
            6) Edge Treatment: Wood veneer matching veneer face for species and cut.
         c. High Pressure Decorative Laminate:
            1) Grade: Premium
            2) Laminate Cladding – Horizontal Surfaces: High pressure decorative laminate, provide materials and products resulting in colors and textures of exposed laminate surfaces matching Architect's samples.
            3) Grade: GP-50
            4) Grain Direction: Parallel to longest dimension
            5) Edge Treatment: Same as laminate cladding on horizontal surfaces.
            6) Edge Treatment: Lumber edge for transparent finish matching wood species and cut on cabinet surfaces.

Section 06410 - Custom Cabinets

1. SECTION INCLUDES
   A. Specially fabricated cabinet units and hardware.

2. REFERENCES
   A. ANSI A135.4 – American National Standard for Basic Hardboard; 2004.
   B. ANSI A208.1 – American National Standard for Particleboard; 1999.
   C. AWI/AWMAC (QSI) – Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.
   D. GSA CID A-A-1936 – Adhesive, Contact, Neoprene Rubber; Federal Specifications and Standards; Revision A, 1996.
   E. NEMA LD 3 – High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.
   F. PS 1 – Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.

3. QUALITY ASSURANCE
   A. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.

4. LUMBER MATERIALS
   A. Hardwood Lumber: NHLA; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade I/Premium; average moisture content of 5-10 percent; species as follows:
      1. Exposed Surfaces: As specified on the drawings.
      2. Semi-Exposed Surfaces: As specified on the drawings.
      3. Concealed Surfaces: Species poplar.

5. PANEL MATERIALS
   A. Exposed Surfaces: NIST PS 1; APA A-A Grade, plain-sliced face veneer as indicated on drawings.
   B. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 – Tempered, 1/4 inch thick, smooth two sides (S2S); use for drawer bottoms, dust panels, and other components indicated on drawings.

6. ACCESSORIES
   A. Adhesive: Type recommended by fabricator to suit application.
   B. Fasteners: Size and type to suit application.
   C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel, or chrome-plated finish in exposed locations.
   D. Concealed Joint Fasteners: Threaded steel.
   E. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

7. HARDWARE
   A. Adjustable Shelf Supports: Standard back-mounted system using surface mounted metal shelf standards and coordinated cantilevered shelf brackets, satin chrome finish, for nominal 1 inch spacing adjustments.
   B. Drawer and Door Pulls: Top Knobs M1165 Nouveau III Square Black Knobs
   C. Cabinet Locks: First Watch 1385-VB, Keyed cylinder, master keyed, steel with oil rubbed bronze finish.
   D. Catches: L-EP592-P, 15 lb Double Magnetic Catch, Bronze.
   E. Drawer Slides:
      1. Type: Standard extension.
      2. Static Load Capacity: Commercial grade.
      3. Mounting: Side mounted.
      4. Stops: Integral type.
   F. Hinges: Wurth FE12-STB 1 ½" Piano Hinge, Statuary Bronze.

8. FABRICATION
   A. Cabinet Style: Flush overlay.
   B. Drawer Construction Technique: Dovetail joints.
   C. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
   D. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
   E. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
   F. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
      1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
      2. Cap exposed plastic laminate finish edges with material of same finish and pattern.
   G. Matching Wood Grain: Comply with requirements of quality standard for specified Grade and as follows:
      1. Provide center matched panels at each elevation.
      2. Provide sequence matching across each elevation.
      3. Carry figure of cabinet fronts to toe kicks.
   H. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.
   I. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

9. INSTALLATION
   A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
   B. Use fixture attachments in concealed locations for wall mounted components.
   C. Use concealed joint fasteners to align and secure adjoining cabinet units and countertops.
   D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
   E. Secure cabinets to floor using appropriate angles and anchorages.
   F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

10. ADJUSTING
   A. Adjust installed work.
   B. Adjust moving or operating parts to function smoothly and correctly.

Section 06610 - Quartz Surfacing

1. SECTION INCLUDES
   A. Countertops

2. REFERENCE STANDARDS
   A. ASTM International:
      1. C97 Absorption and Bulk Specific Gravity of Dimension Stone
      2. C99 Modulus of Rupture of Dimension Stone
      3. C170 Compressive Strength of Dimension Stone
      4. C501 Relative Resistance to Wear of Unglazed Tile to Taber Abraser
      5. C484 Thermal Shock Resistance of Grazed Ceramic Tile
      6. C531 Linear Shrinkage and Coefficient of Thermal Expansion of Chemical Resistant Mortars, Grouts, Monolithic Surfacings and Polymer Concrete.
      7. C648 Breaking Strength of Ceramic Tile
      8. C1026 Resistance of Ceramic Tile to Freeze Thaw Cycling.
      9. E84 Surface Burning Characteristics of Building Materials.
   B. American National Standards Institute (ANSI)
      1. A108.5 Installation of Ceramic Tile with a Dry Set Portland Cement Mortar Latex Portland Cement Mortar.
      2. A118.4 – Latex-Portland Cement Mortar

3. SUBMITTALS
   A. Product Data:
      1. Quartz Surfacing; Submit manufacturer's product data.
      2. Quartz Surfacing; Submit manufacturer's care and maintenance data.
   B. Samples:
      1. Submit two 3" x 3" quartz samples showing specified color and finish.
   C. Shop Drawings:
      1. Drawings to include countertop layout, dimensions, required locations of support and blocking members, edge profiles, cutouts and attachments.

4. QUALITY ASSURANCE
   A. Delivery Storage and Handling:
      1. Packaging, Shipping, Handling and Unloading; Observe manufacturer's recommendations and handle in a manner to prevent breakage. Brace parts if necessary. Transport in the near vertical position with finished face toward finished face. Do not allow finished surfaces to rub during shipping and handling.

5. Manufacturers
   A. Acceptable manufacturer:
      1. L.G. Hausys Quartz Surfacing
         http://www.lghausys.com

6. Materials
   A. Material:
      1. Homogeneous mixture containing 93% crushed quartz aggregate with additions of high performance polyester resin, pigments and special effects.
   B. Thickness: 2cm
   C. Identification: Material shall be labeled with manufacturer's identifying mark.
   D. Color: See interior Finish Schedule
   E. Exposed Edges and Corners:
      1. Countertops profile – Mitered

7. Accessories
   A. Mounting Adhesive:
      1. Provide structural grade "50 year" silicone or epoxy adhesive.
      2. Acceptable epoxy manufacturers
         a. Cambria Two Part Acrylic Adhesive
         b. Akemi North America
         c. Bonstone Material Corporation
         d. Tenax USA
   B. Quartz Surface Adhesive:
      1. Provide epoxy adhesive of a type recommended by manufacturer for application and conditions of use.
      2. Acceptable manufacturers:
         a. Akemi North America
         b. Bonstone Material Corporation
         c. Tenax USA
   C. Joint Sealant:
      1. Clear sealant of type recommended by manufacturer for application and use.
      2. Provide anti-bacterial type in toilet, food preparation.
      3. Acceptable manufacturers:
         a. Dow Corning
         b. GE Sealants
   D. Solvent: Denatured alcohol for cleaning quartz surfacing to assure adhesion of adhesives and sealants.
   E. Cleaning Agents: Mild soap and water.

8. FABRICATION
   A. Fabricator:
      1. Fabricator shall be by a certified Fabricator, certified in writing by Manufacturer.
   B. Layout:
      1. Layout surface to minimize joints and avoid L-shaped pieces of quartz surfacing. Layout and fabricate with "hairline" joints.
   C. Cutouts:
      1. Cutouts shall have a minimum 3/8 inch (10 mm) radius.
      2. Where edges of cutouts will be exposed in finished work; polish edges.
   D. Laminations:
      1. Laminate layers of quartz surfacing as required to create built up edges following procedures recommended by the manufacturer.

9. PRE-INSTALLATION EXAMINATION
   A. Site Verification:
      1. Verify dimensions by field measurements prior to installation.
      2. Verify that substrates supporting quartz surfaces are plumb, level and flat to within 1/8 inch in 10 feet and that all necessary supports and blocking are in place.
      3. Base Cabinets shall be secured to adjoining units and back wall.

10. INSTALLATION
   A. Install materials in accordance with manufacturer's instructions and approved shop drawings.
   B. Preliminary Installation:
      1. Position materials to verify the correct size.
      2. If size adjustments or additional fabrication is necessary, use water cooled tools. Protect jobsite and surface from dust and water. Perform work away from installation site if possible.
      3. Allow gaps for expansion of not less 1/8 inch per ten feet when installed between walls or other fixed structure.
   C. Permanent Installation:
      1. After verification of fit and finish, clean substrate; remove loose and foreign matter which may interfere with adhesion. Clean quartz surface backside & joints with denatured alcohol.
      2. Horizontal surface: Apply continuous bead of mounting adhesive around perimeter of structural substrate and supports.
      3. Vertical surface: Apply continuous bead of mounting adhesive around perimeter. In addition, apply ¼ inch mounting adhesive bead every 8 inches on vertical center.
      4. Install quartz surfacing plumb, level, square, and flat to within 1/8 inch in ten feet, non-cumulative.
      5. Align adjacent pieces in same plane.
   D. Joints:
      1. Joints between Adjacent Pieces of Quartz Surfacing:
         a. Joints shall be flush, tight fitting, level and neat.
         b. Securely join adjacent pieces with two-part Adhesive.
         c. Fill joints level to polished surface.
         d. Secure adjacent quartz surfaces with vacuum clamps until adhesive hardens.
      2. Joints Between Quartz Surface and wall:
         a. Seal joints with "50 year" silicone sealant.

ARCHITECT:

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CORPORATE:

DICKEY'S BARBECUE RESTAURANT, INC.
4514 COLE AVENUE, SUITE 1100
DALLAS, TEXAS 75205
972.248.9899

FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

SPECIFICATION

SHEET NUMBER:

SP1.2

IDS4 PROJECT NUMBER:

DBQ21015

Division 07 - Thermal and Moisture Protection

Section 07212 - Board and Batt Insulation

1. SECTION INCLUDES
   A. Board insulation at cavity wall construction.
   B. Batt insulation in exterior wall and ceiling construction.
   C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

2. REFERENCES
   A. ASTM C 578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2005a.
   B. ASTM C 665 – Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2001.
   C. ASTM C 1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2006.
   D. ASTM D 2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2001.
   E. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.
   F. ASTM E 136 – Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2004.

3. BOARD INSULATION MATERIALS
   A. Expanded Polystyrene Board Insulation: ASTM C 578; with the following characteristics:
      1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E 84.
      2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E 84.
      3. Board Size: 48 x 96 inch.
      4. Board Thickness: 1 inch.
      5. Water Absorption: 4 percent by volume, maximum, when tested In accordance with ASTM D 2842.
      6. Board Density: 0.7 lb/cu ft.
      7. Compressive Resistance: 5 psi.
      8. Thermal Conductivity (k factor) at 25 degrees F: 0.28.
      9. Approved manufacturers:
         a. AFM Corp: www.r-control.com.
         b. Diversifoam Products: www.diversifoam.com.
         c. Grace Construction Products: www.na.graceconstruction.com.

4. BATT INSULATION MATERIALS
   A. Batt Insulation: ASTM C 665; preformed batt; friction fit, conforming to the following:
      1. Combustibility: Non-combustible, when tested in accordance with ASTM E 136, except for facing, if any.
      2. Thermal Resistance:
         a. Walls: R-21 High Density Fiberglass
         b. Roof: R-30
      3. Facing: aluminum foil or kraft-paper faced one side.
      4. Approved manufacturers:
         a. CertainTeed Corporation: www.certainteed.com.
         b. Johns Manville Corporation: www.jm.com.
         c. Owens Corning Corp: www.owenscorning.com.

5. ACCESSORIES
   A. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.
   B. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
   C. Adhesive: Type recommended by insulation manufacturer for application.

6. BATT INSTALLATION
   A. Install insulation in accordance with manufacturer's instructions.
   B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.
   C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
   D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
   E. Install insulation in walls with faced side facing the building interior.
   F. Tape insulation batts in place.
   G. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

Section 07532 - Roofing System Repair

1. BASIC REQUIREMENTS
   A. Repair existing roofing system as set forth in this Section to allow for proper penetrations of the membrane by other trades.
   B. New Roofing area shall match composition, installation, detailing and warranty of the existing roofing system as set forth in this Section to maintain full roof warranty.
   C. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
   D. Use only materials and installation crews approved by the warranter of the existing roofing system. All materials shall be as recommended for the conditions by a single manufacturer as suitable for that use.
   E. Manufacturer of materials shall be approved by the warranter of the existing roofing system. Review warranty requirements with Landlord prior to performing work.
   F. Use only applicators that are approved by the warranter of the existing roofing system to perform work on that particular roofing system.
   G. Sub-Contractor shall thoroughly inspect roof with a manufacturer's representative to determine if any other repairs or refurbishments are required to insure a watertight building.

2. INSTALLATION
   A. Make any repairs as required from inspection of roof.
   B. Re-slope, insulate and re-roof at areas shown to match existing.
   C. Install curb flashing as required for equipment furnished by Others, Mechanical and Electrical work.

Section 07620 - Sheet Metal Flashing and Trim

1. SECTION INCLUDES
   A. Fabricated sheet metal items, including flashings, and counter flashings.

2. REFERENCES
   A. AAMA 611 – Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.
   B. ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2005a.
   C. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2004.
   D. ASTM B 209M – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2004.
   E. ASTM D 226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2005.
   F. ASTM D 4586 – Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2000.
   G. SMACNA (ASMM) – Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

3. SHEET MATERIALS
   A. Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal.

4. ACCESSORIES
   A. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.
   B. Primer: Zinc chromate type.
   C. Plastic Cement: ASTM D 4586, Type I.

5. FABRICATION
   A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
   B. Fabricate cleats of same material as sheet, minimum 4 inches wide, interlocking with sheet.
   C. Form pieces in longest possible lengths.
   D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
   E. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
   F. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
   G. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

6. INSTALLATION
   A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
   B. Apply plastic cement compound between metal flashings and felt flashings.
   C. Flashings light in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

Section 07900 - Joint Sealers

1. SECTION INCLUDES
   A. Sealants and joint backing.

2. ENVIRONMENTAL REQUIREMENTS
   A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

3. SEALANTS
   A. Sealants and Primers – General: Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168.
   B. General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.
      1. Color: Standard colors matching finished surfaces.
      2. Applications: Use for:
         a. Control, expansion, and soft joints in masonry.
         b. Joints between concrete and other materials.
         c. Joints between metal frames and other materials.
         d. Under exterior door sills.
         e. Other exterior joints for which no other sealant is indicated.
   C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
      1. Color: Standard colors matching finished surfaces.
      2. Applications: Use for:
         a. Interior wall and ceiling control joints.
         b. Joints between door and window frames and wall surfaces.
         c. Other interior joints for which no other type of sealant is indicated.
   D. Restroom/Tile Sealant: White silicone; ASTM C 920, Uses I, M and A; single component, mildew resistant.
      1. Applications: Use for:
         a. Joints between plumbing fixtures and floor and wall surfaces.
   E. Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Grade P, Class 25, Uses T, M and A; single component.
      1. Color: Standard colors matching finished surfaces.
      2. Applications: Use for:
         a. Expansion joints in floors.
   F. Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.
      1. Color: Clear.
      2. Applications: Use for:
         a. Equipment sealant in Food Service areas.

4. ACCESSORIES
   A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
   B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
   C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
   D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

5. PREPARATION
   A. Remove loose materials and foreign matter which might impair adhesion of sealant.
   B. Clean and prime joints in accordance with manufacturer's instructions.
   C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.
   D. Protect elements surrounding the work of this section from damage or disfigurement.

6. INSTALLATION
   A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
   B. Perform installation in accordance with ASTM C 1193.
   C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
   D. Install bond breaker where joint backing is not used.
   E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
   F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
   G. Tool joints concave.

Division 08 - Doors and Windows

Section 08110 - Steel Doors and Frames

1. SECTION INCLUDES
   A. Steel doors and frames.
   B. Steel frames for wood doors.
   C. Thermally insulated steel doors.

2. REFERENCES
   A. ANSI/ICC A117.1 – American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
   B. ANSI A250.3 – Test Procedure and Acceptance Criteria for Factory-Applied Finish Painted Steel Surfaces for Steel Doors and Frames; 1999.
   C. ANSI A250.8 – SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.
   D. ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2005a.
   E. DHI A115 Series – Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).

3. SUBMITTALS
   A. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

4. MANUFACTURERS
   A. Steel Doors and Frames:
      1. Assa Abloy Ceco: www.assaabloydss.com.
      2. Steelcraft: www.steelcraft.com.

5. DOORS AND FRAMES
   A. Requirements for All Doors and Frames:
      1. Accessibility: Comply with ANSI/ICC A117.1.
      2. Door Top Closures: Flush with top of faces and edges.
      3. Door Edge Profile: Beveled on both edges.
      4. Door Texture: Smooth faces.
      5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
      6. Hardware Preparation: In accordance with DHI A115 Series, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
      7. Finish: Factory primed, for field finishing.

6. STEEL DOORS
   A. Exterior Doors:
      1. Grade: ANSI A250.8 Level 3, physical performance Level A, Model 2, seamless.
      2. Core: Polystyrene foam.
      3. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M, with manufacturer's standard coating thickness.
   B. Interior Doors, Non-Fire-Rated:
      1. Grade: ANSI A250.8 Level 2, physical performance Level B, Model 1, full flush.
      2. Thickness: 1-3/4 inches.

7. STEEL FRAMES
   A. General:
      1. Comply with the requirements of grade specified for corresponding door.
         a. Frames for Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
      2. Finish: Same as for door.
   B. Exterior and Interior Door Frames: Fully welded.

8. FINISH MATERIALS
   A. Primer: Rust-inhibiting, door manufacturer's standard.

9. INSTALLATION
   A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
   B. Coordinate frame anchor placement with wall construction.
   C. Coordinate installation of hardware.

Section 08211 - Flush Wood Doors

1. SECTION INCLUDES
   A. Flush wood doors; flush configuration; non-rated and acoustical.

2. REFERENCES
   A. AWI/AWMAC (QSI) – Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.

3. DELIVERY, STORAGE, AND HANDLING
   A. Package, deliver and store doors in accordance with specified quality standard.
   B. Accept doors on site in manufacturer's packaging. Inspect for damage.
   C. Protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

4. WARRANTY
   B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
   C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

5. MANUFACTURERS
   A. Wood Veneer Faced Doors:
      1. Assa Abloy Graham: www.grahamdoors.com.
      2. Eagers Industries: www.eagersindustries.com.
      3. Substitutions: See Section 01600 – Product Requirements.

6. DOORS AND PANELS
   A. All Doors: See drawings for locations and additional requirements.
      1. Quality Level: Premium Grade, in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Section 1300.
      2. Wood Veneer Faced Doors: Species Noted on Drawings, plain-sliced,, 5-ply unless otherwise indicated.
   B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
      1. Provide solid core doors at all locations.

7. DOOR FACINGS
   A. Wood Veneer Facing for Transparent Finish: Species as specified above, veneer grade as specified by quality standard, plain sliced, book veneer match, running assembly match; unless otherwise indicated.
      1. Vertical Edges: Any option allowed by quality standard for grade.

8. DOOR CONSTRUCTION
   A. Fabricate doors in accordance with door quality standard specified.
   B. Fit door edge trim to edge of stiles after applying veneer facing.
   C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
   D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
      1. Exception: Doors to be field finished.
   E. Provide edge clearances in accordance with AWI Quality Standards Illustrated Section 1700.

9. INSTALLATION
   A. Install doors in accordance with manufacturer's instructions and specified quality standard.
   B. Use machine tools to cut or drill for hardware.
   C. Coordinate installation of doors with installation of frames, hardware and glazing.

10. INSTALLATION TOLERANCES
   A. Conform to specified quality standard for fit and clearance tolerances.
   B. Conform to specified quality standard for maximum diagonal distortion.

Section 08214 - Metal Faced Flush Wood Doors (Ellason)

1. SCOPE OF WORK
   A. Metal faced flush solid core wood doors
   B. Hardware for doors

2. RELATED SECTIONS
   A. Finish Carpentry: SECTION 06200
   B. Standard Steel Frames: SECTION 08110
   C. Finish Hardware: SECTION 08710

3. SUBMITTALS
   A. General: Submit per SUBMITTALS Section.
   B. Shop Drawings: Show configuration and dimensions of door components, hardware types and locations and finishes. Include product data and manufacturer's installation instructions. Detail to serve as installation drawings. Owner's acceptance is required prior to start of fabrication and/or shipment.
   C. Operation and Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

4. MAINTENANCE MATERIALS
   A. Provide special wrenches and tools applicable to each different or special hardware component along with maintenance tools and accessories supplied by hardware component manufacturer.

5. COORDINATION OF WORK
   A. After acceptance of Shop Drawings, furnish Contractor with templates required for preparation of frames at place of manufacture.

6. WARRANTY
   A. Manufacturer's standard one-year warranty.

7. MANUFACTURER
   A. The Drawings were prepared, and this Specification written, on the basis of using the products of Eigson Corporation, Easy Swing Door Division, Kalamazoo, Michigan. Such is intended to establish minimum quality standards, not to limit competitive bidding. Products with equal or superior characteristics by other manufacturers are acceptable under conditions of the Specifications.

8. DOOR TYPE
   A. Easy Swing, Model SCP-4, medium weight, dual swing doors.

9. MATERIALS
   A. Core: 3/4 inch (19 mm) exterior grade solid wood core; 1 inch (25 mm) total thickness
   B. Face Finish and Edge Caps: Full length 0.032 inch tempered aluminum alloy, satin anodized finish, both sides, disc edges
   C. Base Plates: 12 inches high, 18 gauge stainless steel, both sides.
   D. Hardware: Double Action Easy Swing proprietary hinges.
   E. Window: 9 x 40 flush acrylic ADA vision panel with Black rubber molding.

10. DELIVERY STORAGE AND HANDLING
   A. Scheduling: Deliver to job site at least two weeks prior to date scheduled for installation, but not before building is enclosed and proper conditions of temperature and humidity are being maintained.
   B. Packaging: Crate or package doors and hardware to protect them during transit, delivery and storage, each package marked or tagged with corresponding door number as it appears on Door Schedule.
   C. Storage: Store doors and hardware at building site under cover. Place doors on at least 4 inch wood sills or on floors in manner that will prevent damage. Do not use non_vented plastic or canvas shelters. Remove wet cartons immediately. Provide 1/4 inch space between doors to promote air circulation.

11. INSTALLATION
   A. Install in accord with manufacturer's instructions. Conform to AWI requirements for fit tolerances.

12. ADJUSTING
   A. Adjust for smooth and balanced door movement.

Section 08306 - Access Panels

1. MANUFACTURER
   A. The Drawings were prepared and this Specification written on the basis of using the products of J. L. Industries, Bloomington, Minnesota. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these Specifications.

2. PRODUCT
   A. Model "TM", flush mounted access panel, 24 x 24, completely assembled as follows:
      1. Material:
         a. Door: 14 gage steel
         b. Frame: 16 gage steel with 1 inch flange
      2. Hardware:
         a. Hinges: Continuous hinges open to 175.
         b. Locks: Mortise cam latch.
      3. Anchors: Manufacturer's standard for use intended.
      4. Finish: Phosphate dipped steel with factory prime coat.

3. INSTALLATION
   A. Protect access panels from damage. Protect work of other trades during installation. Install access panels in locations indicated, complete in all details, securely anchored in place, plumb, level and parallel with building lines. Finally installed access panels shall open and close freely.

Section 08410 - Aluminum Entrances and Storefronts

1. ENGINEERING DESIGN
   A. Structural Properties: Fabricate and install work of this Section to withstand wind loads required by governing laws, ordinances, regulations and codes and with a maximum deflection of L/175.
   B. Thermal Movement: Fabricate and install systems to provide for expansion and/or contraction of component materials as will be caused by temperature range of 150 degrees F without causing harmful buckling, opening of joints, undue stresses on fasteners, or other detrimental effects.
   C. Water Leakage: Fabricate and install systems to deny water leakage; defined as appearance of water, other than condensation, on room side face of any part of systems.

2. SUBMITTALS
   A. Submit shop drawings of system proposed. Base on details shown on Drawings, and develop to serve as installation Drawings. Owner's acceptance is required prior to start of fabrication.

3. MANUFACTURER
   A. The Drawings were prepared and this Specification written on the basis of using the products of Kawneer Company, Inc., Norcross, Georgia. It is not the intent to limit competitive bidding. Products of equal characteristics by other manufacturers are acceptable under the conditions of these specifications.

4. STOREFRONT FRAMING
   A. System: Trifab 450 (4_1/2 inch) for single glazing, interior application, and Trifab 451 for insulating glass, exterior insulation, flush glazed, extruded aluminum having properties of 6063_T5 alloy.
   B. Interior Reinforcing: If required by Engineering design; rolled steel, 16 gauge or heavier if required.
   C. Fasteners: Manufacturer's standard; either stainless steel or carbon steel plated against electrolytic action.
   D. Finish: Anodized Aluminum Finish to match existing building, conforming to AA-M12C22A31 and AAMA 607.1.

5. DOORS AND HARDWARE
   A. Doors: Kawneer Series 190 _ Panic Guard", extruded aluminum having properties of 6063_T5 alloy.
   B. Fasteners: Manufacturer's standard; either stainless steel or carbon steel plated against electrolytic action.
   C. Hardware: Refer to hardware schedule.
   D. Weatherstripping and Sill Sweeps: Manufacturer's standard type to suit application.

6. FABRICATION
   A. Storefront Framing: Fabricate and assemble in shop to greatest extent possible. Cut carefully and accurately. Use compression joints between vertical and horizontal mullions, with gasket of non-hardening butyl compound. Place standard water dam, in accord with manufacturer's recommendation, between vertical and horizontal members and seal with liquid butyl compound. Provide weep holes with drainage to exterior. Fabricate to accommodate thermal movement, sizes of components and necessary field connections and fastenings required for installation; permit easy assembly by means of standard construction equipment and tools without use of special apparatus of appliances.
   B. Doors: Fabricate doors with tight, hairline joints where rails are fitted against stiles, and fasten by means of tensioned steel tie-rods in top and bottom rails. Provide butyling mechanism in top rail to provide for minor clearance adjustments. Glass stops; snap-in type with butyl type glazing strips. Weatherstripping: pile. Provide adjustable pile weatherstrip on one stile at meeting stiles of pairs of doors.

7. PREPARATION
   A. Where aluminum surfaces contact steel, other incompatible metals or concrete, protect aluminum by one of the following:
      1. Paint incompatible metal or concrete with coating of heavy-bodied bituminous paint.
      2. Paint incompatible metal with prime coat of zinc chromate primer followed by two coats of aluminum metal paint or other suitable protective coating; exclude those containing lead pigmentation.
      3. Non-absorptive gaskets.
      4. Caulking between aluminum and incompatible metals.
      5. If drainage from incompatible metal passes over aluminum, paint incompatible metal by method No. 2 above.

8. INSTALLATION
   A. General: Install true to line, plumb, level, square, and in proper planes with other work. Install free from sags, waves, buckles, or other objectionable defects. Anchor to resist stresses to which the work shall normally be subjected.
   B. Hardware: Fit in accord with manufacturer's instructions. Install doors to operate smoothly and evenly after adjustment. Adjust door-closing devices immediately prior to final inspection. Install thresholds in two full beads of sealant compound (one along each edge) and fasten with solid metal machine screws and expansion shields. One anchor will be required for each 24 inches of threshold length.
   C. Glass and Glazing: Specified in other Sections.

Section 08582 - Pass-Thru Windows

1. SECTION INCLUDES
   A. Flush-mount pass-thru windows.

2. RELATED SECTIONS
   A. Section 07620 (07 62 00) – Sheet Metal Flashing and Trim.
   B. Section 07920 (07 92 00) – Joint Sealants.

3. REFERENCES
   A. ASTM A 240 – Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
   B. ASTM A 653 – Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   C. ASTM B 209 – Aluminum and Aluminum-Alloy Sheet and Plate.
   D. ASTM B 221 – Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
   E. ASTM C 1048 – Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.

4. SUBMITTALS
   A. Comply with Section 01300 – Administrative Requirements.
   B. Product Data: Submit manufacturer's product data, including materials, components, fabrication, finish, and installation instructions.
   C. Shop Drawings: Submit manufacturer's shop drawings including plans, elevations, sections, and details, indicating dimensions, tolerances, materials, fabrication, glazing, fasteners, hardware, finish, electrical wiring diagrams, options, and accessories.
   D. Samples: Submit manufacturer's samples of standard finishes.
   E. Warranty: Submit manufacturer's standard warranty.

5. DELIVERY, STORAGE, AND HANDLING
   A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
   B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
   C. Handling: Protect materials and finish from damage during handling and installation.

6. MANUFACTURER
   A. Ready Access, Inc., 1815 Arthur Drive, West Chicago, Illinois 60185. Toll Free (800) 621-5045. Phone (630) 876-7766. Fax (630) 876-7767. Web Site www.ready-access.com. E-Mail ready@ready-access.com.

7. FLUSH-MOUNT PASS-THRU WINDOWS
   A. Flush-Mount Pass-Thru Windows: 275 Single Panel Manual Open/Self-Closing Slider Window.
      1. Service Opening: As noted on construction documents.
      2. Door Operation:
         a. Open: Manual.
         b. Close: Manual or self-closing.
      3. Door Type: Sliding, 1 door panel.
      4. Opening Direction: As noted on Construction Documents.
      5. Frame: Extruded aluminum, ASTM B 221, Alloy 6063-T6 and 6063-T52.
      6. Aluminum Sheet: ASTM B 209, Alloy 5005-H32 or 5052-H34.
      7. Galvanized Steel Sheet: ASTM A 653, G90.
      8. Bottom Sill: Angled downward, track-free.
      9. Security Lock: Aluminum bar extrusion with sliding spring-loaded locking clip.
      10. Fasteners: Stainless steel rivets and hex-head zinc-plated self-threading machine screws.
      11. Handle: Black Delrin handle with pressed-in stainless steel spring pins. Stainless steel handle mounting bracket. Stainless steel spring-loaded mounting base.
      12. Glazing: 1/4-inch tempered glass, ASTM C 1048, clear
      13. Silicone Glazing Sealant: Dow Corning 999A.

8. FABRICATION
   A. Assembly: Factory assembled, factory glazed.

9. ALUMINUM FINISH
   A. Anodized:
      1. Finish to match existing Aluminum Storefront system.

10. EXAMINATION
   A. Examine areas to receive pass-thru windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

11. PREPARATION
   A. Ensure openings to receive pass-thru windows are plumb, level, square, accurately aligned, correctly located, and in tolerance.

12. INSTALLATION
   A. Install pass-thru windows in accordance with manufacturer's instructions.
   B. Install pass-thru windows plumb, level, square, true to line, and without warp or rack.
   C. Install pass-thru window components weathertight.
   D. Anchor pass-thru windows securely in place to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
   E. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
   F. Sheet Metal Flashing: Install sheet metal flashing as specified in Section 07620.
   G. Joint Sealants: Install joint sealants as specified in Section 07900.

13. ADJUSTING
   A. Adjust doors to be weather tight in closed position.
   B. Adjust doors and operating hardware to function properly and for smooth operation without binding.

14. CLEANING
   A. Clean pass-thru windows promptly after installation in accordance with manufacturer's instructions.
   B. Remove excess joint sealant in accordance with sealant manufacturer's instructions.
   C. Do not use harsh cleaning materials or methods that would damage glazing or finish.

15. PROTECTION
   A. Protect installed pass-thru windows to ensure that, except for normal weathering, pass-thru windows will be without damage or deterioration at time of substantial completion.

Section 08710 - Door Hardware

1. SECTION INCLUDES
   A. Hardware for wood and hollow steel doors.

2. REFERENCES
   A. ANSI/ICC A117.1 – American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
   B. BHMA A156.1 thru 156.21 – Builders Hardware Manufacturers Association, Inc.; 2006.
   C. DHI A115 Series – Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000.
   D. DHI A115W Series – Specifications for Wood Door and Frame Preparation for Hardware; Door and Hardware Institute; 2000.
   E. DHI (LOCS) – Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
   F. DHI WDHS.3 – Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1996.

3. SUBMITTALS
   A. See Section 01300 – Administrative Requirements, for submittal procedures.
   B. Shop Drawings: Complete door and frame preparations, based on hardware schedule, catalog cuts, electrical characteristics and connection requirements.
      1. Submit manufacturer's parts lists and templates.
   C. Samples:
      1. Submit 1 sample of hinge, latchset, lockset, closer,, and closer illustrating style, color, and finish.
      2. Samples will be returned to supplier.
   D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
   E. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.
   F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

4. COORDINATION
   A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

5. MANUFACTURERS

6. GENERAL REQUIREMENTS FOR DOOR HARDWARE PRODUCTS
   A. Provide products that comply with the following:
      1. Applicable provisions of Federal, State, and local codes.
      2. Provide products from the manufacturers and finish listed in the schedule located in the construction documents. No substitution allowed without written approval
   B. Finishes: Identified in schedule located in the construction documents.

7. KEYING
   A. Door Locks: Master keyed.
      1. Include construction keying and control keying with removable core cylinders.
   B. Supply keys in the following quantities:
      1. 4 master keys.
         a. Stamp all permanent master keys with a set number and "DO NOT DUP"
      2. 4 construction keys.
      3. 4 control keys and 4 extra cylinder cores.
      4. 2 change keys for each lock.
      5. Identify permanent keys in envelopes and deliver to the Owner.
      6. Re-key entire building per Owner's direction.

8. KEY CABINET
   A. Cabinet Construction: Sheet steel construction, piano hinged door with cylinder type lock master keyed to building system.
   B. Cabinet Size: Size for project keys plus 50 percent growth.
   C. Hooks for 50 keys.
   D. Horizontal plastic strips for key hook labelling with clear plastic strip cover over labels.
   E. Finish: Baked enamel, color as selected.

9. EXAMINATION
   A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.

10. INSTALLATION
   A. Install hardware in accordance with manufacturer's instructions and applicable codes.
   B. Use templates provided by hardware item manufacturer.
   C. Mounting heights for hardware from finished floor to center line of hardware item:
      1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames.
      2. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."

11. ADJUSTING
   A. Adjust work under provisions of Section 01700.
   B. Adjust hardware for smooth operation.

Section 08800 - Glazing

1. SECTION INCLUDES
   A. Glass.
   B. Glazing compounds and accessories.

2. REFERENCES
   A. 16 CFR 1201 – Safety Standard for Architectural Glazing Materials; current edition.
   B. ASTM C 864 – Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2003.
   C. ASTM C 920 – Standard Specification for Elastomeric Joint Sealants; 2005.
   D. ASTM C 1087 – Standard Specification for Flat Glass; 2003.
   E. ASTM C 1048 – Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.
   F. ASTM C 1193 – Standard Guide for Use of Joint Sealants; 2005a.
   G. ASTM E 2190 – Standard Specification for Insulating Glass Unit Performance and Evaluation; 2002.

3. PERFORMANCE REQUIREMENTS
   A. Provide glass and glazing materials for continuity of building enclosure vapor retarder and air barrier:
      1. In conjunction with vapor retarder and joint sealer materials described in other sections.
      2. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

4. SUBMITTALS
   A. See Section 01300 – Administrative Requirements, for submittal procedures.
   B. Product Data on Glass types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
   C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
   D. Certificates: Certify that products meet or exceed specified requirements.

5. QUALITY ASSURANCE
   A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

6. FLAT GLASS MATERIALS
   A. Clear Float Glass: Clear, fully tempered.
      1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select)
      2. Comply with ASTM C 1048.
      3. 6 mm minimum thick.
   B. Safety Glass: Clear, fully tempered with horizontal tempering.
      1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1048.
      2. Comply with 16 CFR 1201 test requirements for Category II.

7. SEALED INSULATING GLASS MATERIALS
   A. Insulated Glass Units: Double pane, Low E, with glass to elastomer edge seal.
      1. Durability: Certified by an independent testing agency to comply with ASTM E 2190.
      2. Purge interpane space with dry hermetic air.
      3. Total unit thickness of 1 inch minimum.

8. GLAZING COMPOUNDS
   A. Butyl Sealant: Single component; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; Shore A Hardness of 10 to 20; black color; non-staining.
   B. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25; color as selected.

9. GLAZING ACCESSORIES
   A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and glass weight and area.
   B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.
   C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; size as recommended by glass manufacturer; black color.
      1. Manufacturers:
         a. Pecora Corporation: www.pecora.com.
         b. Tremco, Inc: www.tremcosealants.com.
         c. Substitutions: Refer to Section 01600 – Product Requirements.
   D. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C 864 Option I; black color.
   E. Glazing Clips: Manufacturer's standard type.

10. PREPARATION
   A. Prime surfaces scheduled to receive sealant.
   B. Install sealant starts in accordance with ASTM C 1193 and FGMA Sealant Manual.
   C. Install sealant in accordance with manufacturer's instructions.

11. INSTALLATION – EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT)
   A. Cut glazing tape to length and set against permanent stops, 3/16 inch below sight line. Seal corners by butting tape and dabbing with butyl sealant.
   B. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
   C. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
   D. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
   E. Install removable stops, with spacer strips inserted between glazing and applied stops, 1/4 inch below sight line. Place glazing tape on glazing pane or unit with tape flush with sight line.
   F. Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.
   G. Apply cap bead of sealant along vertical joint between the stop and the glazing, to uniform line, flush with sight

Section 09260 - Gypsum Board Assemblies

6. EXAMINATION
   A. Verify that project conditions are appropriate for work of this section to commence.

7. ACOUSTIC ACCESSORIES INSTALLATION
   A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
   B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

8. GYPSUM BOARD INSTALLATION
   A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
   B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of listing authority.
   D. Cementitious Backing Board: Install over steel framing members where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
   E. Installation on Metal Framing: Use screws for attachment of all gypsum board.
   F. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For non-rated assemblies, install as follows:
      1. Single-Layer Applications: Screw attachment.
   G. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board with sealant.

9. INSTALLATION OF TRIM AND ACCESSORIES
   A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
      1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
   B. Corner Beads: Install at external corners, using longest practical lengths.

10. JOINT TREATMENT
   A. Finish all gypsum board in accordance with ASTM C 840 "Level 4" finish.
   B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
      1. Feather coats of joint compound so that camber is maximum 1/32 inch.
      2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.

11. TOLERANCES
   A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

Section 09300 - Tile

1. SECTION INCLUDES
   A. Tile for floor applications.
   B. Tile for wall applications.
   C. Cementitious backer board as tile substrate.
   D. Waterproofing membrane
   E. Ceramic trim.

2. REFERENCES
   A. ANSI A108 Series/A118 Series/A136.1 – American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2005.
   B. TCA (HB) – Handbook for Ceramic Tile Installation; Tile Council of North America, Inc.; 2006.

3. QUALITY ASSURANCE
   A. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 Series on site.

4. DELIVERY, STORAGE, AND HANDLING
   A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

5. EXTRA MATERIALS
   A. Provide 10 sq. ft of each size, color, and surface finish of tile specified.

6. TILE
   A. Refer to finish schedule on the construction documents for material selections.

7. TRIM AND ACCESSORIES
   A. Trim: Matching bullnose, surface bullnose, cove base, and cove ceramic shapes as scheduled in sizes coordinated with field tile.
      1. Applications: Use in the following locations:
         a. Open Edges: Bullnose.
         b. Inside Corners: Jointed.
         c. Floor to Wall Joints: Cove base.
      2. Manufacturer: Same as for tile.

8. ADHESIVE MATERIALS
   A. Organic Adhesive: ANSI A136.1, thinset bond type; use Type I in areas subject to prolonged moisture exposure.
   B. Epoxy Adhesive: ANSI A118.3, thinset bond type.

9. MORTAR MATERIALS
   A. Mortar Bed Materials: Portland cement, sand, latex additive and water.
   B. Mortar Bond Coat Materials:
      1. Dry-Set Portland Cement type: ANSI A118.1.
      2. Latex-Portland Cement type: ANSI A118.4.
      3. Epoxy: ANSI A118.3.

10. GROUT MATERIALS
   A. Standard Grout: Any type specified in ANSI A118.6 or A118.7.
   B. Furan Grout: ANSI A118.5, furan resin type.

11. ACCESSORY MATERIALS
   A. Cleavage Membrane: 4 mil thick polyethylene film.
   B. Reinforcing Mesh: 2 x 2 inch size weave of 16/16 wire size; welded fabric, galvanized.
   C. Waterproofing:
      1. Install under tile at all wet locations – Nobleseal 30 mil membrane waterproofing conforming to ANSI A118-10.

12. EXAMINATION
   A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
   B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
   C. Verify that sub-floor surfaces are dust-free and free of substances which would impair bonding of setting materials to sub-floor surfaces.
   D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

13. PREPARATION
   A. Protect surrounding work from damage.
   B. Vacuum clean surfaces and damp clean.
   C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
   D. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.
   E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

14. INSTALLATION – GENERAL
   A. Install waterproofing membrane at all wet areas in accordance with manufacturer's instructions and TCA Handbook recommendations.
   B. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.
   C. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
   D. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
   E. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
   F. Form internal angles square and external angles bullnosed.
   G. Sound tile after setting. Replace hollow sounding units.
   H. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
   I. Allow tile to set for a minimum of 48 hours prior to grouting.
   J. Grout tile joints. Use standard grout unless otherwise indicated.
   K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

15. INSTALLATION – FLOORS – THIN-SET METHODS
   A. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.
      1. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F131.

16. INSTALLATION – FLOORS – MORTAR BED METHODS
   A. Over interior concrete substrates, install in accordance with TCA Handbook Method F111, with cleavage membrane, unless otherwise indicated.
   B. Cleavage Membrane: Lap edges and ends.
   C. Mortar Bed Thickness: 1-1/4 inch.

17. INSTALLATION – WALL TILE
   A. Over cementitious backer units install in accordance with TCA Handbook Method W223, organic adhesive.

18. CLEANING
   A. Clean tile and grout surfaces.

Section 09511 - Suspended Acoustical Ceilings

1. SECTION INCLUDES
   A. Suspended metal grid ceiling system.
   B. Acoustical units.

2. REFERENCES
   A. ASTM C 635 – Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2004.
   B. ASTM C 636 – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2004.
   C. ASTM E 580 – Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint; 2002.
   D. ASTM E 1264 – Standard Classification for Acoustical Ceiling Products; 1998 (Reapproved 2005).

3. EXTRA MATERIALS
   A. See Section 01600 – Product Requirements, for additional provisions.
   B. Provide five percent of total acoustical unit area of each type of acoustical unit for Owner's use in maintenance of project.

4. ACOUSTICAL UNITS
   A. Manufacturers:
      1. Refer to Finish Schedule on drawings for various product manufacturers.
   B. Acoustical Units – General: ASTM E 1264, Class A.
      1. Models as scheduled on the construction documents.

5. SUSPENSION SYSTEM(S)
   A. Manufacturers:
      1. USG; Product Donn DX: www.usg.com.
   B. Suspension Systems – General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

6. ACCESSORIES
   A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
   B. Perimeter Moldings: Same material and finish as grid.
      1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

7. INSTALLATION – SUSPENSION SYSTEM
   A. Install suspension system in accordance with ASTM C 636, ASTM E 580, and manufacturer's instructions and as supplemented in this section.
   B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
   C. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
   D. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
   E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
   F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
   G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
   H. Do not eccentrically load system or induce rotation of runners.
   I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
      1. Use longest practical lengths.
      2. Overlap and rivet corners.

8. INSTALLATION – ACOUSTICAL UNITS
   A. Install acoustical units in accordance with manufacturer's instructions.
   B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
   C. Fit border trim neatly against abutting surfaces.
   D. Install units after above-ceiling work is complete.
   E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
   F. Cutting Acoustical Units:
      1. Make field cut edges of same profile as factory edges.

Section 09729 - Mural Installation

1. SECTION INCLUDES
   A. Surface preparation and installation by GC.

2. REFERENCES
   A. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

3. REGULATORY REQUIREMENTS
   A. Conform to applicable code for flame and smoke ratings of 25/50 when tested to ASTM E84. Federally specified limits for flame, smoke development and flash over must be met according to ASTM-E84 and NFPA286 tests.

4. DELIVERY, STORAGE, AND PROTECTION
   A. Inspect roll materials on site to verify acceptance.
   B. Protect packaged adhesive from temperature cycling and cold temperatures.
   C. Do not store roll goods on end.

5. ENVIRONMENTAL REQUIREMENTS
   A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the adhesive or mural product manufacturer.
   B. Maintain these conditions 24 hours before, during, and after installation of adhesive and covering.

6. MATERIALS
   A. Wall Murals: 3M Scotch Print Graphics. Printed on 8620 base film and 3M overlaminate. Murals are By Owner, which means the murals are furnished by Owner and installed by GC.
   B. Adhesive: Type recommended by covering manufacturer to suit application to substrate. Adhesives and primers must contain mildew inhibitors.
   C. Substrate Filler: As recommended by adhesive and covering manufacturers; compatible with substrate.
   D. Substrate Cleaner: 3M brand adhesive cleaner and wax remover, Part No. 8984.

7. EXAMINATION
   A. Verify that substrate surfaces are primed and painted and are ready to receive work, and conform to requirements of the covering manufacturer.
   B. Measure moisture content of surfaces using an electronic moisture meter. Do not apply coverings unless moisture content of surfaces are below 12 percent.
   C. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet nor vary at a rate greater than 1/16 inch/foot.

8. PREPARATION
   A. G.C. to examine all substrata, correct defects, and complete all work that penetrates the substrata before beginning of wallcovering installation. G.C. is responsible to provide an acceptable wall surface for wall mural installation. Gypsum wall board level of finish is to be Level 5.
      1. Level 5: All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving at thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, applied to the entire surface. The surface shall be smooth and free of tool marks and ridges. Note: It is recommended that the prepared surface be coated with a drywall primer prior to the application of finish paint. See section C below in regard to painting.
   B. Sand and wipe wall to remove excess drywall dust.
   C. For new drywall construction prior to application of wallcovering, wall shall be painted with compatible primer to Latex paint (two coats). Finish coat to be Semi-gloss Latex paint.
   D. After finishing drywall, insure that all surfaces are completely flat and smooth with no raised areas or indentations as the vinyl will telegraph any bad areas.
   E. Drying and curing time for substrate painting manufacturer MUST be observed. All air drying paints should be allowed to dry a minimum of 72 hours prior to mural application. The 72 hour air drying period is to be complete 28 days prior to restaurant opening.
   F. Use only a pencil for marking walls and back of wallcovering. Do not use ballpoint or marking pen, they will bleed through the surface.
   G. When using solvent for cleaning substrate, it is essential that proper precautionary measures, as established by the solvent manufacturer for handling of such materials, be observed.
   H. Clean substrates with adhesive cleaner per manufacturer's written directions; wipe dry with a lint-free cloth before solvent evaporates from surface.
   I. After cleaning, all materials should be handled with mechanical devices or while wearing clean, cloth gloves.
   J. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
   K. Vacuum clean surfaces free of loose particles. Insure the flat surfaces and the crown molding above and below this area are free of all dust and debris.

9. INSTALLATION
   A. Apply adhesive and covering in accordance with manufacturer's instructions.
   B. Apply adhesive to wall surface immediately prior to application of covering.
   C. Use covering in pattern sequence.
   D. Razor trim edges on flat work table. Do not razor cut on gypsum board surfaces.
   E. Apply covering smooth, without wrinkles, gaps or overlaps. Eliminate air pockets and ensure full bond to substrate surface. Butt edges tight.
   F. Horizontal seams are not acceptable.
   G. Do not seam within 2 inches of internal corners or within 6 inches of external corners.
   H. Edges of graphics must be trimmed perfectly straight at a 90 degree angle. This will ensure that seams align properly when applied to the wall surface.
   I. Remove excess adhesive while wet from seam before proceeding to next covering sheet. Wipe clean with dry cloth.

Section 09771 - Prefinished Panels

1. SECTION INCLUDES
   A. Prefinished panel system for adhesive mounting.

2. MANUFACTURERS
   A. The Marlite Corporation, Dover, Ohio
   B. Crane Composites (Kemlite), Channahon, IL.

3. FIBERGLASS REINFORCED PANEL (FRP)
   A. Thickness: 3/32"
   B. Finish: Pebble
   C. Color: As scheduled
   D. Moldings: Solid vinyl, wide profile and match the color of the panels.
   E. Closures: solid vinyl, wide profile an match the color of the panels.

4. STAINLESS STEEL PANEL
   A. Type: 20 gauge, #304.

5. INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Use the adhesives recommended by the panel manufacturer unless prohibited by local regulations; obtain manufacturer's approval of alternative adhesives.
   C. Avoid contamination of panel faces; clean as necessary and replace if not possible to repair to original condition.
   D. Install stainless steel panels with a one inch ship lap.

Section 09900 - Paints and Coatings

1. SECTION INCLUDES
   A. Surface preparation.
   B. Field application of paints, stains, varnishes, and other coatings.

2. DELIVERY, STORAGE, AND HANDLING
   A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
   B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
   C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

3. ENVIRONMENTAL REQUIREMENTS
   A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
   B. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

4. SUBMITTALS
   A. Prepare two (2) color/texture samples for each color for each type of substrate to be painted or stained per SUBMITTALS.
   B. Make samples not less than twelve inches (12") square.
   C. Submit manufacturer's printed literature on each coating system to be used.

5. EXTRA MATERIALS
   A. Supply 1 gallon of each color; store where directed.
   B. Label each container with color in addition to the manufacturer's label.

6. MANUFACTURERS
   A. Paint and Coating manufactures shall be as scheduled herein and on the drawings.

7. PAINTS AND COATINGS – GENERAL
   A. Paints and Coatings: Ready mixed, except field-catalyzed coatings. Prepare pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
   B. Volatile Organic Compound (VOC) Content:
      1. Provide coatings that comply with the most stringent requirements specified in 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.

8. EXAMINATION
   A. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
   B. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
      1. Wood: 15 percent, measured in accordance with ASTM D 4442.

9. PREPARATION
   A. Surfaces: Correct defects and clean surfaces which affect work of this section.
   B. Marks: Seal with shellac those which may bleed through surface finishes.
   C. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
   D. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair. Gypsum ceiling surfaces in all Public areas are required to have a Level 5 finish surface; do not start painting until surface finish level is verified. Beginning of painting gypsum indicates acceptance of surface.
   E. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
   F. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
   G. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Prime paint entire surface; spot prime after repairs.
   H. Interior Wood Items to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
   I. Interior Wood Items to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
   J. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.
   K. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

10. APPLICATION
   A. Apply products in accordance with manufacturer's instructions.
   B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
   C. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
   D. Sand wood and metal surfaces lightly between coats to achieve required finish.
   E. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
   F. Coverage coats noted herein are minimum requirements. Contractor shall provide additional coats as needed for complete coverage.

11. FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT
   A. Painting mechanical and electrical work is limited to items exposed in occupied spaces unless noted otherwise.
   B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

12. SCHEDULE – SURFACES TO BE FINISHED
   A. Do Not Paint or Finish the Following Items:
      1. Items fully factory-finished unless specifically noted.
      2. Fire rating labels, equipment serial number and capacity labels.
   B. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
      1. Paint all insulated and exposed pipes, conduit, boxes, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment occurring in finished areas, unless otherwise indicated.
      2. Paint shop-primed items occurring in finished areas.
      3. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
      4. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
   C. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

13. Tentative Paint List: Where any particular application is not mentioned in this list, Contractor shall figure on application of manufacturer's specification for application which is consistent with types and qualities listed herein. Colors are indicated on drawings.

Exterior Surfaces

1. Wood – "Painted"
   Sherwin Williams:
   1st Coat: S-W Exterior Latex Wood Primer, B42W8041
   2nd Coat: S-W 0 VOC acrylic Satin B66-660 Series
   3rd Coat: Same as 2nd Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Fresh Start High-Hiding All Purpose Primer 046 (44 g/L)
   2nd Coat: Benjamin Moore Aura Waterborne Exterior Paint Satin Finish 631 (44 g/L).

2. Natural Woods – "Stained"
   Sherwin Williams:
   1st Coat: S-W WoodScapes House Stain Exterior Polyurethane SemiTransparent Stain, A15T5
   2nd Coat: Same as 1st Coat.
   3rd Coat: Marine Varnish, Satin Finish.

3. Ferrous Metals and Exposed Gas Lines
   Sherwin Williams:
   1st Coat: S-W 0 VOC Acrylic Satin, B66-660 Series
   2nd Coat: Same as 1st Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Ultra Spec HP Acrylic Metal Primer HP04 (48 g/L).
   2nd Coat: Benjamin Moore Aura Waterborne Exterior Paint Satin Finish 631 (44 g/L).
   3rd Coat: Same as 2nd Coat.

4. Unit Masonry:
   Sherwin Williams:
   1st Coat: S-W Loxon Concrete & Masonry Interior/Exterior Latex Primer, A24W8300
   2nd Coat: S-W DTM Acrylic Semi-Gloss, B66-200 Series
   3rd Coat: Same as 2nd Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Ultra Spec Hi-Build Masonry Block Filler 571 (45 g/L).
   2nd Coat: Benjamin Moore Aura Waterborne Exterior Paint Satin Finish 631 (44 g/L).
   3rd Coat: Same as 2nd Coat.

5. Prepainted Equipment (Rooftop Equipment, Transformers, Etc.)
   Sherwin Williams:
   1st Coat: S-W DTM Acrylic Semi-Gloss, B66-200 Series
   2nd Coat: Same as 1st Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Coronado Rust Scat WB Acrylic Interior/Exterior Enamel Semi-Gloss 90 (135 g/L).
   2nd Coat: Same as 1st Coat.

6. Pre-primed metal doors and frames
   Sherwin Williams:
   1st Coat: S-W DTM Acrylic Semi-Gloss, B66-200 Series
   2nd Coat: Same as 1st Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Coronado Rust Scat WB Acrylic Interior/Exterior Enamel Semi-Gloss 90 (135 g/L).
   2nd Coat: Same as 1st Coat.

7. Stucco & EIFS
   Sherwin Williams:
   1st Coat: S-W Loxon Concrete & Masonry Interior/Exterior Latex Primer A244W8300
   2nd Coat: S-W ConFlex High Build Coating, A5-400 Series
   3rd Coat: Same as 2nd Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Ultra Spec Masonry Interior/Exterior 100% Acrylic Masonry Sealer 608 (46 g/L).
   2nd Coat: Benjamin Moore Aura Waterborne Exterior Paint Satin Finish 631 (44 g/L).
   3rd Coat: Same as 2nd Coat.

Interior Surfaces

1. Wood Trim – "Painted"
   Sherwin Williams:
   1st Coat: S-W Multi-Purpose Interior/Exterior Latex Primer, B51W8020Series
   2nd Coat: S-W DTM Acrylic, Semi-Gloss, B666-200 Series
   3rd Coat: Same as 2nd Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Fresh Start Multi-Purpose Latex Primer N023 (44 g/L).
   2nd Coat: Benjamin Moore Regal Select Waterborne Interior Semi- Gloss Finish 551 (0 g/L).
   3rd Coat: Same as 2nd Coat.

2. Beams, Joists & Trusses – "Painted"
   Sherwin Williams:
   1st Coat: S-W Multi-Purpose Interior/Exterior Latex Primer, B51W8020 Series
   2nd Coat: VOC Acrylic Satin, B666-660 Series
   3rd Coat: Same as 2nd Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Fresh Start Multi-Purpose Latex Primer N023 (44 g/L).
   2nd Coat: Benjamin Moore Regal Select Waterborne Interior Semi- Gloss Finish 551 (0 g/L).
   3rd Coat: Same as 2nd Coat.

3. Wood – "Stained"
   Sherwin Williams:
   1st Coat: Minwax Pre-Stain Wood Conditioner, 154-8866
   2nd Coat: S-W WoodClassics Oil Stain, A49 Series

4. Wood Trim & Wood Doors – "Stained"
   Sherwin Williams:
   1st Coat: Minwax Pre-Stain Wood Conditioner, 154-8866
   2nd Coat: S-W WoodClassics Oil Stain, A49 Series
   3rd Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68F90 Series, satin

5. Gypsum Wallboard
   Sherwin Williams:
   1st Coat: S-W ProMar 200 Interior Latex Primer, B28W8200
   2nd Coat: S-W ProMar 200 Latex Semi-Gloss, B31W2200 Series
   3rd Coat: Same as 2nd Coat.

   Benjamin Moore:
   1st Coat: Benjamin Moore Fresh Start Multi-Purpose Latex Primer N023 (44 g/L).
   2nd Coat: Benjamin Moore Regal Select Waterborne Interior Semi- Gloss Finish 551, (0 g/L).

6. Ferrous Metal and exposed Gas Lines, Doors, Door Frames
   Sherwin Williams:
   1st Coat: S-W DTM Acrylic Semi-Gloss, B66-200 Series
   2nd Coat: Same as 1st Coat.
   3rd Coat: Same as 1st & 2nd Coat.

   Benjamin Moore:
   1st Coat: Corotech Acrylic Metal Primer V110 (199 g/L).
   2nd Coat: Corotech Acrylic DTM Enamel Semi-Gloss V331 (204 g/L).
   3rd Coat: Same as 2nd Coat.
   * NOTE: Omit 1st Coat on Pre-Framed Metal.

7. At Dissimilar Metals
   Sherwin Williams:
   1st Coat: SW Hi-Mil Sher-Tar Epoxy, B60B40 / B60V40

Division 10 - Specialties

Section 10442 - Architectural Signage

1. DESIGN AND FABRICATION
   A. All patterns for fabrication, regardless of production technique, method, or process specified, shall be approved by the Owner prior to production in order to ensure conformity to design with regard to letter form and height, wording, spelling, capitalization, punctuation, letter spacing, leading and layout or composition.

2. MANUFACTURER
   A. Interior Signage: The drawings were prepared and this specification written on the basis of using the products of Kroy Sign Systems, Scottsdale, Arizona.
   B. Street Address Signage: The drawings were prepared and this specification written on the basis of using the products of WestOn Letters, North Hollywood, CA.
   C. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.

3. GENERAL
   A. Regulatory signage series opaque acrylic, matte finish plaques, with front surface hot stamp graphics, in low profile frame. Configuration shown on drawings to conform with Americans with Disabilities Act requirements.
   B. Provide one sign (unit) for each restroom door opening for public facilities.
   C. Street Address Signage: Lettering to be 6" tall, University Roman Bold, Color: Medium Bronze, inch standoffs. Lettering to be ordered from: http://www.westonletters.com/index_23.php?catID=23&file=HN-Styles.htm

4. INSTALLATION
   A. Installation shall be started at the time established by the General Contractor. However, no sign work shall be permitted in the building before the building is completely enclosed and all painting and work of other trades is finished.
   B. Install signs in accord with approved shop drawings. Install true to line, plumb, level, square, in proper planes with other work and free from objectionable defects. Anchor to adequately resist all normally subjected stresses.

Section 10523 - Fire Extinguishers, Cabinets and Accessories

1. SECTION INCLUDES
   A. Fire extinguishers and cabinets.
   B. Accessories.

2. REFERENCES
   A. NFPA 10 – Standard for Portable Fire Extinguishers; National Fire Protection Association; 2007.
   B. UL (FPED) – Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

3. MANUFACTURERS
   A. Fire Extinguishers, Cabinets and Accessories:
      1. Larsen's Manufacturing Co: www.larsensmfg.com.

4. FIRE EXTINGUISHERS
   A. Fire Extinguishers – General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
      1. Provide extinguishers labeled by Underwriters Laboratories Inc. for the purpose specified and indicated.
   B. Dry Chemical Type Fire Extinguishers: Stainless steel tank, with pressure gage.
      1. Class B:C.
      2. Size 10.
      3. Size and classification as scheduled.
      4. Model: MP10
      5. Bracket: B2
      6. Quantity: 2, locate per local Fire Official direction
   C. Wet Chemical Type
      1. Class K
      2. Size 2.5 Gallon
      3. Model: WC 2 1/2
      4. Bracket: 864
      5. Quantity: 1, locate per local Fire Official direction

5. ACCESSORIES
   A. Cabinets: Larsen's #2409-R2, Vertical Duo Clear, #4 Stainless Steel
   B. Extinguisher Brackets: Formed steel, chrome-plated.

6. INSTALLATION
   A. Install in accordance with manufacturer's instructions.
   B. Secure rigidly in place.

Section 10733 - Canvas Awnings

1. SECTION INCLUDES
   A. Aluminum Framing
   B. Canvas
   C. Fabrication and Installation

2. ENGINEERING DESIGN
   A. Custom design to fit conditions indicated on the plans. Awning materials, assembly and attachments to resist snow, wind, suction and uplift design loads assigned by governing codes.

3. REFERENCE PUBLICATIONS AND STANDARDS
   A. American Society for Testing Materials (ASTM)
   B. American Welding Society (AWS)

4. SHOP DRAWINGS
   A. Submit shop drawings and engineering design loads, sealed by a licensed engineer in this project's state, to Owner for review and acceptance prior to start of fabrication. Show configurations, member sizes, locations of each awning type, and size, location, configuration and method of attachment of members and lateral bracing. Snow, wind, suction and uplift design loads shall be submitted for review and acceptance at time of shop drawing submittal.

5. GUARANTEE
   A. Contractor and awning subcontractor jointly and unconditionally guarantee awnings for a period of one year from date of Final Completion against defective materials and workmanship, and against leaks (except leaks caused by abuse, lightning, hurricane, tornado, hail storm and other unusual climatic phenomena of the elements). During guarantee period, Contractor and subcontractor jointly agree that within 24 hours of receipt of notice from Owner, defects in awnings, within meaning of guarantee, will be immediately repaired and within 5 working days after receipt of notice from the Owner, defective awnings will be restored to the original specifications without cost to Owner, including all labor, materials and other costs incidental to the work.

6. MANUFACTURER
   A. The drawings were prepared and this portion of this specification written on the basis of using the products of specific manufacturers. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.
      1. Raven Mills, Inc., Glen Raven, NC, color as noted on Drawings.

7. BASIC MATERIALS
   A. Canvas:
      1. "Sunbrella", 100 percent acrylic, 9.25 oz., (Sunbrella Firesist Fabric, 100% modacrylic fiber, NFPA 701 where required by code)
      2. Frame: Aluminum
         a. Shapes and Plates: ASTM A36
         b. Tubing: Aluminum [1" x 1" with radiused edge]. Ends of tubes to be closed off with aluminum cap.

8. MISCELLANEOUS MATERIALS
   A. Welding Electrodes: AWS for the condition of use.
   B. Bolts, Nuts and Washers: ASTM A307.

9. SHOP PAINTING
   A. Clean steel of loose mill scale, rust, oil, grease, and other foreign matter after fabrication and before leaving the shop. No primer.

10. FABRICATION
   A. Measurements: Verify measurements and make field measurements before fabrication.
   B. Frames: Shear, punch, or otherwise cut parts without leaving ragged or torn edges. Surfaces and edges to be welded shall be smooth, clean, uniform and free from loose scale, fins, tears, cracks and other defects. Provide holes or other provisions for attachment of other materials as required. Fabricate and assemble parts in shop to greatest extent possible. Assembled pieces shall be taken apart, if necessary, for removal of burrs and shavings. Parts not completely assembled in shop shall be secured by bolts, insofar as practicable, to prevent damage in shipment and handling.
   C. Canvas: Fabricate canvas to size and detail shown on the Drawings. Finally fabricated canvas shall be close fitting to frames with edges bound. Utilize standard lacing flaps, grommets, and screws for attaching to frames.
      1. Thread : Polyester, size 12
      2. Stitching: No less than 6 stitches per inch.
      3. Tie Down Rod: 3/8 inch diameter

11. GENERAL
   A. Provide anchors, supports, braces, connections, bolts, etc. required. Sizes, kinds and spacing of bolts and/or anchors not indicated or specified shall be as directed.

12. STORAGE AND HANDLING
   A. Perform in a manner to prevent bending, warping, twisting or other damage.

13. INSTALLATION
   A. Frames:
      1. Field Assembly: Properly locate frames and secure to connecting work. Locate anchors and anchor bolts accurately. Align and adjust parts accurately before fastening.
      2. Welding: Insofar as is possible weld connections unless shown otherwise on the drawings. Defective or unsound welds or base metal shall be corrected as provided for under AWS D1.0 at no additional cost to the Owner.
      3. Miscellaneous: Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Exposed fastenings shall be compatible materials. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified, shall be included. Where dissimilar metals are in contact, surfaces shall be protected with a coat of bituminous paint to prevent galvanic or corrosive action.
   B. Canvas: Install with nylon laces and screws. Finally installed canvas shall be smooth, free of wrinkles, and close fitting to frames. Laces exposed to weather side of canvas will not be acceptable.

Section 10800 - Toilet Accessories

1. All toilet accessories are furnished and installed by Contractor. Coordinate rough-in, openings and wood blocking.

2. Install fixtures, accessories and items in accordance with manufacturer's instructions, and where affected, at heights or locations for the handicapped as indicated or specified herein.

3. Install true, plumb and level, securely and rigidly anchored to substrate.

4. See Schedule on drawings for accessories.

Division 11 - Equipment

Section 11400 - Food Service Equipment (Installation)

1. SECTION INCLUDES
   A. Installation of Owner provided food service equipment.
   B. Equipment shall be furnished, assembled, and set in place under separate contract, with final utility connection by General Contractor.

2. RELATED SECTIONS
   A. Mechanical and Electrical services and final connections to equipment.

3. OWNER / CONTRACTOR RESPONSIBILITIES
   A. Owner will provide equipment manufacturer's installation instructions for Contractor's use.
   B. Owner will provide equipment manufacturer's operation and maintenance data for Contractor's use.
   C. Coordinate size of access and route to place of installation.
   D. Owner Provided (By Owner):
      1. Equipment scheduled on the drawings.
      2. Mechanical refrigeration systems, including compressor units, condensers, evaporator coils, and control valves.
      3. Motor starters.
      4. Walk-in refrigerator/freezer thermostats.
      5. Stainless steel trim strips, supports and connections, attachment devices, and accessories.
   E. Contractor Provided: Refrigerant System Installation
      1. Refrigerant Lines: Type "L" hard copper tubing.
      2. Fittings: Wrought copper or brass designed for use with high temperature solder.
      3. Piping Joints: Made with silver solder (Sil-Fos).
      4. Piping: Properly suspended from an anchor to the structure with adjustable hangers 6' o.c. maximum.
      5. Suction Lines: Size to have maximum pressure drop of two pounds in medium temperature systems, one pound in low temperature system.
      6. Liquid Lines: Sized to give maximum pressure to prevent trapping of oil. Rigid insulation on all suction lines to be Armaflex insulation by Armstrong – 1" thick at medium temp., 1-1/2" thick at low temp. Refrigerant lines in PVC or EMT conduit to be sealed at both ends with Dow Corning 3-6548 silicone RTV foam.
      7. Evacuation and Charging: After completion of the pressure test, the system shall be evacuated using an approved auxiliary vacuum pump. Connections for evacuations to be in accordance with manufacturer's recommendations.

4. DELIVERY, HANDLING AND STORAGE
   A. Delivery: Upon receiving equipment, check crates/cartons identification labels with receiving P.O.; assure correct item has been received.
   B. Handling: Uncrate equipment in organized manner. Take care not to misplace loose parts, accessories, assembly and operating instructions, and warranty cars. Keep utility hookup notes and tags on equipment until after connections are made. Assemble in workmanship manner in accord with manufacturer's directions, taking care to make sure fasteners are tight and components are aligned and square.
   C. Storage: Store equipment clear of floor in manner to prevent warping, twisting, or sagging.

5. INSTALLATION
   A. Install items in accord with manufacturer's instructions and fabricator's shop drawings. Install in accord with local governing Health, Building, and Safety, and Fire Protection Codes and Regulations and NEMA, UL, AGA, ASME and NFPA.
   B. Electrolysis: Insulate to prevent electrolysis between dissimilar metals. Provide sealant to achieve clean joint without crevices.
   C. Equipment
      1. General: Set in place and position per kitchen equipment plan; ready for utility hook up. After utility hookups are made, level and secure dish tables to slope toward dishwasher. Completely close and seal gaps, joints and seams between fixtures/equipment and walls, ceilings and floors with stainless steel trim strips and/or clear silicone sealant. Do not use sealant in joints or seams over 3/16 inch wide.
      2. Refrigerant Piping: Install copper tubing and fittings. Cut with pipe cutters and reshape with sizing tool. Expose piping to view as required by American Standard Safety Code for Mechanical Refrigeration. For exposed areas or accessible furred ceiling spaces, use hard copper tubing. Run exposed tubing in such manner as to prevent damage from activities in areas; otherwise run tubing in pipe or conduit.
         a. Suction Lines: Size to give max pressure drop from evaporator to machine of 2 lb. For high temp system and 1 lb. For freezer system, allowing gas velocities of not less than 750 rpm in horizontal runs and 1500 rpm in vertical risers. Size liquid lines to give max pressure drop of 3 lbs. from receiver to evaporator.
         b. Tubing Runs: Grade to prevent trapping of oil.
         c. Ties: Secure suction and liquid lines for each system together, except when run through conduit; 24 inch intervals with black plastic electrical tape.
         d. Insulation: Insulate refrigerant suction lines outside of refrigerated compartments back to compressors.
         e. Hangers and Supports: Provide adjustable hangers, anchors or straps required for proper support of piping not run in conduit. Space hangers not to exceed 10 feet o.c. and closer where required for proper support of small piping. Provide insulated refrigerant piping with approved type sleeves at hanger points.
      3. Walk-In Cooler Freezer Boxes: Transit level floor screens prior to wall and ceiling panel erection. Seal wall and/or ceiling penetrations for electrical conduits and refrigeration lines, etc., to prevent frost and condensate build-up. Electrical conduits; on exterior of box.
      4. Oil Separators: Provide low temperature operations of system, return line connected to top of crankcase above oil level. Provide exposed oil return lines with shut-off valves of packless stem type.
      5. Evaporator Coils: Support by hangers utilizing fish plates on top of walk-in unit a full 4 inches clear from underside of ceiling panels.

ARCHITECT:

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03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

MI-2077

DATE	DESCRIPTION
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SHEET TITLE:

SPECIFICATION

SHEET NUMBER:

SP1.4

IDS4 PROJECT NUMBER:

DBQ21015

Division 15 - Mechanical
Section 15100 - General Mechanical Requirements

1. Scope of Work:
   a. The work to be accomplished under this Section of Specifications includes the furnishing of all labor, materials, supervision and equipment for the complete installation of air conditioning, heating, ventilating, plumbing, fire protection together with all the necessary auxiliaries and appurtenances. Generally the work shall consist of, but is not limited to, items listed in the following paragraphs.
   b. Air Conditioning and Heating: Factory built air conditioning and heating units of the single zone roof top and split system units, filters, fans, motors, drives, etc.
   c. Air Distribution System: Sheet metal ductwork, volume dampers, splitter dampers, turning vanes, air control devices, grilles, registers, diffusers, flexible duct, install per SMACNA Standards. Fiberglass duct board is not an acceptable alternative.
   d. Plumbing: Soil, waste and vent piping, domestic hot and cold water distribution, hot water generators, fixtures, grease traps, vents, condensate lines of HVAC and miscellaneous equipment, underfloor or overhead soda, refrigerant line conduit and/or roof leaders.
   e. Miscellaneous Supply and exhaust fans, make-up air units, temperature controls, thermal insulation, apparatus foundations and supports, pipe hangers and supports and all necessary tools, accessories and appliances as required to make all systems complete and operative.

2. Products and Execution:
   a. Electrical Provisions for Mechanical Work: Except for such items as are normally wired up at their point of manufacture and so delivered, and unless specifically noted to the contrary herein, the Electrical Subcontractor will do all electric wiring of every character for power supply. Control wiring shall be furnished and Installed by the Electrical Subcontractor. This Subcontractor shall erect all motors in place ready for connection. Except for such items as are normally supplied with starters installed (HVAC units, dishwashers, etc) at their point of manufacture. All other starters not furnished with equipment to be furnished and installed by Electrical Contractor. The Electrical Subcontractor will mount all such starters, as directed, furnishing supporting structures where necessary. The Owner and other Contractors shall furnish with each item requiring electrical connections, the necessary instructions and wiring diagrams to the Electrical Subcontractor. The Electrical Subcontractor shall refer to the specifications to determine the scope of the work.
   b. Chases and Openings: Various divisions, however, the locations of all inserts and openings shall be determined and coordinated with other divisions in ample time to avoid cutting new construction.
   c. Roof Flashing of Ducts and Curbs: Division 7, however, plumbing vent flashing and counter flashing shall be provided under this Division and per roof manufacturer recommendations.
   d. Openings in Roof Deck: Where piping, ducts, vents or any other mechanical apparatus penetrates roof deck and opening is not specifically shown on structural drawings, obtain Architect's approval of location and size. Have roof deck installer do cutting and pay installer cost of cutting opening.

3. Permits, Fees and Code Regulations:
   a. Permits: Obtain all permits required to do this work and pay any fees required to such permits.
   b. Regulations: Conform to all State and Local Ordinances and Rulings applicable to this work and in effect at the time the work is performed. Approval of various insuring and inspection authorities shall be obtained. When requested, competent evidence of compliance, with applicable codes, shall be furnished.
   c. Conflicts: If a conflict exists between the drawings and/or specifications and any above mentioned authority, the Contractor shall advise the Architect/Engineer in writing five (5) days prior to presenting Proposal or stand any cost required to meet regulations.

4. Structural and Space Condition:
   a. The specifications and accompanying drawings are intended to encompass a system that will not interfere with the structural, electrical and architectural design of the building, and which will fit into the several available spaces. As it is not within the scope of the drawings to show all necessary offsets and obstructions of structural conditions, it shall be the responsibility of the Contractor to install his work in such a manner that it will conform to the structure, avoid obstructions and interferences with other trades, preserve headroom, and keep openings and passageways clear.
   b. Do not run piping or ductwork, or locate equipment (with respect to switchboards, panelboards, power panels, motor control centers or dry type transformers) within 42" in front of equipment, over equipment or within 36" horizontally of same space.

5. Drawings:
   a. The drawings as prepared are diagrammatic but shall be followed as closely as actual construction of the project and the work of the trades will permit. Changes from the drawings necessary to fit the work of various trades, to conform to equipment actually being installed, or to conform to the rules of authorities having jurisdiction shall be made without additional cost to the Owner.

6. As-built Drawings:
   a. Provide and keep up-to-date, a complete record set of blue line prints which shall be corrected daily with dated notations, and shall show every change from the original Contract drawings. This set of prints shall be kept on the job site and shall be used only as a record set.

7. Protection of Materials:
   a. Take such precautions as are necessary to protect all equipment and materials from damage.

8. Workmanship:
   a. Labor shall be performed in a workmanlike manner by mechanics skilled in their particular trades.

9. Materials and Equipment:
   a. All materials shall be new and of the best quality. Where manufacturer's names and model numbers are mentioned in the specifications, it is intended to set a standard of quality and shall not be construed to limit competition unless specifically stated in drawings or to discriminate against "equal" products of other manufacturer. The words "or approved equal" are to follow each material specification where a substitution will be considered. Any proposed substitution must be submitted for comparison and it is understood that the Engineer shall be the sole Judge in the matter.

10. Vibrations and Noise:
   a. Each of the various pieces of equipment shall operate without objectionable vibration or noise. All rotating equipment shall be in static and dynamic balance and shall be mounted, supported and fastened so that no equipment vibration will be transmitted to the building. The specific size of vibration isolation shall be in accordance with manufacturer's recommendation and shall be submitted to the Architect for approval. If, in the opinion of the Architect, objectionable vibration or transmission thereof to the building occurs, the Contractor shall execute remedial measures as may be necessary to eliminate such unsatisfactory operating conditions at the Contractor's expense.

11. Operating Instructions:
   a. Brochures: Written instructions, assembled and bound in brochures, shall be furnished in triplicate for operating and maintaining all equipment furnished under this Division of the Specifications. Instructions shall include all normal adjustments, a list of lubricating points with the type and frequency of lubrication required. Parts lists shall be furnished.
   b. Demonstration: Upon completion and acceptance of work by the Owner, the Contractor shall be provided to instruct the operating personnel in the operation of the entire installation. Two sessions shall be held, one for summer operation and one for winter operation, both in the respective seasons.
   c. Equipment location and Use: Provide, in triplicate, suitably bound operating book containing all equipment, its location, use and description, and building schematics. Submit to Architect for approval before printing in final form.
   d. Contractor shall instruct manager on the programming of all thermostats. This shall be a hands-on explanation. Contactor shall also provide manager with booklet showing programming instructions.

12. Final Inspections:
   a. Schedule: Upon completion of Contract, there shall be a final inspection of the completed installation. Prior to this inspection, all work under this Division shall have been completed, tested, balanced, and adjusted and in final operating condition.
   b. Personnel: A qualified person representing the Contractor must be present at this final inspection to demonstrate the system and prove the performance of the equipment.

13. Cutting and Patching:
   a. Where cutting and patching becomes necessary to permit the installation of any work under this Contract, or should it become necessary to repair any defects that may appear in patching up to the expiration of the guarantee, such cutting shall be done under the supervision of the Owner by the trade of Subcontractor whose work is to be disturbed. After the necessary work has been completed, the trade of Subcontractor whose work has been disturbed shall repair damage. The cost of all cutting and patching shall be paid by the trade of Subcontractor requiring it to be done.

14. Excavations and Backfilling:
   a. Provide necessary excavating and backfilling for the installation of work specified in this Division. Trenches for underground piping and conduits shall be excavated to required depths with bell holes provided as necessary to ensure uniform bearing. Care should be taken to excavate below depth, and any excavation below depth shall be refilled with sand or gravel firmly compacted. Where rock or hard objects are encountered, they shall be excavated to a grade size inches (6") below as specified. After the pipe has been installed, tested and approved, the trenches shall be backfilled to grade with approved material, well-tamped or paddled compactly in place. Do not proceed with backfill operations until piping has been inspected by the Owner or by the local inspector of the municipality in which the work is being performed. Do not perform backfilling operations except in the presence of the Owner or inspector. All piping outside the building shall be installed below the frost line. Where streets, sidewalks, etc. are disturbed, cut or damaged by this work, the expense of repairing same in a manner approved by the Owner shall be of part of this Contract.

15. Guarantee:
   a. The guarantee provision of this specification requires prompt replacement of all defective workmanship and materials occurring within one year of job acceptance. This includes all work required to remove and rep1ace the defective item and to make all necessary adjustments to restore the entire Installation to its original specified operating condition and finish at the time of acceptance.

Section 15400 - Plumbing

1. Scope of Work:
   a. Furnishing of all labor, materials, tools, transportation services, etc. necessary to complete the installation of the plumbing system and as described in these specifications, as illustrated on the accompanying drawings, or as directed by the Architect.
   b. All hot and cold water systems with complete connections from the water meter to all plumbing fixtures and equipment requiring water connections. These systems will be complete with controls, valves, equipment, devices and insulation.
   c. All soil, waste, and vent systems outside and inside the building and sewer connections to Municipal system as indicated on drawings.
   d. Furnish and set plumbing fixtures, including all the required trim and supports.
   e. Trenching, pipe bedding and backfilling.
   f. All rough-in and final connection to equipment in the Back of House and Service areas, if indicated on the drawings, including necessary traps and miscellaneous items as required. Coordinate w/ Jamba Juice and Architect.
   g. Furnish all final plumbing connections to heating and air conditioning equipment, and equipment including condensate drains, indirect waste and gas piping. See "EQ" drawings for requirements.
   h. Before starting work, this contractor shall examine the architectural, structural, mechanical and electrical plans and specifications to sequence, coordinate, and integrate the various elements of the plumbing system, materials, and equipment with other contractors to avoid interferences and confrontations.
   i. Meters and Utility Connections:
      1. Water: Coordinate work with the Landlord and the local water company. Furnish all labor and/or material (not furnished by the water company), which is required to connect to existing line and/or set meter. Install all permanent water supply lines from the point of connection and complete the work as shown, all in accordance with the requirements of the local water utility. Jamba Juice shall pay tap fees. (If required) Plumbing Contractor shall pay all work related inspection fees by authority having jurisdiction.
      2. Sewer Connections: Coordinate work with the Landlord and/or local utility company. All work and materials shall be in strict accordance with the requirements of the local governing authority. Tap fees shall be paid by Jamba Juice (if required). Plumbing Contractor shall pay all work related inspection fees by authority having jurisdiction (if required).
      3. Gas: Coordinate work with local utility and furnish all labor and/or materials (not furnished by utility) which is required to provide a working utility for Jamba Juice, inclusive of meter and/or regulator. Furnish system from tapping point to and in the building as required and shown on drawings. Jamba Juice shall pay tap fees. Plumbing Contractor shall pay all work related inspection fees.
         a. Gas piping to heating, ventilating and air conditioning equipment, and cookline appliances.

2. Shop Drawings:
   a. Within 15 days after award of Contract, and before any plumbing materials are delivered to the job site, submit to Jamba Juice three (3) complete shop drawings in accordance with the provisions of Section 01300 of these specifications, including all plumbing fixtures, trim, drains, cleanouts, piping, valves, insulation, hangers, supports, equipment and devices proposed to be furnished and installed. Shop drawings shall not be reviewed unless they bear the review stamp of the General Contractor.

3. Product Handling:
   a. In the event of damage, immediately make all repairs and replacements necessary to the approval of, and at no additional cost to Jamba Juice.

4. Examination of the Site:
   a. All Contractors submitting proposals for this work shall first examine the site and all conditions, including Local rules and regulations, thereon and /or therein, All proposals shall have taken into consideration all conditions that may affect the work under this Contract. Lack of this information will not be considered as justification for extra cost or allowances to the Contract price.

5. Guarantee:
   a. All work performed under this section shall be guaranteed to be free of defective materials and workmanship for a period of one year after final acceptance of the work by Jamba Juice.
   b. Upon notice received from Jamba Juice, Architect or Engineer, of failure of any part of the guaranteed equipment during the guaranty periods, the Contractor, at no additional cost to Jamba Juice, shall promptly replace the affected part or parts with new parts. All labor required to perform guaranteed shall be included as part of the complete warranty.

6. Products:
   a. Description
      1. Soil, Waste and Vent Piping: See plans for specifications.
      2. Hot and Cold Water Piping: See plans for specifications.
      3. Condensate Drain Piping:
         a. See plans for specifications.
         b. Contractor shall furnish and-install 3/4" or 1" condensate drains on cooler/freezer evaporator coils; with trap assembly and 2" air gap above drain as shown on the drawings. Freezer condensate piping shall be wrapped with heat tape with a minimum rating of 10 watts per lineal foot for its entire length within the freezer compartment.
      4. Direct and Indirect Waste Piping: See plans for specifications.
      5. Gas Piping:
         a. Gas piping including tap and service shall be included. Coordinate meter location with local authority.
         b. Underground gas piping shall be Schedule 40 black steel pipe with long radius steel welding fittings. Protect pipe and fittings with- Trantex wrapping tape applied in accordance with the manufacturer's recommendation. Other type of pipe protection of equivalent quality will be optional with this Contractor. Installation of gas service piping and material shall meet with local gas company's approval.
         c. Gas piping above ground: See plans for specifications.
         d. Gas piping shall supply HVAC units and kitchen equipment if indicated on drawings by this Contractor.
         e. Moisture traps shall be installed on each piping drop for HVAC units, water heater and kitchen equipment.
      6. Insulation
         a. All Water Pipes, Rain Leaders and etc, shall be insulated. Piping shall be insulated to prevent excessive heat loss and to prevent condensation and sweating.
         b. See plans for specifications.
         c. As much of the insulation as possible shall be slipped on to the piping as the piping is being connected in order to avoid cutting the insulation. All butt ends and any necessary longitudinal joints shall be sealed with rubber based adhesive.

7. Fixtures:
   a. Refer to plans for schedules of equipment and fixtures.

8. Flashings:
   a. All piping and vents passing through roof shall be flashed watertight with six pound to the square foot lead using sleeve flashing with base extending at least 12 inches in each direction beyond the outside diaphragm of the pipe. Turn sleeve down a minimum of 1-1/2" into top of vent pipe with lead fitting snugly Inside of pipe. All gas vent caps shall be fitted with lead fitting snugly inside of pipe. All vent caps shall be vandal proof. Verify approved flashing material and methods with roofing contractor to ensure a complete job. See details on architectural sheets.

9. Cleanouts:
   a. See plans for specifications.

10. Equipment:
   a. Water Heater, Furnished and installed by Plumbing Contractor:
      1. Size, capacity, type and manufacturer as indicated by drawings. Water heater(s) shall be gas tankless type.
      2. The water heater shall be provided with all temperature and safety controls including ASME and ANSI Z21.22 rated temperature and pressure relief valve, gas pressure regulator (if required), drain valve, expansion tank, etc.
      3. Plumber shall make water, gas and relief line connections with cutoff valves and dielectric unions in water and gas lines.
   b. Valves, Cocks and Faucets:
      1. Unless specifically indicated elsewhere, the valves shall be designed for not less than 126 lbs. working pressure. The valves shall have suitable valve body patterns for connection to the pipe for which they will operate. All valves with rising stems shall have back seats for packing under pressure.
      2. Cutoff valves underneath lavatories, tank type water closets, sanitary sinks and water coolers shall be chrome plated angle stop valves with soft annealed chrome plated copper connection pipes and chrome plated escutcheon plates.
      3. Gas Cocks for all Equipment: See drawings for requirements.
      4. Water cutoff valve shall be bronze solder joint, 125 lb. WOG with rising stems.
      5. Exterior hose cocks and valve fixtures to be non-freeze type, supply shut-off valves if indicated on plans.
      6. Piping of dissimilar metals must be dielectrically separated.

11. Execution:
   a. Piping:
      1. All piping shall be run concealed except where shown otherwise on drawings.
      2. Valves, traps, cleanouts and other apparatus shall be installed in an inconspicuous location.
      3. Soil, waste and vent offsets and house drains shall be installed with a minimum, uniform grade of 1/4" to the foot, unless otherwise indicated or required by local codes.
      4. Hot and cold water lines shall be at least 6" apart where piping is parallel.
      5. All water lines shall be run overhead and down partition walls unless no wall is provided; then run lines under slab to point of termination. All lines shall be concealed unless noted otherwise on plans.
   b. Hangers and Supports:
      1. Copper piping shall be supported at intervals not to exceed 7'-0" and at each change in horizontal or vertical direction. Hanger attachment to structure shall be as required.
      2. Gas piping shall be supported at intervals not to exceed 8'-0" and at each change in horizonta1 or vertical direction. Attachment to structure to be as required.
      3. Hanger rods shall be standard bolt steel with machine screw threads, 3/8" diameter minimum.
      4. All piping underground shall be firmly bedded on the body of the pipe, and bell holes provided at each bell. All piping shall be installed in graded trench. Excavate, backfill and support piping as herein before specified.
   c. Plumbing Fixtures:
      1. Furnish and install all plumbing fixtures complete with all equipment fittings, trimmings and accessories, as specified.
      2. All fixtures shall be Grade A. The name or trade mark of the manufacturer shall be printed or pressed on all closets and lavatories, and a label, which cannot be removed without destroying it, containing the manufacturer's name or trademark and the quality or class of the fixtures, shall be affixed to oil fixtures and not removed until after the work has been accepted.
      3. Exposed piping to fixtures shall be a product of the fixture manufacturer or approved equal and shall be:
         a. Water: Chromium plated iron pipe size red brass.
         b. Waste: Chromium plated tubing, except waste connections to kitchen or scullery sinks.
      4. Stops as manufactured by the fixture manufacturer, with metal-to-metal seat, shall be provided for all fixtures and equipment. Refer to schedule on drawings for manufacturer's and model numbers used as guide specifications. Numbers ns listed represent the complete workable outfits with all brass trim as necessary.
      5. Fixtures shall be white unless otherwise noted.
      6. Fixtures furnished by this Contractor or by Jamba Juice shall be fitted with necessary water supplies, stops and traps with cleanout plugs under this section of the specifications.
   d. Tests:
      1. The plumbing system and associated system shall be subject to constant inspection and final approval of the code authorities having jurisdiction. Tests, in addition to these included in this section, required to show code compliance, shall be performed as directed.
      2. The soil, waste and vent lines of the sanitary systems shall be subjected to a water pressure test of not less than 10 feet of water head pressure or 54 pounds of air pressure for a duration of not less than 2 hours. During the pressure tests each joint shall be inspected for leaks. The lines shall be tested as an entire system, but all the underground and concealed lines shall be given the above test and approved before the lines are covered.
      3. The domestic water piping system shall be subjected to a water pressure test of not less than 150 PSI for duration of not less than 2 hours. The water piping shall be tested as an entire system, but all underground and concealed lines shall be given the above test and approved before the lines are covered.
      4. The gas system, from the meter connection and throughout the new work, shall be subjected to an air pressure test of not less than 50 PSI for a duration of not less than 4 hours and at the same time each joint and connection shall be tested by applying soap suds to each joint. The gas piping shall be tested as an entire system, but all underground and concealed lines shall be given the above test and approved before being covered. Further, each exposed joint shall be tested with soapsuds after the gas has been admitted into the system.
      5. Should the Contractor refuse or neglect to make any tests necessary to satisfy Jamba Juice, his representative or coding officials, that he has carried out the true intent and meaning of the specifications, Jamba Juice may take such tests and charge the expense thereof to the Contractor.
   e. Cleaning and Protection:
      1. The Contractor shall remove from the job site all debris and leftover materials for which he is responsible, clean all fixtures and equipment and repair any blemishes in the finish. The Contractor shall be held responsible for replacing fixtures where damage results from failure to provide protection during installation.
      2. Flush Out Pipes: After the plumbing piping has been installed, inspected and approved, the piping system shall be flushed to remove any foreign matter from the pipes with chlorine or HTH solution to sanitize the new piping or as required by the local authorities.
   f. Maintenance:
      1. The Contractor, throughout the guarantee period, shall maintain all parts of the plumbing fixtures and associated equipment. One month after final acceptance of the building by Jamba Juice, the Contractor shall go over all the fixtures and test all working parts end put everything in good working order. All fixtures, including traps, shall be thoroughly cleaned and all parts put in good working order.

Section 15550 - Sprinkler System

1. SCOPE OF WORK
   A. Work included under this Section consists of providing labor, materials, appliances, equipment, tools, transportation, superintendence and services required to construct and install a sprinkler system as specified, indicated and elsewhere required.
   B. The sprinkler system specified herein is required to meet the Local Building Code.
   C. Refer to Section 15400, PLUMBING, for piping and check valves.

2. PRODUCTS
   A. HANGERS
      1. Hangers must meet NFPA approved type for construction used.
   B. SPRINKLERS
      1. Sprinklers shall be approved automatic spray sprinklers to comply with NFPA 13. Sprinklers shall be of operating temperature as required by NFPA and the Fire Marshal's Office. Provide approved metal cabinet with number of replacement heads of various types and quantities as required by Insuring Agency.
         a) Front of House with finished ceiling (Customer & Restroom Areas) – chrome finished semi recessed sprinklers with 1/2" discharge orifice and escutcheon trim rings.
         b) Front of House with exposed ceiling (Customer Areas) – brass upright sprinklers with 1/2" discharge orifice.
         c) Back of House (Service Areas) – chrome finished semi recessed sprinklers with 1/2" discharge orifice and escutcheon trim rings.
   C. WATER FLOW INDICATOR
      1. Provide an electric water flow Indicator where indicated and/or required by the authorities having jurisdiction. Water flow indicator shall be provided with time delay mechanism, which absorbs fluctuation caused by water surges. Switches shall be wired compatible with solenoid valve installed in domestic water line.

3. EXECUTION
   A. INSTALLATION
      1. Drawings were prepared with intent that all lines clear obstructions as pipes, beams, lights, hangers and similar items. Examine building and plans confirming dimensions before pipe is cut, fabricated and/or installed, to determine if offsets are necessary. Where required, offsets shall be made without additional cost to Jamba Juice.
      2. Following general scheme shall be employed when locating sprinkler heads unless restricted by Rules and regulating bodies.
      3. Unless otherwise indicated, conceal piping in finished portions of building and expose elsewhere. Locate concealed piping in furrings, pipe spaces, chases and above suspended ceilings. Install exposed piping parallel or perpendicular to walls.
      4. Lines at or above ceilings shall be held as high as possible and be run to avoid conflicts. Include fittings and material required to accomplish this result.
      5. Provide sleeves for piping passing through floors, ceilings and masonry of concrete walls. Locate, set and anchor sleeves.
      6. Provide lintels required to properly complete sprinkler installation.
      7. Provide plates on lines passing through floors, ceiling or walls.
      8. Hangers must be properly spaced and secured to building structure to adequately support lines. Support from suspended ceilings and/or similar construction will not be accepted.
      9. Devices shall be in accordance with Rules and Regulations of NFPA and Insuring Agency and shall bear their label of approval.
      10. Reducing bushings are not permitted in more thon one outlet of any tee or any two outlets of any cross. Bushings are not permitted in any elbows or when the reduction in size of the outlet no less than 1/2".
      11. Install check valve where indicated on plans.
   B. TESTING
      1. Test systems under normal operating conditions and demonstrate that parts are functioning properly. Conduct tests and secure final certificates of approval. Deliver copies of Certificates to Architect/Engineer & Landlord.
      2. Test shall include but not be limited to the following:
         a) Two hour, 200 pound hydrostatic test aboveground system.
         b) Include cost and run such tests as may be necessary to demonstrate that equipment equals or exceeds capacities specified upon request.
         c) Notify Architect/Engineer twenty-four hours before testing.

Section 15700 - Heating, Ventilating and Air Conditioning

1. Work Included:
   A. Heating, ventilating and air conditioning work required, including hoisting of equipment to the specified locations and setting it in place, includes, but not necessarily limited to:
      1. Package heating, ventilating and air conditioning units.
      2. Split system heating, ventilating and air conditioning units.
      3. All HVAC ducts, dampers, grills, registers and diffusers.
      4. Insulation of ducts and piping.
      5. Installation of exhaust fans and gravity vents
      6. HVAC controls and remote temperature sensors.
   B. Gas Connections (if required see drawings): Plumbing Contractor will bring Gas to heating, ventilating and air conditioning and final tie-in to HVAC by Plumbing Contractor.

2. Intent of Drawings:
   A. The drawings are diagrammatic to the extent that they do not indicate offsets, bends, special fittings and exact locations.
   B. Piping, ductwork, apparatus and equipment shall be installed to avoid obstructions, preserve headroom, keep openings and passageways clear, and make all operating equipment accessible for maintenance.
   C. Governing Codes and Standards:
      1. Install all work in accordance with the rules and regulations of the Standards of Safety, adopted and approved by the Insurance Underwriters and the latest standards recognized by ASHRAE and SMACNA and in accordance with local code.
      2. In case of conflict between said codes and the drawings, the codes shall govern in all cases; however, notify Jamba Juice, before making such change.

3. Examinations of Drawings and Site:
   A. Before commencing the work, the Contractor shall carefully study the drawings, specifications and site. He shall definitely determine in advance the methods of installing and connecting the apparatus, the means for getting the equipment into place, and shall make himself similar with all of the requirements of the Contract. Equipment shall physically fit the area allocated with ample access for service.
   B. The Contractor shall refer any discrepancies to the Architect for decision before proceeding with the work

4. Submittals:
   A. Materials List: The Contractor shall submit, at his expense, three (3) copies of equipment brochures in index form within fifteen (15) days after contract is signed. All equipment and material submittals shall be submitted at one time. The drawings submitted shall bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor and comply with the requirements of the Contract drawings and specifications.

5. Guarantee:
   A. Furnish written certified guarantee, in acceptable form, to the Jamba Juice, against defective workmanship, materials, and operating equipment; further, guarantee to rebalance and adjust entire system or any part thereof, as required for perfect operation for a period of at least one (1) year after acceptance, including cost of refrigerant charge. Repair, replace and make satisfactorily operative any and all defective items and, work holding Jamba Juice free from any cost and liability in connection therewith for the term of guarantee. The manufacturer shall provide a warranty on his unit compressors for a period of five (5) years.

6. Coordination of Other Trades:
   A. The work under this section shall be coordinated with other trades to maintain a rapid and smooth construction progress with a minimum of interference.

7. Painting:
   A. Apply one (1) coat of Zinc Chromate, or Rustoleum to bare metal surfaces of supports, etc. color to match unit's color or as directed by Architect or Jamba Juice.

8. Clean-up:
   A. All equipment and exposed surfaces shall be left smooth and clean. All plate work shall be polished and the entire premises shall be cleaned of unused materials, rubbish, and debris and grease spots.

9. Products:
   A. General
      1. All Equipment shall be the capacity and type shown on the Equipment Schedule on the drawings and shall as manufactured by one of the manufacturers designated on that schedule or shall be an equal approved in advance by the Architect.
   B. Sheetmetal Work
      1. Sheetmetal: Prime steel sheets, hot dipped galvanized of the following gauges:
         (a) Up to 12" wide or diameter, #26
         (b) 13" to 30" wide or diameter, #24
         (c) 31" to 60" wide or diameter, #22
         (d) Partitions forming plenum or suction chambers, #18 gauge with 1-1/2" x 1-1/2" x 3/16" galvanized iron angle and rivets for seam connection and stiffening.
         (e) Exposed round duct shall be spiral type similar to Semco "SS" 75 Dual wall round pipe with 1" insulation, perforated liner with all required fittings. Pipe shall be 24-26 ga.
      2. Duct Construction:
         (a) Longitudinal Joints: Pittsburgh corner seams or snap lock.
         (b) Transverse Joints: Government locks riveted at corners, constructed of metal one gauge heavier than that jointing duct sections. Ducts under 20" may be jointed with transverse capstrips.
         (c) Supports: Except as otherwise specified, all duct hangers shall be constructed of 3/4" No. 16 galvanized strap, spacing not to exceed eight foot intervals. Where duct hangers exceed six feet in length, provide adequate sway bracing. All vertical ducts shall be supported on angle iron brackets.
         (d) Elbows: Made for an easy flow of air for minimum friction, inside radius equal to width of duct. Provide elbows with approved duct turns where indicated on plans or where space does not permit required radius.
         (e) Flexible Connection: At all fans, connections shall be Neoprene coated glass fiber cloth ends which are to be turned into abutting ends of sheetmetal or angle iron frames so as to form a gasket to form an air tight joint.
      3. Workmanship and construction shall meet and exceed the standards as set forth by SMACNA
   C. Grilles, Registers and Diffusers:
      1. Sizes: As indicated on drawings.
      2. Supply diffusers: As indicated on drawings.
      3. Return Air Registers: As indicated on drawings.
   D. Duct Insulation:
      1. Insulate all supply and return air ducts with foil-faced blanket, see plans for additional Information. (Not required for Spiral, Round duct).
      2. Maximum 25 flame spread 50 smoke developed.

11. Execution:
   A. Installation of Equipment:
      1. General:
         (a) Install all equipment where indicated on the approved Contract drawings.
         (b) Avoid interference with structure and the work of other trades: do not cut into load carrying members without the specific approval of the Architect.
         (c) Temperature control system shall be as shown on the drawings.
   B. Acceptance:
      1. The system shall not be considered for acceptance until the Mechanical Subcontractor has completed work and demonstrated to the representative of the Jamba Juice, proper operation of the system and strict compliance with the specifications, particularly in reference to the following articles of these specifications,
         (a) Testing
         (b) Cleaning
         (c) Instructions and Operating Manuals
         (d) Training of Operating Personnel
         (e) As-Built Drawings
         (f) Guarantee Certificates
         (g) Start up and Test Document
         (h) Independent Air Balance Report
   C. Air Conditioning Unit Start-up and Test:
      1. All air conditioning equipment shall be started and checked by the manufacturer's factory service personnel. The manufacturer shall correct any problems arising with the equipment. The manufacturer shall provide a checklist or report on the operation of the equipment, which shall be forwarded to the Architect.
   D. Guarantee:
      1. The guarantee provision of this specification requires prompt replacement of all defective workmanship and materials occurring within one year of job acceptance. This includes all work required to remove and replace the defective item and to make all necessary adjustments to restore the entire installation to its original specified operating condition and finish at the time of acceptance.

12. Testing, Adjusting and Balancing:
   A. The testing, adjusting and balancing of the air conditioning system will be performed by an independent technical firm employed directly by the General Contractor and shall not be part of the Mechanical Contractor's scope of work. The Air Conditioning Contractor shall provide and coordinate the services of qualified responsible mechanics and other personnel as required to correct, repair or replace all deficient items or conditions found during the testing and balancing period.

Division 16 - Electrical
Section 16050 - Basic Methods and Requirements

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section.
   B. Furnish and install all electrical wiring, systems, equipment and accessories in accordance with the specifications and drawings. Capacities and ratings of motors, cable, panelboards, etc., and arrangement for specified items in general are shown on drawings.
   C. All ampacities herein specified or indicated on the drawings are based on copper conductors, with the conduit and raceways accordingly sized. Aluminum conductors are not permitted.

2. MINIMUM REQUIREMENTS
   A. References to the National Electrical Code (NEC), Underwriters Laboratories, Inc. (UL), and National Fire Protection Association (NFPA) are a minimum installation requirement standard. Design drawings and other specification sections shall govern in those instances where requirements are greater than those specified in NEC.
   B. The rules and regulations of the Federal, State, local, civil authorities and utility companies in force at the time of execution of the contract shall become a part of this specification. In addition, the following codes and standards shall apply:
      1. National Electrical Code – 2017.
      2. 2012 AR Fire Prevention Code Volume 1 with Appendices B, C, D, E, F, G, K and the 2012 Revisions.
      3. Local Codes and Ordinances
   C. No work shall be done unless the Superintendent of the Contractor is on the job site. Work shall be properly protected, all rubbish removed promptly, and exposed work shall be carefully cleaned prior to final acceptance.
   D. The term "provide" shall include labor, materials, and equipment necessary to furnish and install, complete and operable, the item or system indicated.
   E. In decisions arising from discrepancies, interpretation of Drawings and Specifications, substitutes, and other pertinent matters, the decision of the Owner's representative's approval shall be final.

3. SPECIFICATIONS AND DRAWINGS
   A. Plans show location of fixtures and equipment and are intended to depict the general intent of the work in scope, layout and quality of workmanship. They are not intended to show in minute detail every or all accessories intended for the purpose of executing the work, but it is understood that such details are a part of this work.
   B. Where Drawings and Specifications conflict, it shall be the responsibility of this Contractor to bring such conflict to the attention of the Architect/Engineer for clarification. In general, the Architectural Drawings shall take precedence over the Mechanical Drawings with reference to building construction. All changes from the Drawings necessary to make the work conform with the building as constructed and to fit the work of other trades or to conform to the rules of authorities having jurisdiction, shall be made by the Contractor at his own expense.
   C. Keep a record of the locations of concealed work and of any field changes in Contract Drawings and Specifications for each trade and, upon completion of the job, supply "As-Built" Drawings and Specifications showing in pencil on sepia reproducibles, any deviations from the original Drawings, indicating in the Specifications each manufacturer's name underlined or inserted whose product was used on the job. These Drawings shall indicate dimensions of buried utility lines from building walls, One set of sepia reproducibles of the original tracings will be furnished upon request for this purpose.

4. STANDARDS
   A. All material and equipment shall be listed, labeled or certified by Underwriters Laboratories, Inc., where such standards have been established. Equipment and material which are not covered by UL Standards will be accepted provided equipment and material is listed, labeled, certified or otherwise determined to meet safety requirements of a nationally recognized testing laboratory. Equipment of a class which no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards, such as NEMA, or ANSI. Evidence of compliance shall include certified test reports and definitive shop drawings.
   B. Definitions:
      1. Listed: Equipment is "listed" if of a kind mentioned in a list which:
         a. Is published by a nationally recognized laboratory which makes periodic inspection of production of such equipment.
         b. States that such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner.
      2. Labeled: Equipment is labeled if:
         a. It embodies a valid label, symbol, or other identifying mark of a nationally recognized testing laboratory such as Underwriters Laboratories, Inc.
         b. The laboratory makes periodic inspections of the production of such equipment.
         c. The labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner.
      3. Certified: Equipment is "certified" if:
         a. Equipment has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be safe for use in a specified manner.
         b. Production is periodically inspected by a nationally recognized testing laboratory.
         c. It bears a label, tag, or other record of certification.
      4. Nationally recognized Testing Laboratory: A testing laboratory which is approved, in accordance with OSHA regulations, by the Secretary of Labor.

5. QUALIFICATIONS (PRODUCTS AND SERVICES)
   A. Manufacturers Qualifications: The manufacturer shall regularly and presently produce, as one of the manufacturer's principal products, the equipment and material specified for this project, and shall have manufactured the item for at least five years, unless otherwise noted elsewhere in the specifications or on the drawings.
   B. Product Qualification:
      1. Manufacturer's product shall have been in satisfactory operation on three installations of similar size and type, as this project, for approximately three years.
      2. The Owner reserves the right to require the contractor to submit a list of installations where the products have been in operation before approval of said products.
   C. Service Qualifications: There shall be a permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within four hours of receipt of notification that service is needed. Submit name and address of service organizations.

6. MANUFACTURED PRODUCTS
   A. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, for which replacement parts should be available. Items not meeting this requirement, but which otherwise meet technical specifications, and merits of which can be established through reliable test reports or physical examination of representative samples, will be considered.
   B. When more than one unit of the same class of equipment is required, such units shall be the product of a single manufacturer.
   C. Equipment Assemblies and Components:
      1. All components of an assembled unit need not be products of the same manufacturer, however, the assembled unit shall be the responsibility of a single manufacturer and warranted as such.
      2. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.
      3. Components shall be compatible with each other and with the total assembly for the intended service.
      4. Constituent parts which are similar shall be the product of a single manufacturer.
   D. All factory wiring shall be identified on the equipment being furnished and on all wiring diagrams.

7. EQUIPMENT REQUIREMENTS
   A. Equipment voltage ratings shall be in accordance with the requirements indicated on the drawings or as specified.
   B. Prior to bid, written approval shall be obtained by the Contractor for any equipment that differs from those specified on the drawings and specifications. The Contractor shall be prepared to submit samples of the equipment when requested at no cost to the Architect/Engineer.
      1. The Contractor shall furnish drawings showing all installation details, shop drawings, technical data and other pertinent information as required to determine that the equipment is equivalent in quality and function to the equipment specified.
      2. Approval by the Architect/Engineer of the equal equipment does not relieve the Contractor of the responsibility of furnishing and installing the equipment at no additional cost to the Owner.
      3. Any other items required for the satisfactory installation of the equal equipment shall be furnished and installed at no additional cost to the Owner. This includes but shall not be limited to additions or changes to branch circuits, circuit protective devices, conduits, wire, feeders, controls, panels and correlation with other work, subject to the jurisdiction and approval of the Architect/Engineer.
   C. Catalogue numbers, where given, are intended to give a basis for design, quality and function. Any other incidental equipment needed for a complete and functional installation shall be provided at no additional cost.
   D. EQUIPMENT PROTECTION: Equipment and material shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain.
   E. During installation, equipment, controls, controllers, circuit protective devices, etc., shall be protected against entry of foreign matter; and be vacuum cleaned both inside and outside before testing, operating and painting.
   F. Damaged equipment shall be, as determined by the Architect/Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.
   G. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.
   H. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

8. WORK PERFORMANCE
   A. Arrange, phase and perform work to assure electrical service for other buildings at all times.
   B. New work shall be installed and connected to existing work neatly and carefully. Disturbed or damaged work shall be replaced or repaired to its prior conditions.
   C. Coordinate location of equipment and conduit with other trades to minimize interferences.
   D. Obtain and pay for all required installation inspections and deliver certificates approving installations to the Owner unless directed otherwise.

9. EQUIPMENT INSTALLATION AND REQUIREMENTS
   A. Equipment location shall be as close as practical to locations shown on the drawings. Where architectural features govern location of work, refer to architectural drawings.
   B. Working spaces shall not be less than specified in the National Electrical Code for all voltages specified.
   C. Inaccessible Equipment:
      1. Where the Owner/Architect/Engineer determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled as directed at no additional cost to the Owner.
      2. "Conveniently accessibility" is defined as being capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping, and duct work.
   D. Equipment and Material:
      1. New equipment and material shall be installed, unless otherwise specified.
      2. Equipment and material shall be designed to assure satisfactory operation and operating life for environmental conditions where being installed, NEC and other code requirements shall apply to the installation in areas requiring special protection such as explosion-proof, watertight and weatherproof construction.
   E. Utility Services:
      1. Determine utility connection requirements and include in the base bid all costs to the Owner for utility service.
      2. Include all costs for temporary service, temporary routing of service or any other requirements of a temporary nature associated with the utility service.
   F. Continuity of Service:
      1. No service shall be interrupted or changed without permission from the Architect and the Owner. Written permission shall be obtained before any work is started.
      2. When interruption of services is required, all persons concerned shall be notified and a prearranged time agreed upon.
   G. Concrete Work:
      1. Provide all cast-in-place concrete shown on the documents unless noted otherwise. Concrete work shall conform to all applicable Division 2 and 3 specification sections.
      2. Provide all anchor bolts, metal shapes and templates required to be cast in concrete or used to form concrete for support of electrical equipment.

10. EQUIPMENT IDENTIFICATION
   A. In addition to the requirements of the National Electrical Code, install an identification nameplate which will clearly indicate information required for use and maintenance of items such as switchboard, panelboards, cabinets, safety switches, separately enclosed circuit breakers, motor starters, communications systems cabinets, control devices and other significant equipment.
   B. Nameplates shall be laminated white phenolic resin with a black core with engraved lettering, a minimum of 3/16-inch high. Nameplates that are furnished by manufacturer as a standard catalog item, or where other method of identification is herein specified, are exceptions. Hand written marker is not acceptable.

11. SHOP AND ERECTION DRAWINGS AND SAMPLES
   A. The Architect/Engineer's approval shall be obtained for all equipment and material before delivery to the job site. Delivery, storage or installation of equipment or material which has not had prior approval will not be permitted at the job site. Submittals shall be made for all equipment and systems as indicated in the respective specification section.
   B. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and other data necessary for the Architect/Engineer to ascertain that the proposed equipment and materials comply with specification and drawing requirements. Catalog cuts submitted for approval shall be legible and clearly identify equipment being submitted.
   C. Shop and erection drawing submittals shall conform to the requirements of the General Conditions and Division-1 specifications except as modified herein.
   D. Submit required and/or requested shop and erection drawings, for review by Architect/Engineer before ordering or installing any equipment or material. Equipment or material ordered or installed before Architect/Engineer review may not be accepted and may have to be removed from the project if deemed unacceptable.
   E. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature which shall clearly indicate the construction, material, physical dimensions, wiring diagrams and complete operating data clearly marked for each item. Data of general nature will not be accepted.
   F. Shop drawings on paper larger than 11"x17" shall be submitted in the form of one set of reproducibles (vellum) and one set of blueprints. The blueprints will be retained by the engineer and the reproducibles will be returned to the contractor. All drawings are to be submitted no later than 60 days after the contract has been awarded.
      1. Coordination drawings shall show major elements, components, and systems of mechanical equipment and materials in relationship with other building components. Prepare drawings to an accurate scale of 1/4"=1'-0" or larger. Indicate the locations of all equipment and materials, including clearances for installing and maintaining insulation, servicing and maintaining equipment, valve stem movement, and similar requirements. Indicate movement and positioning of large equipment into the building during construction.
   G. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval. Submittals shall be submitted for all applicable products and materials specified in each individual section of these specifications.
   H. Make submittals for the equipment and materials in accordance with the following:
      1. Mark the submittals, "SUBMITTED UNDER SECTION_________".
      2. Submittals shall be marked to show specification reference including the section and paragraph numbers.
      3. The submittals shall include the following:
         a. Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, pictures, nameplate data and test reports as required. Provide any additional information specifically requested in the individual specification section or on the drawings.
         b. Elementary and interconnection wiring diagrams for fire alarm, sound system, TV system and other communication systems and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams.
         c. Parts list which shall include those replacement parts recommended by the equipment manufacturer, quantity of parts, current price and availability of each part.
   I. Shop drawings on paper 11"X17" or smaller in size shall be submitted in tabbed and indexed three ring binder. The binder shall not exceed 11-5/8" height. Partial submittals are unacceptable. The index shall indicate the related specification section number.
   J. A Fee will be charged for Engineering review of drawings received after the time allotted as described in "D" above or for plans that have been rejected two or more times due to non-compliance or incompleteness. The fee will be determined by the Architect/Engineer and will accompany the re-submittal in the form of a cashiers check or money order made payable to the Engineer.
   K. The General Contractor will certify that all mechanical shop drawings are in conformance with the plans and specifications. Deviations from the plans and specifications shall be noted, and the specific area of the deviation clouded and in contrasting color (green) with a complete explanation for the reasons for the deviation. Any redesign of the system shall be Certified by a Professional Engineer currently registered in the State of Florida, and will be accompanied by the fees as described in "F" above.
   L. Carefully examine all shop drawings and mark-up as necessary before submitting to the Architect/Engineer for review. The consultant will only consider shop drawings bearing the contractor's stamp of approval.
   M. The engineer's review shall not relieve the contractor from the responsibility for deviations from drawings and specifications. The engineer's review shall be construed to apply only to general arrangement and shall not relieve the contractor from the responsibility for the correctness of details and dimensions and provision of the correct equipment.
   N. The contractor shall retain copies of all reviewed shop drawings on the job site for reference.
   O. In addition to the requirement of SUBMITTALS, the Owner reserves the right to request the manufacturer to arrange for the Owner's representative(s) to see typical active systems in operation, when there has been no prior experience with the manufacturer or the type of equipment being submitted.

12. CUTTING, PATCHING, EXCAVATION, BACKFILL, AND LAYOUT
   A. Provide openings and excavation required for the installation of the electrical work. Patch work and backfill as required. Finished work shall match the existing adjoining work.
   B. Verify all conditions affecting the work to be performed under this contract.
   C. Carefully verify measurements at the site, determine the exact location of chases and openings required. Provide sleeves, inserts, and hangers as required. No columns, beams, joists, building foundations nor any other structural building component shall be cut, drilled or disturbed in any way. Conflicts shall immediately be brought to the attention of the Architect/Engineer.
   D. All excavation on sites containing existing buildings and existing services, shall be done with hand shovel to avoid damage to existing services. Where hand shovel is not practical extreme caution shall be taken when performing excavation. The contractor will be resposible for locating any existing utilities. Any damage incurred by the Contractor shall be repaired by the Contractor in a manner approved by the Architect/Engineer at no cost to the Owner and with no extension of time limitation.

13. EXPERIENCE
   A. The Contractor performing this work shall be a licensed, reputable firm, regularly performing the type of work incorporated in this project and who also maintains, as part of the firm, a service department with qualified personnel who regularly perform this type of work. The Contractor shall, upon request, show evidence of at least three jobs of similar character and size installed within the preceding two years.

14. ELECTRICAL WORK FOR MECHANICAL SYSTEMS
   A. Factory installed starters, controllers, and control equipment mounted in manufactured mechanical equipment necessary for mechanical equipment operation shall be furnished under Division 15 Mechanical.
   B. Power wiring for motors and installation of starters shall be under Division 16 Electrical.
   C. Temperature, humidity, pressure and similar controls essential to the operation of mechanical systems, and wiring and conduit thereof, including interlock wiring, shall be under Division 15 of Specifications, installed in accordance with requirements of Division 16.
   D. Motors shall be furnished under Division 15 Mechanical of capacity required to operate equipment specified, but shall not be less than that specified.
   E. All low voltage (120V and under) temperature control wiring for Division 15 equipment shall be provided under by Division 15, installed in accordance with requirements of Division 16.
   F. Division 15 shall provide conduit when required for control wiring, installed in accordance with Division 16 requirements.

15. MOTORS
   A. All motors shall be furnished and installed under Division 15 Mechanical and shall be wired under Division 16 Electrical.

16. REMOVAL OF RUBBISH
   A. Contractor shall keep premises free from accumulations of waste material or rubbish caused by his employees or work. At completion of work, he shall remove all his tools, scaffolding, surplus materials, and rubbish from building and site. He shall leave premises and his work in a clean orderly condition acceptable to the Architect/Engineer.

17. QUIET OPERATION AND VIBRATION
   A. All equipment provided under this section shall operate under all conditions of load free of objectionable sound and vibration. Sound and vibration conditions considered objectionable shall be corrected in an approved manner.
   B. Vibration and sound control shall be by means of approved vibration eliminators or sound attenuators in a manner as specified and as recommended by the manufacturer.

18. CLEANING AND ADJUSTMENTS
   A. Upon completion of the work, Contractor shall clean and re-lamp all light fixtures, clean and identify all equipment, adjust and test all equipment and apparatus which he has installed and make certain such apparatus and mechanisms are in proper working order and ready to test.
   B. During construction protect all conduit and equipment from damage and dirt. Cap the open ends of all conduit and equipment.

19. STORAGE OF MATERIALS
   A. All materials stored on site shall be properly protected from injury or deterioration. Materials shall not be stored in contact with ground or floor.
   B. Do not remove manufacturer's packing materials until ready to install. Materials showing signs of corrosion, improper handling or storage shall be replaced at no cost to the Owner.
   C. Provide continuous protection for all equipment already installed.

20. WATERPROOFING
   A. Where any work pierces waterproofing including waterproof concrete, the method of installation shall be as approved by the Owner before the work is done.
   B. Provide all necessary sleeves, caulking and flashing required to make openings absolutely watertight. Waterproof flashing materials shall be compatible with base materials.

21. TESTS
   A. Contractor shall make all tests required to establish the adequacy, quality, safety, completed status and satisfactory operation of all systems to the satisfaction of the Architect/Engineer. Provide all instruments, labor and services necessary to conduct tests.

22. INSTRUCTIONS
   A. Fully instruct Owner's personnel in the care and operation of electrical systems, including all communications, sound and fire alarm systems and furnish a letter to the Architect/Engineer advising the particular person(s) who have received such instruction.

23. GUARANTEE
   A. Equipment shall be started, tested, adjusted, and placed in satisfactory operating condition. Furnish a letter addressed to the Architect/Engineer advising that the completed systems have been installed in accordance with the Plans and Specifications and that they are in proper operating condition. The Owner shall receive a written guarantee covering all defects in workmanship and material for a period of one year from date of final acceptance. Any defects appearing within this year period shall be repaired without additional cost to the Owner.

24. ACCEPTANCE
   A. Before requesting final inspection:
      1. Complete all work required. If any items are held in abeyance as incomplete for final inspection, list such items together with explanation for delay.
      2. Submit statement that equipment is properly installed, adjusted, tested and operation is satisfactory.
      3. Certify in writing to the Architect/Engineer that the Owner's representative has been instructed as to the care and operation of the system and that catalog service and maintenance information has been turned over to the Architect/Engineer.
      4. Submit copy of written guarantee.
      5. Submit copy of other data as may be outlined in these specifications.
   B. Copies of the above data shall be submitted to the Architect/Engineer prior to requesting final inspection.

25. SINGULAR NUMBER
   A. Where any device or part of equipment is referred to in these specifications in the singular number (such as "the switch"), such reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.

ARCHITECT:

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972.248.9899

FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT
est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

SPECIFICATION

SHEET NUMBER:

SP1.5

IDS4 PROJECT NUMBER:

DBQ21015

Section 16110 - Raceways

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-16 section making reference to electrical raceways specified herein.

2. DESCRIPTION OF WORK
   A. Extent of raceway work is indicated by drawings and schedules. Types of raceways specified in this section include the following:
      1. Electrical metallic tubing (EMT).
      2. Liquid tight flexible metal conduit.
      3. Rigid metal conduit.
      4. Flexible metal conduit.
      5. Rigid non-metallic conduit.

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of raceway systems of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
   B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical raceway work similar to that required for this project.
   C. Codes and Standards:
      1. NEMA Compliance: Comply with applicable requirements of NEMA Standards Publications pertaining to raceways.
      2. UL Compliance and Labeling: Comply with applicable requirements of UL safety standards pertaining to electrical raceway systems. Provide raceway products and components which have been UL-listed and labeled.
      3. NEC Compliance: Comply with applicable requirements of NEC pertaining to construction and installation of raceway systems.

4. SUBMITTALS
   A. Product Data: Submit manufacturer's technical product data, including specifications and installation instructions, for each type of raceway system required. Include data substantiating that materials comply with requirements.

5. METAL CONDUIT AND TUBING
   A. General: Provide metal conduit, tubing, and fittings of types, grades, sizes, and weights (wall thicknesses) for each service indicated.
   B. Rigid Steel Conduit: Provide rigid steel, zinc-coated, threaded type conforming to FS WW-C-581, ANSI C80.1 and UL 6.
   C. Rigid Metal Conduit Fittings: Cast malleable iron, galvanized or cadmium plated, conforming to FS W-F-408, ANSI C80.4.
      1. Use compression type fittings for connections.
      2. Use compression type fittings for other miscellaneous connections.
   D. Electrical Metallic Tubing (EMT): FS WW-C-563, ANSI C80.3 and UL 797.
   E. EMT Fittings: FS W-F-408, ANSI C80.4. Die cast or malleable iron.
      1. Use compression fittings for raintight connections.
      2. Use compression type for concrete type connections.
      3. Use compression type fittings for miscellaneous connections.
   F. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit; construct of single strip, flexible, continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coat with liquid-tight jacket of flexible polyvinyl chloride (PVC). Shall be Sealtite or equal.
   G. Liquid-Tight Flexible Metal Conduit Fittings: FS W-F-406, Type 1, Class 3, Style G. Provide cadmium plated, malleable iron fittings with compression type steel ferrule and neoprene gasket sealing rings, with insulated, or non-insulated throat.
   H. Flexible Metal Conduit: FS WW-C-566 and UL 1. Formed from continuous length of spiral wound, interlocked zinc-coated strip steel.
   I. Flexible Metal Conduit Fittings: Provide conduit fittings for use with flexible steel conduit of threadless hinged clamp type.
      1. Straight Terminal Connectors: One piece body, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
      2. 45o or 90o Terminal Angle Connectors: Two-piece body construction with removable upper section, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.

6. NONMETALLIC CONDUIT
   A. General: Provide nonmetallic conduit, ducts, and fittings of types, sizes, and weights for each service indicated. Where types and grades are not indicated, provide proper selection determined by Installer to fulfill wiring requirements which comply with provisions of NEC for raceways.
   B. Electrical Plastic Conduit:
      1. Heavy Wall Conduit: Schedule 40, 90 C, UL-rated, construct of polyvinyl chloride and conforming to NEMA TC-2, for direct burial, or normal above ground use, UL-listed and in conformity with NEC Article 347, ANSI C33.91.
   C. PVC Conduit and Tubing Fittings: NEMA TC 3, mate and match to conduit or tubing type and material.

7. MANUFACTURERS
   A. Subject to compliance with requirements, provide conduit bodies of one of the following:
      Appleton Electric; Div of Emerson Electric Co.
      Arrow-Hart Div; Crouse-Hinds Co.
      Bell Electric Div; Square D Co.
      Gould, Inc.
      Killark Electric Mfg. Co.
      O-Z/Gedney Div; General Signal Co.
      Spring City Electrical Mfg. Co., or equivalent.

8. INSPECTION
   A. Examine areas and conditions under which raceways are to be installed, and substrate which will support raceways. Notify Contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

9. INSTALLATION OF RACEWAYS
   A. General: Install raceways as indicated; in accordance with manufacturer's written installation instructions, and in compliance with NEC, and NECA's "Standards of Installation". Install units plumb and level, and maintain manufacturer's recommended clearances.
   B. Coordinate with other work including wires/cables, boxes, and panel work, as necessary to interface installation of electrical raceways and components with other work.

10. INSTALLATION OF CONDUITS
   A. General: Install concealed conduits in new construction work, either in walls, slabs, or above hung ceilings. Run conduits concealed in existing work where practical or specifically indicated on the drawings.
      1. Mechanically fasten together metal conduits, enclosures, and raceways for conductors to form continuous electrical conductor. Connect to electrical boxes, fittings, and cabinets to provide electrical continuity and firm mechanical assembly.
      2. Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat surfaces with corrosion inhibiting compound before assembling.
      3. Install miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split couplings, and plugs that have been specifically designed and manufactured for their particular application. Install expansion fittings in raceways every 200' linear run or wherever structural expansion joints are crossed.
   B. Conduit Installation: Follow minimum requirements in all areas as follows:
      1. Use rigid steel galvanized conduit in service splines, where exposed to weather or subject to saturation with liquids, or subject to possible physical damage from vehicles or heavy machinery.
      2. Use steel EMT above hung ceilings in offices, corridors, toilets, and lab areas, and in spaces with exposed ceilings.
      3. Use rigid steel conduit or PVC heavy wall (Schedule 40) when raceways run below grade, under floors on grade or in concrete. All bends and elbows greater than 45 degrees shall be galvanized rigid steel conduit or schedule 80 pvc. All risers to cabinets and boxes when conduit is to be exposed shall be rigid steel conduit.
      4. Conduit in walls to recessed panels and boxes shall be in accordance with NEC. PVC up to first point of termination with 4'-0" maximum in wall and EMT above 4'-0".
      5. Use flexible conduit in movable partitions and from outlet boxes to lighting fixtures, and final 24" of connection to motors, control items or any equipment subject to movement or vibration, and in cells of precast concrete panels.
      6. Use liquid-tight flexible conduit where subjected to one or more of the following conditions:
         a. Exterior location.
         b. Moist or humid atmosphere where condensate can be expected to accumulate.
         c. Corrosive atmosphere.
         d. Subjected to water spray or dripping oil, water, or grease, including kitchen areas.
      7. Use hot-dipped galvanized conduit where conduit is routed outdoors or in anyway exposed to weather.
      8. Electrical contractor will be responsible for the following for all underground conduits:
         a. Trenching and Excavation
         b. Backfill
         c. Compaction
      9. MC cable may be used only where approved for use by the owner, approved by the local authority having jurisdiction and approved by the Engineer. Where used, MC cable shall be concealed and supported in accordance with NEC.
   C. Cut conduits straight, properly ream, and cut threads for heavy wall conduit deep and clean.
   D. Field bend conduit with benders designed for purpose so as not to distort nor vary internal diameter.
   E. Minimum conduit size shall be 1/2" unless noted otherwise. Homeruns shall be a minimum 3/4".
   F. Fasten conduit terminations in sheet metal enclosures by two (2) locknuts, and terminate with bushings. Install locknuts inside and out side enclosure.
   G. Conduits are not to cross pipe shafts, or ventilating duct openings.
   H. Keep conduits a minimum distance of 6" from parallel runs of flues, hot water pipes or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.
   I. Use of running threads at conduit joints and terminations is prohibited. Where required, use 3-piece union or split coupling.
   J. Complete installation of electrical raceways before starting installation of cables/wires within raceways.
   K. Install conduits so as not to damage or run through structural members. Avoid horizontal or cross runs in building partitions or side walls.
   L. Exposed Conduits:
      1. In no case shall conduit be exposed to view in areas accessible to the public nor in any kitchen or other food services areas. The contractor shall be responsible for obtaining written approval for all and any exposed conduit routing prior to installation. Any non-approved exposed conduit will be subject to removal and re-routing by the contractor at no additional expense to the owner. The contractor shall be responsible for coordinating all conduit installation with structural members, sprinkler piping, ductwork, lighting, etc.
      2. Install any approved exposed conduits and extensions from concealed conduit systems neatly, parallel with, or at right angles to walls of building.
      3. Install exposed conduit work as not to interfere with ceiling inserts, lights or ventilation ducts or outlets.
      4. Support all conduits by use of hangers, clamps, or clips. Support conduits on each side of bends and on spacing not to exceed following: up to 1": 6'-0"; 1-1/4" and over: 8'-0". All conduits shall be adequately supported to prevent any noticable deflection, vibration or rattle.
   M. Conduit Fittings:
      1. Construct locknuts for securing conduit to metal enclosure with sharp edge for digging into metal, and ridged outside circumference for proper fastening.
      2. Bushings for terminating conduits smaller than 1- 1/4" are to have flared bottom and ribbed sides, with smooth upper edges to prevent injury to cable insulation.
      3. Install insulated type bushings for terminating conduits 1-1/4" and larger. Bushings are to have flared bottom and ribbed sides. Upper edge to have phenolic insulating ring molded into bushing.
      4. All bushings of standard or insulated type to have screw type grounding terminal.
      5. Miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split couplings, and plugs to be specifically designed for their particular application.
   N. Concealed Conduits:
      1. Metallic raceways installed underground or in floors below grade, or outside are to have conduit threads painted with corrosion inhibiting compound before couplings are assembled. Draw up coupling and conduit sufficiently tight to ensure watertightness.
      2. Conduit in concrete slabs: Separate conduits by not less than diameter of largest conduit to ensure proper concrete bond. Conduits must have a minimum of three-quarter inch (3/4") concrete cover.
      3. Embedded conduit diameter is not to exceed one-third (1/3) of slab thickness. Conduit shall not be run in slabs less than 3 inches thick.
   O. Underground Duct Banks and Underground Conduits: All underground conduits shall be installed per the National Electrical Code, in accordance with standard industry practices and in accordance with other sections of these specifications. Conduits in duct banks shall be neatly and securely installed in straight lines with manufactured elbows used for all turns and bends. Provide all required trenching, excavation, backfill, compaction, supports, manholes, etc. for a complete installation. Trenching, excavation, backfill and compaction shall be performed in accordance with applicable Division 2 and Division 3 sections of these specifications.
   P. Low Voltage Control:
      1. Mechanical contractor (Division 15) to provide and install all necessary wire and raceway (EMT conduit) for low voltage control such as thermostats, timers etc., unless specifically shown otherwise on the drawings. Raceways shall be installed in accordance with Division 16 sections. Final wire connections shall be by mechanical contractor.

11. INSTALLATION OF RACEWAYS AND WIREWAYS
   A. General: Mechanically assemble metal enclosures, and raceways for conductors to form continuous electrical conductor, and connect to electrical boxes, fittings and cabinets as to provide effective electrical continuity and rigid mechanical assembly.
      1. Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat all surfaces with corrosion inhibiting compound before assembling.
      2. Install expansion fittings in all raceways wherever structural expansion joints are crossed.
      3. Make changes in direction of raceway run with proper fittings, supplied by raceway manufacturer. No field bends of raceway sections will be permitted.
      4. Properly support and anchor raceways for their en tire length by structural materials. Raceways are not to span any space unsupported. Supporting conduits from ceiling grid, other conduits, ductwork or other non-structural members will not be permitted.
      5. Use boxes as supplied by raceway manufacturer wherever junction, pull or devices boxes are required. Standard electrical "handy" boxes, etc. shall not be permitted for use with surface raceway installations.

12. COMMUNICATIONS SYSTEMS RACEWAY
   A. Communications systems raceways shall be provided for each telephone, data, security, sound, ITV, and fire alarm outlet or device indicated on the drawings. Conduit shall be as indicated on the drawings and as required for each system.

Section 16120 - Wires and Cables

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-15 and -16 section making reference to electrical wires and cables specified herein.

2. DESCRIPTION OF WORK
   A. Extent of electrical wire and cable work is indicated by drawings and schedules.
   B. Types of electrical wire, cable, and connectors specified in this section include the following:
      1. Copper conductors.
      2. Fixture wires.
      3. Flexible cords and cables.
      4. Wirenut connectors.
   C. Applications of electrical wire, cable, and connectors required for project are as follows:
      1. For motor-branch circuits.
      2. For power distribution circuits
      3. For lighting circuits
      4. For appliance and equipment circuits

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of electrical wire and cable products of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
   B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing electrical wiring and cabling work similar to that required for this project.
   C. NEC Compliance: Comply with NEC requirements as applicable to construction, installation and color coding of electrical wires and cables.
   D. UL Compliance: Comply with applicable requirements of UL Std 83, "Thermoplastic-Insulated Wires and Cables", and Std 486A, "Wire Connectors and Soldering Lugs for Use with Copper Conductors".
   E. UL Compliance: Provide wiring/cabling and connector products which are UL-listed and labeled.
   F. NEMA/ICEA Compliance: Comply with NEMA/ICEA Std Pub/ No.'s WC 5, "Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy", and WC-30, "Color Coding of Wires and Cables", pertaining to electrical power type wires and cables.
   G. IEEE Compliance: Comply with applicable requirements of IEEE Stds 82, "Test Procedures for Impulse Voltage Tests on Insulated Conductors", and Std 241, "IEEE Recommended Practice for Electric Power Systems in Commercial Buildings" pertaining to wiring systems.
   H. ASTM Compliance: Comply with applicable requirements of ASTM B1, 2, 3, 8, and D-753. Provide copper conductors with conductivity of not less than 98% at 20oC (68oF).

4. AVAILABLE MANUFACTURERS
   A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
      1. Wire and Cable:
         a. American Wire and Cable Co.
         b. Anaconda-Ericsson Inc; Wire and Cable Div.
         c. Belden Div; Cooper Industries
      2. Connectors:
         a. AMP, Inc.
         b. Appleton Electric Co.
         c. Burndy Corporation
         d. Thomas and Betts Corp.

5. WIRES, CABLES, AND CONNECTORS
   A. General: Provide electrical wires, cables, and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, for a complete installation, and for application indicated. Except as otherwise indicated, provide copper conductors with conductivity of not less than 98% at 20oC (68oF).
   B. Building Wires: Provide factory-fabricated wires of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper wire selection as determined by Installer to comply with project's installation requirements, NEC and NEMA standards. Select from the following UL types, those wires with construction features which fulfill project requirements:
      1. Type THW, THHN, THWN, THHW, THHN/THWN: Unless otherwise indicated, all conductors for dry locations requiring a conductor temperature rating 75oC (167oF) or less. Insulation shall be flame retardant, moisture and heat resistant, thermoplastic. Conductor shall be annealed copper.
      2. Type THWN, THHW, THHN/THWN: Unless otherwise indicated, all conductors for wet or dry locations requiring a conductor temperature rating of 75oC (167oF) or less. Insulation shall be flame retardant, moisture and heat resistant thermoplastic. Conductor shall be annealed copper.
      3. Type THHN, THHW: Unless otherwise indicated, all conductors for dry locations requiring a conductor temperature rating of 90oC (194oF) or less. Insulation shall be flame retardant, moisture and heat resistant thermoplastic. Conductor shall be annealed copper.
      4. Conductors for use at 600 volts or below shall be 600 volt rated. Wire No. 12 and smaller may be solid or stranded and wire No. 10 and larger shall be stranded only. Stranded conductors shall terminate in crimp type lugs.
      5. Motor circuit branch wiring and associated control wiring: Provide type THHN insulation in dry and damp locations. Provide type THHW insulation in wet locations. All motor wiring to be stranded copper.
      6. Wiring in fluorescent fixture channels: Provide conductors with a 90C temperature rating, type THHN or TFFN insulation.
   C. Cables: Provide UL-type factory-fabricated cables of sizes, ampacity ratings, and materials and jacketing/sheathing as indicated for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements, NEC and NEMA standards.
   D. Connectors:
      1. General: Provide UL-type factory-fabricated, metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with project's installation requirements, NEC and NEMA standards. Select from the following, those types, classes, kinds, and styles of connectors to fulfill project requirements:
         a. Type: Pressure.
         b. Class: Insulated.
         c. Kind: Copper (for Cu to Cu connection).
         d. Style: Butt connection.
         e. Style: Elbow connection.
         f. Style: Combined "T" and straight connection.
         g. Style: "T" connection.
         h. Style: Split-bolt parallel connection.
         i. Style: Tap connection.
         j. Style: Pigtail connection.
         k. Style: Wirenut connection.
      2. All connectors shall be rated 75c.

6. INSTALLATION OF WIRES AND CABLES
   A. General: Install electrical cables, wires, and wiring connectors as indicated, in compliance with applicable requirements of NEC, NEMA, UL, and NECA's "Standard of Installation", and in accordance with recognized industry practices.
   B. Coordinate wire/cable installation work including electrical raceway and equipment installation work, as necessary to properly interface installation of wires/cables with other work.
   C. Pull conductors simultaneously where more than one conductor is being installed in the same raceway.
   D. Use pulling compound or lubricant, where necessary; compound used must not deteriorate conductor or insulation.
   E. Use pulling means including, fish tape, cable, rope and basket weave or wire/cable grips which will not damage cables or raceway. Any cable damaged during installation shall be completely replaced.
   F. Keep conductor splices to minimum. No joints shall be made in conductor except at outlet boxes or splice boxes. Newly installed conductors shall not be spliced unless specifically noted on the drawings.
   G. Install splices and tapes which possess equivalent-or-better mechanical strength and insulation ratings than conductors being spliced.
   H. Use splice and tap connectors which are compatible with conductor material.
   I. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A and B.
   J. At least eight inches (8") of slack wire shall be left in every outlet box whether it be in use, or left for future use.
   K. Color code wiring as follows:
      1. 120/208 volt, 3 phase, 4 wire: phase A-black, phase B-red, phase C-blue, neutral-white; ground conductor-green.
   L. Wire and cable boxes and reels shall bear the date of manufacture and must not bear dates by more than one year preceeding contract date.
   M. Minimum conductor sizes, except as specifically identified on the drawings, shall be as follows:
      1. No. 12 - Branch circuits of any kind, except as specified otherwise below.
      2. No. 14 - Signal systems, fire alarm system, unless specifically noted otherwise.
      3. No. 10 - Exit light circuits, emergency circuits, security lighting, security systems circuits and exterior light circuits.

7. FIELD QUALITY CONTROL
   A. Prior to energization, test wires and cables for electrical continuity and for short-circuits.

Section 16135 - Electrical Boxes and Fittings

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is a part of each Division-16 section making reference to electrical wiring boxes and fittings specified herein.

2. DESCRIPTION OF WORK
   A. Extent of electrical box and associated fitting work is indicated by drawings and schedules.
   B. Types of electrical boxes and fittings specified in this section include the following:
      1. Outlet boxes
      2. Junction boxes
      3. Pull boxes
      4. Floor boxes
      5. Bushings
      6. Locknuts
      7. Knockout closures
      8. Manholes and handholes

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of electrical boxes and fittings, of types, sizes, and capacities required, whose products have been in satisfactory use in similar service for not less than 3 years.
   B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects utilizing electrical boxes and fittings similar to those required for this project.
   C. NEC Compliance: Comply with NEC as applicable to construction and installation of electrical wiring boxes and fittings.
   D. UL Compliance: Comply with applicable requirements UL 50, UL 514-Series, and UL 886 pertaining to electrical boxes and fittings. Provide electrical boxes and fittings which are UL-listed and labeled.
   E. NEMA Compliance: Comply with applicable requirements of NEMA Stds/Pub No.'s OS1, OS2, and Pub 250 pertaining to outlet and device boxes, covers, and box supports.

4. FABRICATED MATERIALS
   A. Outlet Boxes: Provide galvanized coated flat rolled sheet-steel outlet wiring boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct outlet boxes with mounting holes, and with cable and conduit-size knockout openings in bottom and sides. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding.
      1. Outlet Box Accessories: Provide outlet box accessories as required for each installation, including box supports, mounting ears and brackets, wallboard hangers, box extension rings, fixture studs, cableclamps and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used to fulfill installation requirements for individual wiring situations. Choice of accessories is Installer's code-compliance option.
   B. Device Boxes: Provide galvanized coated flat rolled sheet-steel non-gangable device boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct device boxes for flush mounting with mounting holes, and with cable-size knockout openings in bottom and ends, and with threaded screw holes in end plates for fastening devices. Provide cable clamps and corrosion-resistant screws for fastening cable clamps, and for equipment type grounding.
      1. Device Box Accessories: Provide device box accessories as required for each installation, including mounting brackets, device box extensions, switch box supports, plaster ears, and plaster board expandable grip fasteners, which are compatible with device boxes being utilized to fulfill installation requirements for individual wiring situations. Choice of accessories is Installer's code-compliance option.
   C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering outlet boxes which may be incorporated in the work include, but are not limited to, the following:
      1. Appleton Electric;
      2. Bell Electric;
      3. Eagle Electric Mfg. Co.; Inc.
      4. Midland-Ross Corp.
      5. OZ/Gedney; General Signal Co.
      6. Pass and Seymour, Inc.
      7. RACO Div.; Harvey Hubbell Inc.
      8. Thomas & Betts Co.
   D. Raintight Outlet Boxes: Provide corrosion-resistant cast-metal raintight outlet wiring boxes, of types, shapes and sizes, including depth of boxes, with threaded conduit holes for fastening electrical conduit, cast-metal face plates with spring hinged watertight caps suitably configured for each application, including face plate gaskets and corrosion-resistant plugs and fasteners.
   E. Available Manufacturers: Subject to compliance with requirements, manufacturers offering raintight outlet boxes which may be incorporated in the work include, but are not limited to, the following:
      1. Appleton Electric;
      2. Crouse-Hinds Co.
      3. Bell Electric;
      4. Harvey Hubbell, Inc.
      5. OZ/Gedney; General Signal Co.
      6. RACO Div.
   F. Junction and Pull Boxes: Provide galvanized code-gage sheet steel junction and pull boxes; with screw-on covers; of types, shapes and sizes, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws, and washers.
   G. Available Manufacturers: Subject to compliance with requirements, manufacturers offering junction and pull boxes which may be incorporated in the work include, but are not limited to, the following:
      1. Appleton Electric; Emerson Electric Co.
      2. Arrow-Hart Div.; Crouse-Hinds Co.
      3. Bell Electric; Square D Company
      4. OZ/Gedney; General Signal Co.
      5. Spring City Electrical Mfg. Co.
   H. Available Manufacturers: Subject to compliance with requirements, manufacturers offering floor boxes which may be incorporated in the work include, but are not limited to, the following:
      1. Arrow-Hart Div.; Crouse-Hinds Co.
      2. Harvey Hubbell, Inc.
      3. Midland-Ross Corp.
      4. Spring City Electrical Mfg. Co.
   I. Bushings, Knockout Closures, and Locknuts: Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connections, of types and sizes, to suit respective installation requirements and applications.
   J. Available Manufacturers: Subject to compliance with requirements, manufacturers offering bushings, knockout closures, locknuts, and connectors which may be incorporated in the work include, but are not limited to, the following:
      1. Arrow-Hart Div.; Crouse-Hinds Co.
      2. Appleton Electric Co.; Emerson Electric Co.
      3. Bell Electric; Square D Co.
      4. Midland-Ross Corp.
      5. OZ/Gedney Co.; General Signal Co.
   K. Manholes and Handholes: Manholes and handholes for exterior use shall be pre-cast concrete with steel traffic rated covers, as manufactured by Brooks or equal. Manholes and handholes shall be the size necessary for the number of conduits and conductors indicated on the drawings which will enter the enclosure, plus the necessary capacity for the spare conduits and the associated estimated conductor fill. Provide manholes with the appropriate drainage and knockouts for conduits and other necessary access. Traffic covers shall be engraved with the appropriate identification, such as "ELECTRIC".

5. INSTALLATION OF ELECTRICAL BOXES AND FITTINGS
   A. General: Install electrical boxes and fittings as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
   B. Coordinate installation of electrical boxes and fittings with wire/cable, wiring devices, and raceway installation work.
   C. Provide weathertight boxes and fittings for interior and exterior locations exposed to weather or moisture.
   D. Provide knockout closures to cap unused knockout holes where blanks have been removed.
   E. Install electrical boxes in those locations which ensure ready accessibility to enclosed electrical wiring.
   F. Avoid installing boxes back-to-back in walls. Provide not less than 24" (600 mm) separation.
   G. Position recessed outlet boxes accurately to allow for surface finish thickness.
   H. Fasten electrical boxes firmly and rigidly to substrates, or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry.
   I. Each circuit in pull box shall be marked with a tag guide denoting panels which they connect to.
   J. Manholes and handholes shall be installed for all underground conduit installations. The minimum number of manholes and handholes shall be as indicated on the drawings. The contractor shall provide any additional handholes or manholes necessary for ease of installation, code compliance or due to voluntary or required re-routing of the underground conduits at no additional cost to the Owner.

Section 16142 - Electrical Connections for Equipment

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-15 and 16 section making reference to electrical connections for equipment specified herein.

2. DESCRIPTION OF WORK
   A. Extent of electrical connections for equipment is indicated by drawings and schedules. Electrical connections are hereby defined to include connections used for providing electrical power to equipment.
   B. Applications of electrical power connections specified in this section include the following:
      1. From electrical source to motor starters.
      2. From motor starters to motors.
      3. To lighting fixtures.
      4. To grounds including earthing connections.
      5. To equipment of communication, CCTV and alarm systems.
   C. Electrical connections for equipment, not furnished as integral part of equipment, are specified in Division-15 and other Division-16 sections, and are work of this section.
   D. Motor starters and controllers, not furnished as integral part of equipment, are specified in applicable Division-16 sections, and are work of this section.
   E. Refer to Division-15 specification sections and drawings for motor starters and controllers furnished integrally with equipment; not work of this section. Connections to this equipment is work of this section.
   F. Junction boxes and disconnect switches required for connecting motors and other electrical units of equipment are specified in applicable Division-16 sections, and are work of this section.
   G. Raceways and wires/cables required for connecting motors and other electrical units of equipment are specified in applicable Division-16 sections, and are work of this section.
   H. Refer to other Division-16 and Division-15 sections for low voltage control system wiring; not work of this section.

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of electrical connectors and terminals, of types and ratings required, and ancillary connection materials, including electrical insulating tape, soldering fluxes, and cable ties, whose products have been in satisfactory use in similar service for not less than 5 years.
   B. Installer's Qualifications: Firm with at least 2 years of successful installation experience with projects utilizing electrical connections for equipment similar to that required for this project.
   C. NEC Compliance: Comply with applicable requirements of NEC as to type products used and installation of electrical power connections (terminals and splices), for junction boxes, motor starters, and disconnect switches.
   D. IEEE Compliance: Comply with Std 241, "IEEE Recommended Practice for Electric Power Systems in Commercial Buildings" pertaining to connections and terminations.
   E. ANSI Compliance: Comply with applicable requirements of ANSI/NEMA and ANSI/EIA standards pertaining to products and installation of electrical connections for equipment.
   F. UL Compliance: Comply with UL Std 486A, "Wire Connectors and Soldering Lugs for Use with Copper Conductors", including, but not limited to, tightening of electrical connectors to torque values indicated. Provide electrical connection products and materials which are UL-listed and labeled.
   G. ETL Compliance: Provide electrical connection products and materials which are ETL-listed and labeled.

4. ACCEPTABLE MANUFACTURERS
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
      1. AMP Incorporated
      2. Appleton Electric Co.
      3. Arrow-Hart Div., Crouse-Hinds Co.
      4. Burndy Corporation
      5. General Electric Co.
      6. Gould, Inc.
      7. Harvey Hubbell Inc.
      8. Square D Company
      9. Thomas and Betts Corp.

5. MATERIALS AND COMPONENTS
   A. General: For each electrical connection indicated, provide complete assembly of materials, including but not necessarily limited to, pressure connectors, terminals (lugs), electrical insulating tape, electrical solder, electricdl soldering flux, heat-shrinkable insulating tubing, cable ties, solderless wirenuts, and other items and accessories as needed to complete splices and terminations of types indicated.
   B. Metal Conduit, Tubing, and Fittings:
      1. General: Provide metal conduit, tubing, and fit tings of types, grades, sizes, and weights (wall thicknesses) indicated for each type service. Where types and grades are not indicated, provide proper selection as determined by Installer to fulfill wiring requirements and comply with NEC requirements for raceways. Provide products complying with Division-16 basic electrical materials and methods section, "Raceways", and in accordance with the following listing of metal conduit, tubing, and fittings:
         a. Rigid steel conduit.
         b. Rigid metal conduit fittings.
         c. Electrical metallic tubing.
         d. EMT fittings.
         e. Liquid-tight flexible metal conduit.
         f. Liquid-tight flexible metal conduit fittings.
         g. Flexible metal conduit.
         h. Flexible metal conduit fittings.
   C. Wires, Cables, and Connectors:
      1. General: Provide wires, cables, and connectors complying with Division-16 basic electrical materials and methods section "Wires and Cables".
      2. Wires/Cables: Unless otherwise indicated, provide wires/cables (conductors) for electrical connections which match, including sizes and ratings, of wires/cables which are supplying electrical power. Provide copper conductors with conductivity of not less than 98% at 20oC (68oF).
      3. Connectors and Terminals: Provide electrical con nectors and terminals which mate and match, including sizes and ratings, with equipment terminals and are recommended by equipment manufacturer for intended applications.

6. INSPECTION
   A. Inspect area and conditions under which electrical connections for equipment are to be installed and notify Contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

7. INSTALLATION OF ELECTRICAL CONNECTIONS
   A. Install electrical connections as indicated; in accordance with equipment manufacturer's written instructions and with recognized industry practices, and complying with applicable requirements of UL, NEC, and NECA's "Standard of Installation", to ensure that products fulfill requirements.
   B. Coordinate with other work, including wires/cables, raceway and equipment installation, as necessary to properly interface installation of electrical connections for equipment with other work.
   C. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams. Mate and match conductors of electrical connections for proper interface between electrical power supplies and installed equipment.
   D. Provide the following electrical work as work of this section, complying with requirements of Division 15 sections:
      1. Power supply wiring from power source to power connection on chiller, fans, air handling units, pumps, duct heaters, water heaters, air compressor, air dryer, and unit control panels. Include starters, disconnects, time clocks, receptacles and required electrical devices, except where specified as furnished, or factory-installed, by manufacturer. Make all final electrical connections.
   E. Maintain existing electrical service and feeders to occupied areas and operational facilities, unless otherwise indicated, or when authorized otherwise in writing by Owner, or Architect/Engineer. Provide temporary service during interruptions to existing facilities. When necessary, schedule momentary outages for replacing existing wiring systems with new wiring systems. When that "cutting-over" has been successfully accomplished, remove, relocate, or abandon existing wiring as indicated.
   F. Cover splices with electrical insulating material equivalent to, or of greater insulation resistivity rating, than electrical insulation rating of those conductors being spliced. No new conductors shall be spliced unless specifically noted on the drawings.
   G. Prepare cables and wires, by cutting and stripping covering armor, jacket, and insulation properly to ensure uniform and neat appearance where cables and wires are terminated. Exercise care to avoid cutting through tapes which will remain on conductors. Also avoid "ringing" copper conductors while skinning wire.
   H. Trim cables and wires as short as practicable and arrange routing to facilitate inspection, testing, and maintenance.
   I. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturers published torque tightening values for equipment connectors. Accomplish tightening by utilizing proper torquing tools, including torque screwdriver, beam-type torque wrench, and ratchet wrench with adjustable torque settings. Where manufacturer's torquing requirements are not available, tighten connectors and terminals to comply with torquing values contained in UL's 486A.
   J. Provide flexible conduit for motor connections, and other electrical equipment connections, where subject to movement and vibration.
   K. Provide liquid-tight flexible conduit for connection of motors and other electrical equipment where subject to movement and vibration, and also where connections are subjected to one or more of the following conditions:
      1. Exterior location.
      2. Moist or humid atmosphere where condensate can be expected to accumulate.
      3. Corrosive atmosphere.
      4. Water spray.
      5. Dripping oil, grease, or water, including kitchen areas.

8. FIELD QUALITY CONTROL
   A. Upon completion of installation of electrical connections, and after circuitry has been energized with rated power source, test connections to demonstrate capability and compliance with requirements. Ensure that direction of rotation of each motor fulfills requirement. Correct malfunctioning units at site, then retest to demonstrate compliance.

Section 16143 - Wiring Devices

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-16 section making reference to wiring devices specified herein.

2. DESCRIPTION OF WORK
   A. The extent of wiring device work is indicated by drawings and schedules. Wiring devices are defined as single discrete units of electrical distribution systems which are intended to carry but not utilize electric energy.
   B. Types of electrical wiring devices in this section include the following:
      1. Receptacles, including surge suppression type if applicable.
      2. Ground-fault circuit interrupters
      3. Switches
      4. Wallplates
      5. Plugs and connectors
      6. Time Switches / Time Clocks

3. QUALITY ASSURANCE
   A. Installer's Qualifications: Firm with at least 2 years of successful installation experience on projects utilizing wiring devices similar to those required for this project.
   B. NEC Compliance: Comply with NEC as applicable to installation and wiring of electrical wiring devices.
   C. UL Compliance: Comply with applicable requirements of UL 20, 486A, 498, and 943 pertaining to installation of wiring devices. Provide wiring devices which are UL-listed and labeled.
   D. IEEE Compliance: Comply with applicable requirements of IEEE Std 241, "Recommended Practice for Electric Power Systems in Comercial Buildings", pertaining to electrical wiring systems.
   E. NEMA Compliance: Comply with applicable portions of NEMA Stds Pub/No. WD 1, "General-Purpose Wiring Devices", WD 2, "Semiconductor Dimmers for Incandescent Lamps", and WD 5, "Specific,-Purpose Wiring Devices".
   F. FS Compliance: Comply FS W-C-596 (Series) and FS W-S-896 (Series) pertaining to electrical power connectors and toggle switches.

4. SUBMITTALS
   A. Product Data: Submit manufacturer's data on electrical wiring devices.

5. ACCEPTABLE MANUFACTURERS
   A. Manufacturers: Subject to compliance with requirements, provide wiring devices of one of the following (for each type and rating of wiring device):
      1. Hubbell
      2. Arrow-Hart Div.
      3. General Electric Co.
      4. Eagle Electric Co.
      5. Leviton
      6. Pass - Seymour
      7. Time Switches: Tork, Intermatic or Paragon

6. FABRICATED WIRING DEVICES
   A. General: Provide factory-fabricated wiring devices, in types, colors, and electrical ratings for applications indicated and which comply with NEMA Stds Pub/No. WD 1. Provide bone color devices and bone colored nylon, impact resistant coverplates, except as other wise indicated; color selection shall be verified prior to ordering by Contractor with Architect/Engineer.
   B. Receptacles:
      1. Heavy-Duty Duplex: Provide specification grade duplex receptacles, 2-pole, 3-wire, grounding, 20-amperes, 125-volts, with metal plaster ears, design for side and back wiring with spring loaded, screw activated pressure plate, with NEMA configuration 5-20R unless otherwise indicated. Hubbell or equal. 15 amp rated receptacles may be used on circuits with two or more receptacles in accordance with NEC.
      2. Ground-Fault Interrupters: Provide "feed-thru" type ground-fault circuit interrupters, with heavy-duty duplex receptacles, capable of protecting connecting downstream receptacles on single circuit, and of being installed in a 2-3/4" deep outlet box without adapter, grounding type UL-rated Class A, Group 1, rated 20 amperes, 120-volts, 60 Hz; with solid-state ground-fault sensing and indication; with 5 milliamperes ground-fault trip level; equip with NEMA configuration 5-20R. Device must have a positive trip identification and reset. Provide bone color device.
      3. Special Receptacles: Special configuration receptacles shall be standard NEMA plug configuration as specified on the drawings or as required. Provide heavy duty, specification grade receptacles, with black nylon face and brushed satin stainless steel cover plate.
      4. Combination USB Heavy-Duty Duplex Charger Device: Provide specification grade, tamper-resistant duplex receptacle with tow high powered USB Ports with 3.6A of charging power and two 20A/125V Tamper-Resistant Receptacles with plaster ear, designed for side and back wiring with spring loaded, screw avtivated pressure plate, with NEMA configuration 5-20R unless otherwise indicated. Hubbell or equal. 15 amp rated receptacles may be used on circuits with two or more receptacles in accordance with NEC
   C. Switches:
      1. Snap: Provide general-duty flush single-pole, quiet type toggle switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, switch handle, and side-wired screw terminals.
      2. 2-way: Provide general-duty flush double-pole AC quiet switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, switch handles, side-wired screw terminals, with break-off tab features, which allows wiring with separate or common feed.
      3. Three-way: Provide general-duty flush 3-way AC quiet type switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, lock type switch handles, sidewired screw terminals, with break-off tab features, which allows wiring with separate or common feed.
      4. Four-way: Provide general-duty flush 4-way AC quiet switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechgnism, equip with plaster ears, switch handles, side-wired screw terminals, with break-off tab features, which allows wiring with separate or common feed.
      5. Touch Snap: Provide soft-touch snap switches, cap able of effortless-fingertip operation; single-pole AC quiet, with lighted rocker switch handles; sidewired screw terminals for connecting copper-clad aluminum wire, 20-amperes, 120-277 volts rating. Equip with plaster ears.
      6. Switches to be bone color with bone colored nylon, impact resistant coverplate.
   D. Combination Devices: Provide general-duty 3-way quiet switch, 20-amperes, 120-277 volts AC, with toggle switch handle, and 3-wire grounding receptacle, 20 amperes, 120-volts, equip with plaster ears, and with break-off tab feature which allows wiring with separate or common feed, with NEMA configuration 5-20R.
   E. Incandescent Lamp Dimmers: Provide branch lighting solid-state AC dimmer controls for incandescent fixtures; wattage as indicated.
   F. Time Switches, Time Clocks: Unless otherwise specifically noted on the drawings provide electro-mechanical 24 hour dial type time switch with day omitting capability and 24 hour reserve timing motor. Provide with a positive manual on-off switch, voltage as required or specified on the drawings, minimum 40 amps per pole, minimum double pole, double throw. Provide additional poles as required or specified on the drawings. Time switches shall be Tork or equal by Intermatic or Paragon.

7. WIRING DEVICE ACCESSORIES
   A. Wallplates: Provide wallplates for single and combination wiring devices, of types, sizes, and with ganging and cutouts as required. Select plates which mate and match wiring devices to which attached. Construct with metal screws for securing plates to devices; screw heads colored to match finish of plates. Provide plates possessing the following additional construction features:
      1. Material and Finish: Bone colored nylon, impact resistant.
   B. Floor Service Outlets: Provide flush type floor service receptacle outlets and fittings of types and ratings indicated. Construct of die cast aluminum, satin finish and of the size necessary for the slab thickness provided. Provide one or two gang box as indicated on the drawings with 20-ampere, 125-volt, duplex receptacle, NEMA configuration 5-20R for power, unless indicated otherwise. Provide data or telephone outlets as indicated with a 3/4" diameter bushed hole for data and a standard telephone outlet for telephone. Boxes shall be sized as required for the number of outlets and number of conductors to enter and leave the box. Provide brass cover plate with snap cover which shall be a protective cover which will prevent breakage of the installed wiring devices. Provide brass tile or carpet flange as required.

8. Telephone/data Outlets
   A. Provide blank bone colored nylon, impact resistant wallplate for all indicated unused telephone/data outlets.

9. INSTALLATION OF WIRING DEVICES
   A. Install wiring devices as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
   B. Coordinate with other work, including painting, electrical boxes and wiring work, as necessary to interface installation of wiring devices with other work.
   C. Install wiring devices only in electrical boxes which are clean; free from excess building materials, dirt, and debris.
   D. Install galvanized steel wallplates on any exposed surface mounted devices.
   E. Install wallplates after painting work is completed.
   F. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A and B. Use properly scaled torque indicating hand tool.
   G. Contractor to provide ground fault protective type receptacles for any location within 2'-0" of sinks or other source of water. Feed through protection from one ground fault protected receptacle on a circuit is not acceptable.
   H. Mounting height of boxes for devices as shown on legend, unless otherwise noted on the plan. Refer to architectural drawings to avoid interferences with millwork. Where two or more devices are shown at the same location, use gang box and one face plate. Verify all device locations with Owner prior to rough-in. Exact device locations may be adjusted by the Owner to avoid interferences or for general convenience at no additional cost to the Owner.
   I. Floor boxes shall be installed flush with the slab and shall strictly follow manufacturer's installation instructions. Boxes shall be installed at right angles to the building lines and multiple boxes shall be in-line straight and even. Boxes observed to be installed crooked shall be removed and reinstalled.

10. PROTECTION OF WALLPLATES AND RECEPTACLES
   A. Upon installation of wallplates and receptacles, advise Contractor regarding proper and cautious use of convenience outlets. At time of Substantial Completion, replace those items which have been damaged, including those burned and scored by faulty plugs.

11. GROUNDING
   A. Provide equipment grounding connections for wiring devices, unless otherwise indicated. Tighten connections to comply with tightening torques specified in UL Std 486 A to assure permanent and effective grounds.

12. TESTING
   A. Prior to circuitry, test wiring for electrical continuity, for short-circuits and for grounding. Ensure proper polarity of connections is maintained. Subsequent to energization, test wiring devices to demonstrate compliance with requirements.

13. Warranty
   A. All wiring devices, including any dimmers or dimming systems, shall have a minimum one year parts and labor warranty.

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FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:
SPECIFICATIONS

SHEET NUMBER:
SP1.6

IDS4 PROJECT NUMBER:
DBQ21015

Section 16150 - Motor Controllers and Contractors

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract including General and Division 1 Specification Sections, apply to work of this section.

2. SCOPE
   A. The work, apparatus and materials which shall be furnished under these specifications and accompanying drawings shall include all items specified hereinafter and shown on the drawings. All other materials necessary for the complete installation shall be furnished and installed by the Contractor to provide complete electrical systems as indicated on the drawings and as specified herein.
   B. Coordinate all required interlocks with Division 15. Motor starters shall contain the necessary auxiliary contacts and control coil voltage to interface with the HVAC temperature control system and fire alarm control system.

3. DESCRIPTION OF WORK
   A. Extent of motor controller work is indicated by drawings and schedules. Types of motor controllers specified in this section include the following:
      1. Manual motor starters.
      2. Combination disconnect/FVNR motor starters.

4. QUALITY ASSURANCE
   A. Manufacturers: General Electric, Square D, Allen Bradley.
   B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical motor controller work similar to that required for this project.
   C. Codes and Standards:
      1. NEMA Compliance: Comply with applicable requirements of NEMA Standards Publications pertaining to motor controllers.
      2. UL Compliance and Labeling: Comply with applicable requirements of UL safety standards pertaining to motor controllers. Provide motor controllers and components which have been UL-listed and labeled.
      3. NEC Compliance: Comply with applicable requirements of NEC pertaining to construction and installation of motor controllers.

5. SUBMITTALS
   A. Product Data: Submit manufacturer's technical product data, including specifications and installation instructions, for each type of motor controller required. Include data substantiating that materials comply with requirements.

6. INDIVIDUAL MOTOR CONTROLLERS
   A. Manual motor starters for 115 volts, single phase motors one horsepower and smaller, shall be single pole, horsepower rated switches with thermal overload units and heaters. Starters shall be Allen-Bradley Bulletin 609, General Electric CR-101 or Square D Class 2510 with stainless steel cover plates.
   B. Magnetic full voltage starters for three phase motors shall be three pole, horsepower rated, magnetically operated with three thermal overload units and heaters. Starters shall be Allen-Bradley Bulletin 509, General Electric CR-306 or Square D Class 8536. Provide Hand-Off-Auto selector switch, pilot lights to indicate starter's position (Amber – Red – Green), a minimum of two normally open and two normally closed auxiliary contacts, control power transformer fused on primary and secondary, control coil, and three overload heaters with reset button. Provide control power and coil voltage as required for interlock with the HVAC temperature control system and fire alarm system. Starters shall be the Nema size indicated on the drawings but shall be a minimum size one.
   C. Combination magnetic, full voltage starters for three phase motors shall be three pole horsepower rated, magnetically operated contacts, with three thermal overload units and heaters. A three pole horsepower rated, fusible disconnect switch shall also be included integral within the enclosure. Provide fuses sized as recommended by the motor manufacturer. Starters shall be Allen-Bradley Bulletin 512, General Electric CR-308 or Square D Class 8538. Provide Hand-Off-Auto selector switch, pilot lights to indicate starter's position (Amber – Red – Green), a minimum of two normally open and two normally closed auxiliary contacts, control power transformer fused on primary and secondary, control coil, and three overload heaters with reset button. Provide control power and coil voltage as required for interlock with the HVAC temperature control system and fire alarm system. Starters shall be the Nema size indicated on the drawings but shall be a minimum size one.
   D. Provide enclosure type suitable for the environment in which it is installed. Enclosure shall be interlocked so the door cannot be opened without turning the unit off. This interlock shall be capable of being defeated by properly trained personnel.

7. MOTOR CONTROLLERS, contactors AND ASSOCIATED CONTROLS
   A. Unless otherwise indicated, motor controllers shown on the drawings shall be furnished and installed under this section. The full load current and starting characteristics of each motor shall be verified for proper selection of motor over load devices. The Contractor shall furnish and install all steel shapes, etc., necessary for a support of all motor controllers.
   B. Unless otherwise indicated, all control devices, such as thermostats, firestats, etc., shall be installed in place and wired under other sections of the specifications. Coordinate required starter auxiliary contacts and coil voltages for a properly operational system.
   C. Motor controllers shall be installed in accordance with all applicable NEC installation requirements.

8. IDENTIFICATION OF EQUIPMENT
   A. Identification shall be provided for all motor controllers installed by the Contractor. Identification shall consist of white laminated plastic plates with black engraved letters.

Section 16170 - Circuit and Motor Disconnects

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. Division-16 Basic Electrical Materials and Methods section, apply to work of this section.

2. DESCRIPTION OF WORK
   A. Extent of circuit and motor disconnect switch work is indicated by drawings and schedules.
   B. Types of circuit and motor disconnect switches in this section include the following:
      1. Equipment disconnects.
      2. Appliance disconnects.
      3. Motor-circuit disconnects.
   C. Wires/cables, raceways, and electrical boxes and fittings required in connection with circuit and motor disconnect work are specified in other Division-16 Basic Electrical Materials and Methods sections.

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of circuit and motor disconnect switches of types and capacities required whose products have been in satisfactory use in similar service for not less than 3 years.
   B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing circuit and motor disconnect work similar to that required for this project.
   C. NEC Compliance: Comply with NEC requirements pertaining to construction and installation of electrical circuit and motor disconnect devices.
   D. UL Compliance: Comply with requirements of UL 98, "Enclosed and Dead-Front Switches". Provide circuit and motor disconnect switches which have been UL-listed and labeled.
   E. NEMA Compliance: Comply with applicable requirements of NEMA Stds Pub No. KS 1, "Enclosed Switches" and 250, "Enclosures for Electrical Equipment (1000 Volts Maximum)".

4. SUBMITTALS
   A. Product Data: Submit manufacturer's data on circuit and motor disconnect switches.
   B. Wiring Diagrams: Submit power and control wiring diagrams for circuit and motor disconnects including connections to power and control panels, and feeders.

5. ACCEPTABLE MANUFACTURERS
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering circuit and motor disconnects which may be incorporated in the work include the following:
      1. General Electric Co.
      2. Square D Company
      3. ITE/Seimens

6. FABRICATED SWITCHES
   A. Heavy-Duty Safety Switches: Provide surface-mounted, heavy-duty type, sheet-steel enclosed safety switches, of types, sizes and electrical characteristics indicated; fusible or non-fusible type as indicated, amperes as indicated, 60 Hz, 3-blades, 4-poles, solid neutral; and incorporating quick-make, quick-break type switches; construct so that switch blades are visible in OFF position with door open. Equip with operating handle which is integral part of enclosure base and whose operating position is easily recognizable, and is padlockable in OFF position; construct current carrying parts of high-conductivity copper, with silver-tungsten type switch contacts, and positive pressure type reinforced fuse clips. Provide NEMA Type 3R enclosures, where applicable. Provide grounding kit. Provide 240 volt rated switches for 208Y/120 volt systems and 600 volt rated switches for 277Y/480 volt systems.
      1. Fuses: Provide fuses for safety switches, as recommended by the manufacturer of the equipment to be protected, of classes, types, and ratings needed to fulfill electrical requirements for service indicated. Provide R-clips for all fuse holders.

7. INSTALLATION OF CIRCUIT AND MOTOR DISCONNECT SWITCHES
   A. Install circuit and motor disconnect switches as indicated, complying with manufacturer's written instructions, applicable requirements of NEC, NEMA, and NECA's "Standard of Installation", and in accordance with recognized industry practices.
   B. Coordinate circuit and motor disconnect switch installation work with electrical raceway and cable work, as necessary for proper interface.
   C. Install disconnect switches for use with motor-driven appliances, and motors and controllers within sight of controller position unless otherwise indicated.
   D. Provide a nameplate indicating the equipment served and protected.

8. GROUNDING
   A. Provide equipment grounding connections, sufficiently tight to assure a permanent and effective ground, for electrical disconnect switches where indicated.

9. FIELD QUALITY CONTROL
   A. Subsequent to completion of installation of electrical disconnect switches, energize circuitry and demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at project site, then retest to demonstrate compliance; otherwise remove and replace with new units and retest.
   B. Painting: repair all scratches to factory painted and primed finish with factory supplied touch-up paint.

Section 16180 - Overcurrent Protective Devices

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-16 section making reference to overcurrent protective devices specified herein.

2. DESCRIPTION OF WORK
   A. Extent of overcurrent protective device work is indicated by drawings and schedules.
   B. Types of overcurrent protective devices in this section include the following:
      1. Circuit Breakers:
         a. Air, molded-case, for installation in panels.
         b. Air, molded-case, for individual, separately enclosed mounting.
         c. For installation in existing panels.
      2. Fuses:
         a. Class RK5, dual-element time-delay.
   C. Refer to other Division-16 sections for cable/wire and connector work required in conjunction with overcurrent protective devices; not work of this section.

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of overcurrent protective devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
   B. Installer: Qualified with at least 5 years of successful installation experience on projects with electrical installation work similar to that required for project.
   C. NEC Compliance: Comply with NEC requirements as applicable to construction and installation of overcurrent protective devices.
   D. UL Compliance: Comply with applicable requirements of UL 489, "Molded-Case Circuit Breakers and Circuit-Breaker Enclosures", and UL 198D, "High-Interrupting-Capacity Class K Fuses". Provide overcurrent protective devices which have been UL-listed and labeled.
   E. NEMA Compliance: Comply with applicable requirements of NEMA Std Pub Nos. AB 1, AB 2, and SG 3 pertaining to molded-case and low-voltage power type circuit breakers.
   F. FS Compliance: Comply with Federal Specification W-C-375B/GEN pertaining to molded-case circuit breakers.

4. SUBMITTALS
   A. Product Data: Submit manufacturer's data on overcurrent protective devices, including: amperes, voltages and current ratings, interrupting ratings, current limitations, internal inductive and non-inductive loads, time-current trip characteristics curves, and mounting requirements.
   B. Maintenance Stock, Fuses: For types and ratings required, furnish additional fuses, amounting to one unit for every 5 installed units, but not less than one unit of each.

5. ACCEPTABLE MANUFACTURERS
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
      1. Circuit Breakers: General Electric Co, Square D Co., ITE/Seimens
      2. Fuses:Bussmann Div.; McGraw-Edison Co., Gould, Inc., Cefco

6. CIRCUIT BREAKERS
   A. General: Except as otherwise indicated, provide circuit breakers and ancillary components, of types, sizes, ratings, and electrical characteristics indicated, which comply with manufacturer's standard design, materials, components, and construction in accordance with published product information, and as required for a complete installation.
   B. Molded-Case Circuit Breakers: Provide factory assembled, molded-case circuit breakers of frame size indicated; rated 600 volts or 240 volts as required, 60 Hz, 3-poles with interrupting ratings as shown on drawings. Provide breakers with permanent thermal and instantaneous magnetic trips in each pole, and with fault-current limiting protection, ampere ratings as indicated. Construct with overcenter, trip-free, toggle-type operating mechanisms with quick-make, quick-break action and positive handle trip indication. Handle ties are not permitted. Provide push-to-trip button on cover for mechanical tripping circuit breakers. Construct breakers for mounting and operating in any physical position and operating in an ambient temperature of 40oC. Provide breakers with mechanical screw type removable connector lugs, AL/CU rated. Circuit breakers shall have the short circuit interrupting rated indicated on the drawings or as required for the short circuit current available.
   C. Molded-Case Circuit Breakers for Installation in Panelboards: Shall meet the same specifications as in Part B above. Shall be manufactured by the same manufacturer as the panelboard.
   D. Provide all accesories indicated on the drawings, including accesories indicated on the panel schedules, such as shunt trips, ground fault protection, undervoltage trips, etc. Accessories shall be manufactured by the same manufacturer as the circuit breaker.
   E. All circuit breakers used to protect heating, ventilation or air conditioning circuits shall be listed HACR type.

7. FUSES
   A. General: Except as otherwise indicated, provide fuses of types, sizes, ratings, and average time/current and peak let-through current characteristics indicated, which comply with manufacturer's standard design, materials, and construction in accordance with published product information, and with industry standards and configurations.
   B. Class RK5 Dual-Element Time-Delay Fuses: Provide UL Class RK-5 dual element time-delay fuses rated 600 V, 60 Hz, amperes as required by the manufacturer of the equipment being protected, with 200,000 RMS symmetrical interrupting current rating for protecting motors.

8. INSTALLATION OF OVERCURRENT PROTECTIVE DEVICES
   A. Install overcurrent protective devices as indicated, in accordance with manufacturer's written instructions and with recognized industry practices to ensure that protective devices comply with requirements. Comply with NEC and NEMA standards for installation of overcurrent protective devices.
   B. Coordinate with other work, including electrical wiring work, as necessary to interface installation of overcurrent protective devices with other work.
   C. Fasten circuit breakers without causing mechaincal stresses, twisting or misalignment being exerted by clamps, supports, or cabling.
   D. Set field-adjustable circuit breakers for trip settings as indicated, subsequent to installation of units.
   E. Install fuses, if any, in fused circuit breakers.

9. ADJUST AND CLEAN
   A. Inspect circuit-breaker operating mechanisms for malfunctioning and, where necessary, adjust units for free mechanical movement.

10. FIELD QUALITY CONTROL
   A. Prior to energization of overcurrent protective devices, test devices for continuity of circuitry and for short-circuits. Correct malfunctioning units, and then demonstrate compliance with requirements.

Section 16190 - Supporting Devices

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. This section is a Division-16 Basic Electrical Materials and Methods section, and is a part of each Division-16 section making reference to electrical supporting devices specified herein.

2. DESCRIPTION OF WORK
   A. Extent of supports, anchors, sleeves, and seals is indicated by drawings and schedules and/or specified in other Division-16 sections.
   B. Types of supports, anchors, sleeves, and seals specified in this section include the following:
      1. Clevis hangers
      2. C-clamps
      3. I-beam clamps
      4. One-hole conduit straps
      5. Round steel rods
      6. Lead expansion anchors
      7. Toggle bolts
      8. Wall and floor seals
   C. Supports, anchors, sleeves, and seals furnished as part of factory-fabricated equipment, are specified as part of that equipment assembly in other Division-16 sections.

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of supporting devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.
   B. NEC Compliance: Comply with NEC requirements as applicable to construction and installation of electrical supporting devices.

4. MANUFACTURED SUPPORTING DEVICES
   A. General: Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation; and as herein specified. Where more than one type of supporting device meets indicated requirements, selection is Installer's option.
   B. Supports: Provide supporting devices of types, sizes, and materials indicated; and having the following construction features:
      1. Clevis Hangers: For supporting 2" rigid metal con duit; galvanized steel; with 1/2" dia. hole for round steel rod; approximately 54 pounds per 100 units.
      2. Reducing Couplings: Steel rod reducing coupling, 1/2" x 5/8"; black steel; approximately 16 pounds per 100 units.
      3. C-Clamps: Black malleable iron; 1/2" rod size; approximately 70 pounds per 100 units.
      4. I-Beam Clamps: Black steel, 1-1/4" x 3/16" stock; 3/8" cross bolt; flange width 2"; approximately 52 pounds per 100 units.
      5. One-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; galvanized steel; approximately 7 pounds per 100 units.
      6. Hexagon Nuts: For 1/2" rod size; galvanized steel; approximately 4 pounds per 100 units.
      7. Round Steel Rod: Black steel; 1/2" dia.; approximately 67 pounds per 100 feet.
      8. Offset Conduit Clamps: For supporting 2" rigid metal conduit; black steel; approximately 200 pounds per 100 units.
   C. Anchors: Provide anchors of types, sizes, and materials indicated, with the following construciton features:
      1. Lead Expansion Anchors: 1/2", approximately 38 pounds per 100 units.
      2. Toggle Bolts: Springhead; 3/16" x 4", approximately 5 pounds per 100 units.
   D. Available Manufacturers: Subject to compliance with requirements, manufacturers offering anchors which may be incorporated in the work include, but are not limited to, the following:
      1. Abbeon Cal Inc.
      2. Ackerman Johnson Fastening Systems, Inc.
      3. Elcen Metal Products Co.
      4. Ideal Industries, Inc.
      5. Joslyn Mfg. and Supply Co.
      6. McGraw Edison Co.
      7. Rawlplug Co., Inc.
      8. Star Expansion Co.
      9. Expansion Bolt Co.
   E. Sleeves and Seals: Provide sleeves and seals, of types, sizes, and materials indicated, with the following construction features:
      1. Wall and Floor Seals: Provide factory-assembled watertight wall and floor seals, of types and sizes indicated; suitable for sealing around conduit, pipe, or buting passing through concrete floors and walls. Construct seals with steel sleeves, malleable iron body, neoprene sealing grommets and rings, metal pressure rings, pressure clamps, and cap screws.
   F. U-Channel Strut Systems: Provide U-channel strut system for supporting electrical equipment, 12-gage hot-dip galvanized steel, of types and sizes indicated; construct with 9/16" dia. holes, 8" o.c. on top surface, with standard finish, and with the following fittings which mate and match U-channel.
      1. Fixture hangers
      2. Channel hangers
      3. Thinwall conduit clamps
      4. Rigid conduit clamps
      5. Conduit hangers
      6. U-bolts
   G. Available Manufacturers: Subject to compliance with requirements, manufacturers offering channel systems which may be incorporated in the work include, but are not limited to, the following:
      1. Greenfield Mfg. Co.; Inc.
      2. Midland-Ross Corp.
      3. OZ/Gedney Div.; General Signal Corp.
      4. Power-Strut Div.; Van Huffel Tube Corp.
      5. Unistrut Div.; GTE Products Corp.
   H. Pipe Sleeves: Provide pipe sleeves of one of the following:
      1. Sheet Metal: Fabricate from galvanized sheet metal; round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate sleeves from the following gage metal: 3" and smaller, 20-gage; 4" to 6", 16-gage; over 6", 14-gage.
      2. Steel Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.
      3. Iron Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs.
      4. Plastic Pipe: Fabricate from Schedule 80 PVC plas tic pipe; remove burrs.
   I. Sleeve Seals: Provide sleeves for piping which penetrates foundation walls below grade, or exterior walls. Calk between sleeve and pipe with non-toxic, UL-classified calking material to ensure watertight seal.

5. INSTALLATION OF SUPPORTING DEVICES
   A. Install hangers, anchors, sleeves, and seals as indicated, in accordance with manufacturer's written instructions and with recognized industry practices to insure supporting devices comply with requirements. Comply with requirements of NECA and NEC for installation of supporting devices.
   B. Coordinate with other electrical work, including raceway and wiring work, as necessary to interface installation of supporting devices with other work. Coordinate support locations with other structural and mechanical trades. Supports shall not be attached to mechanical or electrical piping, conduit, ductwork, ceiling grid system or any other non-structural member.
   C. Install hangers, supports, clamps, and attachments to support piping properly from building structure. Arrange for grouping of parallel runs of horizontal conduits to be supported together on trapeze type hangers where possible. Install supports with spacings indicated and in compliance with NEC requirements.

Section 16195 - Electrical Identification

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. Division-16 Basic Electrical Materials and Methods section apply to work specified in this section.

2. DESCRIPTION OF WORK
   A. Extent of electrical identification work is indicated by drawings and schedules.
   B. Types of electrical identification work specified in this section include the following:
      1. Electrical power, control, and communication conductors.
      2. Operational instructions and warnings.
      3. Equipment/system identification signs.

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of electrical identification products of types required, whose products have been in satisfactory use in similar service for not less than 3 years.
   B. NEC Compliance: Comply with NEC as applicable to installation of identifying labels and markers for wiring and equipment.
   C. UL Compliance: Comply with applicable requirements of UL Std 969, "Marking and Labeling Systems", pertaining to electrical identification systems.

4. ACCEPTABLE MANUFACTURERS
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering electrical identification products which may be incorporated in the work include, but are not limited to, the following:
      1. Brady, W.H. Co.

5. ELECTRICAL IDENTIFICATION MATERIALS
   A. General: Except as otherwise indicated, provide manufacturer's standard products of categories and types required for each application. Where more than single type is specified for an application, selection is Installer's option, but provide single selection for each application.

6. ENGRAVED PLASTIC-LAMINATE SIGNS
   A. General: Provide engraving stock melamine plastic laminate, complying with FS L-P-387, in sizes and thicknesses indicated, engraved with engraver's standard letter style of sizes and wording indicated, white face and black core plies (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
      1. Thickness: 1/8", except as otherwise indicated.
      2. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate substrate.

7. LETTERING AND GRAPHICS
   A. General: Coordinate names, abbreviations and other designations used in electrical identification work, with corresponding designations shown, specified or scheduled. Provide numbers, lettering, and wording as indicated or, if not otherwise indicated, as recommended by manufacturer or as required for proper identification and operation/maintenance of electrical systems and equipment.

8. APPLICATION AND INSTALLATION
   A. General Installation Requirements:
      1. Install electrical identification products as indicated, in accordance with manufacturer's written instructions and requirements of NEC.
      2. Coordination: Where identification is to be applied to surfaces which require finish, install identification after completion of painting.
      3. Regulations: Comply with governing regulations and requests of governing authorities for identification of electrical work.

9. OPERATIONAL IDENTIFICATION AND WARNINGS
   A. General: Wherever reasonably required to ensure safe and efficient operation and maintenance of electrical systems, and electrically connected mechanical systems and general systems and equipment, including prevention of misuse of electrical facilities by unauthorized personnel, install self-adhesive plastic signs or similar equivalent identification, instruction or warnings on switches, outlets and other controls, devices and doors of electrical enclosures. Where detailed instructions or explanations are needed, provide plasticized tags with clearly written messages adequate for intended purposes.

10. EQUIPMENT/SYSTEM IDENTIFICATION
   A. General: Install engraved plastic-laminate sign on each major unit of electrical equipment in building; including central or master unit of each electrical system including communication/control/signal systems, unless unit is specified with its own self-explanatory identification or signal system. Except as otherwise indicated, provide single line of text, 1/2" high lettering, on 1-1/2" high sign (2" high where 2 lines are required), black lettering in white field. Provide text matching terminology and numbering of the contract documents and shop drawings. Provide signs for each unit of the following categories of electrical work:
      1. Switchboard, panelboards, electrical cabinets, disconnect switches and enclosures
      2. Access panel/doors to electrical facilities
      3. Transformers
      4. Intercom system master station
      5. TV/audio monitoring master station
      6. Fire alarm master station
      7. Each switch in main switchboard
      8. Communications systems terminal cabinets; sound, CCTV, clock, telephone, etc.
   B. Install signs at locations indicated or, where not otherwise indicated, at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

Section 16445 - Panelboards - Distribution and Branch Circuit

PART 1 GENERAL

1.01 WORK INCLUDED
   A. Furnish and install distribution and branch circuit panel- boards.
   B. Related Work and Specifications: Section 16010: Electrical General Provisions.

1.02 QUALITY ASSURANCE
   A. Referenced Standards:
      1. UL 50 – Cabinets and Boxes.
      2. UL 67 – Electric Panelboards.
      3. NEMA AB 1 – Molded Case Circuit Breakers.
      4. NEMA AB 2 – Procedures for Verifying the Performance of Molded Case Circuit Breakers.
      5. NEMA FU 1 – Low Voltage Cartridge Fuses.
      6. NEMA KS 1 – Enclosed Switches.
      7. NEMA PB 1 – Panelboards.

1.03 SUBMITTALS
   A. The following information shall be submitted to the Engineer:
      1. Breaker layout drawing with dimensions indicated and nameplate designation
      2. Component list
      3. Conduit entry/exit locations
      4. Assembly ratings including:
         a. Short-circuit rating
         b. Voltage
         c. Continuous current
      5. Cable terminal sizes

PART 2 PRODUCTS

2.01 ENCLOSURE
   A. Cabinet:
      1. Construct cabinets in accordance with UL 50. Use painted galvanized sheet steel 16-gauge or more.
      2. Provide a minimum 4-inch gutter wiring space on each side.
      3. Reinforce cabinets and securely support bus bars and over-current devices to prevent vibration and breakage in handling.
      4. Provide standard conduit knockouts in cabinet ends.
      5. Finish cabinets of surface-mounted panelboards to match doors and trim as specified below.
      6. Panelboards mounted outdoors shall be NEMA 3r and shall have a door behind door type construction.
      7. Panelboards mounted in wet or corrosive areas shall have NEMA 4X stainless steel enclosures.
      8. Panelboards mounted shall be NEMA 12 enclosures for areas classified as NEMA 12.
   B. Doors and Trim:
      1. Fabricate doors and trim from cold-rolled sheet steel.
      2. Equip doors with flush-type combination catch and key lock.
      3. Key all locks alike. Fasten trim for flush-mounted panelboards to cabinets by an approved means which permits both horizontal and vertical adjustment.
      4. Trim for surface-mounted panelboards must fit the cabinet with no overhang.
      5. Apply a finish to trim and doors consisting of two coats of enamel over a rust-inhibiting prime coat.

2.02 BUS
   A. Material:
      1. Provide tin plated, copper bus bars, 98 percent IACS conductivity, full-sized throughout their length.
      2. Use buses with silver-plated contact surfaces.
      3. Include a tin plated copper bus bar ground bus in panelboard rated not less than 25 percent of the main bus capacity.
      4. Full size (100% rated) insulated neutral bus shall be included in the panel board, shown with neutral. 200% rated neutral bus shall be supplied for panels designated on the drawings.
      5. The ground and neutral bus shall be at least one terminal screw for each circuit.
      6. Provide feed through or sub feed lugs where indicated.
      7. Provide lugs and connection points on phase, neutral and ground bus suitable for copper conductors.
      8. Spaces for future circuit breakers shall be bussed for the maximum devices that can be fitted.
   B. Size bars as indicated and brace them to withstand the available symmetrical short circuit current.
   C. Installation:
      1. Install buses in allotted spaces so that devices can be added without additional machining, drilling or tapping.
      2. Mount neutral bars, as required, on the opposite end of the main lugs.

2.03 PROTECTIVE DEVICES
   A. Circuit Breakers: Provide circuit breakers for the specified service with the number of poles and ampere ratings indicated.
      1. Provide breakers which are quick-make and quick-break on both manual and automatic operation.
      2. Use a trip-free trip indicating breaker.
      3. Incorporate inverse time characteristic by bimetallic overload elements and instantaneous characteristic by magnetic trip. Where indicated, provide ground fault circuit breakers (GFCB).
      4. For 2-pole and 3-pole breakers, use the common-trip type so that an overload or fault on one pole will trip all poles simultaneously. Handle ties are not acceptable.
      5. Unless otherwise indicated, provide circuit breakers with the following interrupting ratings:
         a. Each circuit breaker used in 120/208 Volt panelboards shall have an interrupting capacity of not less than 10,000 Amps, RMS symmetrical.
         b. Each circuit breaker used in 120/240 Volt panelboards shall have an interrupting capacity of not less than 10,000 Amps, RMS symmetrical.
         c. Each circuit breaker used in 277/480 Volt and 480 Volt panelboards shall have an interrupting capacity of not less than 22,000 Amps, RMS symmetrical.
         d. GFCI (ground fault circuit interrupter) shall be provided for circuits where shown on the drawings. GFCI units shall be 1 Pole or 2 Pole, 120 Volt or 208 Volt, molded case, bolt-on breakers, incorporating a solid-state ground fault interrupter circuit insulated and isolated from the breaker mechanism. The unit shall be UL listed Class A Group I device (5 milliamp sensitivity, 25 millisecond trip time) and an interrupting capacity of 10,000 Amps, RMS.
         e. Circuit breakers shall be as manufactured by the panelboard manufacturer.
      6. Connect breakers to the main bus by means of a solidly bolted connection.
      7. Use breakers which are interchangeable, capable of being operated in any position within the panel.
      8. Independently mount breakers so that a single unit can be removed from the front of the panel without disturbing or removing main bus, other units or other branch circuit connections.
      9. Provide individual breaker handle lock for all circuits that supply exit signs, emergency lights, and fire alarm panels.
      10. Provide GFI circuit breakers for heat trace circuit. The rating shall be as per NEC.
   B. Surge Suppressor
      1. The panelboard shall be provided with externally mounted, transient voltage surge suppression.
   C. Service Entrance
      1. The panelboard shall have a connection for housing and grounding neutral conductor.
      2. Provide a UL label for the panelboard.

2.04 CIRCUIT IDENTIFICATION
   A. Directory:
      1. For each panelboard, provide a directory frame mounted inside the door with a heat-resistant transparent face and a directory card for identifying the load served.
      2. Type directory as specified in Section 16010.
   B. Nameplate:
      1. Provide a black on white nameplate on the face of the panelboard using the following as an example:

         Panel HA
         277/480V, 30, 4W
         Feeder from MCC-B/Section

      2. The nameplate shall have a minimum thickness of 1/8".

2.05 LISTING
   A. UL 67 – Electric Panelboards.

2.06 ACCEPTABLE MANUFACTURERS
   A. Acceptable manufacturers are Culter Hammer, Square-D, General Electric, Siemens.

PART 3 EXECUTION

3.01 INSTALLATION
   A. Install panelboards in the locations as shown and as recommended in NEMA PB1.1.
   B. In wet and corrosive areas, including outdoor locations, install panelboard enclosures on unistrut support to provide clearance behind the mounting surface.
   C. In wet and corrosive areas, including outdoor locations, connect conduits to the bottom of the enclosure and to the lower 30 percent of the sides.
   D. All conduit connections shall be by use of Myers hub.

3.02 MOUNTING HEIGHT
   A. Install the panelboards such that the center of the switch or circuit breaker in the highest position will not be more than 6-1/2 feet above the floor or working platform.

3.03 SPECIAL REQUIREMENTS
   A. All copper items, including wiring, terminal blocks, lugs, connectors, bus, etc., shall be tin plated copper.
   B. All steel shall be primed and painted as specified. Galvanized items shall also be painted.
   C. All hardware, including nuts, bolts, washers, screws, anchor bolts, door hinges, etc., shall be made of 316 stainless steel.
   D. The minimum requirements of painting procedure shall be followed:
      1. Surface preparation per SSPC-SP6.
      2. Primer: Tnemec 66, Epoxoline – one coat 4 dry mils.
      3. Finish Coat: Tnemec Series 72, Edura Shield – one coat 1.5 dry mils (ANSI 61 light gray).
      4. Undercoat Finish: Tnemec Tar 46-413-2 coats 40 dry mils total.

Section 16450 - Grounding

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. Division-16 Basic Electrical Materials and Methods section apply to work of this section.

2. DESCRIPTION OF WORK
   A. Extent of grounding work is indicated by drawings and schedules.
   B. Types of grounding specified in this section include the following:
      1. Solid grounding.
   C. Applications of grounding work in this section including the following:
      1. Underground metal water piping
      2. Metal building frames
      3. Grounding electrodes
      4. Grounding rods
      5. Service equipment
      6. Enclosures
      7. Equipment

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of electrical connectors, terminals and fittings, of types and ratings required, and ancillary grounding materials, including stranded cable, copper braid and bus, ground rods and plate electrodes, whose products have been in satisfactory use in similar service for not less than 3 years.
   B. Installer: Qualified with at least 3 years of successful installation experience on projects with electrical grounding work similar to that required for project.
   C. NEC Compliance: Comply with NEC requirements as applicable to materials and installation of electrical grounding systems, associated equipment and wiring. Provide grounding products which are UL-listed and labeled.
   D. UL Compliance: Comply with applicable requirements of UL Standards Nos. 467 and 869 pertaining to electrical grounding and bonding.
   E. IEEE Compliance: Comply with applicable requirements of IEEE Standard 142 and 241 pertaining to electrical grounding.

4. SUBMITTALS
   A. Product Data: Submit manufacturer's data on grounding systems and and accessories.
   B. Shop Drawings: Submit layout drawings of grounding systems and accessories including, but not limited to, ground wiring, copper braid and bus, ground rods, and plate electrodes.

5. ACCEPTABLE MANUFACTURERS
   A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering grounding products which may be incorporated in the work include, but not limited to, the following:
      1. Burndy Corp.
      2. Crouse-Hinds Co.
      3. Electrical Components Div.; Gould Inc.
      4. Thomas and Betts Corp.

6. GROUNDING SYSTEMS
   A. Materials and Components:
      1. General: Except as otherwise indicated, provide electrical grounding systems indicated; with assembly of materials, including, but not limited to, cables/wires, connectors, terminals (solderless lugs), grounding rods/electrodes and plate electrodes, bonding jumper braid, surge arresters, and additional accessories needed for complete installation. Where more than one type unit meets indicated requirements, selection is Installer's option. Where materials or components are not indicated, provide products complying with NEC, UL, IEEE, and established industry standards for applications indicated.
   B. Conductors: Unless otherwise indicated, provide electrical grounding conductors for grounding connections matching power supply wiring materials and sized according to NEC.
   C. Ground Rods: Solid copper or copper clad steel, minimum 3/4" dia. x 10'. Provide longer rods if necessary for required resistivity.
   D. Electrical Grounding Connection Accessories: Provide electrical insulating tape, heat-shrinkable insulating tubing, welding materials, bonding straps, as recommended by accessories manufacturers for type services indicated.

7. INSPECTION
   A. Installer must examine areas and conditions under which electrical grounding connections are to be made and notify Contractor in writing of conditions detrimental to proper completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

8. INSTALLATION OF ELECTRICAL GROUNDING
   A. General: Install electrical grounding systems where shown, in accordance with applicable portions of NEC, with NECA's "Standard of Installation", and in accordance with recognized industry practices, to ensure that products comply with requirements and serve intended functions.
   B. Coordinate with other electrical work as necessary to interface installation of electrical grounding system work with other work.
   C. Install clamp-on connectors only on thoroughly cleaned metal contact surfaces, to ensure electrical conductivity and circuit integrity.
   D. All ground connections to water service entrance shall be installed to be exposed and visible for inspection at all times. Insulation shall not be installed over ground connections.
   E. A water pipe, by itself, is not an adequate grounding electrode and must be supplemented by dual grounding electrodes, a minimum of 8 feet apart, and effectively bonded together. The supplemental ground shall be per Code with the "Footing type electrode" taking precedence when possible.
   F. All ground connections shall be made on surfaces which have been cleaned of all paint, dirt, oil, etc., so that connections are bare metal to bare metal contact. All ground connections shall be tight and shall be made with U.L. listed grounding devices, fittings, bushings, etc.
   G. Duplex receptacles of any amperage shall be grounding type and shall have a separate grounding contact. A separate jumper shall be installed between the grounding terminal on the device and the metallic box. The Contractor may provide U.L. listed self-grounding receptacles in lieu of providing the separate jumper.
   H. Single and duplex receptacles shall have all grounded metal mechanically bonded together. Pressure bonding only is not acceptable.
   I. Single and duplex receptacles will be installed with the grounding contacts down.
   J. Hospital grade or high abuse type which will be installed with the ground contacts up.
      1. Shop equipment receptacles shall be installed with the ground contacts up.
   K. In all cases where flexible metallic conduit, nonmetallic rigid conduit or liquid tight flexible conduit is used, a green wire ground conductor shall be used to provide ground continuity between the equipment of device and the conduit raceway system.
   L. Provide a separate green wire ground conductor for each branch circuit originating from each panelboard. This ground shall be used to ground the device or load fed, and shall be bonded to components of the raceway system, such as junction boxes, starter or disconnect switch enclosures, equipment cases, etc. The green wire ground conductor shall terminate in the panelboard at the green wire ground bus. Ground conductors for branch circuits shall be of size indicated in NEC, except minimum size ground conductor shall be No. 12 AWG.
   M. Each branch feeder originating at the switchboard(s) shall have a green wire ground conductor originating at the ground bus in the switchboard and terminating at the green wire ground bus in the panelboard. This green wire ground conductor shall be of size indicated in NEC except in no instance smaller than No. 8 AWG.
   N. The green wire ground conductor is in addition to the neutral conductor and in no case shall the neutral conductor serve as the grounding means.
   O. Multiple conductors in a single lug not permitted. Each grounding conductor shall terminate in its own terminal lug.

Section 16510 - Interior Building Lighting

1. RELATED DOCUMENTS
   A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   B. Division-16 Basic Electrical Materials and Methods section apply to work specified in this section.

2. DESCRIPTION OF WORK
   A. Extent of interior lighting fixture work is indicated by drawings and schedules.
   B. Types of interior lighting fixtures in this section include the following:
      1. Fluorescent
      2. Incandescent
      3. High Intensity Discharge
      4. LED
   C. Applications of interior lighting fixtures required for project including the following:
      1. General lighting
      2. Supplementary lighting
      3. Task lighting
      4. Emergency lighting

3. QUALITY ASSURANCE
   A. Manufacturers: Firms regularly engaged in manufacture of interior lighting fixtures of types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
   B. Installer: Qualified with at least 3 years of successful installation experience on projects with interior lighting fixture work similar to that required for project.
   C. NEC Compliance: Comply with NEC as applicable to installation and construction of interior building lighting fixtures.
   D. NEMA Compliance: Comply with applicable requirements of NEMA Std Pub Nos. LE 1 and LE 2 pertaining to lighting equipment.
   E. ANSI/IES Compliance: Comply with ANSI 132.1 pertaining to interior lighting fixtures.
   F. ANSI/UL Compliance: Comply with ANSI/UL standards pertaining to interior lighting fixtures for hazardous locations.
   G. UL Compliance: Provide interior lighting fixtures which have been UL-listed and labeled.
   H. CBM Labels: Provide fluorescent-lamp ballasts which comply with Certified Ballast Manufacturers Association standards and carry the CBM label.

4. SUBMITTALS
   A. Product Data: Submit manufacturer's data on interior building lighting fixtures, lamps and ballasts. Lighting fixtures shall be in strict accordance with the fixture schedule. Substitutions will not be accepted without formal written prior approval. Requests for review of substitutions shall be submit a minimum of 10 days prior to bid. Any other requests will be rejected.
   B. Shop Drawings: Submit fixture shop drawings in booklet form with separate sheet for each fixture, assembled in luminaire "type" alphabetical order, with proposed fixture and accessories clearly indicated on each sheet.

5. ACCEPTABLE MANUFACTURERS
   A. Manufacturers/Catalog Numbers: Subject to compliance with requirements, provide fixtures manufactured by manufacturers as indicated on the fixture schedule. Catalog numbers given on the fixture schedule are intended to provide the general description of the required fixture and its quality. Additional accessories, mounting hardware, options, etc., not specifically described by the catalog number but required for a properly operating and installed fixture or as described by additional notation on the drawings or in the specifications, shall be provided.

6. INTERIOR LIGHTING FIXTURES
   A. General: Provide lighting fixtures, of sizes, types, and ratings indicated; complete with, but not necessarily limited to, housings, lamps, lamp holders, reflectors, ballasts, starters and wiring.
      1. Fluorescent-Lamp Ballasts: Provide energy saving high frequency electronic fluorescent-lamp ballasts, capable of operating 32 watt, octic, T-8 lamp types; with high power factor, rapid-start, and low-noise features; Type 1; Class P; sound-rated A, and with internal thermal protection. All flourescent fixture ballasts shall be of the same manufacturer and type. Ballasts shall also meet the following requirements:
      2. Operate lamps at 20 KHZ or higher with no detectable flicker.
      3. Ballast manufacturer shall have been producing electronic ballasts in the U.S. for more than five years with a low failure rate.
      4. Ballasts shall be approved and listed by UL.
      5. Ballasts shall comply with all applicable state and federal efficiency standards.
      6. Ballasts shall comply with FCC and NEMA limits governing electromagnetic and radio frequency interference and shall not interfere with operation of other normal electrical equipment.
      7. Ballasts shall meet all applicable ANSI and IEEE standards regarding harmonic distortion and surge protection, but in no case shall have total harmonic distortion exceeding 20%.
      8. Ballasts shall not be affected by lamp failure and shall yield normal published expected lamp life.
      9. Lamp current crest factor shall not exceed 1.7.
      10. Ballasts shall operate at an input frequency of 60 HZ and an input voltage of that indicated on the drawings for the fixture voltage.
      11. Ballasts shall have a power factor above 0.95.
      12. Ballasts shall operate as a parallel circuit allowing remaining lamps to maintain full output if companion lamps fail.
      13. Ballasts shall carry a minimum three year warranty, including labor allowance.
      14. Ballasts shall be manufactured by Magnetek, Motorola or approved equal.
   C. Fusing all fluorescent ballasts shall be fused. Fuses may be deleted if the ballast is supplied with automatically resetting thermal overloads internal to the ballast.
   D. H.I.D. Lamp Ballasts: Provide energy saving ballasts, capable of operating lamp types indicated; with high power factor, fixture to have quartz restrike where indicated and low-noise feature and with internal thermal protection, class H insulation. H.I.D. ballasts shall be manufactured by Advanced, Valmont, Magnetek or approved equal.
   E. Lamps: Provide lamps of the wattage and types specified on the drawings. Coordinate lamp type with ballast for a complete operational, energy saving lighting system which will operate for the expected lamp and ballast life. Lamps shall be as manufactured by General Electric, Phillips, or Osram/Sylvania.
      1. Fluorescent lamps shall be rapid start, T-8, medium bi-pin, 32 watt, 3500K, 85 CRI, 3,000 lumens, 20,000 average rated hours.
      2. Lamp and ballast combinations shall have no noticeable flicker or delayed starting. Lamps shall start instantaneously and illuminate immediately. Any delay in starting will not be acceptable and the lamp and/or ballast shall be replaced.
      3. All lamp types and color shall be verified with the lighting consultant prior to ordering.

7. INSTALLATION OF INTERIOR LIGHTING FIXTURES
   A. Install interior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.
   B. Coordinate with other electrical work as appropriate to properly interface installation of interior lighting fixtures with other work.
   C. Fasten fixtures securely to building structural support; and ensure that pendant fixtures are plumb and level. Provide all required mounting hardware and steel channel to supplement structural support where necessary. Fixtures shall not be supported from ductwork, piping, conduits, ceiling grid or any other non-structural building member.
   D. Coordinate fixture installation with mechanical duct work, diffusers, return grilles, communication systems devices, etc., to avoid any interferences.

8. ADJUST AND CLEAN
   A. Clean interior lighting fixtures of dirt and debris upon completion of installation
   B. Protect installed fixtures from damage during remainder of construction period.

9. FIELD QUALITY CONTROL
   A. Upon completion of installation of interior lighting fixtures, and after building circuitry has been energized, apply electrical energy to demonstrate capability and compliance with requirements. where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.
   B. At the time of Substantial Completion, replace lamps in interior lighting fixtures which are observed to be noticeably dimmed after Contractor's use and testing, as judged by Architect/Engineer.
   C. Refer to Division-1 sections for the replacement/restoration of lamps in interior lighting fixtures, where used for temporary lighting prior to time of Substantial Completion.

10. GROUNDING
   A. Provide tight equipment grounding connections for each interior lighting fixture installation.

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DALLAS, TEXAS 75205
972.248.9899

FOR REFERENCE ONLY.
THIS DOCUMENT IS FOR DESIGN DEVELOPMENT ONLY AND IS NOT INTENDED FOR BIDDING, CONSTRUCTION, OR PERMIT PURPOSES.

03/16/22

DICKEY'S BARBEQUE PIT
FRANDOR SHOPPING CENTER
300 NORTH CLIPPERT STREET, SUITE 8
LANSING, MI 48912

CLIENT: KEVING GRIFFIN
7776 GREEN ROAD
HOWARD CITY, MI 49329

DICKEY'S BARBECUE PIT © est. 1941

MI-2077

DATE	DESCRIPTION
03/16/22	CORPORATE REVIEW
XX/XX/22	PERMIT ISSUE

△	DATE	DESCRIPTION

SHEET TITLE:

SPECIFICATIONS

SHEET NUMBER:

SP1.7

IDS4 PROJECT NUMBER:

DBQ21015

Section 16721 - Fire Alarm and Smoke Detection Systems

1. SECTION INCLUDES
   A. A combination addressable and hard wired fire alarm and smoke detection system.
2. REFERENCES.
   A. NFPA 70 – National Electrical Code – 2019.
   B. NFPA 72 – National Fire Alarm Code – 2019.
   D. NFPA 101 – Life Safety Code – 2018.
   E. ANSI A117.1–1986 American National Standard for Buildings and Facilities Providing Accessibility and Usability for Physically Handicapped People.
   F. American With Disabilities Act of 1990 and applicable sections of the Uniform Federal Accessibility Standard.
3. REGULATORY REQUIREMENTS
   A. System: UL listed.
   B. Conform to requirements of NFPA 101 and the Local Fire Marshall.
4. DESCRIPTION OF SYSTEM
   A. The system shall be an addressable, microprocessor based fire alarm control system with transient protection on each circuit and walk–through test capability. The system shall have the capability to control and supervise all the addressable devices and non–addressable appliance and auxiliary control circuits. Each component of the system shall be UL listed for its use. The system shall have a Dynamic LCD display and be located in a constantly attended location while the building is occupied.
5. QUALIFICATIONS
   A. Manufacturer: Company specializing in smoke detection and fire alarm systems with five (5) years documented experience.
   B. Installer: Company specializing in smoke detection and fire alarm systems with five (5) years documented experience with projects of equivalent scope of work and size and certified by the Florida State Licensing Board as fire alarm installing contractor. The actual installer shall be licensed to install fire alarm systems and shall be certified by the system manufacturer to install the system. Proof of certification and licensure shall be provided upon request.
6. SUBMITTALS
   A. Submit six (6) copies shop drawings and product data.
   B. Provide complete point to point wiring diagrams, data sheets, and equipment ratings, layout, dimensions, and finishes. Indicate the location of surge protection devices.
   C. Submit manufacturer's installation instructions.
   D. Submit manufacturer's certificate that the system meets or exceeds specified requirements – certification per NFPA 72.
   E. Submit copy of Contractor's license before work begins.
   F. Submit battery calculations indicating the required battery, including the specified spare capacity.
   G. Submit voltage drop calculations.
   H. Provide training for four (4) people on the operation, maintenance, and repair of the system at the Contractor's expense. Training shall be certified by the manufacturer and be at different times for each person. Include transportation, room and board where needed.
7. PROJECT RECORD DRAWINGS
   A. Contractor shall provide five (5) sets of as–built drawings to the Owner upon completion of project.
   B. As–builts shall include the location of end–of–line devices, surge protection devices and exact conduit and wire routing. Numbers and types or conductors shall be indicated for each circuit.
8. OPERATION AND MAINTENANCE DATA
   A. Provide seven (7) copies of operation and maintenance data prior at the completion of construction for all point devices, CPUs, and all other equipment.
   B. Include operating instructions, and maintenance and repair procedures.
   C. Provide manufacturer representative's letter stating that the system is operational.
   D. Maintain system for a minimum of one (1) year, after complete acceptance by the Owner, in accordance with NFPA 72 and 72E.
   E. Provide, at the end of the first year after construction completion, a yearly certification as outlined by the State Fire Marshal's Rule 4A–48.
9. DELIVERY, STORAGE, AND HANDLING
   A. Products shall be delivered to job site in manufacturers original shipping packages.
   B. Provide storage and protection of products, as needed.
10. MANUFACTURERS
   A. Notifier System AFP300.
   B. Equal by EST.
   C. Equal by ADT

   NOTE : Approval of manufacturer's equipment does not any way relieve the Contractor from meeting the performance criteria as outlined in the Plans and Specifications.
11. FIRE ALARM CONTROL PANEL (FACP)
   A. Control panel construction shall be modular with solid state, microprocessor based electronics and shall conform to all requirements made necessary by the Local Fire Marshall. It shall display only those primary controls and displays essential to operation during a fire alarm condition. Keyboards or keypads shall not be required to operate the system during fire alarm conditions. A local audible device shall sound during alarm, trouble of supervisory conditions. This audible device shall sound differently during each condition to distinguish one (1) condition from another without having to view the panel. This audible device shall also sound during each keypress to provide an audible feedback to ensure that the key has been pressed properly. The panel shall be complete with all required cards for the points necessary for all the devices indicated, plus capability for expansion to 30% more points, minimum. Provide the necessary hard wired circuits for all the indicating appliance and auxiliary control devices. Provide a two spare indicating appliance circuits in addition to the required indicating appliance circuits to serve the appliances shown on the drawings.
      1. Provide Voice Evacuation System as required by Local Codes or jurisdiction. Provide microphone, pre–recorded voice message and amplifier and other required devices for a voice annunciated system. Pre–recorded message shall be capable of being revised and re–recored. Confirm exact message required by the local fire marshal prior to installation.
   B. The following primary controls shall be visible through a front access panel:
      1. Eighty character liquid crystal display. Individual red system alarm LED.
      2. Individual yellow supervisory service LED. Individual yellow trouble LED.
      3. Green "power on" LED.
      4. Alarm acknowledge key.
      5. Supervisory acknowledge key.
      6. Trouble acknowledge key.
      7. Alarm silence key.
      8. System reset key.
   C. The control shall provide the following:
      1. Setting of time and date.
      2. LED testing. Alarm, trouble, and abnormal condition listing.
      3. Enabling and disabling of each monitor point separately.
      4. Activation and deactivation of each control point separately.
      5. Changing operator access levels.
      6. Walk test enable.
      7. Running diagnostic functions.
      8. Displaying software revision level.
      9. Displaying historical logs.
      10. Displaying card status.
      11. Point listing.
      12. Speaker silence switch.
   D. For maintenance purposes, the following lists shall be available from the point lists menu.
      1. All points listed by address.
      2. Monitor point list.
      3. Signal/speaker list.
      4. Auxiliary control list.
      5. Feedback point list.
      6. Pseudo point list.
      7. LED/switch status list.
12. DEVICES AND ACCESSORIES
   A. Manual Station: Semi–flush mounted, supervised, normally open single action manual station. Manual stations shall be single action and shall be constructed of cast metal or lexan with raised white lettering and a smooth high gloss finish. The station shall have a hinged front with key lock, stations which utilize screwdrivers, Allen wrenches, or other commonly available tools shall not be accepted. Stations shall be keyed alike with the fire alarm control panel. When the station is operated, the handle shall lock in a protruding manner to facilitate quick visual identification of the activated station. Stations shall be the addressable type.
   B. Heat Detector: Easy installation, low profile with wide base to cover mounting plate and box. Detectors shall be white and have a dangling disk to indicate element operation. Detectors will be fixed temperature with thermostats rated at 135 degrees F, except when the plans call for a 194 or 200 degrees F rating, the detector shall be the addressable type for use with an addressable system and shall be UL listed for this purpose.
      1. Heat detectors installed in hazardous environments shall be the explosion proof type.
   C. Smoke Detectors: NFPA 72E; photoelectric type with plug–in base, supervised visual indication of detector actuation, suitable for mounting on four inch (4") outlet box.
      1. Detectors shall be listed to U.L. Standard 268 and shall be documented compatible with the control equipment to which it is connected. Detectors shall be listed for this purpose by Underwriters Laboratories, Inc. The detectors shall obtain their operating power from the fire alarm panel supervised detection loop. The operating voltage shall be 24 VDC (nominal). Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal to be generated at the control panel. Detectors shall be the addressable type for use on an addressable type system.
      2. Each detector shall have a flashing status indicating LED for visual supervision. When the detector is actuated, the flashing LED will latch on steady and at full brilliance. The detector may be reset by actuating the control panel reset switch.
      3. To minimize nuisance alarms, voltage and RF transient suppression techniques shall be employed as–well–as a smoke verification circuit and an insect screen. The detector design shall provide full solid–state construction and compatibility with other normally open fire alarm detection loop devices (heat detectors, pull stations, etc.). The detector head shall be easily disassembled to facilitate cleaning.
   D. Horns/Speakers: Moisture repellent, fire retardant speaker or horn designed for smooth frequency response with minimal distortion. Horn/Speakers shall be listed and approved for use as a fire alarm indicating appliance. Horn/Speakers shall all sound the same general alarm sound. Outdoor speakers shall be weatherproof and listed for use as an outdoor fire alarm indicating appliance.
      1. Sound Level: 87 dB at 10 feet not to exceed 120 dbA.
   E. Visual Flashing Lamps (Xenon Strobe): Visual indicating appliances shall be comprised of xenon flashtube and be entirely solid state. These devices shall be UL listed and be capable of either ceiling or wall mounting. The lexan lens shall be pyramidal in shape to allow better visibility. Separate alarm indicating circuits shall be provided for strobes. The maximum strobe pulse duration shall be 0.2 seconds with a maximum duty cycle of 40 percent. The intensity shall be a minimum 100 candela and the flash rate shall be at least 1 Hz but not to exceed 3 Hz. Strobe must meet current ADA requirements.
   F. Audio/Visual Alarm Indicating Appliance; Audio/Visual units shall provide a common enclosure for the fire alarm audible and visual alarm devices. The housing shall be designed to accommodate either horns, bells, chimes, or speakers. The unit shall be complete with a tamper resistant, pyramidal shaped lexan lens with "Fire" lettering visible from a 180 degree field of view. The front panel or bezel which is constructed of cast metal maybe inverted so that the lens is below the audible device. The lamp assembly shall incorporate a built–in reflector for more efficient light propagation and a special shock–mounting arrangement to resist Bulb failure due to vibration. Lamp shall be provided with a 4 wire connection to insure properly supervised in/out system connection. Unit shall be complete with all mounting hardware including backbox. Audio/Visual unit shall be UL Listed for its intended purpose. The visual flashing lamps shall meet the specification indicated above in Part E.
      1. Minimum dB: 87 dB at 10 feet per UL 464.
   G. Duct Smoke Detectors: Duct smoke detectors shall be of the solid state photoelectric type and shall operate on the light scattering photodiode principle. The detectors shall be designed to ignore invisible airborne particles of smoke densities that are below the factory set alarm point. No radioactive materials shall be used. Detectors shall be the addressable type for use on an addressable type system. Detectors shall be provided with the capability of performing automatic fan shutdown either directly from the detector or via the main control panel. All required wiring and supervision shall be provided for all required fan shutdown. Provide all relays and supervise relays as required.
   H. Provide all required auxiliary control circuits for hood fire suppression system supervision, appliance shutdown, door release, hood supply fan shutdown, gas shutdown, dampers, valve closure and other required control functions indicated on the drawings or otherwise specified. All auxiliary control circuits shall be indicated on the annunciator as a separate zone or shall be addressable so the device can be identified quickly and accurately.
   I. Provide wall mounted, magnetic door holder/automatic door release devices. Door holder shall have a minimum 25 lbs. holding force.
13. BATTERY BACK–UP
   A. The system shall be battery back–up for 24 hours with five (5) minutes of alarm capabilities (per NFPA 72) with all system indicating appliances operating, including strobes. Provide battery with 30% spare capacity for the potential addition of indicating appliances.
14. LIGHTNING PROTECTION
   A. Provide surge protection on all circuits.
   B. Provide lightning protection at all points entering and leaving the building (including walkways) and at the FACP location shown on the drawings. The 120 volt power circuit shall be provided with lightning protection.
   C. Surge protection shall be manufactured and listed for use with the fire alarm system.
15. ENTIRE BUILDING
   A. All pull stations, heat detectors, and smoke detectors shall, when placed in an alarm mode, sound the building general alarm, flash strobe lights, shutdown AHUs, release door holders, and annunciate the address of the initiating device or the zone of any of the existing hard wired devices to the FACP.
   B. All pull stations, heat detectors, smoke detectors, and duct smoke detectors shall, when placed in a trouble mode, indicate the address of the device or zone of any existing device experiencing trouble to the FACP.
   C. Duct smoke detectors shall be hardwired interlocked to shutdown their respective units on alarm or detection of smoke. Duct smoke detectors shall sound a supervisory signal to the FACP and shall not sound the general alarm.
   D. The system shall be fully programmed and completely operational prior to acceptance. The FACP and CPU shall have the capability to be fully programmable by Owner's personnel.
   E. The Manufacturer shall provide the necessary documentation and training to allow the Owner's personnel to maintain and change software.
   F. Program data shall be stored in non–volatile memory with battery back–up. Program data shall not be lost due to temporary outages, surges, dips, etc.
16. INSTALLATION OF FIRE ALARM AND DETECTION SYSTEMS
   A. Install fire alarm and detection systems as indicated, in accordance with equipment manufacturer's written instructions and complying with applicable portions of NEC and NECAs "Standard of Installation" and NFPA–72E.
   B. Wiring Systems and Materials
      1. Wiring shall be in accordance with requirements of the National Electrical Code and NFPA Regulation 72. The fire alarm system, including components, conduit, boxes and wiring shall be completely installed and wiring and conduit shall be properly tagged and color coded. The Electrical Contractor shall make final connections as shown and required by the equipment manufacturer's wiring instructions.
      2. Color Code – The color codes of the fire alarm cabling shall conform with the following:
         a. Speaker – Red (+) and Black (–).
         b. Pull Station/Heat/Smoke Detector – Blue and Yellow.
         c. Fan shut–down – White.
         d. Visual Flashing Lamps (Xenon Strobes) – Purple and Orange.
         e. Spare wires – Any different color, must be same throughout the building.
      3. All wiring to be installed in conduit with continuous ground.
      4. All junction box covers shall be painted red. All lengths of conduits shall have at least one red stripe.
      5. AHU shutdown relays and equipment control relays shall be mounted within three (3) feet of controlled device. AHU shutdown relays shall be wired on a separate circuit.
      6. Visual flashing lamps and speakers shall be wired on alternate circuits to provide coverage in the event of the failure of one circuit. Provide the required number of circuits for the indicated number of alarm indicating devices.
   C. Provide conduit, wire and circuit breakers to connect fire alarm control panels to emergency circuit. The fire alarm circuit breaker shall be accessible to authorized personnel only and shall be marked FIRE ALARM CIRCUIT CONTROL. Provide handle lock for circuit breaker handle.
   D. Provide a disable switch for system speakers at the Fire Alarm Control Panel. Label switch "ALARM SILENCE SWITCH". (If the switch is left in the disable position during normal system operation, a trouble signal shall sound at the control panel.).
17. QUALITY ASSURANCE
   A. NEC Compliance comply with NEC as applicable to construction and installation of fire alarm and detection system components and accessories.
   B. UL Compliance and Labeling – Provide fire alarm and detection system components which are UL listed and labeled. Installation is to be by a UL listed installer.
   C. Misc. compliance – The fire alarm system is to be installed in accordance with the equipment manufacturer's written instructions and comply with all applicable portions of the NECAs "Standard Installation" and all local codes and ordinances.
18. FIELD QUALITY CONTROL
   A. Inspect relays and signals for malfunctioning, and where necessary adjust units for proper operation to fulfill project requirements. Any fine adjustment shall be performed by specially trained personnel in direct employ of manufacturer of the fire alarm detection system equipment. The Manufacturer's representative shall perform a quality inspection off the final installation and, in the presence of the Electrical Contractor, Architect/Engineer, and Owner's Representatives, shall perform a complete functional test of the system. A system certification verifying the proper system operation shall be required prior to acceptance by the Owner.
19. SYSTEM GUARANTEE
   A. All components, parts, and assemblies supplied by the Manufacturer shall be guaranteed against defects in materials and workmanship for a period of twelve (12) months commencing the date of substantial completion. Warranty service shall be provided by a qualified factory trained representative of the equipment manufacturer. Service response time shall be a maximum of four (4) hours before arrival to site.
   B. Testing: The Contractor shall perform all electrical and mechanical tests required by the equipment manufacturer's form and National Fire Protection Association – 72H. All test and report costs shall be in the contract price. A checkout report shall be prepared by the installation technicians and submitted in triplicate, one (1) copy of which will be registered with the equipment manufacturer. The report shall include, but not be limited to:
      1. A complete list of equipment installed and wired.
      2. Indication that all equipment is properly installed and functions and conforms with these specifications.
      3. Test result of individual initiating devices and indicating appliances.
      4. Serial numbers, locations by zone and model number for each installed detector.
      5. Response time on thermostats and flame detectors (if used).
      6. Technician's name, certificate number and date.
   C. Documentation: After completion of the tests and adjustments listed above, the Contractor shall submit the following information to the Owner.
      1. A copy of the test report described in this specification and a Certificate of Compliance prepared as per National Fire Protection Association Standard 72A Chapter 2, Section 2–2.4, and State Fire Marshal's Rule 4A–48 to be complete at final test.
      2. Affixed to FACP a standard service tag, as described in rule 4A–48 for fire alarm contractors by the Office of the State Fire Marshal.
      3. Final tests and inspection shall be held in presence of the Owners' representatives and to their satisfaction. The Contractor shall supply personnel and required auxiliary equipment for this test without additional cost to the Owner.
      4. To assure that wire size, power supply, number of devices on a circuit, etc. are suitable to support 100% of devices being in alarm or operated simultaneously, this test shall include the following:
         a. Place all sensors and monitor modules in alarm. Each shall display it's address and alarm condition. At least the first ten (10) devices on each circuit shall also have their alarm LEDs lighted.
         b. Operate all control modules for the alarm or operated condition. Each module shall display it's address and condition.
         c. Reset all alarmed and operated devices. The panel shall display the address or zone of any off–normal devices.
         d. Test a representative number of sensors for alarm verification by momentarily testing for alarm. The sensor shall not initiate an alarm. Then, test by placing the sensor in alarm such that it remains in alarm for the selected verification time. The sensor shall initiate an alarm.
         e. Acceptance of the system shall also require a demonstration of the stability of the system. This shall be adequately demonstrated if the system operates for a ninety (90) day test period without any unwarranted alarms. Should unwarranted alarm(s) occur, the Contractor shall readjust or replace the detector(s) and begin another ninety (90) day test period. As required by the Engineer the Contractor shall recheck the detectors using the fire test after each readjustment or replacement of detectors. This test shall not start until the Owner has obtained beneficial use of the building under tests.
      f. If the requirements provided in the paragraph above are not completed within thirty (30) days after beginning the tests described therein, the Contractor shall replace the system with another acceptable manufacturer and the process repeated until acceptance of the equipment by the Owner.
      g. Before final acceptance of work; the Contractor shall deliver seven (7) copies of a composite "Operating and Shop Maintenance Manual." Each manual shall contain, but not be limited to:
      h. A statement of guarantee including date of termination and name and phone number of the person to be called in the event of equipment failure.
      i. Individual factory issued manuals containing all technical information on each piece of equipment installed. In the event that such manuals are not available from the factory, it shall be the responsibility of the Contractor to compile and include them. Advertising brochures or operational instructions shall not be used in lieu of the required technical manuals.
      j. One (1) copy of all approved shop drawings, instruction sheets, operating instructions, and spare parts bulletins.
      k. A training session, for personnel selected by the Owner, shall be presented by a fully qualified, trained representative of the equipment manufacturer who is thoroughly knowledgeable of the specific installation.
      l. Provide a written description of standard control panel functions and user instructions at each FACP. These instructions shall be written in standard laymen's English so that an untomiliar operator can accomplish basic functions such as reset.
D. Warranty : All equipment and systems shall be warranted by the Contractor for a period of one (1) year following the date of final acceptance. The warranty shall include parts, labor, prompt field service, pick–up, and delivery.
   1. Provide one (1) year of testing as per National Fire Protection Association 72, which shall consist of:
   2. At the end of the one year warranty period provide a Test and Written report which certify that all initiating devices have been tested and which indicate the result of the inspection as required by the Owner. Provide the required certification tag. Problems discovered during this testing and inspection shall be covered under the warranty. It is the contractor's responsibility to perform this testing prior to the end of the one year warranty or provide an extended warranty if the test is performed after the warranty period was scheduled to expire.

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03/16/22

DICKEY'S BARBEQUE PIT
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DICKEY'S BARBECUE PIT© est. 1941

MI-2077

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