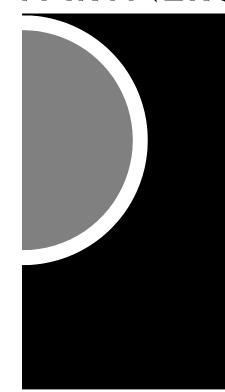
# Village of Beverly Hills

# Village Hall Office Renovation

# **PARTNERS**



# PARTNERS in Architecture, PLC

65 Market Street Mount Clemens, MI 48043 586-469-3600

Structural Engineer:
Shymanski & Associates, LLC

33426 Five Mile Road Livonia, MI 48154 (Phone) 734-855-4810

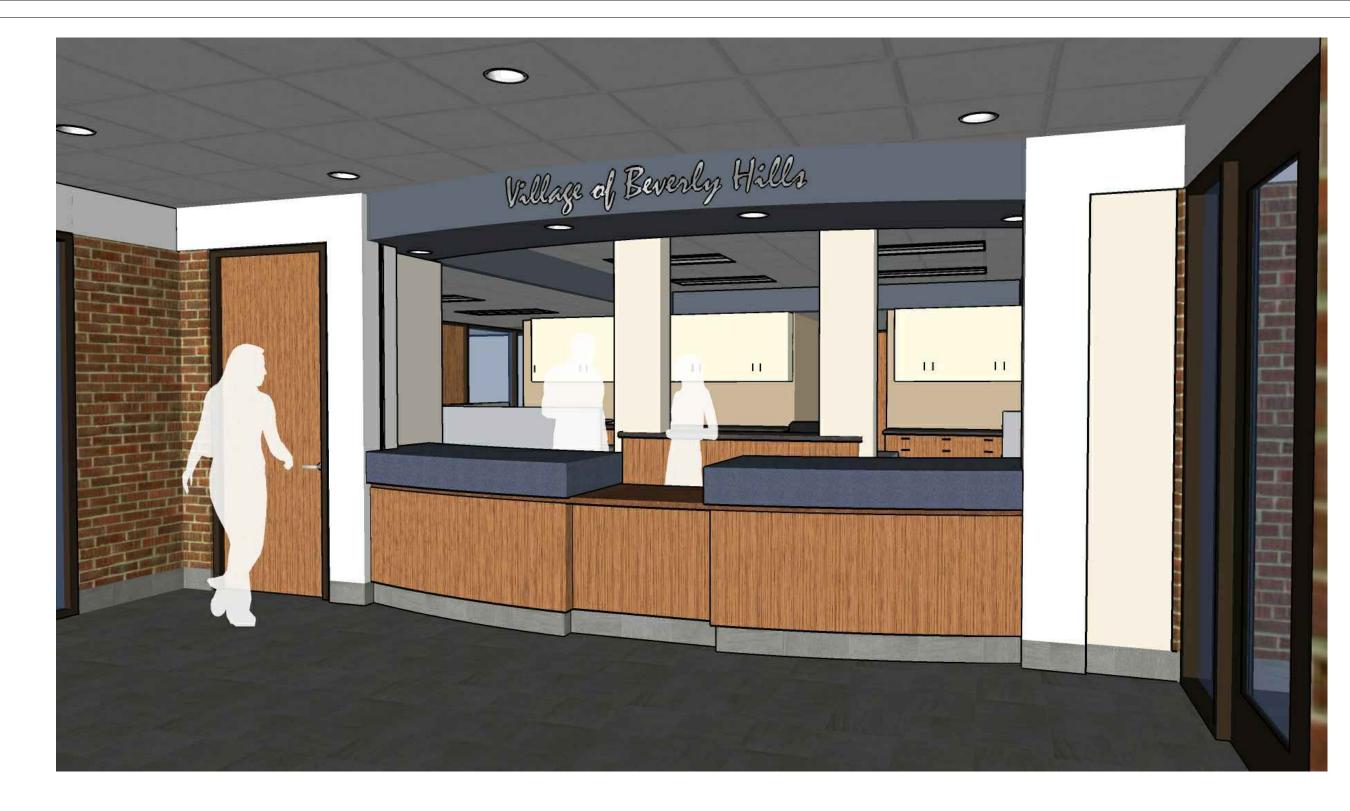
Mechanical / Electrical Engineer:

MA Engineering

200 E. Brown Street Birmingham, MI 48009 248-258-1610

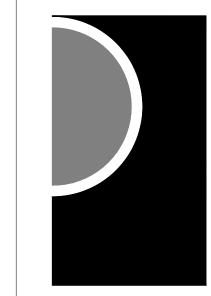


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Sheet Number	Sheet Title
	Cover Sheet
A 1.1. 1	
Architectural	
A0-01	General Information
A0-02	Composite Floor / Site Plan
A0-03	Life Safety Code Information
A0-04	Schedules, Frame Types, Door Types & Wall Types
A0-05	Opening Details
A1-01	Floor Plans - Demolition and Phasing
A3-01	Floor Plan - New Work and Floor Finish Plan
A3-10	Enlarged Floor Plans
A3-20	Roof Plan and Details
A4-01	Reflected Ceiling Plan and Details
A5-01	Exterior Elevations & Building Sections
A6-01	Wall Sections - Demo
A6-03	Wall Sections - New
A8-01	Interior Elevation
A8-02	Interior Elevation
A8-21	Millwork Details and Sections
Structural	
S2-01	Foundation & Roof Framing Plan
S3-01	General Notes
S3-02	Details
Mechanical	
M0-00	Mechanical Legend and Sheet Index
M0-01	Mechanical Specifications
MD1-01	Plumbing Demolition Plan
MD2-01	HVAC Demolition Plan
MD2-02	HVAC Demolition Plan Roof Level
M1-01	Plumbing New Work Plan
	HVAC New Work Plan
M2-01	TO ACTIVE WOLK FIALL
	HVAC New Work Plan Roof Level
M2-02	
M2-02 M3-00	HVAC New Work Plan Roof Level
M2-02 M3-00 M4-00	HVAC New Work Plan Roof Level Mechanical Schedules
M2-02 M3-00 M4-00 Electrical	HVAC New Work Plan Roof Level  Mechanical Schedules  Mechanical Details
M2-02 M3-00 M4-00 Electrical E0.0	HVAC New Work Plan Roof Level  Mechanical Schedules  Mechanical Details  Electrical Legend
M2-02 M3-00 M4-00 Electrical E0.0 E0.1	HVAC New Work Plan Roof Level Mechanical Schedules Mechanical Details  Electrical Legend Electrical General Notes
M2-02 M3-00 M4-00 Electrical E0.0 E0.1	HVAC New Work Plan Roof Level  Mechanical Schedules  Mechanical Details  Electrical Legend  Electrical General Notes  Electrical One-Line Diagram & Panel Schedules
M2-02 M3-00 M4-00 Electrical E0.0 E0.1 E0.2 E0.3	HVAC New Work Plan Roof Level Mechanical Schedules Mechanical Details  Electrical Legend Electrical General Notes Electrical One-Line Diagram & Panel Schedules Electrical Details
M2-02 M3-00 M4-00 Electrical E0.0 E0.1 E0.2 E0.3 ED1-01	HVAC New Work Plan Roof Level  Mechanical Schedules  Mechanical Details  Electrical Legend  Electrical General Notes  Electrical One-Line Diagram & Panel Schedules  Electrical Details  Lighting Demolition Plan
M2-02 M3-00 M4-00 Electrical E0.0 E0.1 E0.2 E0.3 ED1-01 ED2-01	HVAC New Work Plan Roof Level  Mechanical Schedules  Mechanical Details  Electrical Legend  Electrical General Notes  Electrical One-Line Diagram & Panel Schedules  Electrical Details  Lighting Demolition Plan  Power and Communications Demolition Plan
M2-02 M3-00 M4-00 Electrical E0.0 E0.1 E0.2 E0.3 ED1-01 ED2-01 ED2-01	HVAC New Work Plan Roof Level Mechanical Schedules Mechanical Details  Electrical Legend Electrical General Notes Electrical One-Line Diagram & Panel Schedules Electrical Details Lighting Demolition Plan Power and Communications Demolition Plan Electrical Demolition Roof Plan
M2-02 M3-00 M4-00 Electrical E0.0 E0.1 E0.2 E0.3 ED1-01 ED2-01 ED2-01 ED2-02 E1-01	HVAC New Work Plan Roof Level  Mechanical Schedules  Mechanical Details  Electrical Legend  Electrical General Notes  Electrical One-Line Diagram & Panel Schedules  Electrical Details  Lighting Demolition Plan  Power and Communications Demolition Plan  Electrical Demolition Roof Plan  Lighting New Work Plan
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KEV DLAN

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Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

HOULOT NO.

15-161

ISSUES / REVISIONS

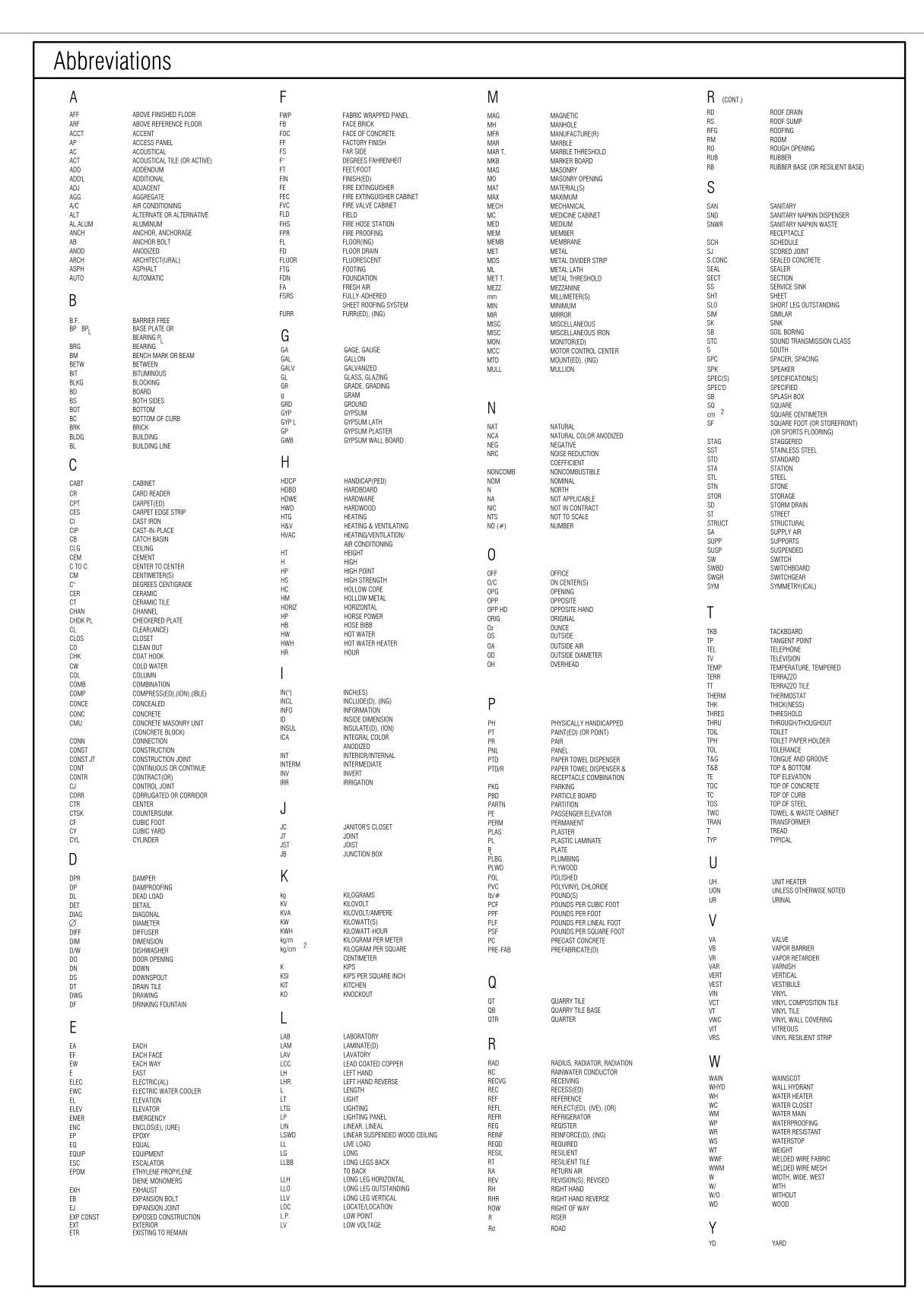
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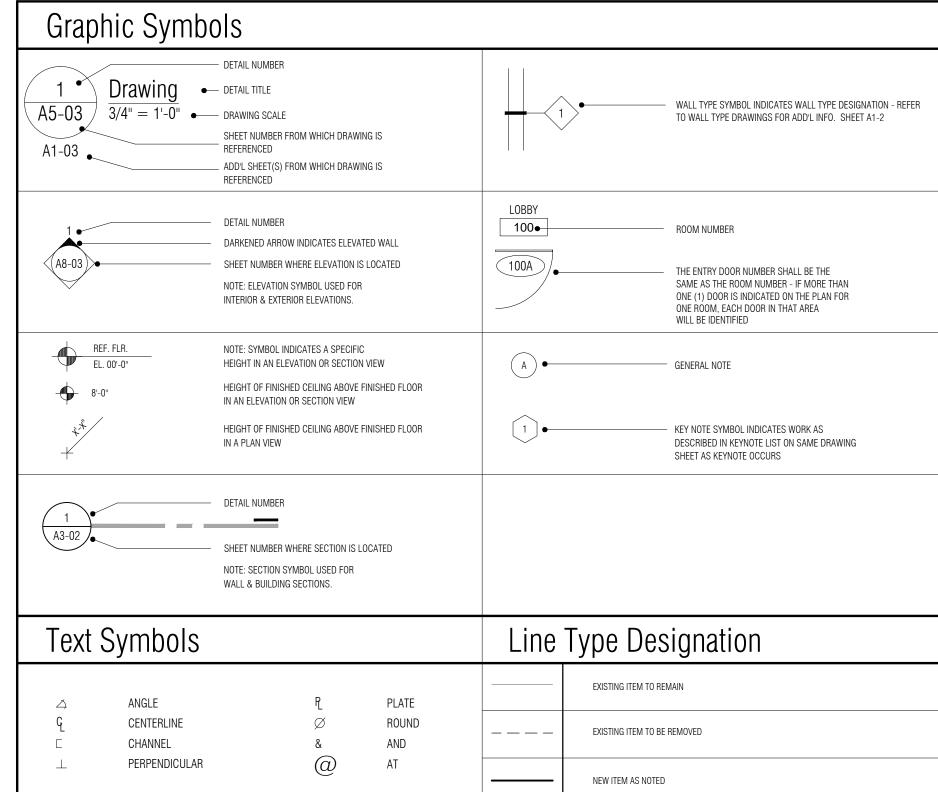
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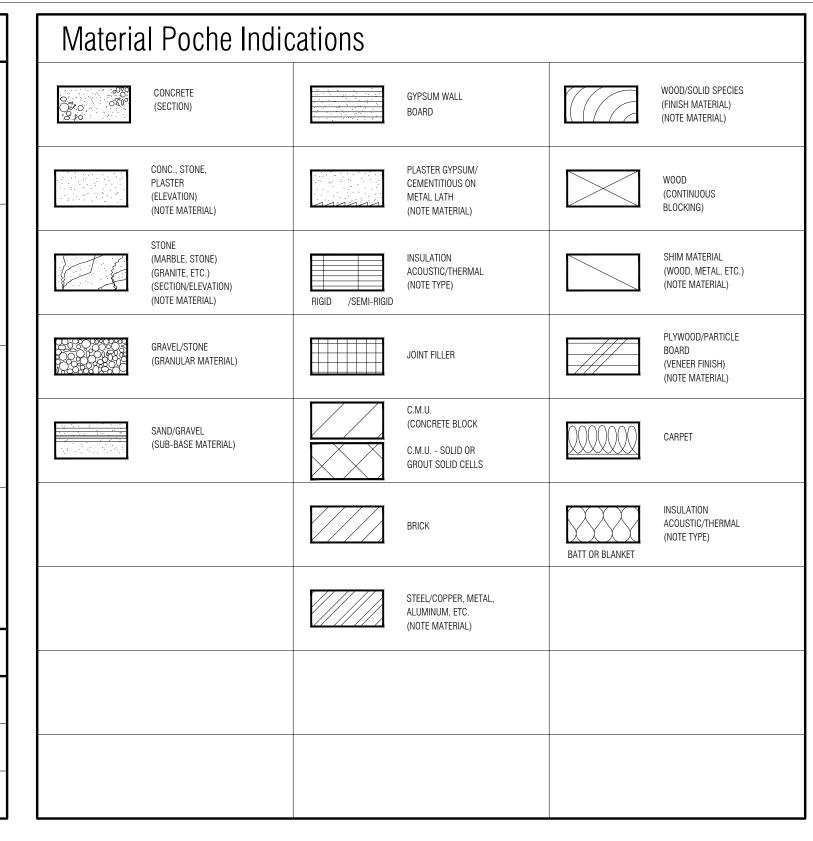
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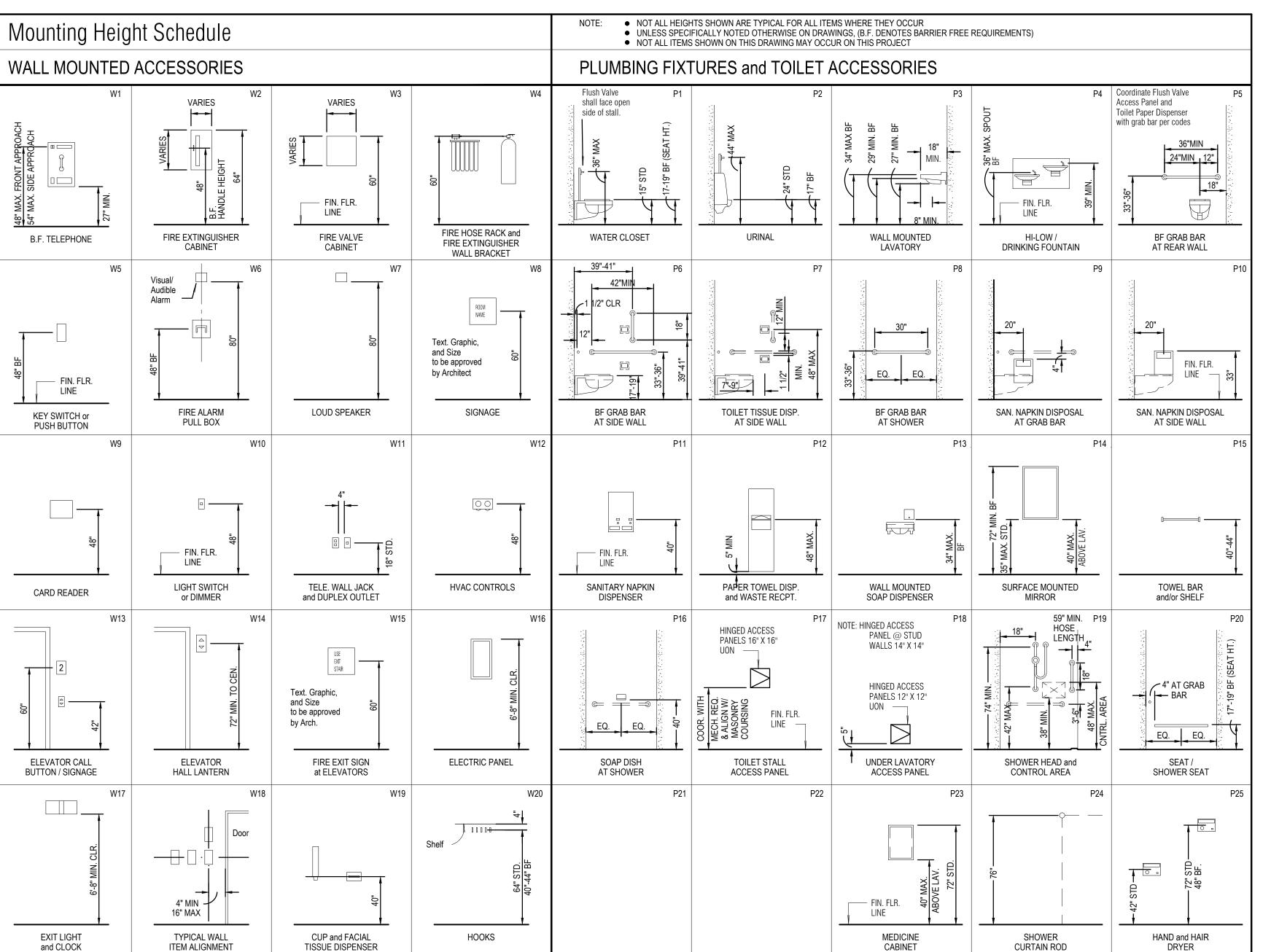
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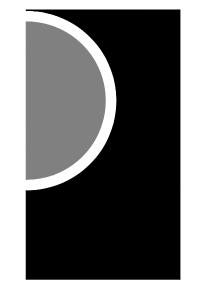












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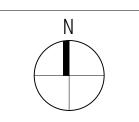
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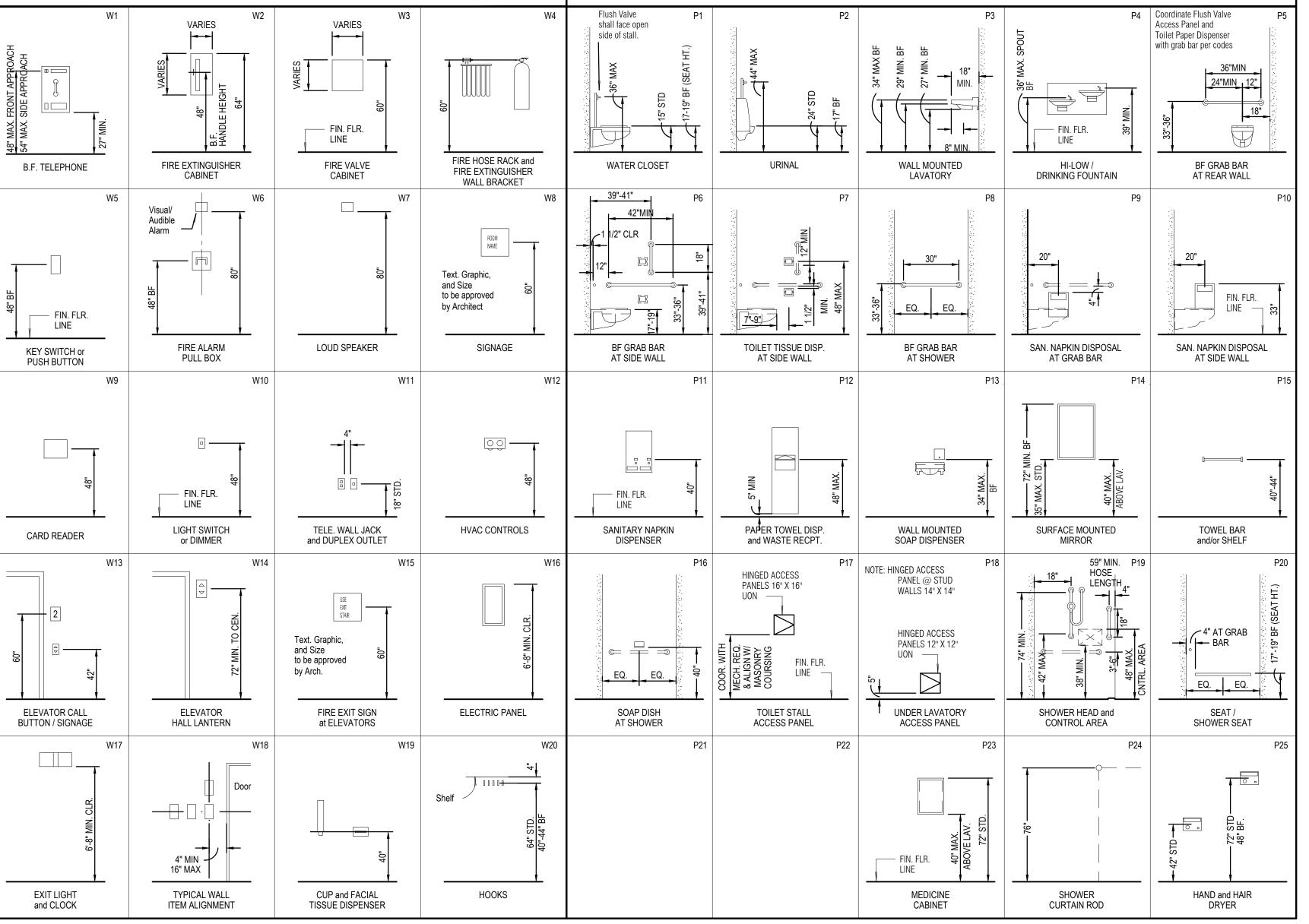
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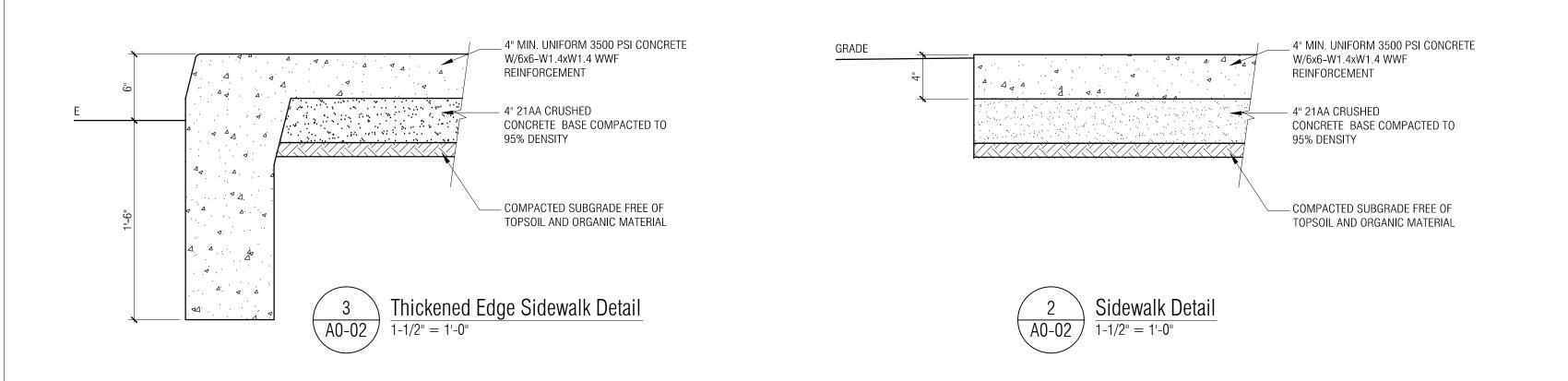
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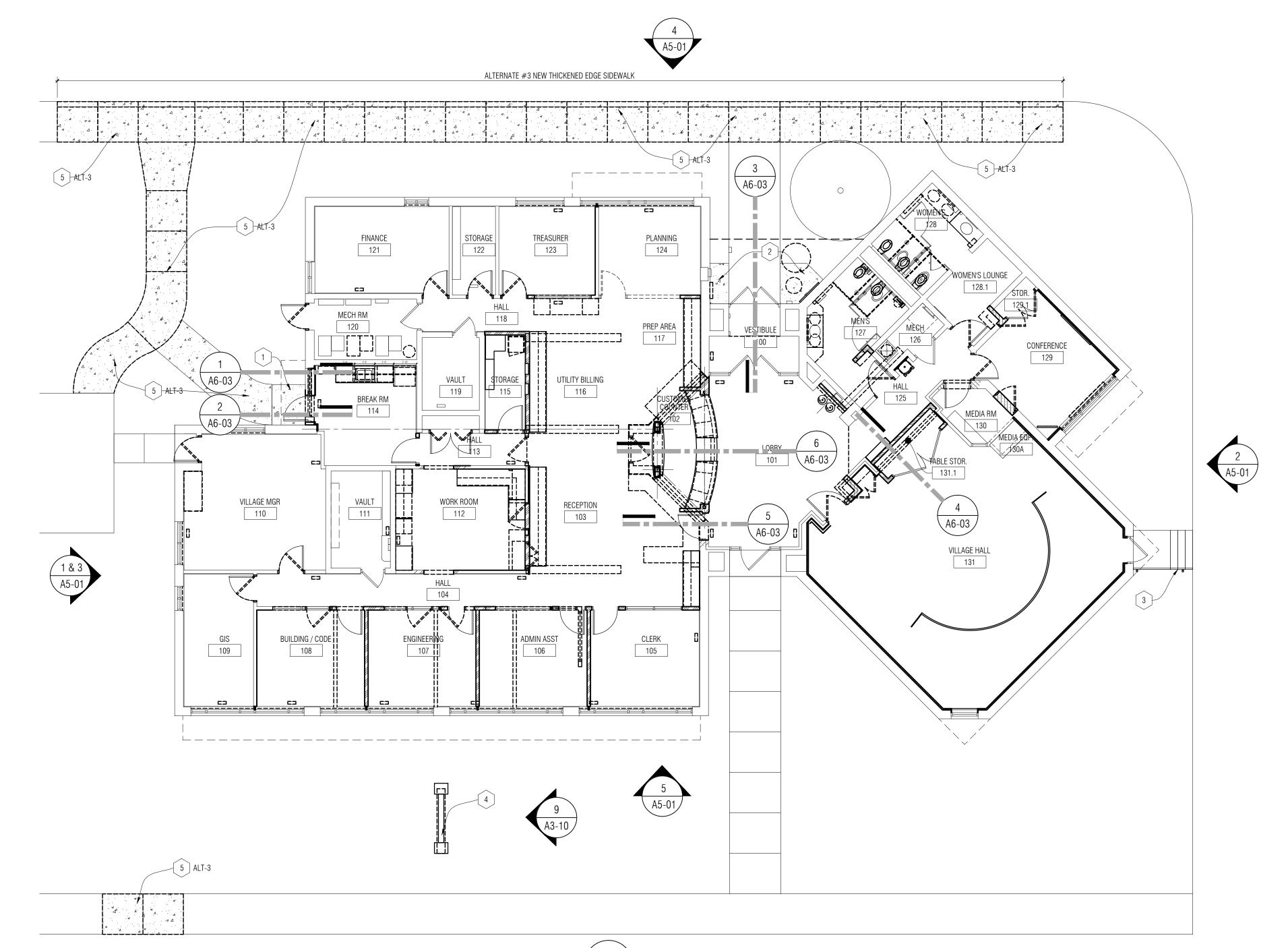
GENERAL INFORMATION

A0-01

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 $\frac{1}{A0-02}$  Composite Floor and Site Plan  $\frac{1}{1/8"} = 1'-0"$ 

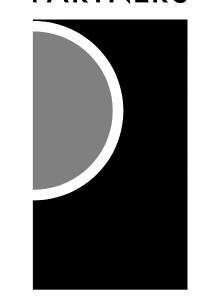
#### GENERAL NOTES - SITE PLAN:

- A. ALL DIMENSIONS ARE AS SHOWN +/- AND SHALL BE VERIFIED IN FIELD.
- B. REMOVE ALL DEBRIS FROM SITE DAILY.
- MAINTAIN ACCESS TO BUILDING AT ALL TIMES.
- D. RESTORE LANDSCAPING AND LAWNS DAMAGED BY CONSTRUCTION OPERATIONS TO ORIGINAL CONDITION.

KEY NOTES - SITE PLAN

- PROVIDE NEW MASS FOOTING AND CONCRETE PAD AT NEW ENTRY DOOR REFER TO FLOOR PLAN.
- 2 NEW CONCRETE SIDEWALK REFER TO FLOOR PLAN
- (3) PROVIDE NEW HANDRAIL AT EXISTING EXIT DOOR. REFER TO FLOOR PLAN AND DETAILS.
- 4 NEW BACKLIT MONUMENT SIGN REFER TO DETAILS
- 5 ALTERNATE -3:
- REMOVE EXISTING CONCRETE SIDEWALKS AS INDICATED AND REPLACE WITH NEW CONCRETE SIDEWALKS. PROVIDE THICKENED EDGE ADJACENT TO EXISTING PAVEMENT AS NOTED. PATCH PAVEMENT TO MATCH AS REQUIRED FOR INSTALLATION OF NEW WALK.

# **PARTNERS**



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PROJECT NAME

Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

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SHEET NAME

COMPOSITE FLOOR & SITE PLAN

SHEET NO. A0-02

#### **MICHIGAN PLUMBING CODE (MPC TABLE 403.1):**

#### DIVIDED BY 50% FOR MEN AND WOMEN EQUALS

- RENOVATION AREA USE GROUP "B": 19 OCCUPANT LOAD FOR MEN
- 19 OCCUPANT LOAD FOR WOMEN RENOVATION AREA - USE GROUP "A-3"
- 57 OCCUPANT LOAD FOR MEN 57 OCCUPANT LOAD FOR WOMEN

#### - USE GROUP A-3: MALE REQUIRED FIXTURES:

#### WATER CLOSETS = 1 / 125 OCC • URINALS = 67% MAXIMUM OF REQUIRED WATER CLOSETS

- CAN BE SUBSTITUTED LAVATORIES = 1 / 200 OCC
- FEMALE REQUIRED FIXTURES: WATER CLOSETS = 1 / 65 OCC
- LAVATORIES = 1 / 200 OCC
- GENERAL: DRINKING FOUNTAIN = 1 / 500 OCC

## SERVICE SINK = 1

#### MALE & FEMALE REQUIRED FIXTURES:

- WATER CLOSETS = 1 / 25 FOR THE FIRST 50 OCC AND 1 / 50 FOR THE REMAINDER EXCEEDING 50.
- URINALS = 67% MAXIMUM OF REQUIRED WATER CLOSETS CAN BE SUBSTITUTED
- LAVATORIES = 1 / 40 FOR THE FIRST 80 OCC AND 1 / 80 FOR THE REMAINDER EXCEEDING 80.
- DRINKING FOUNTAIN = 1 / 100 OCC SERVICE SINK = 1

PER MICHIGAN PLUMBING CODE SECTION 403: TABLE 403.1								
OCCUPANCY / OCCUPANT LOAD	DESCRIPTI	DESCRIPTION						
	WATER CLOSETS LAVATORIES I		DRINK'G FO	N'TNUC	SERVICE S	INKS		
	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
ASSEMBLY (A-3) - 113 TOTAL								
MALE (WC/UR) - 57	1	2	1	1				
FEMALE - 57	2	2	1	1	1	1	1	1
BUSINESS (B) - 45 TOTAL					<b> </b>	1	I	
MALE (WC/UR) - 23	1	NOTE-1	1	NOTE-1				
FEMALE - 23	1	NOTE-1	1	NOTE-1				

#

NOTE-1: ASSEMBLY (VILLAGE HALL) & BUSINESS ARE NON - OVERLAPPING FUNCTIONS OPERATING AT DIFFERENT TIMES

# CODE AND LIFE SAFETY PLAN LEGEND

AT ALL FIRE RATED WALL CONSTRUCTION, NEW OR OTHERWISE ALTERED BY THIS PROJECT, PROVIDE SIGNAGE ABOVE THE ADJACENT ACCESSIBLE CEILING THAT STATES: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS." THE LETTERS ARE TO BE 1/2" HIGH MIN. AND ARE TO BE STENCILED IN PAINT DIRECTLY ONTO THE WALL. LOCATE THE SIGNS 30 FEET O.C. MAXIMUM. IN ADDITION, PROVIDE PERMANENT PLAQUE ON LOBBY WALL ADJACENT TO TOWNSHIP HALL DOORS #112 TO READ: "FIRE BARRIER"



OCCUPANT LOAD EXITING THROUGH EGRESS COMPONENT OCCUPANT LOAD CAPACITY OF

EGRESS COMPONENT

PATH OF EGRESS TRAVEL

#### GENERAL LIFE SAFETY NOTES

- . ALL FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS SHALL BE IDENTIFIED WITH SIGNS OF STENCILING (WHERE WALL AREAS ARE CONCEALED FROM VIEW) LETTERS MUST BE A MIN. 1/2" HEIGHT AND READ "FIRE AND/OR SMOKE BARRIER. PROTECT ALL OPENINGS" - SPACED AT 30'-0" O.C.
- THESE CODE ANALYSIS DRAWINGS (SHEET A0-03), NOTES, PLANS AND WALL IDENTIFICATION TYPES AND LOCATIONS ARE FOR FIRE RATINGS AND / OR SMOKE BARRIERS AS REQUIRED FOR LIFE SAFETY AND BUILDING CODE COMPLIANCE. ALL OTHER CONSTRUCTION REQUIREMENTS ARE INDICATED ON THE CONSTRUCTION DOCUMENTS.
- ALL FIRE RATED CONSTRUCTION WALLS OF ANY TYPE SHALL BE SEALED TIGHT TO ROOF DECK SYSTEM ABOVE AND ALL PENETRATIONS SEALED WITH UL APPROVED MATERIAL BY EITHER JOHNS MANSVILLE FIRETEMP, HILTI FIRESTOP COMPOUND, OR 3M. ALL PRODUCTS / MATERIALS MUST BE UL APPROVED AND CLASSIFIED AND SUBMITTED FOR REVIEW AND APPROVAL BY ARCHITECT BEFORE APPLICATION / INSTALLATION.

#### CODE INFORMATION - BUREAU OF CONSTR. CODES

- 2012 MICHIGAN BUILDING CODE 2014 MICHIGAN ELECTRICAL CODE RULES, PART 8
- 2012 MICHIGAN PLUMBING CODE

#### 2009 MICHIGAN UNIFORM ENERGY CODE (ANSI/ASHRAE/IESNA STANDARD 90.1 2007)

CONSTRUCTION TYPE "5-B":

B = 2 STORIES / 9,000 SFCODE ANALYSIS AREA (GROSS BUILDING AREA):

A-3 (VILLAGE HALL & CONFERENCE) = 1,012 SFB (ADMINISTRATION) = 4,580 SFTOTAL GROSS BUILDING AREA (per MBC) = 5,592 SF

ACTUAL BUILDING AREA COMPLIANCE

FIRE AREA-1: 5,592 SF ACTUAL

#### NONSEPERATED MIXED USE (PER MBC SECTION 508.3)

BETWEEN B AND A-3:

0-HOUR FIRE SEPARATION REQUIRED IF ALLOWABLE BUILDING HEIGHT IS BASED ON THE MOST RESTRICTIVE ALLOWANCES FOR THE OCCUPANCY GROUPS UNDER CONSIDERATION

1. LESS THAN 12,000 SF IN ANY FIRE AREA

TOTAL OCCUPANT LOAD = 147

ACTUAL TRAVEL DISTANCE IS LESS THAN CODE LIMITS IN EACH USE GROUP

#### 65 MARKET STREET MOUNT CLEMENS, MI 48043 P 586.469.3600 F 586.469.3607

#### **GOVERNING CODES:**

- 2012 MICHIGAN MECHANICAL CODE
- 2009 ICC / ANSI A 117.1

#### ALLOWABLE HEIGHT AND BUILDING AREA (PER MBC TABLE 503)

A-3 = 1 STORY / 6,000 SF (MOST RESTRICTIVE PER MIXED USE)

#### MEETS CODE: 5,592 SF < ALLOWABLE 6000 SF

FIRE AREAS

FOR THE TYPE OF CONSTRUCTION OF THE BUILDING

#### CONSTRUCTION TYPE (PER MBC SECTION 602.1)

EXISTING BUILDING: TYPE 5-B, NON - SPRINKLERED NEW ADDITION: TYPE 5-B, NON - SPRINKLERED

#### AUTOMATIC SPRINKLERS (PER MBC SECTION 903.2.1. GROUP A-3)

AUTOMATIC SPRINKLERS NOT REQUIRED

2. LESS THAN 300 OCCUPANTS IN ANY FIRE AREA

3. FIRE AREA IS LOCATED ON SAME FLOOR AS LEVEL OF EXIT DISCHARGE

#### OCCUPANT LOADS (PER MBC TABLE 1004.1.1)

ASSEMBLY (CONCENTRATED) -1 PER 7 SF (NET) = 532/7 = 76ASSEMBLY (UN-CONCENTRATED)- 1 PER 15 SF (NET) = 355/15 = 36**BUSINESS AREA** - 1 PER 100 SF (GROSS) = 3496 / 100 = 35 TOTAL OCCUPANTS

#### MINIMUM REQUIRED EGRESS WIDTH (PER MBC SECTION 1005.1)

36" DOOR = 34" CLEAR / 0.2" = 170 OCCUPANTS PER 36" DOOR

MEANS OF EGRESS CAPACITY IS PROVIDED BY A MINIMUM OF TWO EXITS. VILLAGE HALL 2 EXITS PROVIDED ADMIN. OFFICES 2 EXITS PROVIDED

#### EXIT ACCESS TRAVEL DISTANCE (PER MBC TABLE 1016.2)

USE GROUP A-3 - 200 FT NOT SPRINKLERED USE GROUP B - 200 FT NOT SPRINKLERED

15-161

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18500 W 13 Mile Road

Beverly Hills, MI 48025

Village of Beverly Hills

Office Renovation

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PROJECT NAME

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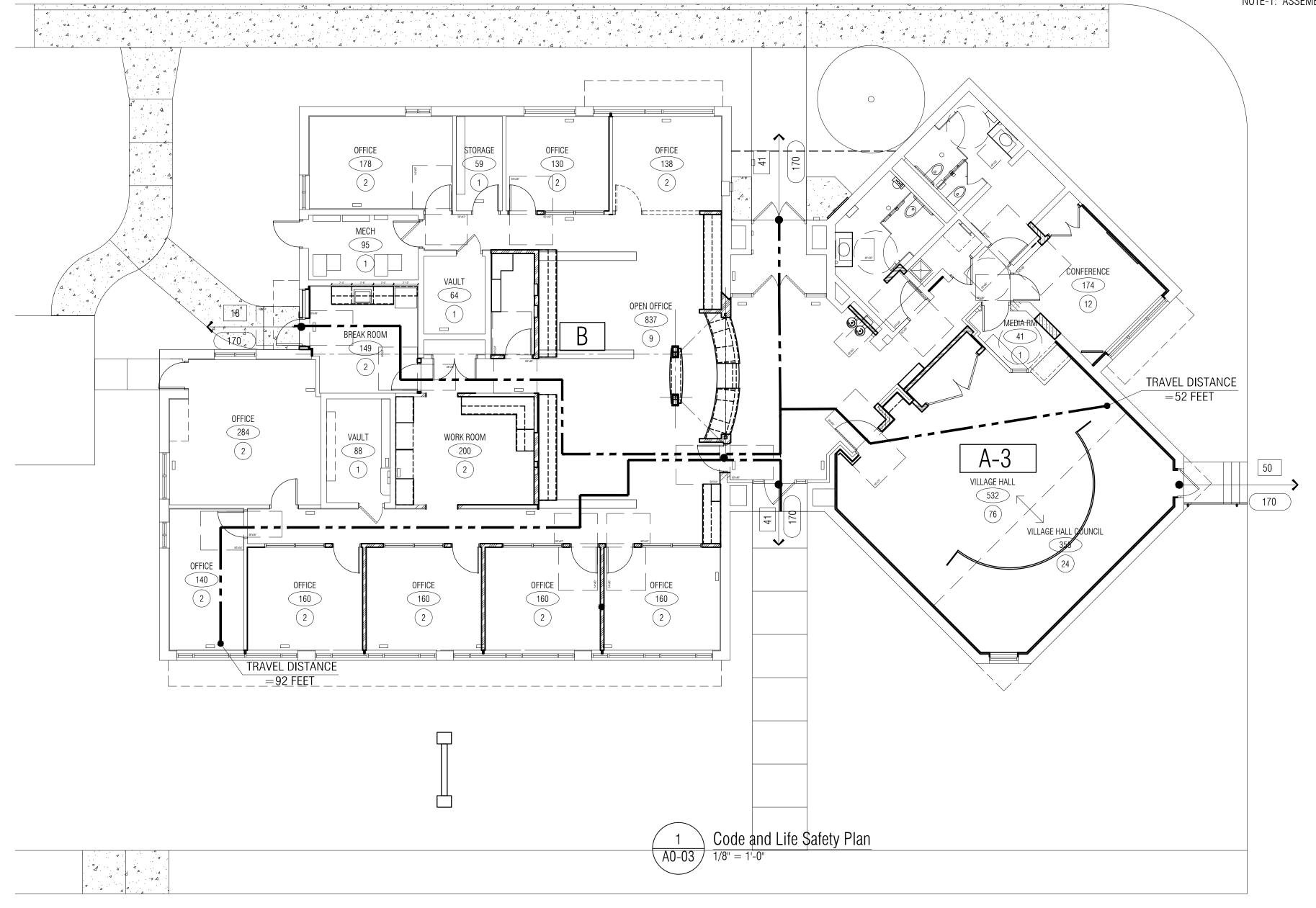
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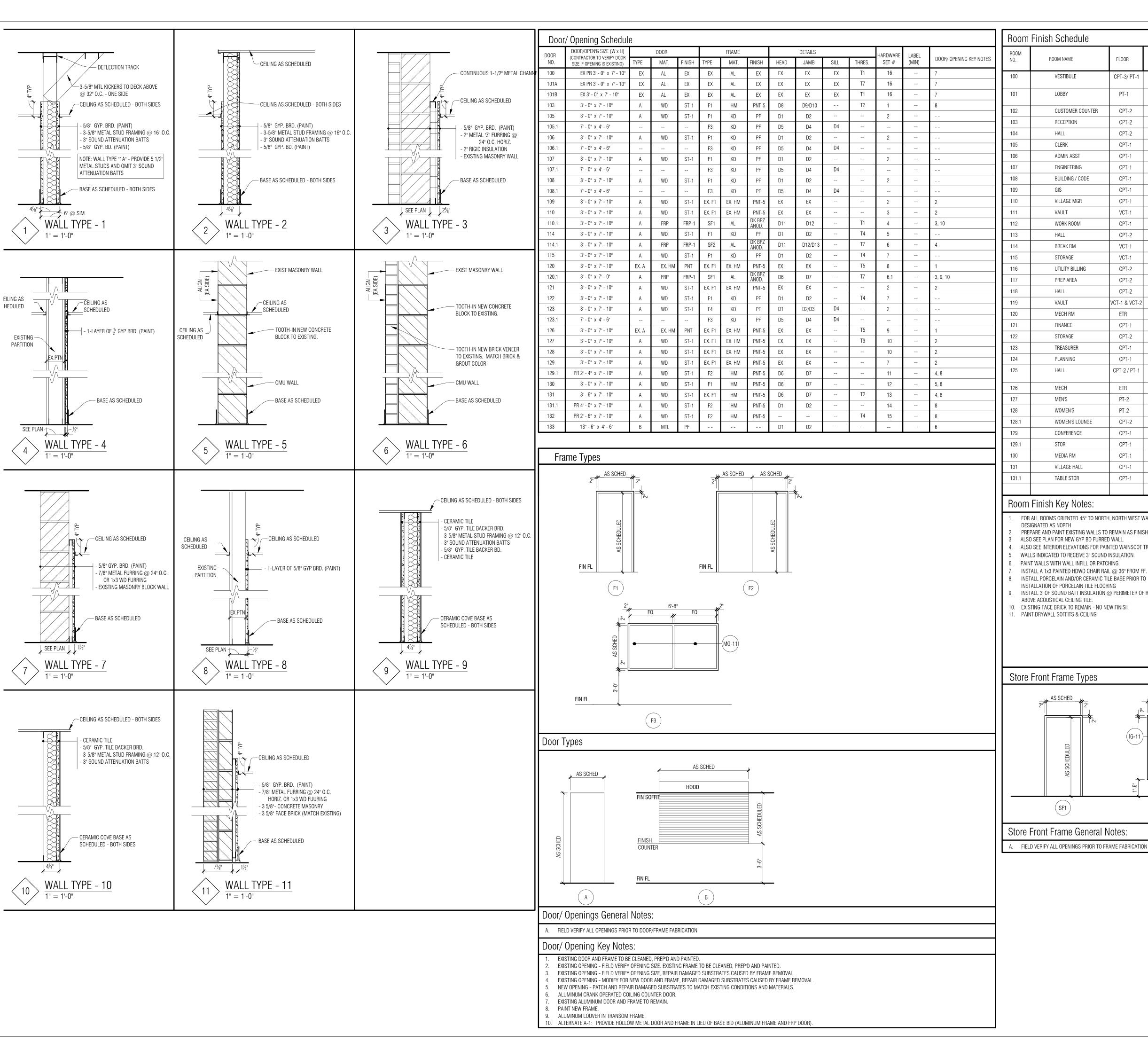
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LIFE SAFETY CODE **INFORMATION** 

A0-03



P:\2015\15-161-Beverly Hills Village Offices\02\_CAD\A0-03 Code\_Life Safety.dwg, 4/5/2016 9:03:25 PM, PFindlan





#### Room Finish Key Notes:

FOR ALL ROOMS ORIENTED 45° TO NORTH, NORTH WEST WALL TO BE

- DESIGNATED AS NORTH PREPARE AND PAINT EXISTING WALLS TO REMAIN AS FINISH SURFACE.
- 3. ALSO SEE PLAN FOR NEW GYP BD FURRED WALL.
- INSTALLATION OF PORCELAIN TILE FLOORING
- ABOVE ACOUSTICAL CEILING TILE.
- 11. PAINT DRYWALL SOFFITS & CEILING

(SF1)

(IG-11)-h

SF2

- 4. ALSO SEE INTERIOR ELEVATIONS FOR PAINTED WAINSCOT TREATMENT. WALLS INDICATED TO RECEIVE 3" SOUND INSULATION.
- . PAINT WALLS WITH WALL INFILL OR PATCHING. . INSTALL A 1x3 PAINTED HDWD CHAIR RAIL @ 36" FROM FF.
- . INSTALL PORCELAIN AND/OR CERAMIC TILE BASE PRIOR TO
- INSTALL 3' OF SOUND BATT INSULATION @ PERIMETER OF ROOM
- 10. EXISTING FACE BRICK TO REMAIN NO NEW FINISH

#### VCT - VINYL COMPOSITION TILE

- TILE PORCELAIN THROUGH BODY TILE
- VB VINYL WALL BASE ACT - ACOUSTIC COMPOSITION CEILING TILE
- PF FACTORY PRE-FINISHED PAINT
- PNT(PT) PAINT
- ST-1 FACTORY PRE-FINISHED STAIN

# RF - KNOCK-DOWN METAL "REDI-FRAME

CONC - CONCRETE

EX - EXISTING

AL - ALUMINUM

SF - STORE FRONT

HM - METAL

(E) EXISTING

PROJECT NAME

Village of Beverly Hills Office Renovation

Village of Beverly Hills

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Beverly Hills, MI 48025

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KEY PLAN

MOUNT CLEMENS, MI 48043

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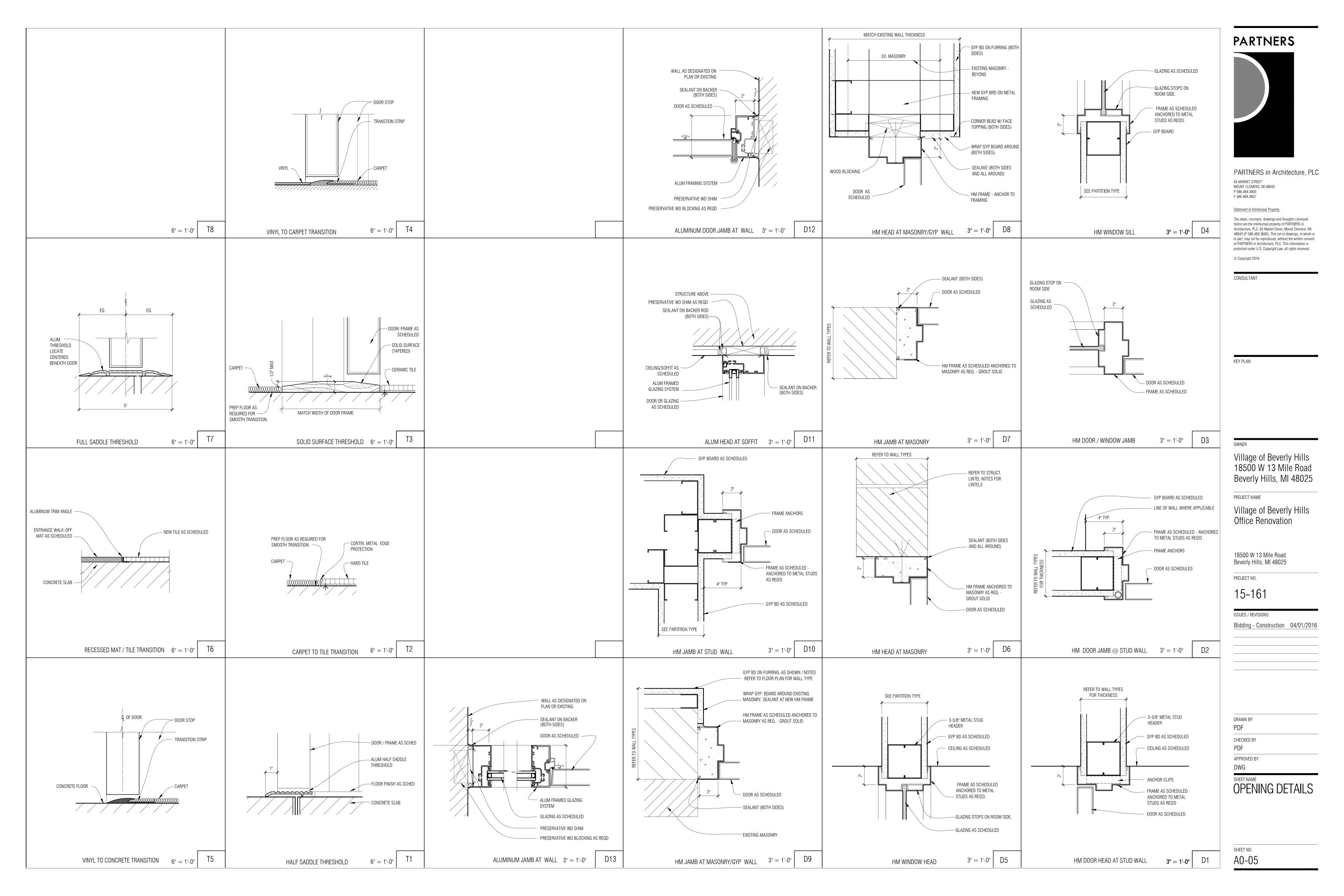
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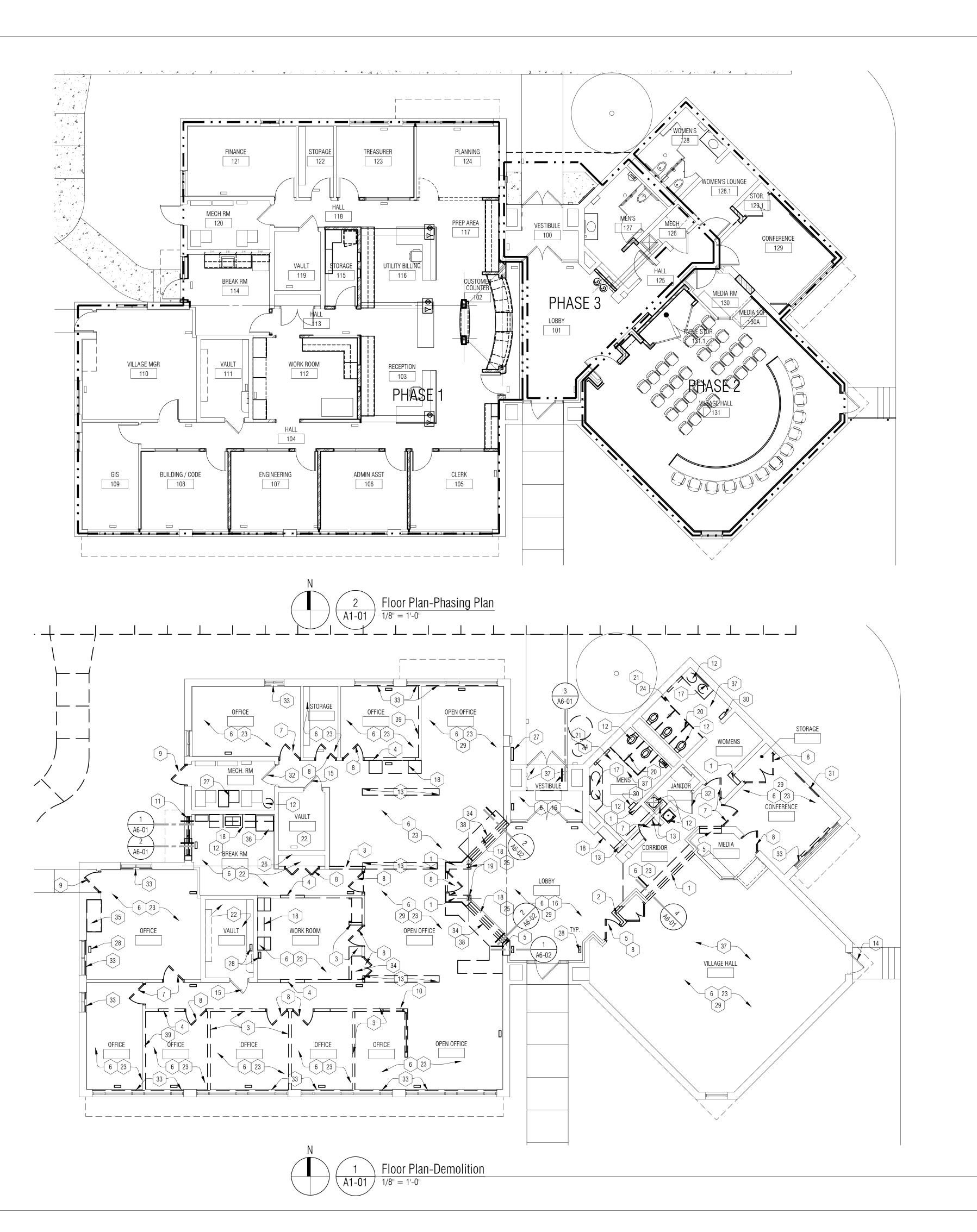
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SHEET NAME SCHEDULES,

FRAME TYPES, DOOR TYPES & WALL TYPES

A0-04





#### PHASING GENERAL NOTES:

- PHASE-1: PHASE -1 IS RENOVATION OF EXISTING ADMINISTRATIVE OFFICES. OWNER WILL RELOCATE TEMPORARY AND MAINTAIN BUSINESS ADMINISTRATIVE OPERATIONS TO VILLAGE HALL DURING CONSTRUCTION OF PHASE-1. PROVIDE DUST-PROOF CONSTRUCTION BARRIER BETWEEN LOBBY 101 AND PHASE-1 CONSTRUCTION AREA.
- PHASE -2 IS RENOVATION OF VILLAGE HALL, CONFERENCE ROOM AND WOMEN'S RESTROOM. UPON COMPLETION OF PHASE-1 OWNER WILL RELOCATE PERMANENT ADMINISTRATIVE OFFICES TO PHASE-1 AREA AND RESUME BUSINESS OPERATIONS. PROVIDE DUST-PROOF CONSTRUCTION BARRIER BETWEEN LOBBY 101 AND PHASE-2 CONSTRUCTION AREA.
- PHASE -3: PHASE -3 IS RENOVATION OF LOBBY AND MEN'S RESTROOM. COMMENCE CONSTRUCTION UPON COMPLETION OF PHASE-2 CONSTRUCTION. PROVIDE DUST-PROOF CONSTRUCTION BARRIER BETWEEN PHASE-3 AND COMPLETED CONSTRUCTION AREAS.

#### DEMO FLOOR PLAN - GENERAL NOTES:

- A. ALL DEMOLITION DRAWINGS AND DEMOLITION DETAILS ARE PROVIDED TO SHOW THE GENERAL SCOPE OF THE DEMOLITION WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL DEMOLITION WORK NECESSARY TO ACCOMPLISH NEW WORK. THE DEMOLITION DRAWINGS AND DETAILS MAY NOTE TYPICAL ITEMS IN SOME AREAS, WHICH APPLY IN OTHER AREAS (AND ARE DESIGNATED WITH DASHED, HIDDEN OR STRUCK THRU LINES). COORDINATE ALL DEMOLITION WORK WITH ALL ARCHITECTURAL, CIVIL, STRUCT., MECH. AND ELEC. DRAWINGS. CONTRACTOR IS RESPONSIBLE TO REFERENCE ALL DRAWINGS/ SPECIFICATIONS TO CONFIRM EXTENT OF DEMOLITION WORK.
- B. ALL REMOVED ITEMS, WALLS, FLOORS CEILING, OPENINGS, ETC ARE TO BE PATCHED/REPAIRED AND PREPPED TO RECEIVE NEW WORK AND/OR FINISHES.
- C. ALL CONSTRUCTION AND DEMOLITION MEANS, METHODS AND SAFETY PRECAUTIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- D. WALL REMOVAL THAT TERMINATES INTO A WALL OR CEILING TO REMAIN SHALL BE COMPLETELY REMOVED FREE OF PROJECTIONS, READY TO RECEIVE NEW WORK.
- E. REMOVE ALL ITEMS PROJECTING FROM EXISTING WALLS OR FLOORS TO REMAIN (BLOCKING, SCREWS, FASTENERS, PIPES, CONDUITS, MOUNTING PLATES, FIXED EQUIPMENT, ETC). PATCH AND REPAIR FOR NEW FINISH.
- F. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND UNDERSTANDING EXISTING CONDITIONS PRIOR TO BIDDING.
- G. CONTRACTOR SHALL PROTECT EXISTING BUILDING ELEMENTS AND SITE FROM DAMAGE CAUSED BY CONSTRUCTION OR CONSTRUCTION TRADES. CONTRACTOR SHALL REPAIR ALL DAMAGED AREAS (IDENTIFIED BY OWNER, ARCHITECT, OR CONSTRUCTION MANAGER) AT NO ADDITIONAL COST.
- H. MAINTAIN EXISTING FIRE RATING WHERE OCCURS AND WHERE POSSIBLE DURING DEMOLITION. REFER TO CODE AND LIFE SAFETY SHEETS FOR MORE INFORMATION AS WELL AS CONSTRUCTION MANAGER'S INSTRUCTIONS.
- I. ALL ASBESTOS, EXCEPT FOR ROOFING MATERIALS TO BE REMOVED BY ABATEMENT CONTRACTOR SEE AHERA SURVEY
- J. DISPOSE OF ALL DEMOLITION MATERIALS LEGALLY OFF-SITE, U.O.N.

APPEARANCE WHERE DEMOLITION OCCURS AND WALL IS VISIBLE.

- K. REMOVE ALL PICTURES, FRAMES & PLAQUES THAT MAY BE DAMAGED DURING CONSTRUCTION AND RETURN TO OWNER.
- L. CONTRACTOR IS TO DEMO AND PREPARE EXISTING WALL CONSTRUCTION AS REQUIRED FOR INSTALLATION OF NEW MECHANICAL AND ELECTRICAL WORK WITHIN EXISTING WALL.
- M. PREP ALL MASONRY OPENINGS TO RECEIVE NEW TOOTHED-IN MASONRY FOR LIKE NEW
- N. CONTRACTOR TO COORDINATE EXIST. CONC. SLAB REMOVAL THAT IS REQUIRED FOR INSTALLATION OF NEW UNDERGROUND PLUMBING WITH DEMOLITION CONTRACTOR.
- O. REMOVE ALL EXISTING EXPOSED CONDUIT NOT IN USE PRIOR TO OR AFTER NEW WORK.
- P. ALL CONTRACTORS TO FOLLOW OSHA RULES AND REGULATIONS FOR HAZARDOUS
- P. ALL CONTRACTORS TO FOLLOW OSHA RULES AND REGULATIONS FOR HAZARDOUS MATERIALS.
- P. EXISTING ROOF IS UNDER WARRANTY. PROTECT ROOFING SYSTEM FROM ANY AND ALL DAMAGE. MODIFICATIONS TO EXISTING ROOFING SYSTEM SHALL BE PERFORMED BY APPROVED ROOFING CONTRACTOR AND EXISTING WARRANTY SHALL BE MAINTAINED.

#### DEMO FLOOR PLAN - KEY NOTES (CONTINUED):

- EXISTING SUPPLY AIR DUCT- REWORK AND CAP. VERIFY LOCATIONS, REFER TO DEMO DETAIL 8/A6-03, NEW WORK DETAIL 9/A6-03, & MECH.
- OWNER TO REMOVE AND SALVAGE ALL WALL HUNG PHOTOS, MAPS, PLAQUES AS REQUIRED- TYPICAL ALL AREAS.
- REMOVE EXISTING TOILET ACCESSORIES. SALVAGE EXISTING PAPER TOWEL DISPENSER/ DISPOSAL FOR REINSTALLATION- REFER TO NEW WORK PLAN.
- REMOVE EXISTING CHALKBOARD AND SALVAGE FOR REINSTALLATION IN SAME LOCATION.
- EXISTING HM DOOR/ FRAME TO REMAIN. REMOVE EXISTING LOCKSET. BALANCE OF HARDWARE TO REMAIN.
- REMOVE EXISTING VERTICAL WINDOW BLINDS.
- EXISTING GYP BD CEILING/ SOFFIT TO BE REMOVED, INCLUDING HANGERS AN WALL
- REMOVE EXISTING WOOD COUNTERTOP. EXISTING CABINET TO REMAIN.
- 36 APPLIANCES AND KITCHEN EQUIPMENT REMOVED BY OWNER.
- 37 EXISTING GYP BD CEILING TO REMAIN REMOVE EXISTING LIGHT FIXTURES, SUPPLY/
- RETURN GRILLES. REFER TO MECH & ELECT.

REMOVE MASONRY HEADER.

REMOVE EXISTING GYP BD ONE SIDE OF PARTITION TO ACCOMMODATE NEW SOUND INSULATION.

#### DEMO FLOOR PLAN - KEY NOTES:

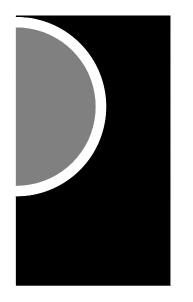
- EXISTING NON-BEARING MASONRY WALL CONSTRUCTION TO BE REMOVED FROM CONC FOUNDATION TO EXISTING ROOF DECK OR FULL HEIGHT OF WALL.
- 2 REMOVE EXISTING MASONRY WALL REFER TO STRUCTURAL.
- EXISTING GYP BD. FRAMED PARTITION CONSTRUCTION TO BE REMOVED FOR THE FULL 13 HEIGHT OF WALL.
- REMOVE PORTION OF EXISTING GYP. BD. WALL PARTITION TO ACCOMMODATE NEW
- 4 OPENING OR NEW DOOR AND FRAME COORDINATE WITH NEW WORK.

REMOVE PORTION OF EXISTING MASONRY BEARING WALL CONSTRUCTION AND

- PREPARE TO RECEIVE NEW DOOR AND FRAME COORDINATE WITH NEW WORK. REFER TO STRUCTURAL.
- EXISTING LAY-IN ACOUSTICAL CEILING AND LIGHTING TO BE REMOVED, INCLUDING HANGERS, WALL ANGLE TRIM, CEILING MOUNTED EQUIPMENT AND FIXTURES. REFER TO MECHANICAL AND ELECTRICAL.
- 7 REMOVE EXISTING DOOR AND HARDWARE, HM FRAME TO REMAIN.
- 8 REMOVE EXISTING DOOR, FRAME AND ALL ASSOCIATED HARDWARE.
- EXISTING DOOR AND FRAME TO BE REMOVED AND REPLACED, INCLUDING THRESHOLD.

  CAREFULLY REMOVE FRAMES TO PRESERVE EXTERIOR AND INTERIOR FINISHES TO REMAIN.
- [10] REMOVE EXISTING BORROWED LITE UNIT AND ALL ASSOCIATED ITEMS.
- REMOVE EXISTING WINDOW UNIT AND EXISTING MASONRY WALL TO ACCOMMODATE NEW DOOR AND FRAME AND SIDELIGHT COORDINATE WITH NEW WORK. REFER TO STRUCTURAL.
- REMOVE EXISTING PLUMBING FIXTURE(S) AND ALL ASSOCIATED COMPONENTS. PATCH FLOOR AND WALLS AS REQUIRED FOR INSTALLATION OF NEW WORK. WHERE REQUIRED, DEMO PORTION OF MASONRY WALL WHERE NEW PLUMBING AND/OR MECH. IS TO BE ROUTED. COORDINATE WITH MECHANICAL.
- SAW CUT AND REMOVE PORTION OF CONCRETE FLOOR SLAB AS REQ'D TO RECEIVE NEW WORK COORDINATE WITH MECHANICAL & ELECTRICAL FOR LOCATION AND LIMIT OF WORK
- 14 EXISTING ALUMINUM DOOR AND HOLLOW METAL FRAME TO REMAIN.
- 15 EXISTING VAULT DOOR AND FRAME TO REMAIN.
- 16 REMOVE EXISTING QUARRY TILE FLOORING.
- 17 REMOVE EXISTING PL. LAM. COUNTERTOP AND ALL ASSOCIATED ITEMS.
- 18 EXISTING BASE AND WALL CABINETS / SHELVES TO BE REMOVED.
- 19 EXISTING STEEL COLUMNS TO REMAIN.
- 20 EXISTING TOILET PARTITIONS TO BE REMOVED.
- 21 EXISTING CERAMIC TILE FLOOR FINISH AND BASE TO BE REMOVED AND PREPARED TO RECEIVE NEW FLOOR FINISH. REFER TO NEW WORK PLAN.
- EXISTING VCT FLOOR FINISH AND BASE TO BE REMOVED AND PREPARED TO RECEIVE NEW FLOOR FINISH. REFER TO NEW WORK PLAN.
- EXISTING CARPET FLOOR FINISH AND BASE TO BE REMOVED AND PREPARED TO RECEIVE NEW FLOOR FINISH. REMOVE FLOOR BASE CAREFULLY TO PRESERVE WALL FINISHED TO REMAIN. REFER TO NEW WORK PLAN.
- EXISTING CERAMIC TILE WALL FINISH TO BE REMOVED AND PREPARED TO RECEIVE NEW WALL FINISH. REFER TO NEW WORK PLAN.
- 25 | REMOVE EXISTING COILING DOOR
- 26 EXISTING PHONE/ DATA/ CABLE EQUIPMENT TO REMAIN. PROTECT FROM DAMAGE.
- 27 REMOVE EXISTING DISPLAY BOARD AND TURN OVER TO OWNER.

## **PARTNERS**



PARTNERS in Architecture, PLC
65 MARKET STREET
MOUNT CLEMENS, MI 48043

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KEY PLAN

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Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

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18500 W 13 Mile Road

Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016

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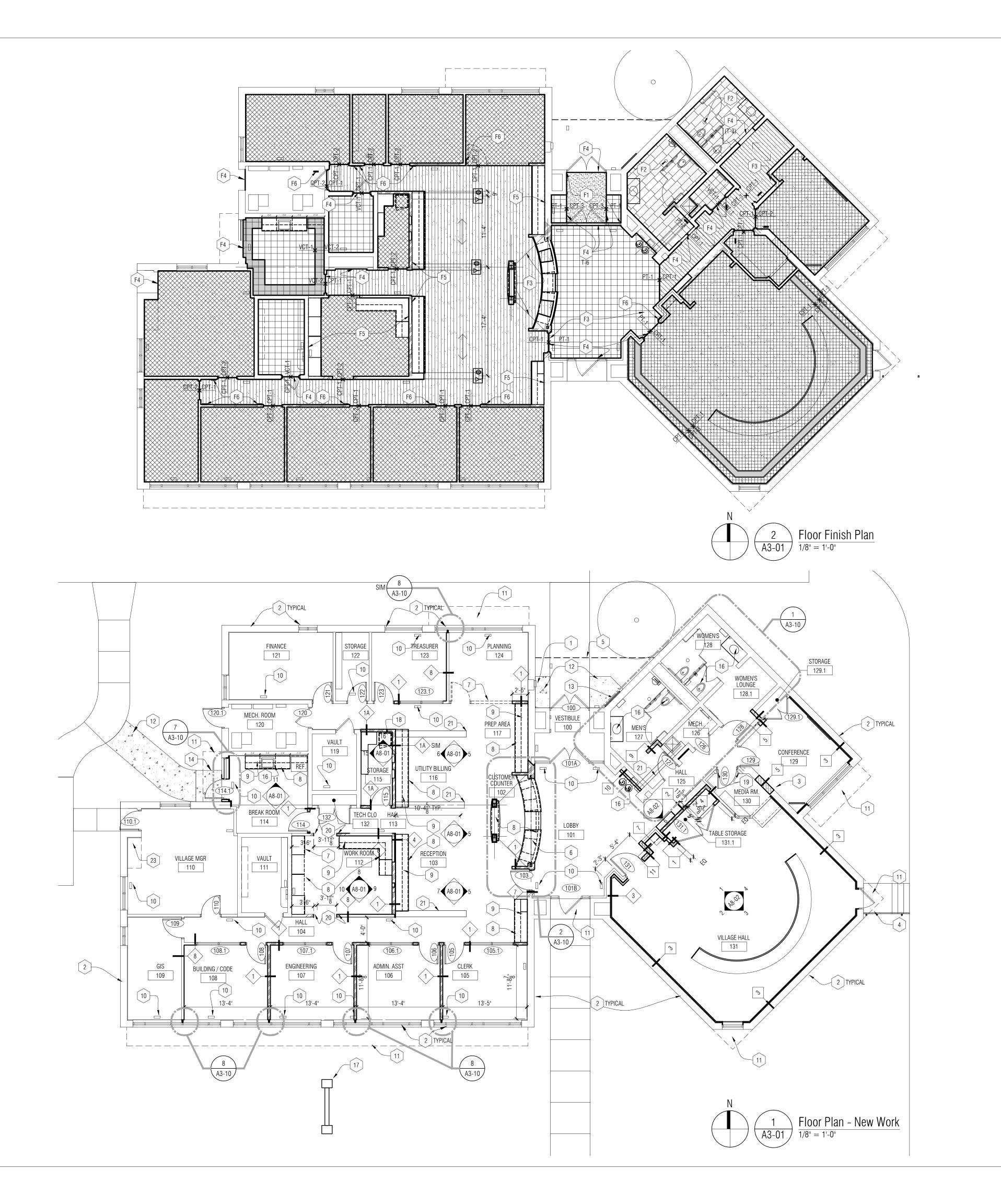
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SHEET NAME

FLOOR PLAN-DEMOLITION

AND PHASING

SHEET NO. A1-01



#### GENERAL NOTES - FINISH FLOOR PLANS:

- A. REFERENCE ROOM FINISH SCHEDULE AND MATERIAL FINISH / COLOR SCHEDULE (SPEC SECTION 000200) FOR ADDITIONAL FINISH INFORMATION.
- B. VCT COLOR TRANSITION TO BEGIN AT FIRST JOINT INSIDE CORNER OF WALL AT ALL DOORWAYS SHOWN AS HAVING A COLOR TRANSITION.
- C. ALL DIMENSIONS ARE SHOWN AS +/- AND NEED TO BE VERIFIED IN FIELD.
- D. UNLESS OTHERWISE NOTED, FLOOR FINISHES TRANSITION UNDER THE CENTERLINE OF DOORS (WHEREVER APPLICABLE).

#### KEY NOTES - FINISH FLOOR PLANS:

- ENTRANCE WALK OFF CARPET & PORCELAIN TILE INSTALLED ON EXISTING CONCRETE. REMOVE EXISTING QUARRY TILE AND GRIND CONCRETE AS REQUIRED TO PROVIDE AN EVEN GRADUAL SLOPE FROM ENTRANCE DOORS TO EXIT DOORS. REFER TO SECTION DETAIL 3/A6-01.
- F2 FLOOR DRAIN- PROVIDE POSITIVE SLOPE TO DRAIN
- [F3] PATCH EXISTING CONCRETE SLAB @ WALL REMOVAL AS REQUIRED FOR LEVEL INSTALLATION OF NEW FLOOR FINISH.
- F4 THRESHOLD (REFER TO DOOR SCHEDULE AND DRAWING A0-04 FOR TYPE)
- F5 ACCENT PAINT LOCATION PNT-2
- ROOM IDENTIFICATION SIGNAGE (SGN-4) REFER SCHEDULE AND DETAILS ON DRAWING A8-21 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

#### FINISH FLOOR PLAN LEGEND:

CPT-2 (1/4 TURN)

GP1-3

PT-

VCT-

DIRECTION OF FLOOR FINISH

#### FLOOR PLAN KEY NOTES:

- 1 EXISTING PAYMENT DROP BOX TO REMAIN. PROTECT DURING CONSTRUCTION
- 2 NEW EXTERIOR SEALANTS TYPICAL. REFER TO EXTERIOR ELEVATIONS
- 3 NEW MASONRY PARTITION TO MATCH EXISTING
- 4 NEW ALUMINUM HANDRAIL REFER TO DETAILS
- 5 NEW EXTERIOR ENTRANCE CANOPY REFER TO DETAILS
- 6 COILING SECURITY SHUTTER
- 7 FUTURE PARTITION (N.I.C.)
- 8 MILLWORK COUNTERTOP AND BASE CABINETS
- 9 MILLWORK WALL CABINETS
- 10 PATCH AND REPAIR EXISTING CONCRETE SLAB WHERE
- MECHANICAL DUCTS WERE REMOVED. REFER TO DETAIL 8 & 9/A6-03
- 11 REPAIR AND PAINT EXISTING FASCIA AND SOFFIT- REFER TO ELEVATIONS

  12 NEW CONCRETE WALK. REFER TO DETAIL 2/A0-02
- 13 NEW COMMUNITY DISPLAY BOARD
- 14 NEW MASS FOOTING AND CONCRETE PAD AT NEW ENTRY DOOR
- 15 NOT USED
- 16 NEW PLUMBING FIXTURE
- 17 NEW MONUMENT BACKLIT SIGN REFER TO ENLARGED PLAN 3/A3-10
- 18 RELOCATED COMPUTER SERVER SEE ELEC.
- 19 TOOTH-IN NEW BULLNOSE CONCRETE MASONRY BLOCK @ NEW OPENING
- 20 FRAME OUT & FINISH GYP BD WALLS @ NEW OPENING.
- PATCH CONCRETE SLAB DUE TO MECHANICAL AND ELECTRICAL MODIFICATIONS AS REQ'D FOR LEVEL INSTALLATION OF NEW FLOOR
- REMOVE AND REINSTALL EXISTING TRASH RECEPTICAL AS REQ'D FOR NEW CONCRETE WALK.
- 23 NEW PLAM CAP ON EXISTING CABINET

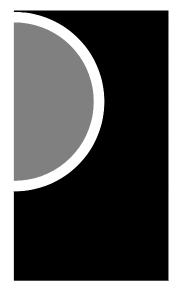
#### FLOOR PLAN - GENERAL NOTES:

A. ALL PLAN DIMENSIONS ARE NOMINAL TO FACE OF WALL. WALL THICKNESSES ARE SHOWN NOMINAL - SEE WALL TYPES FOR ACTUAL THICKNESS.

VCT-1

- B. COORDINATE SIZE AND LOCATION OF ALL DUCT, SHAFT AND LOUVER OPENINGS IN WALLS AND FLOORS WITH MECHANICAL AND ELECTRICAL. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS.
- C. ALL EXPOSED CORNERS OF MASONRY BLOCK ARE TO BE BULLNOSED.
- D. DO NOT SCALE DRAWINGS. USE DIMENSIONS PROVIDED. IF A CONFLICT IS ENCOUNTERED OR A REQUIRED DIMENSION IS NOT PROVIDED, REQUEST A CLARIFICATION FROM THE
- E. EXISTING MASONRY WALL INTERSECTIONS WHICH ARE LEFT EXPOSED AFTER DEMOLITION OF ADJACENT MASONRY CONSTRUCTION MUST BE PATCHED AND REPAIRED WITH NEW MASONRY OR EXISTING BRICK VENEER, TOOTH-IN TO MATCH EXISTING COURSING AND BOND PATTERN, TYPICAL AT ALL LOCATIONS.
- F. REFER TO WALL TYPES ON DRAWING A0-04 FOR CONSTRUCTION METHOD.
- G. REFER TO STRUCTURAL DRAWING FOR BEARING WALLS, COLUMN SIZES AND LOCATIONS.
- H. FIRE RATED PARTITIONS ARE INDICATED ON CODE PLANS.
- I. REFER TO FINISH FLOOR PLANS FOR ALL FLOOR PATTERNS, FLOOR TRANSITIONS AND \_\_\_\_\_\_
  DESIGNATIONS.
- J. REFER TO DRAWINGS FOR ABBREVIATIONS AND OTHER SYMBOL DEFINITIONS.
- K. REFER TO MECHANICAL / ELECTRICAL DRAWINGS FOR INSTALLATION OF NEW EQUIPMENT, PIPING, DUCTWORK, WIRING, ETC. AT EXISTING WALLS. ALL ITEMS ARE TO BE INSTALLED WITHIN EXISTING WALLS REMOVE AND REINSTALL MASONRY (TOOTH-IN) AT ALL LOCATIONS.
- L. REFER TO MECHANICAL / ELECTRICAL DRAWINGS FOR REMOVAL OF EXISTING EQUIPMENT WITHIN EXISTING CONSTRUCTION TOOTH-IN NEW MASONRY BLOCK AND AND PREP FOR NEW FINISH.
  - M. FIELD VERIFY ALL EXISTING OPENINGS TO RECEIVE NEW WORK PRIOR TO FABRICATION OF ANY FRAME TYPES NOTIFY ARCHITECT OF ANY DISCREPANCIES.
  - N. AT ALL LOCATIONS WHERE GYPSUM BOARD WALL INTERSECTS PERPENDICULAR TO MASONRY BLOCK WALL CORNER, THE GYPSUM BOARD IS TO BE SET BACK 1" FROM BULLNOSE OF BLOCK.
  - O. REFER TO CODE PLAN FOR LOCATIONS OF FIRE EXTINGUISHERS / CABINETS TO BE INSTALLED SEMI-FLUSH. REFER TO WALL CONSTRUCTION.
  - P. REFER TO FLOOR FINISH PLANS FOR ROOM SIGNAGE LOCATIONS.

## **PARTNERS**



PARTNERS in Architecture, PLC
65 MARKET STREET
MOUNT CLEMENS, MI 48043

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Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

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Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

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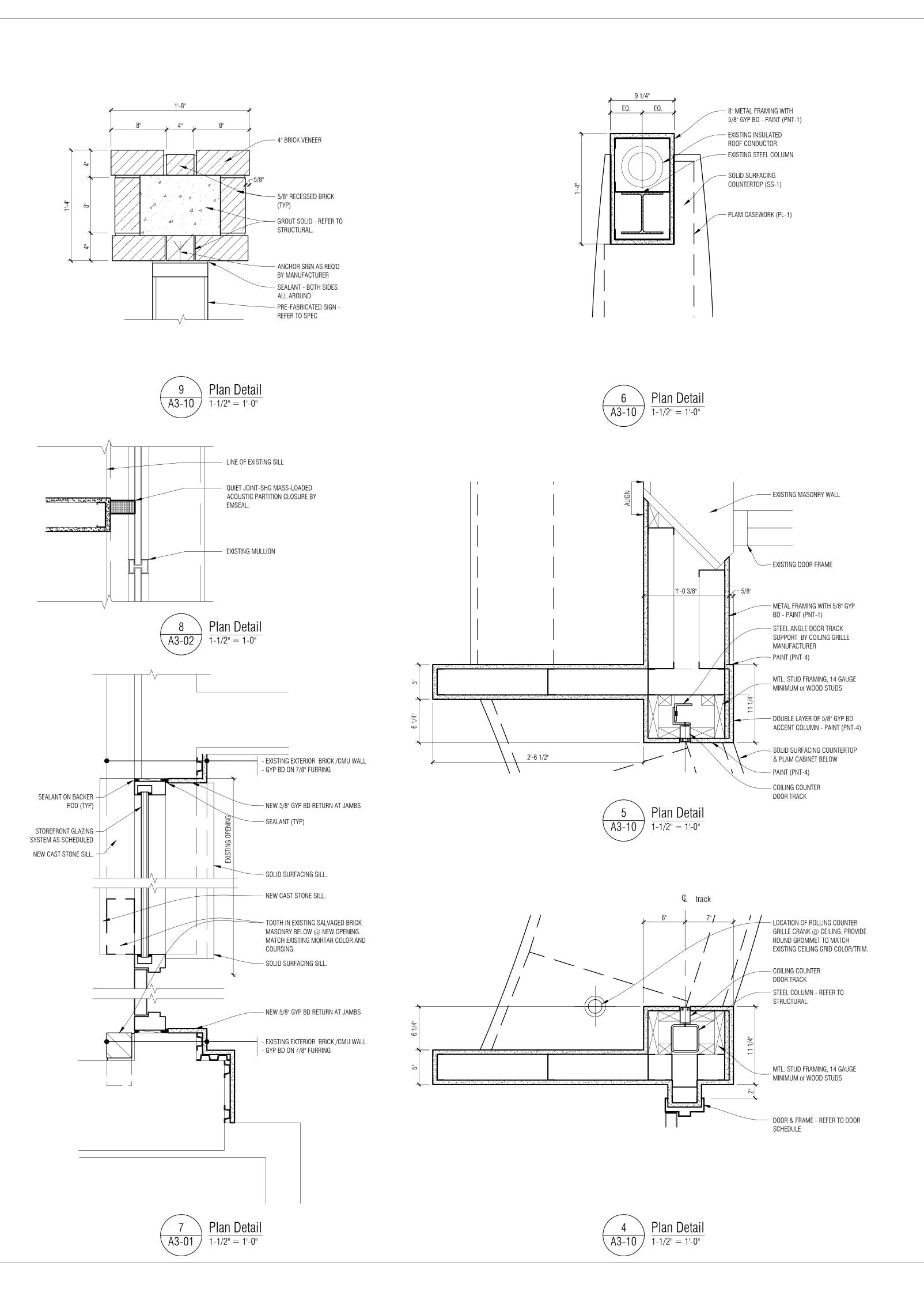
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FLOOR PLANS-NEW WORK AND

FLOOR FINISH PLAN

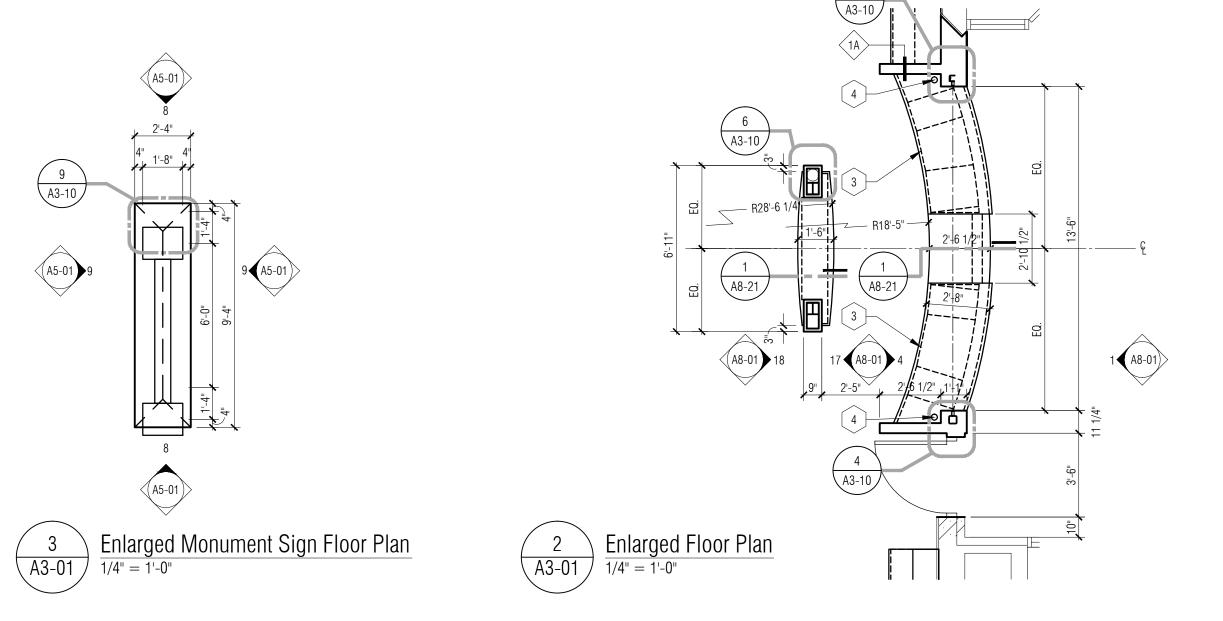
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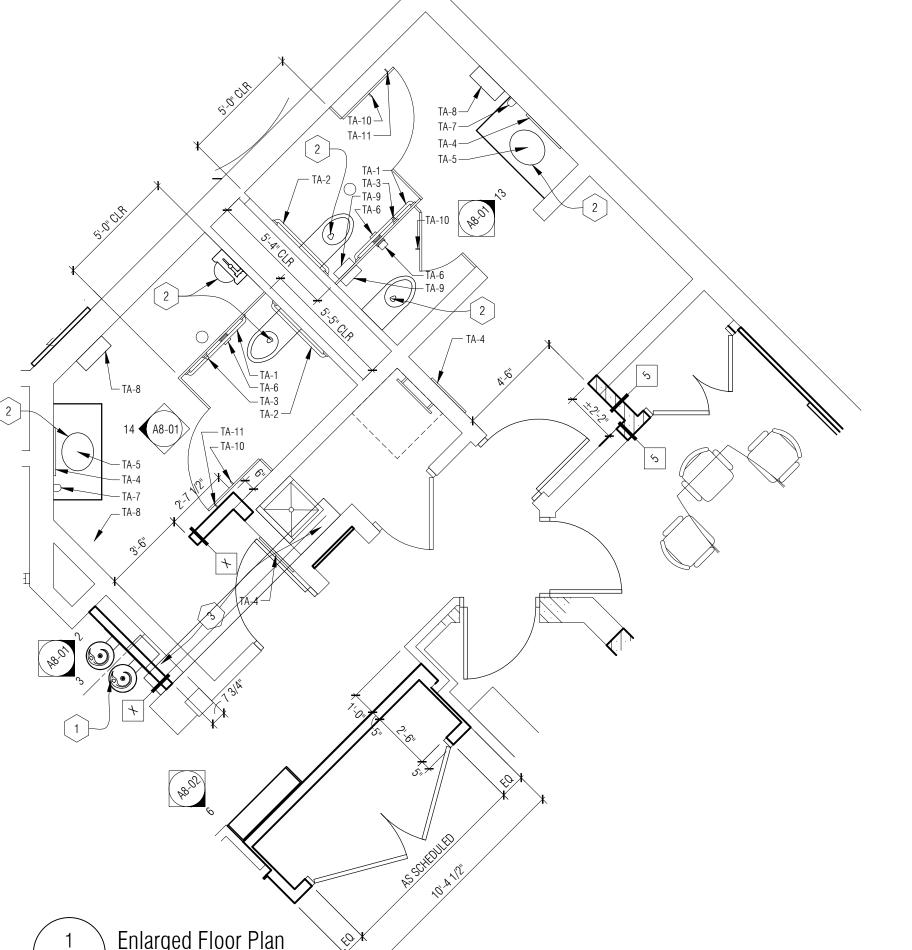




- 1 ELECTRICAL WATER COOLER REFER TO MECHANICAL AND ELECTRICAL
- 2 PLUMBING FIXTURE COORDINATE WITH MECHANICAL
- COORDINATE WITH COUNTER FOR LOCATION OF "PUBLIC BUTTON" PUBLIC BUTTON AND WIRING BY OWNER.
- PROVIDE (2) WIREWAY OPENINGS & GROMMETS IN COUNTERTOP. VERIFY LOCATIONS WITH OWNER PRIOR TO INSTALLATION.

PATCH CONCRETE SLAB DUE TO MECHANICAL AND ELECTRICAL [ 5 ] IMPROVEMENTS AS REQ'D FOR LEVEL INSTALLATION OF FLOOR





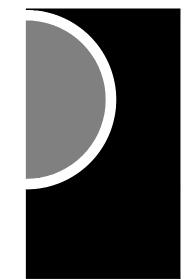
### TOILET ACCESSORIES - GENERAL NOTES:

- A. REFER TO SPECIFICATION SECTION 102800 FOR DESCRIPTION OF TOILET ACCESSORIES.
- B. REFER TO MECHANICAL PLANS FOR ALL PLUMBING
- C. PROVIDE WD BLOCKING SUPPORT AT ALL GRAB BAR LOCATIONS PER GRAB BAR MANUFACTURER'S RECOMMENDATION.

#### TOILET ACCESSORIES - LEGEND:

- TA-1 42" GRAB BAR
- TA-2 36" GRAB BAR
- TA-3 18" GRAB BAR VERTICAL
- TA-4 MIRROR
- TA-5 UNDERLAVATORY GUARD
- TA-6 TOILET TISSUE DISPENSER
- TA-7 SOAP DISPENSER
- TA-8 PAPER TOWEL DISPENSER / WASTE RECEPTACLE -
- SALVAGE AND REINSTALL EXISTING
- TA-9 SANITARY NAPKIN DISPOSAL
- TA-10 COAT HOOK
- TA-11 DOOR STOP

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KEY PLAN

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ISSUES / REVISIONS Bidding - Construction 04/01/2016

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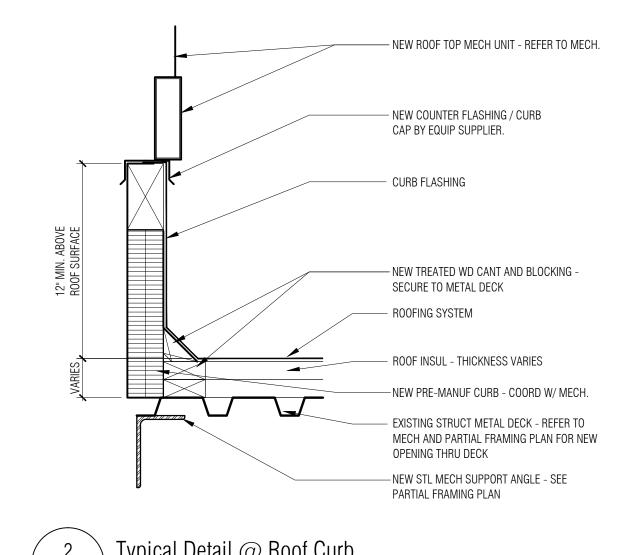
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ENLARGED FLOOR PLANS & DETAILS

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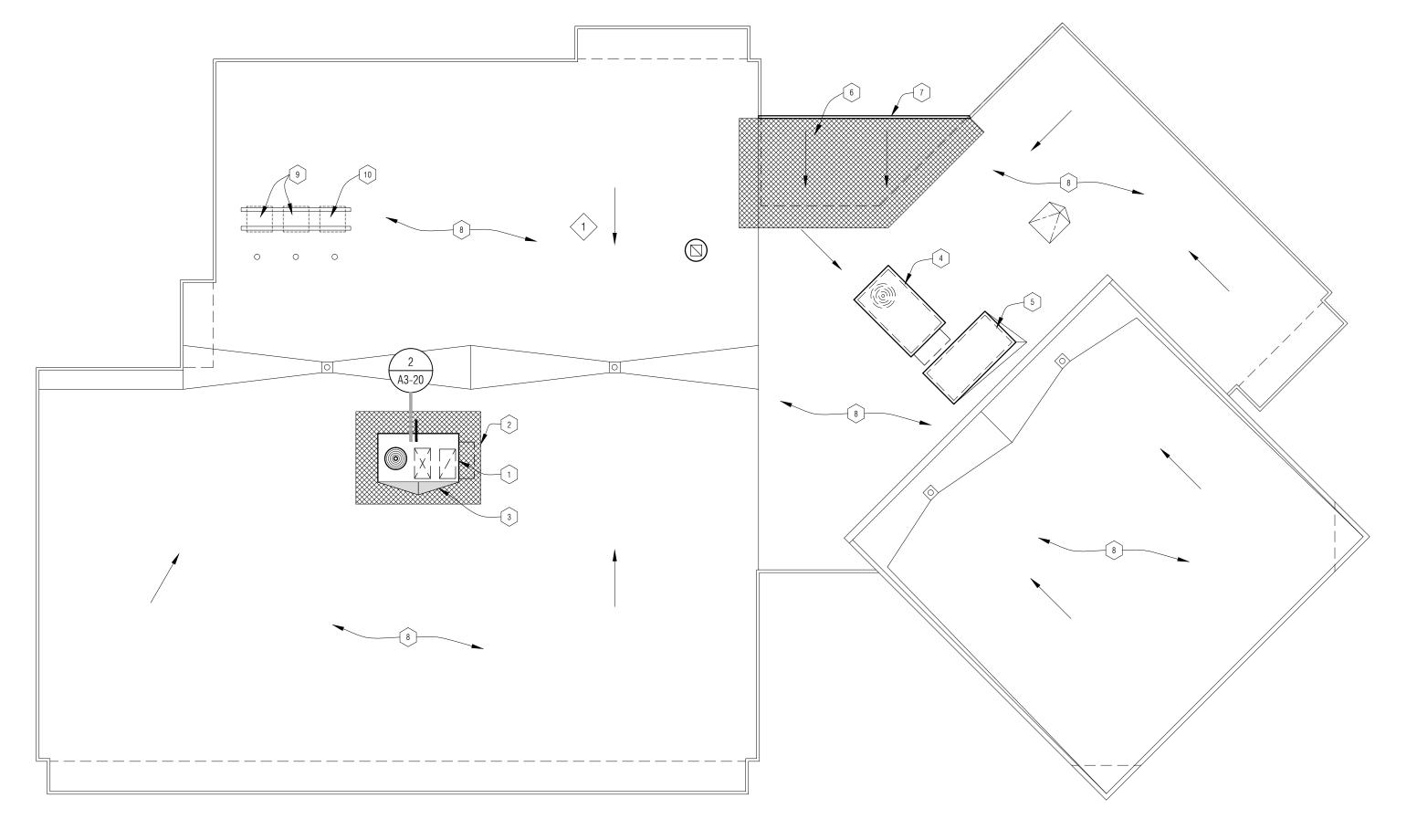


#### ROOF PLAN - GENERAL NOTES

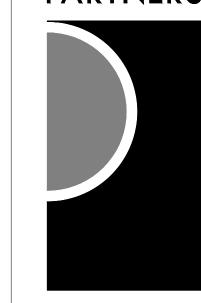
- A. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION ROOF RELATED ITEMS.
- B. GUARDRAILS SHALL BE REQUIRED IF ANY ROOF TOP EQUIPMENT, APPLIANCES, FANS OR OTHER COMPONENTS THAT REQUIRE SERVICE (INCLUDING ROOF HATCH) ARE INSTALLED WITHIN 10'-0" OF A ROOF EDGE OR AN OPEN SIDE OF A WALKING SURFACE AND SUCH EDGE IS OR OPEN SIDE IS LOCATED MORE THAN 30" ABOVE THE FLOOR, ROOF OR GRADE BELOW. CONTRACT TO NOTIFY ARCHITECT / ENGINEER OF SUCH SITUATION IS NEEDED.
- C. TAPERED INSULATION SHALL SLOPE 1/4" PER 1'-0" TOWARDS ROOF SUMP UNLESS OTHERWISE NOTED. SLOPE VALUES ARE APPROXIMATE. IF SLOPE CANNOT BE ACHIEVED, CONTACT ARCHITECT BEFORE PROCEEDING FURTHER. ARROWS SHOWN REPRESENT DOWN SLOPE OF ROOF.
- D. NEW MECH CURBS SHALL BE PROVIDED CONTINUOUSLY AT ALL SIDES OF MECH UNITS REFER TO DETAIL X/A3-20.
- E. REFER TO DETAIL X/A3-20 FOR ALL PIPE PENETRATIONS COORDINATE LOCATIONS AND QUANTITIES W/ MECHANICAL.
- F. PROVIDE 2 ROWS OF 24"x24" ROOF WALKWAY PADS AROUND ENTIRE MECHANICAL UNIT TYP FOR ALL MECHANICAL UNITS.
- G. REFER TO ROOF DETAILS SHEET A3-20 FOR ADDITIONAL INFORMATION.
- H. ROOF DEMOLITION AREAS ARE APPROXIMATE. REMOVE MATERIALS FROM ROOF AS NECESSARY TO ACCOMPLISH NEW WORK.
- I. ROOF INSULATION FASTENERS SHALL NOT BE VISIBLE FROM INTERIOR WHERE METAL DECK IS EXPOSED, BUT SHALL BE INSTALLED TO MEET ALL ROOFING WARRANTY AND INSURANCE REQUIREMENTS.
- J. REFER TO MECHANICAL AND ELECTRICAL FOR ALL THRU ROOF PENETRATIONS. FLASH AND SEAL ALL PENETRATIONS IN ACCORDANCE WITH THE ROOF WARRANTY AND ROOF DETAILS.
- K. NEW MEMBRANE ROOF SYSTEM SHALL MATCH EXISTING "FIRESTONE ED4450" ROOF SYSTEM. EXISTING ROOF IS WARRANTED FOR 15-YEARS BY FIRESTONE BUILDING PRODUCTS, INC., (WARRANTY #RD079198, DATED AUGUST 8, 2008). ALL NEW WORK AND ROOFING MODIFICATIONS SHALL BE COMPATIBLE WITH EXISTING ROOF SYSTEM AND MAINTAIN EXISTING WARRANTY.

#### ROOF PLAN - NEW WORK KEY NOTES

- 1 NEW ROOF TOP UNIT ON CONTINOUS ROOF CURB REFER TO TYPICAL ROOF DETAILS AND COORDINATE WITH MECHANICAL
- 2 PATCH AND REPAIR EXISTING SINGLE-PLY ROOFING SYSTEM AND INSULATION -AS REQUIRED TO MATCH EXISTING
- 3 ROOF INSULATION SADDLE
- NEW ROOF TOP UNIT ON CONINUOUS ROOF CURB ADAPTER REFER TO ROOF DETAILS AND COORDINATE WITH MECHANICAL
- 5 NEW CURB CAP AND INSULATED DUCT REFER TO MECHANICAL
- NEW MEMBRANE ROOF SYSTEM MATCH EXISTING FIRESTONE ROOF SYSTEM. TIE INTO EXISTING ROOF AND SLOPE TO DRAIN
- 7 PREFINISHED METAL COPING
- 8 EXISTING MEMBRANE ROOF SYSTEM TO REMAIN
- 9 EXISTING A/C UNIT TO REMAIN REFER TO MECHANICAL
- 10 EXISTING A/C UNIT TO BE REMOVED REFER TO MECHANICAL



## PARTNERS



PARTNERS in Architecture, PLC
65 MARKET STREET
MOUNT CLEMENS, MI 48043

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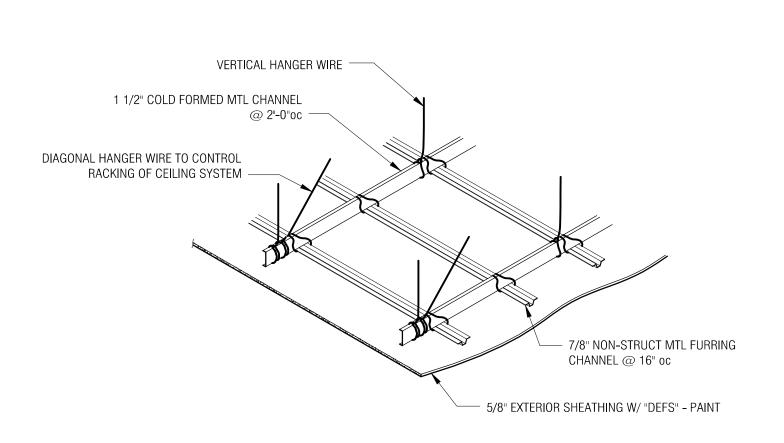
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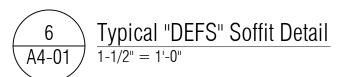
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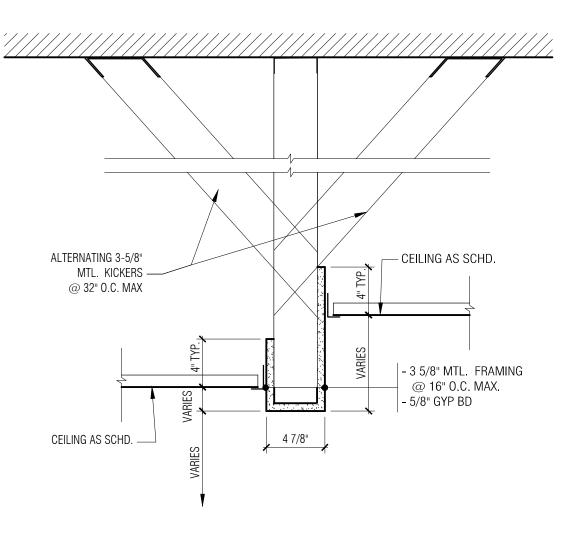
SHEET NAME
ROOF PLAN

AND DETAILS

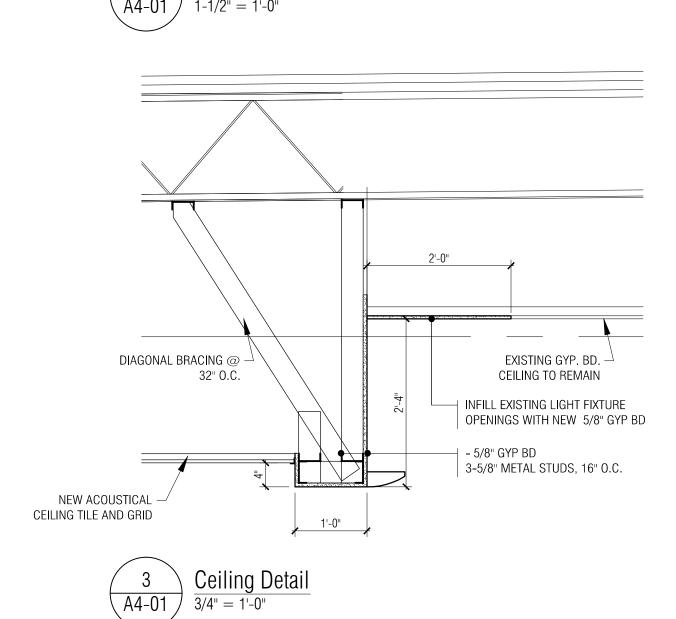
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Typical Gyp. Bd Bulkhead Support Detail  $\frac{1}{1-1/2"} = 1'-0"$ 



VARIES - SEE PLAN

Typical Gyp. Bd Bulkhead Support Detail

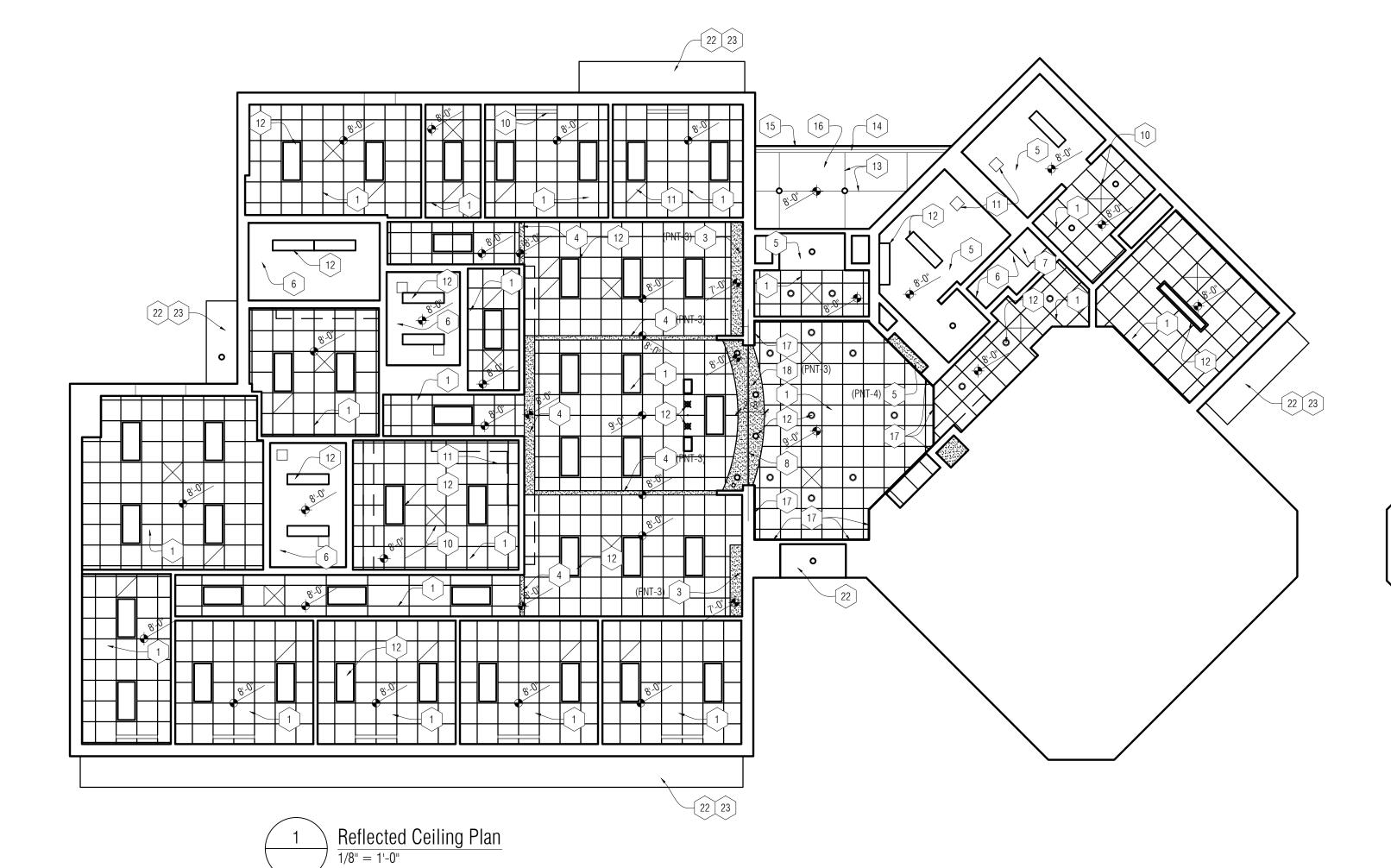
CEILING AS SCHD. —

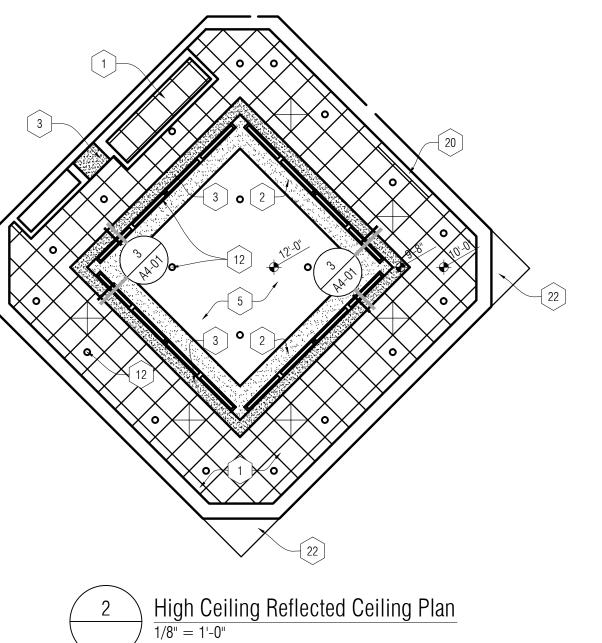
ALTERNATING 3-5/8"

MTL. KICKERS

@ 32" O.C. MAX —

CEILING AS SCHD. —





#### CEILING PLAN GENERAL NOTES:

- A. REFER TO FLOOR PLANS FOR ROOM NAMES, NUMBERS AND ROOM DIMENSIONS
- B. REFER TO ELECTRICAL FOR LIGHT FIXTURE TYPES AND
- SPECIFICATIONS C. REFER TO MECHANICAL FOR DIFFUSERS, REGISTERS, AND
- D. ALL LIGHT FIXTURES ARE TO BE CENTERED WITHIN CEILING TILE AND GYP SOFFIT U.O.N.
- E. CEILING GRID IS TO BE CENTERED IN ROOM U.O.N.
- F. AT LOCATIONS WHERE SOFFIT TERMINATES TO A MASONRY CORNER - GYP. BD. TO BE SET BACK 1" FROM FACE OF WALL

#### REFLECTED CEILING PLAN - KEY NOTES:

- 1 ACOUSTICAL CEILING TILE AND GRID (ACT-1)
- 2 PARTIAL GYP BD CEILING INFILL PAINT SEE DETAIL 3/A4-01
- 3 GYPSUM BOARD SOFFIT / CEILING PAINT.
- 4 GYPSUM BOARD DROP SOFFIT PAINT SEE DETAIL 5/A4-01

5 EXISTING GYPSUM BOARD SOFFIT / CEILING TO REMAIN - PAINT

- 6 EXISTING EXPOSED STRUCTURE PAINT
- 7 EXISTING ROOF ACCESS HATCH TO REMAIN
- 8 COILING COUNTER DOOR

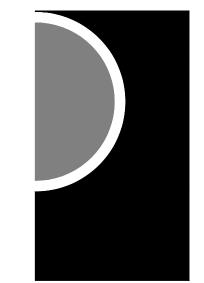
— CEILING AS SCHD.

- 3 5/8" MTL. FRAMING

@ 16" O.C. MAX.

- 5/8" GYP BD

- 9 NOT USED
- [10] SUPPLY DIFFUSER REFER TO MECHANICAL
- 11 RETURN/EXHAUST GRILLE REFER TO MECHANICAL
- 12 LIGHT FIXTURE COORDINATE WITH ELECTRICAL
- 13 EXPANSION JOINTS IN D.E.F.S.
- [ 14 ] CONTINUOUS SOFFIT VENT
- 15 ENTRANCE CANOPY SEE DETAILS
- 16 "DEFS" SOFFIT
- [17] DOUBLE LAYER 5/8" GYP BD ACCENT BAND PAINT MATCH EXISTING ACCENT BAND HEIGHT
- [ 18 ] GYPSUM BOARD DROP SOFFIT PAINT SEE DETAIL 4/A4-01
- 19 NOT USED
- 20 NEW CEILING POCKET W/ RELOCATED PROJECTION SCREEN
- 21 NOT USED
- 22 REPAIR DAMAGED SOFFITS TO MATCH AND PAINT
- 23 INSTALL NEW ROUND ALUMINUM SOFFIT VENTS IN EXISTING LOCATIONS - VERIFY LOCATION AND QUANTITY



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CONSULTANT

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS Bidding - Construction 04/01/2016

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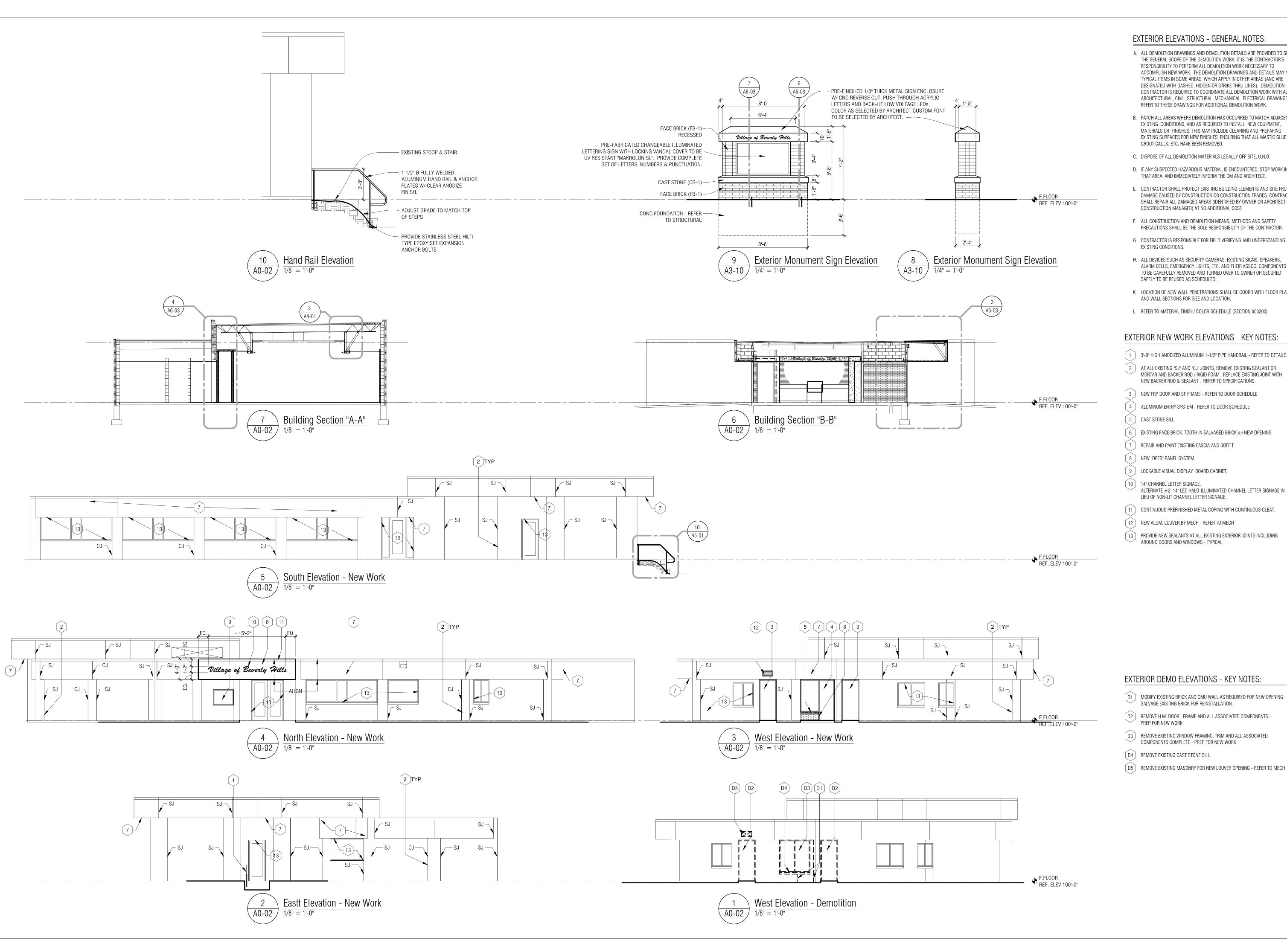
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SHEET NAME

REFLECTED

CEILING PLAN AND DETAILS

SHEET NO. **A4-01** 



#### EXTERIOR ELEVATIONS - GENERAL NOTES:

- A. ALL DEMOLITION DRAWINGS AND DEMOLITION DETAILS ARE PROVIDED TO SHOW THE GENERAL SCOPE OF THE DEMOLITION WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL DEMOLITION WORK NECESSARY TO ACCOMPLISH NEW WORK. THE DEMOLITION DRAWINGS AND DETAILS MAY NOTE TYPICAL ITEMS IN SOME AREAS, WHICH APPLY IN OTHER AREAS (AND ARE DESIGNATED WITH DASHED, HIDDEN OR STRIKE THRU LINES). DEMOLITION CONTRACTOR IS REQUIRED TO COORDINATE ALL DEMOLITION WORK WITH ALL ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL DRAWINGS. REFER TO THESE DRAWINGS FOR ADDITIONAL DEMOLITION WORK.
- B. PATCH ALL AREAS WHERE DEMOLITION HAS OCCURRED TO MATCH ADJACENT EXISTING CONDITIONS, AND AS REQUIRED TO INSTALL NEW EQUIPMENT, MATERIALS OR FINISHES. THIS MAY INCLUDE CLEANING AND PREPARING EXISTING SURFACES FOR NEW FINISHES ENSURING THAT ALL MASTIC GLUE, GROUT CAULK, ETC. HAVE BEEN REMOVED.
- C. DISPOSE OF ALL DEMOLITION MATERIALS LEGALLY OFF SITE, U.N.O.
- D. IF ANY SUSPECTED HAZARDOUS MATERIAL IS ENCOUNTERED, STOP WORK IN THAT AREA AND IMMEDIATELY INFORM THE CM AND ARCHITECT.
- E. CONTRACTOR SHALL PROTECT EXISTING BUILDING ELEMENTS AND SITE FROM DAMAGE CAUSED BY CONSTRUCTION OR CONSTRUCTION TRADES. CONTRACTOR SHALL REPAIR ALL DAMAGED AREAS (IDENTIFIED BY OWNER OR ARCHITECT OR CONSTRUCTION MANAGER) AT NO ADDITIONAL COST.
- F. ALL CONSTRUCTION AND DEMOLITION MEANS, METHODS AND SAFETY PRECAUTIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- G. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND UNDERSTANDING EXISTING CONDITIONS.
- H. ALL DEVICES SUCH AS SECURITY CAMERAS, EXISTING SIGNS, SPEAKERS, ALARM BELLS, EMERGENCY LIGHTS, ETC. AND THEIR ASSOC. COMPONENTS ARE TO BE CAREFULLY REMOVED AND TURNED OVER TO OWNER OR SECURED SAFELY TO BE REUSED AS SCHEDULED.
- K. LOCATION OF NEW WALL PENETRATIONS SHALL BE COORD WITH FLOOR PLANS AND WALL SECTIONS FOR SIZE AND LOCATION.
- L. REFER TO MATERIAL FINISH/ COLOR SCHEDULE (SECTION 000200)

#### EXTERIOR NEW WORK ELEVATIONS - KEY NOTES:

- 1 3'-0" HIGH ANODIZED ALUMINUM 1-1/2" PIPE HANDRAIL REFER TO DETAILS.
- 2 AT ALL EXISTING "SJ" AND "CJ" JOINTS, REMOVE EXISTING SEALANT OR MORTAR AND BACKER ROD / RIGID FOAM. REPLACE EXISTING JOINT WITH NEW BACKER ROD & SEALANT . REFER TO SPECIFICATIONS.
- 3 NEW FRP DOOR AND SF FRAME REFER TO DOOR SCHEDULE
- 4 ALUMINUM ENTRY SYSTEM REFER TO DOOR SCHEDULE
- 5 CAST STONE SILL
- EXISTING FACE BRICK. TOOTH IN SALVAGED BRICK @ NEW OPENING.
- REPAIR AND PAINT EXISTING FASCIA AND SOFFIT
- 8 NEW "DEFS" PANEL SYSTEM.

PREP FOR NEW WORK

- 9 LOCKABLE VISUAL DISPLAY BOARD CABINET.
- 10 14" CHANNEL LETTER SIGNAGE. ALTERNATE #2: 14" LED HALO-ILLUMINATED CHANNEL LETTER SIGNAGE IN LIEU OF NON-LIT CHANNEL LETTER SIGNAGE.
- 11 CONTINUOUS PREFINISHED METAL COPING WITH CONTINUOUS CLEAT.
- 12 NEW ALUM. LOUVER BY MECH REFER TO MECH
- PROVIDE NEW SEALANTS AT ALL EXISTING EXTERIOR JOINTS INCLUDING AROUND DOORS AND WINDOWS TYPICAL

Beverly Hills, MI 48025 PROJECT NAME

Village of Beverly Hills

18500 W 13 Mile Road

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Village of Beverly Hills Office Renovation

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PROJECT NO.

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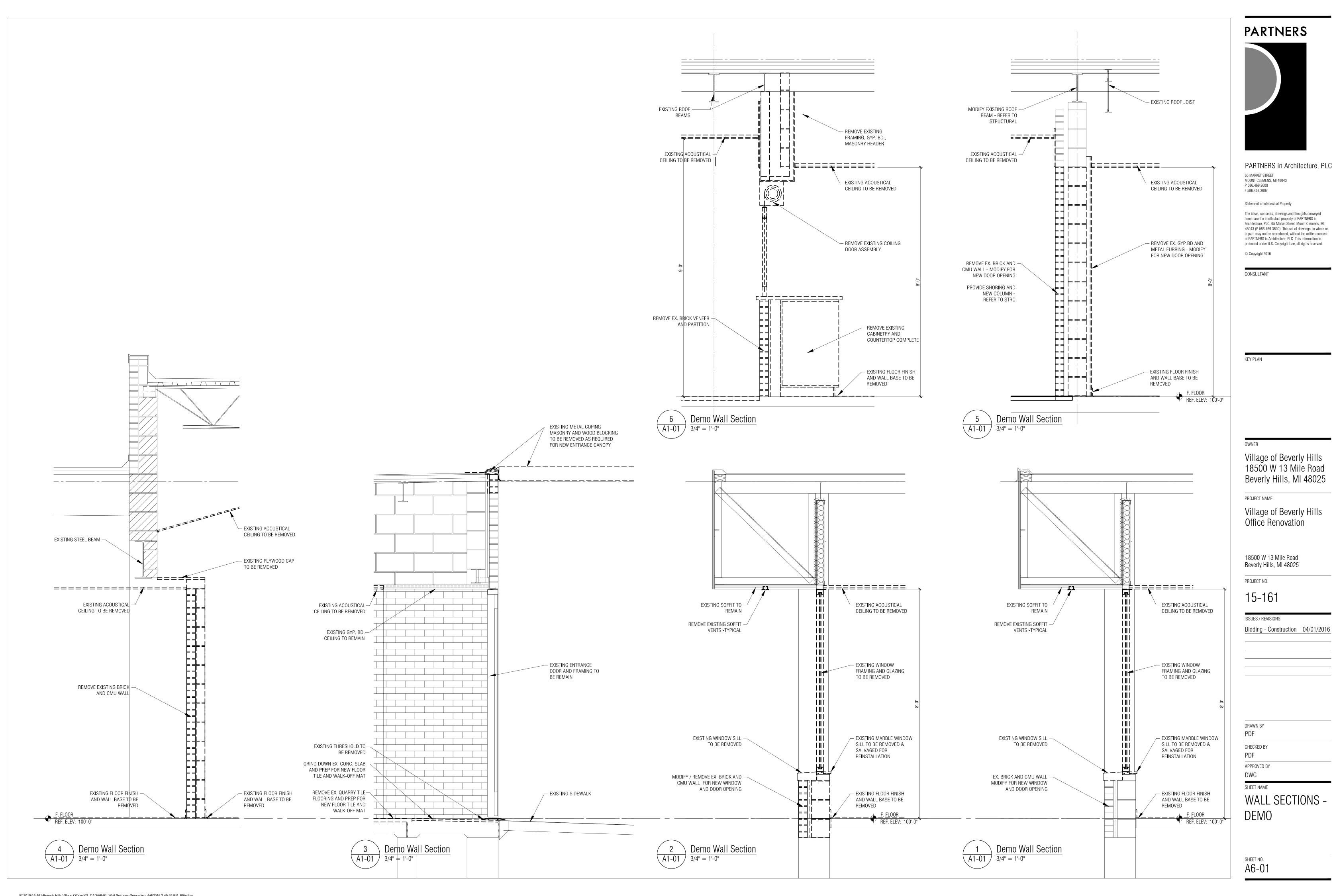
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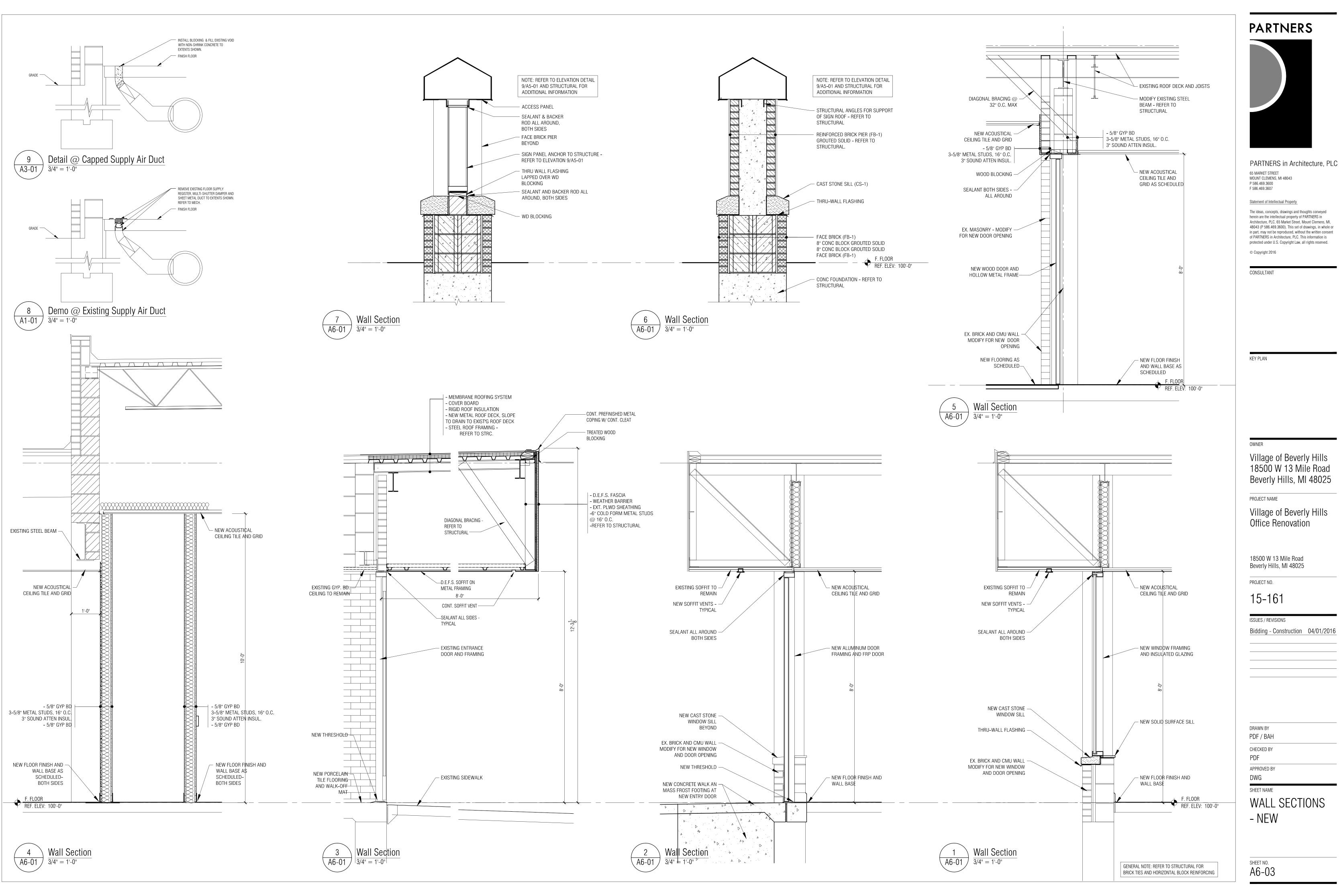
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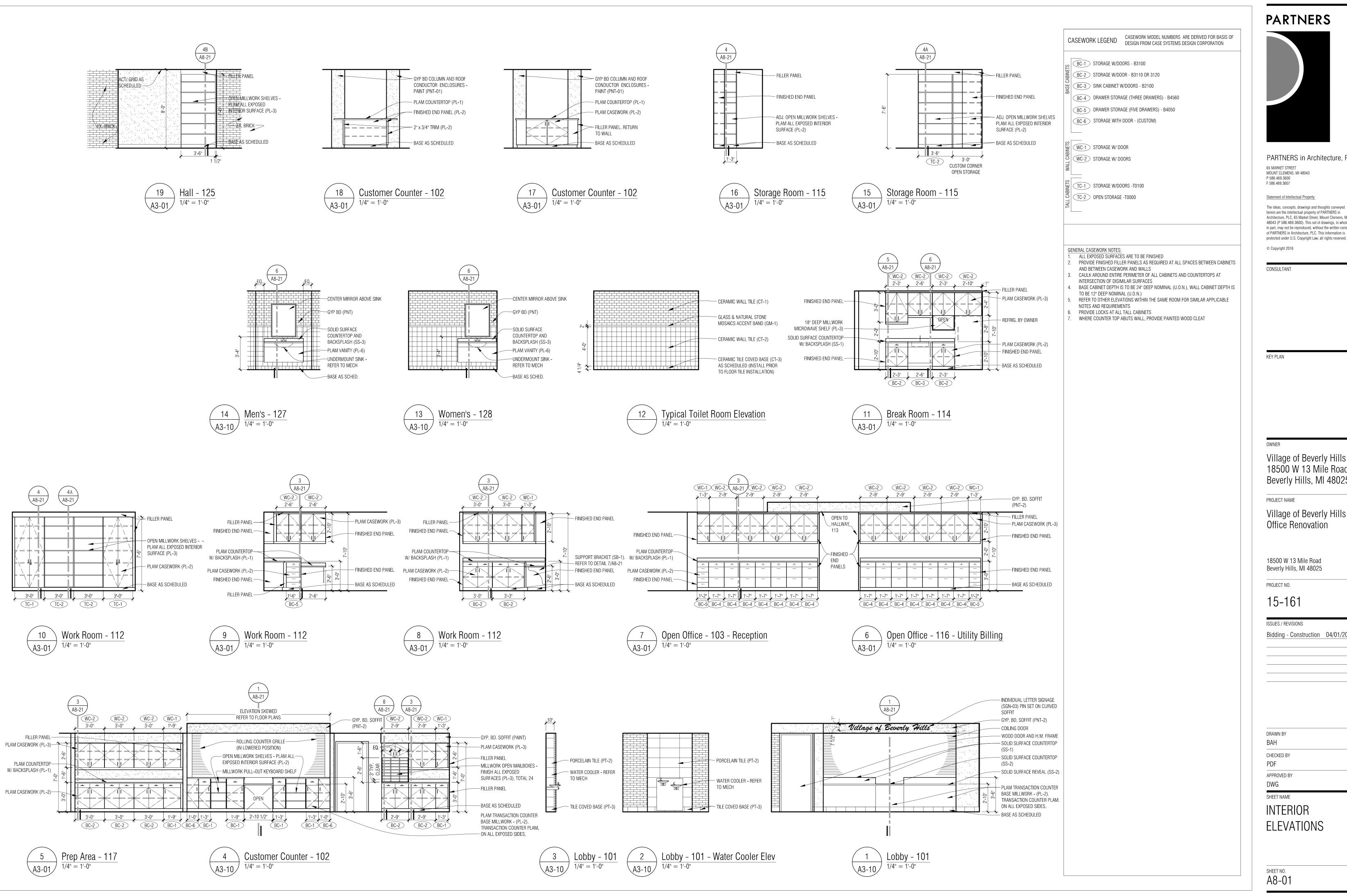
**EXTERIOR ELEVATIONS &** BUILDING

SECTIONS

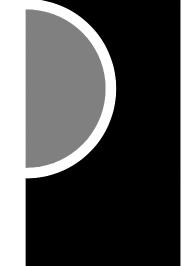
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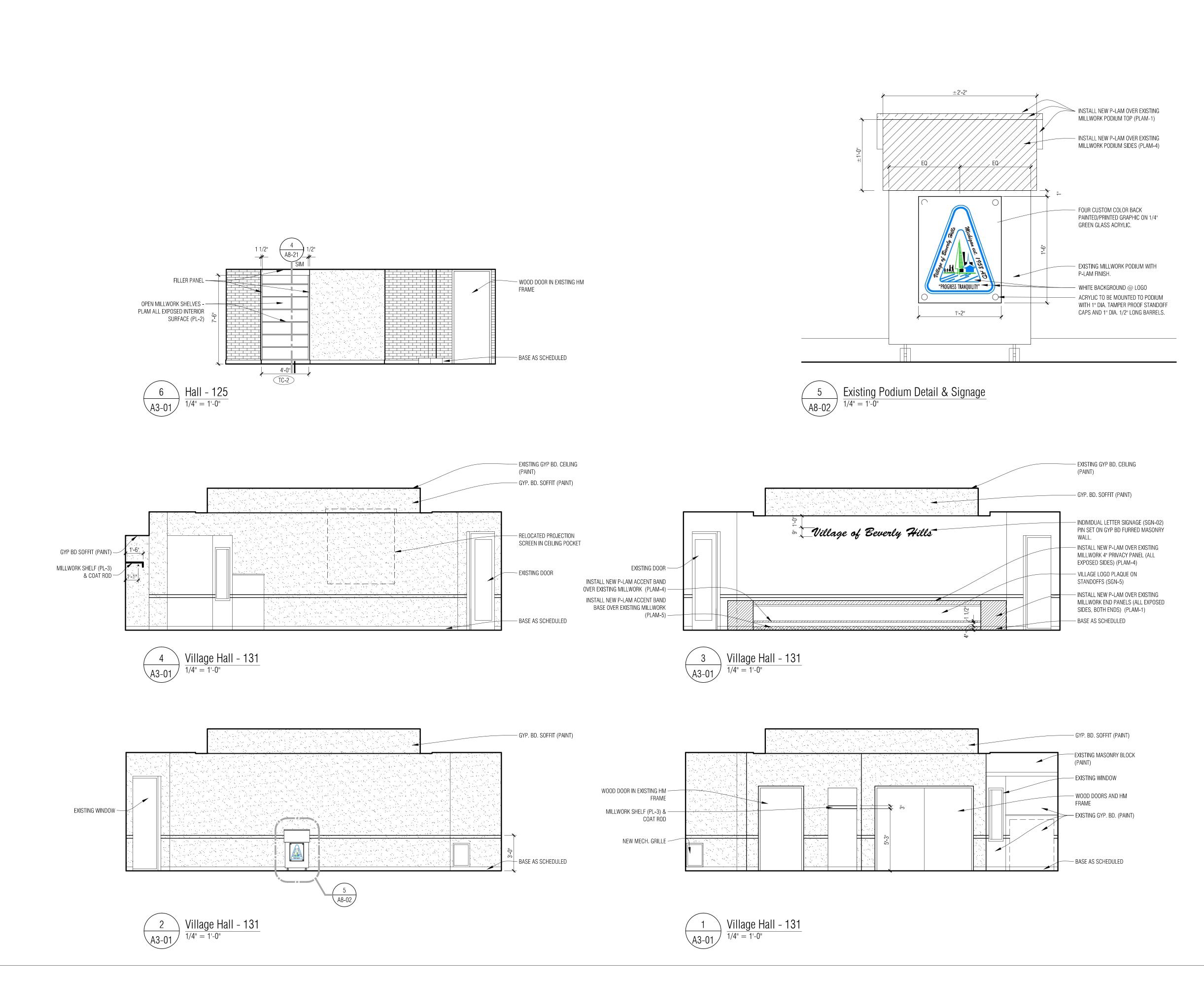
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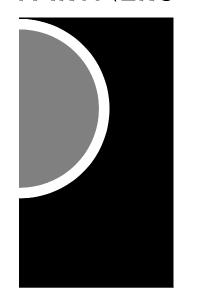
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**INTERIOR ELEVATIONS** 

SHEET NO. **A8-01** 



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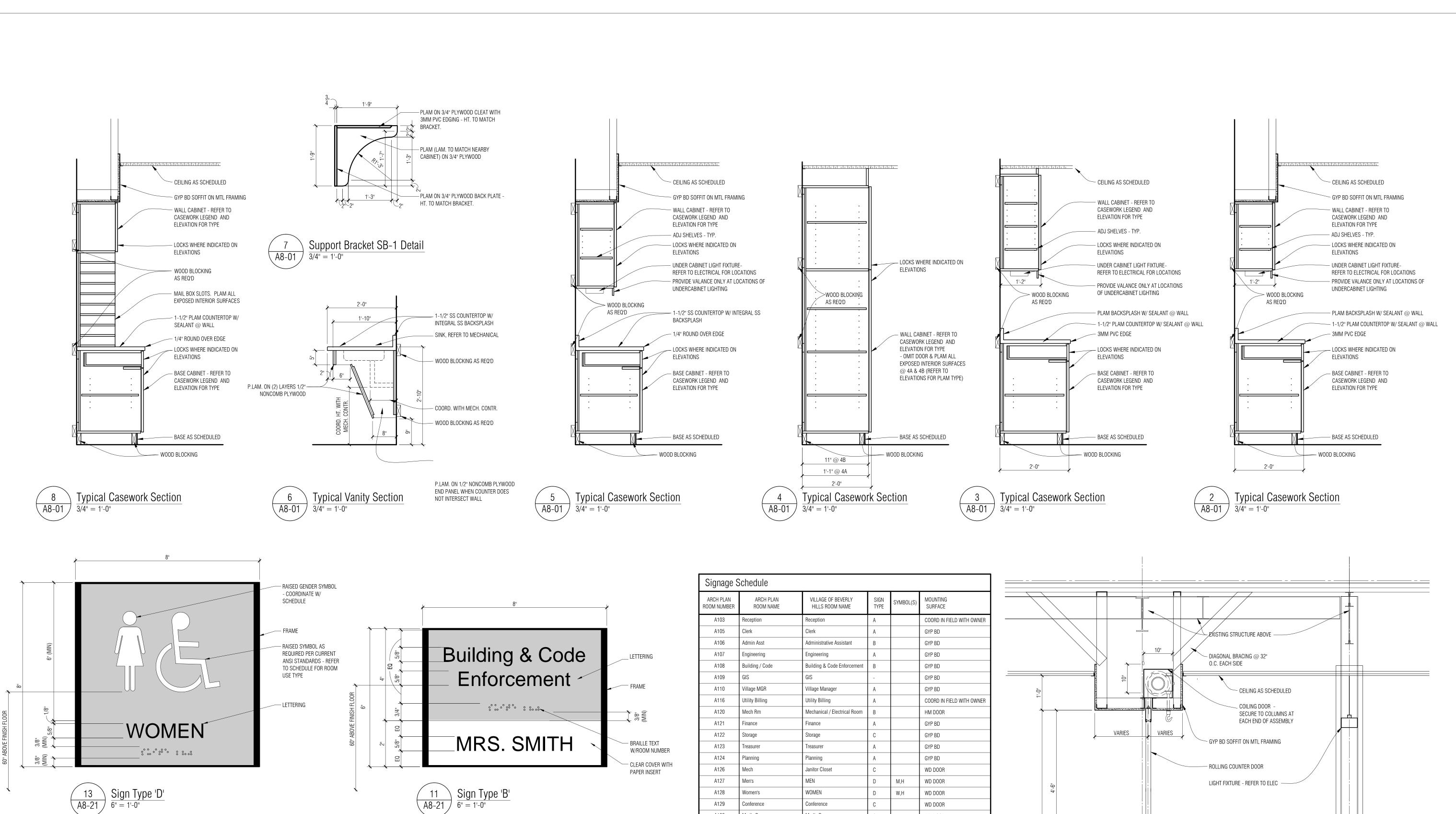
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SHEET NAME

INTERIOR ELEVATIONS

SHEET NO. A8-02



A130

A131

FRAME

— Braille Text W/Room Number

— CLEAR COVER WITH PAPER INSERT

Treasurer´

MRS. SMITH

Conference<sup>2</sup>

W/ROOM NUMBER

Media Rm

Village Hall

EXPANSION

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A8-21
\end{array}$ Typ. Sign Mounting Details

**ANCHORS** 

Media Room

Village Hall

GYP BD

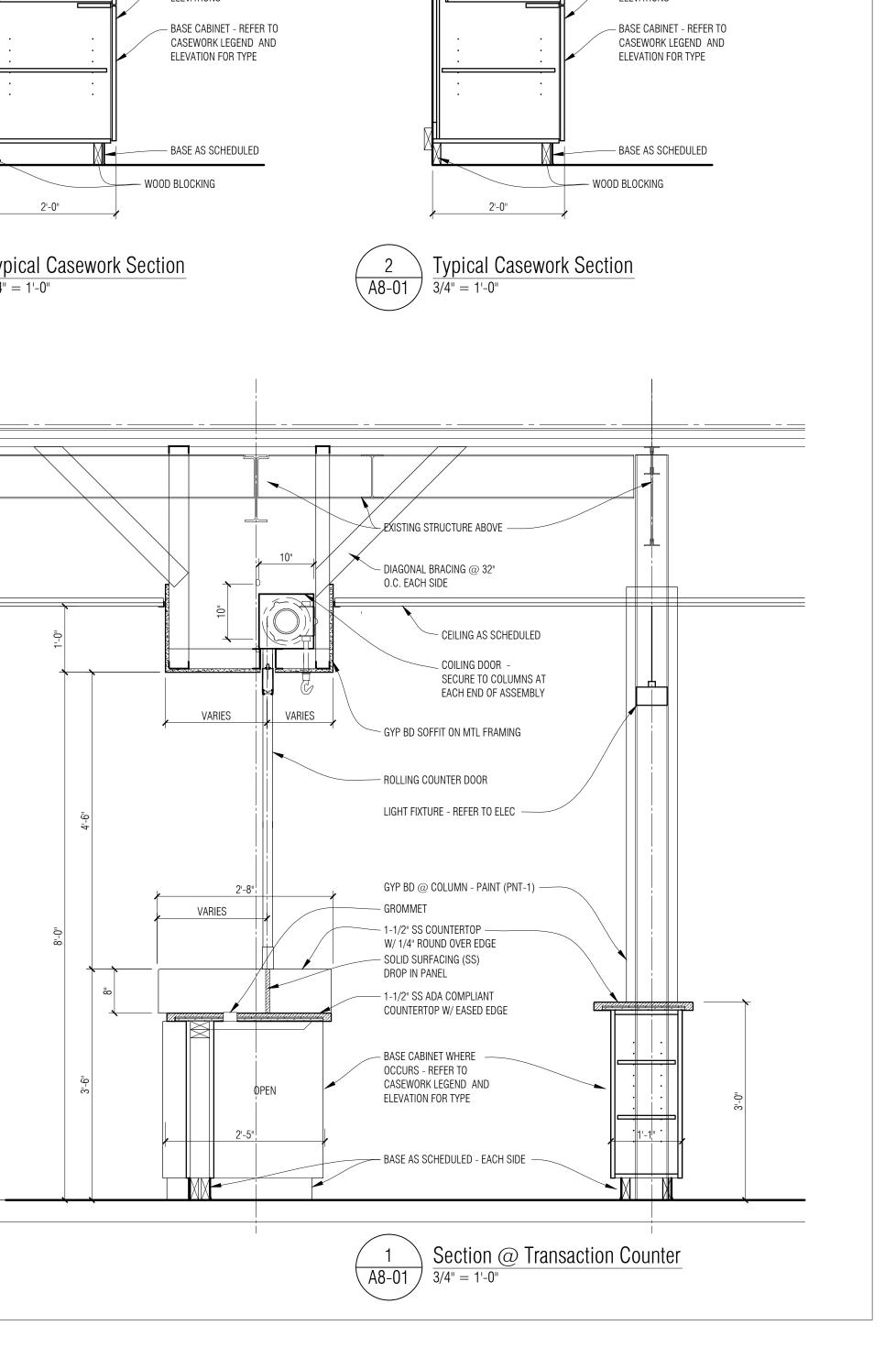
WD DOOR

MASONRY

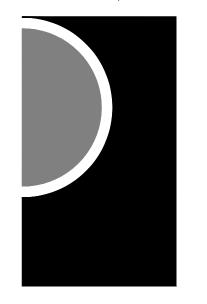
- INDUSTRIAL STRENGTH 2-SIDED ADHESIVE TAPE

NONCOMB WD

BLOCKING







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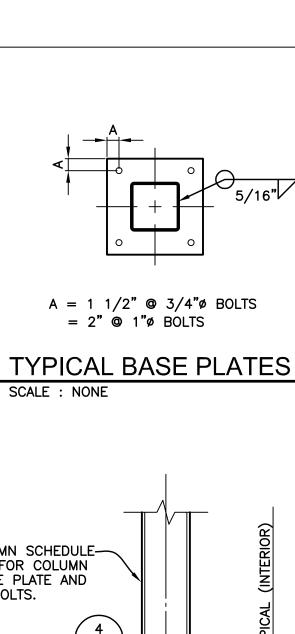
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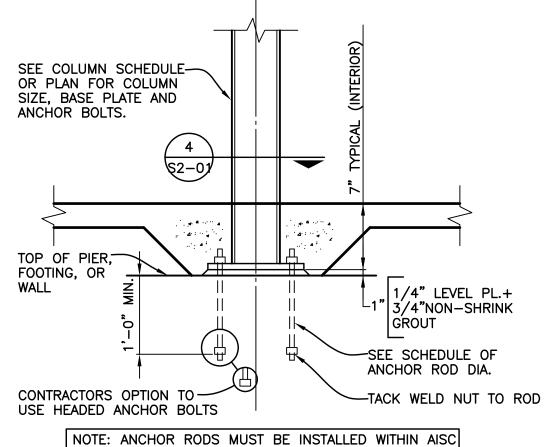
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MILLWORK SECTIONS & DETAILS

SHEET NO.

A8-21

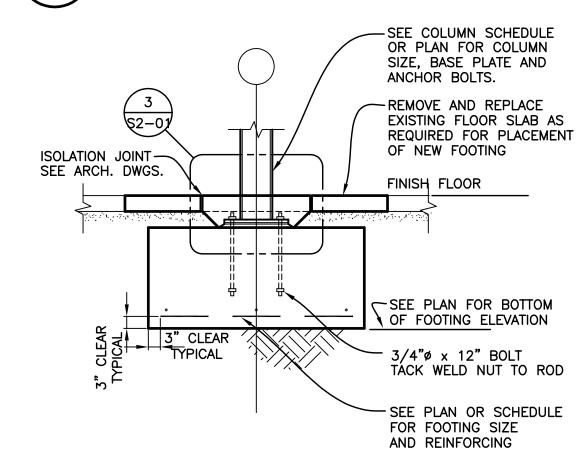


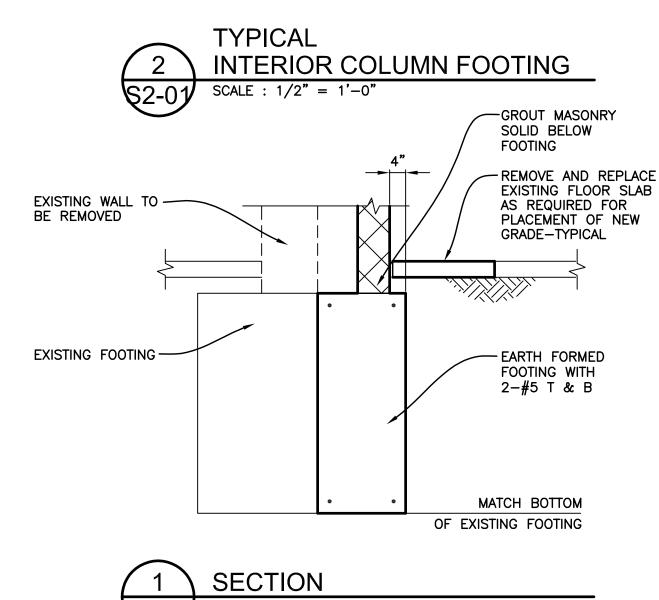


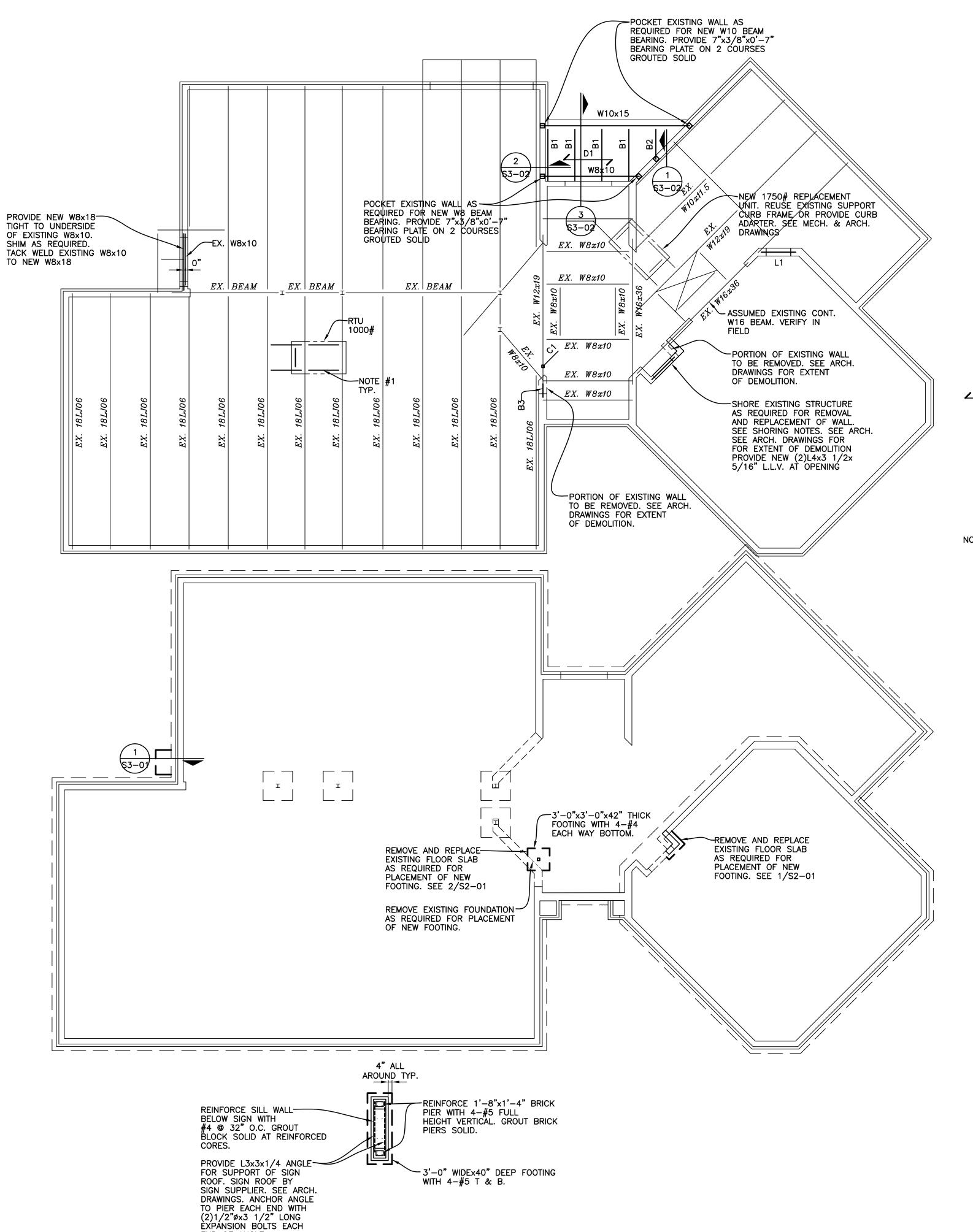
TOLERANCES BEFORE PLACEMENT OF CONCRETE

3 TYPICAL COLUMN BASE DETAIL

\$2-01 SCALE : 3/4" = 1'-0"







END OF ANGLE.

	LINTEL SC	8" BEARING EACH END-U.N.O.	
MARK	DESCRIPTION		
L1	W8x18 + 1/4" PLATE		

LINTEL NOTES: 1. PLATES ON LINTELS EXTEND WIDTH OF MASONRY OPENINGS ONLY. (SEE ARCH. DRAWINGS)

- HOLD EDGE OF PLATE ON LINTEL BACK FROM EACH FACE OF MASONRY 1/4"
- WELD 1/2"øx8" HEADED STUDS 32" O.C. TO TOP FLANGE OF ALL WIDE FLANGE LINTELS
- 4. ALL EXTERIOR LINTELS TO BE GALVANIZED G90 PER ASTM 123

SHORE EXISTING STRUCTURE
AS REQUIRED FOR INSTALLATION
OF NEW SUPPORTS. SEE SHORING
NOTES.

# ROOF FRAMING PLAN SCALE: 1/8" = 1'-0"

GALVANIZED 1 1/2"-22 GA. WIDE RIB METAL DECK (3 SPAN MINIMUM)

B1: W8x10 CANT

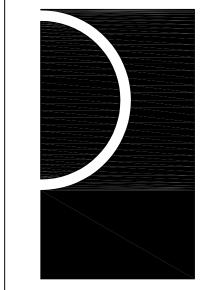
B2: W8x10. POCKET EXISTING WALL AS REQUIRED FOR NEW BEAM BEARING PROVIDE 7"x3/8"x0'-7" BEARING PLATE ON 2 COURSES GROUTED SOLID.

- B3: NEW W12x19 BEAM EXTENSION. BEAR 8" ON WALL AND PROVIDE 7"x3/8"x0'-7" BEARING PLATE ON 2 COURSES GROUTED SOLID. FRAME TO END OF EXISTING W12x19. SEE DETAIL 6/S3-02
- C1: HSS4x4x1/4 WITH 10"x3/4"x0'-10" BASE PLATE AND (4)3/4"øx1'-6" HEADED ANCHORS. PLACE COLUMN TIGHT TO UNDERSIDE OF EXISTING W12 BEAM. SHIM AS REQUIRED. PROVIDE 3/4" CAP PLATE WITH (4)3/4"ø BOLTS.
- NOTE #1: PROVIDE L5x3 1/2x5/16 L.L.V. ALL AROUND UNDER RTU SUPPORT CURB AND ROOF HATCH. VERIFY LOCATION WITH MECH.
  CONTRACTOR. SEE DETAILS 4 & 5/S3-02

FOUNDATION PLAN

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

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# Shymanski & Associates, L.L.C. STRUCTURAL ENGINEERS 33426 Five Mile Rd

Livonia, Michigan 48154 ph. 734.855.4810 fx. 734.855.4809 email@sastructuralengineers.com

KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills
Office Renovation

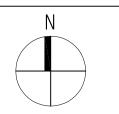
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VG EET NAME

FOUNDATION & ROOF FRAMING

SHEET NO. S2-01

#### GENERAL NOTES GENERAL CONDITIONS

- 1. IF ANY GENERAL NOTE CONFLICTS WITH ANY DETAIL OR NOTE ON THE PLANS OR IN THE SPECIFICATIONS, THE STRICTEST PROVISION SHALL GOVERN.
- 2. THE STRUCTURAL DRAWINGS ARE FOR THE PLACEMENT AND SIZE OF STRUCTURAL COMPONENTS ONLY. O.S.H.A., LOCAL GOVERNMENT CODES AND SAFETY CODE REQUIREMENTS SHALL BE ADHERED TO BY THE CONTRACTOR.
- THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER IT IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES PROVIDING TEMPORARY BRACING, SHORING, GUYS OR TIE- DOWNS. THESE TEMPORARY SUPPORTS WILL REMAIN IN PLACE UNTIL ALL STRUCTURAL COMPONENTS ARE IN PLACE AND COMPLETED.
- USE OF ENGINEERING DRAWINGS AS ERECTION DRAWINGS BY THE CONTRACTOR IS STRICTLY PROHIBITED. DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR BUILDING LAYOUT AND LOCATION. SEE ARCHITECTURAL DRAWINGS AND SITE PLAN FOR THESE PURPOSES.
- THE CONTRACTOR SHALL CHECK SHOP DRAWINGS PRIOR TO SUBMITTAL AND IS SOLELY RESPONSIBLE FOR ERRORS & OMISSION IN THE PREPARATION OF SHOP DRAWINGS TO CONFORM TO THE DESIGN DRAWINGS. SUBMIT NO MORE THAN ONE REPRODUCIBLE AND TWO PRINTS OF SHOP DRAWINGS FOR ENGINEER REVIEW. TWO COPIES WILL BE RETURNED TO THE ARCHITECT.
- . IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS AGAINST PURCHASED MANUFACTURER'S CERTIFIED EQUIPMENT DRAWINGS. DIMENSIONS THAT DEPEND UPON SPECIFIC EQUIPMENT SUCH AS ELEVATOR OPENINGS, MECHANICAL EQUIPMENT SUPPORTS, ETC. SHALL BE COORDINATED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER. SUCH DIMENSIONS SHALL BE PROVIDED ON THE SHOP DRAWINGS BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER.

#### EXISTING CONDITIONS

VERIFY ALL EXISTING ASSUMED DIMENSIONS AND CONDITIONS (I.E. EXISTING MATERIALS; FRAMING MEMBER SIZES AND LOCATIONS; METHODS OF CONSTRUCTION; ETC.) AT THE SITE PRIOR TO CONSTRUCTION AND FABRICATION. IF DISCREPANCIES ARE FOUND, NOTIFY ARCHITECT BEFORE PROCEEDING WITH

#### FOUNDATIONS

- FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED SOIL WITH AN ASSUMED SAFE BEARING CAPACITY OF 3000 P.S.F. IF SOIL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATIONS INDICATED, FOOTINGS SHALL BE ENLARGED OR LOWERED AT THE DIRECTION OF THE ARCHITECT. VERIFY FOUNDATION SOIL BEARING PRESSURE IN FIELD BY SOILS ENGINEER.
- WHERE NEW FOOTINGS ABUT EXISTING FOUNDATIONS, CAREFULLY HAND EXCAVATE AND PLACE BOTTOM OF NEW FOOTING AT THE SAME ELEVATION AS THE EXISTING.
- PROVIDE NECESSARY SHEETING SHORING BRACING, ETC. AS REQUIRED DURING EXCAVATIONS TO PROTECT SIDES OF EXCAVATIONS.
- . COMPLY FULLY WITH REQUIREMENTS OF OSHA AND OTHER REGULATORY AGENCIES FOR SAFETY PROVISIONS.

- MINIMUM CONCRETE STRENGTH TO BE 3000 P.S.I. @ 28 DAYS, U.O.N.; WITH 6% + 1% ENTRAINED AIR U.O.N.
- 2. FLYASH OR GROUND GRANULATED BLAST FURNACE SLAG MAY BE SUBSTITUTED UP TO 25% MAXIMUM OF MIX DESIGN CEMENT CONTENT IN NON-EXPOSED CONCRETE MIXES. DO NOT USE IN EXPOSED MIX DESIGNS.
- ALL CONCRETE WORK AND PLACEMENT SHALL CONFORM TO THE LATEST RECOMMENDATIONS OF A.C.I.
- ALL REINFORCING BARS, DOWELS AND TIES SHALL CONFORM TO A.S.T.M. A615 GRADE 60. REINFORCING STEEL SHALL BE CONTINUOUS AND SHALL HAVE MINIMUM 36 BAR DIAMETER LAP AND BE FABRICATED AND PLACED IN ACCORDANCE WITH A.C.I. - 315 LATEST EDITION.
- REINFORCED WALL FOOTINGS SHALL HAVE CORNER BARS AT ALL INTERSECTIONS OF THE SAME SIZE AND SPACING AS THE MAIN HORIZONTAL REINFORCING.
- ALL SLABS ON GROUND SHALL BE 4" THICK AND HAVE 6" X 6" W1.4 X W1.4 WELDED WIRE FABRIC IN THE TOP 1/3 OF THE SLAB, UNLESS OTHERWISE NOTED.
- FIELD AND SHOP TESTING OF CONCRETE WORK SHALL INCLUDE INSPECTION OF REINFORCING STEEL PLACEMENT, REBARS, NUMBER, LOCATION, AND LAP SPLICE
- PROVIDE DOWELS INTO FOUNDATION TO MATCH SIZE AND SPACING OF VERTICAL REINFORCEMENT AT ALL COLUMNS AND WALLS. UNLESS OTHERWISE NOTED.
- UNLESS OTHERWISE SHOWN, PROVIDE THE FOLLOWING COVER FOR

Α.	UNFORMED SURFACES IN CONTACT WITH EARTH	-3	IN.
В.	UNFORMED SURFACES OVER MOISTURE BARRIERS	- 2	IN.
C.	FORMED SURFACES EXPOSED TO EARTH OR WEATHER		
	OR WATER PROOFING/DAMP PROOFING #6 OR LARGER	-2	TN.
	#6 On LANGER	- 2	TIA -
	#5 OR SMALLER	-1 1/2	IN.
D.	FORMED SURFACES NOT EXPOSED TO EARTH		
	OR WEATHER		
	SLABS AND WALLS	-3/4	IN.
	COLUMNS	-1 1/2	IN.
	BEAMS AND GIRDERS	-1 1/2	IN.
		•	

#### MASONRY

REINFORCING STEEL:

- THE MASONRY PORTIONS OF THIS STRUCTURE ARE DESIGNED ACCORDING TO THE LATEST ALLOWABLE STRESS DESIGN PROVISIONS OF THE MASONRY STANDARDS JOINT COMMITTEE (MSJC) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES MICHIGAN BUILDING CODE. MASONRY COMPONENTS HAVE BEEN DESIGNED ACCORDING TO THE PROVISIONS FOR SEISMIC DESIGN CATEGORY B.
- ALL STRUCTURAL MASONRY IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST MASONRY STANDARDS JOINT COMMITTEE (MSJC) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402/ACI 530/ASCE 5) AND SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602/ACI 530.1/ASCE 6) MASONRY SUBMITTALS ARE REQUIRED BY ACI 530.1/ASCE 6/TMS 602. SECTION 1.5 SECTION 1.6, TABLE 5.
- ALL STRUCTURAL MASONRY HAS BEEN ENGINEERED IN ACCORDANCE WITH CHAPTER 2 ALLOWABLE STRENGTH DESIGN. COMPRESSION STRENGTH SHALL BE DETERMINED ACCORDING TO THE UNIT STRENGTH METHOD FOR CONCRETE MASONRY MSJC SECTION 1.4. B.2.b.
- ALL BLOCK SHALL CONFORM TO ASTM C90, TYPE I, WITH A MINIMUM UNIT NET AREA COMPRESSIVE STRENGTH OF 2800 PSI.

#### MASONRY (CONT.)

- 5. MASONRY COMPRESSIVE STRENGTH f'm = 2000 PSI MINIMUM.
- 6. MORTAR SHALL BE TYPE "S" (1800 PSI) CONFORMING TO ASTM C-270. USE MORTAR CEMENT WHERE EXTERIOR WALLS ARE UNREINFORCED.
- 7. PROVIDE HORIZONTAL WIRE TYPE REINFORCING WITH 9 GAUGE SIDE AND CROSS MEMBERS IN EVERY SECOND COURSE (16" O.C.), IN ALL MASONRY WALLS. WALLS LIGHT GAGE FRAMING WITH VERTICAL REINFORCING SHALL ONLY HAVE "LADDER" TYPE REINFORCING.
- 8. ALL REINFORCING BARS, DOWELS AND TIES SHALL CONFORM TO A.S.T.M. A615 GRADE 60. REINFORCING STEEL SHALL BE CONTINUOUS, FABRICATED AND PLACED IN ACCORDANCE WITH A.C.I. - 315 LATEST EDITION AND HAVE THE FOLLOWING MINIMUM LAP LENGTHS:

BAR SIZE	8" CMU	12" CMU
#3	18"	18"
#4	24"	24"
#5	30"	30"
#6	38"	36"
#7		42"
#8		50"

- 9. ALL MASONRY BEARING STEEL BEAMS AND LINTELS TO BEAR 8" MINIMUM ON 3 COURSES SOLID MASONRY, WITH 2-3/4" DIAMETER BOLTS EACH END, UNLESS
- 10. UNLESS OTHERWISE NOTED WHERE STEEL JOISTS BEAR ON MASONRY, PROVIDE A MINIMUM OF ONE COURSE OF SOLID BLOCK BELOW K-SERIES JOISTS AND A MINIMUM OF TWO COURSES SOLID BELOW LH SERIES JOISTS.
- 11. ALL MASONRY BELOW GRADE SHALL BE GROUTED SOLID.
- 12. MASONRY GROUT SHALL CONFORM TO ASTM C 476, WITH PEA GRAVEL AGGREGATE AND A MINIMUM STRENGTH OF 2000 PSI, BUT NOT LESS THAN
- 13. UNLESS OTHERWISE NOTED, AT ALL MASONRY WALLS PROVIDE THE FOLLOWING LINTELS:

(2) L4x3 1/2 x 5/16 LLV FOR OPENINGS UP TO 4'-0" (2) L5x3 1/2 x 5/16 LLV FOR OPENINGS UP TO 5'-4" W8x18 + 3/8" PLATE FOR OPENINGS UP TO 8'-0" W8x28 + 3/8" PLATE FOR OPENINGS UP TO 12'-4"

#### 12 WALLS:

- (3) L4x3- 1/2 x 5/16 LLV FOR OPENINGS UP TO 4'-0" (3) L5x3-1/2 x 5/16 LLV FOR OPENINGS UP TO 5'-4" W8x18 + 3/8" PLATE FOR OPENINGS UP TO 8'-0" W8x28 + 3/8" PLATE FOR OPENINGS UP TO 12'-4"
- 14. ALL DOUBLE ANGLE LINTELS SHALL BE WELDED BACK TO BACK WITH A MINIMUM 2 INCH STITCH WELD EVERY 8 INCHES.
- 15. UNLESS OTHERWISE NOTED, PROVIDE L5 X 3-1/2 X 5/16 L.L.V. LINTEL FOR EACH 4" OF MASONRY FOR SPANS UP TO 5'-0" MAX.
- 16. PROVIDE DOWELS INTO FOUNDATION TO MATCH SIZE AND SPACING OF VERTICAL REINFORCEMENT AT ALL COLUMNS AND WALLS, UNLESS OTHERWISE NOTED.

#### STRUCTURAL STEEL

- SLABS SHALL BE 3500 P.S.I. MIN. U.O.N. EXPOSED CONCRETE SHALL BE 4000 PSI 1. STEEL DESIGN, FABRICATION AND ERECTION TO BE IN ACCORDANCE WITH THE LATEST A.I.S.C. MANUAL AND SPECIFICATION FOR STRUCTURAL STEEL FOR BUILDINGS. ALL WIDE FLANGE BEAMS AND COLUMNS SHALL CONFORM TO THE LATEST ASTM. SERIAL DESIGNATION A992, GR50; ALL MISCELLANEOUS STEEL PLATES, BARS, ANGLES, ETC., SHALL CONFORM TO ASTM A36; STEEL TUBING TO BE ASTM A500, GRADE B; STEEL PIPE ASTM. A-53, GRADE B.
  - 2. UNLESS OTHERWISE NOTED OR SHOWN, ALL BEAM CONNECTIONS TO HSS 5 X 5 OR SMALLER COLUMN, 5"Ø OR SMALLER COLUMN, OR ANY TUBE COLUMN REGARDLESS OF SIZE WITH A WALL THICKNESS LESS THAN 5/16" SHALL BE MADE WITH THRU PLATES WELDED TO BOTH WALLS OF COLUMN.
  - 3. ALL WELDED CONNECTIONS SHALL BE IN ACCORDANCE WITH THE LATEST AWS CODE, E70XX ELECTRODES, WITH WELDING PERFORMED BY QUALIFIED
  - 4. BOLTED CONNECTIONS SHALL BE MADE WITH A-325 OR A-490 BOLTS. ALL BOLTS ARE TO BE INSTALLED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FOR "STRUCTURAL JOINTS USING A.S.T.M. A-325 OR A-490 BOLTS." TYPICAL BOLTED CONNECTIONS ARE "BEARING TYPE" UNLESS NOTED OTHERWISE.
  - 5. DESIGN CONNECTIONS FOR MINIMUM ONE-HALF THE TOTAL ALLOWABLE UNIFORM LOAD PER A.I.S.C. BEAM LOAD TABLES, UNLESS OTHERWISE NOTED. (MIN. 2 BOLTS EACH CONNECTION).
  - 6. SINGLE PLATE SHEAR CONNECTIONS ARE ACCEPTABLE ONLY FOR BEAM TO GIRDER AND SKEWED CONNECTIONS LESS THAN 30 KPS. SHEAR PLATE OR SINGLE SHEAR ANGLES SHALL BE WELDED TO TOP FLANGE OF SUPPORTING GIRDERS.
  - 7. THE DESIGN, CONFIGURATION & ERECTION SAFETY OF ALL STRUCTURAL STEEL CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE STRUCTURAL STEEL FABRICATOR. REVIEW AND ACCEPTANCE OF THE SHOP DRAWINGS BY THE ENGINEER SHALL CONSTITUTE APPROVAL OF THE LOAD CARRYING ADEQUACY
  - 8. TYPE OF CONSTRUCTION PER ASCE A2.2 IS TYPE 2 "SIMPLE FRAMING" UNLESS
  - 9. TEMPORARY ERECTION SEATS SHALL BE PROVIDED AS RECOMMENDED ON PAGE 3-59 OF THE A.I.S.C. PUBLICATION "ENGINEERING FOR STEEL CONSTRUCTION".

CLIPS, ETC., ATTACHED TO STRUCTURAL STEEL.

AND WITH CONTRACTOR INVOLVED.

- 10. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL ANGLES, PLATES, BARS,
- 11. UNLESS OTHERWISE NOTED, ALL FLOOR AND ROOF OPENINGS SHALL BE FRAMED WITH L 5 X 3-1/2 X 5/16 L.L.V. VERIFY EXACT SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS
- (ACI 530/ASCE 602) INCLUDING SECTIONS 2106 AND 2107 OF CHAPTER 21 IN THE 12. THIS STEEL FRAME IS NON SELF-SUPPORTING PER A.I.S.C. CODE OF STANDARD PRACTICE, SECTIONS 7.9.3. AND 7.9.5. ERECTION, BRACING, SHORING, ETC. SHALL CONFORM TO THESE SECTIONS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE.
  - 13. THE CONTRACTOR SHALL FURNISH ALL ACCESSORIES INCLUDING CLOSURES, "Z" CLOSURES, COLUMN CLOSURES, SCREED ANGLES AND GIRDER FILLERS AS
- MASONRY TESTING AND INSPECTIONS ARE REQUIRED BY ACI 530.1/ASCE 6/TMS 602 14. ROOF DECK SHALL HAVE GALVANIZED COATING CONFORMING TO ASTM A653-COATING DESIGNATION G-90 OR AS NOTED.
  - 15. NO LOADS SHALL BE PERMITTED TO BE HUNG FROM ANY ROOF DECK. ALL HANGERS FOR CEILINGS, DUCTWORK, ELECTRICAL CONDUIT, PIPING, ETC., SHALL BE HUNG DIRECTLY FROM STRUCTURAL STEEL WORK OR SUPPLEMENTARY
  - 16. MASONRY AND BRICK LINTELS SHALL BE GALVANIZED G90 PER ASTM A123.

#### STRUCTURAL STEEL (CONT.)

- 17. PROVIDE L4X4X1/4 SEATS AT COLUMN WEBS WHERE REQUIRED FOR SUPPORT OF ROOF AND FLOOR DECKS. PROVIDE ANGLE OUTRIGGER FROM EXTERIOR COLUMNS FOR SLAB AND ROOF EDGE PLATE SUPPORT.
- 18. ALL BOLTED MOMENT CONNECTIONS REQUIRE SLIP CRITICAL BOLTS.

- 1. LIGHT GAGE FRAMING SUPPLIER SHALL SUBMIT DRAWINGS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN MICHIGAN INDICATING ALL DESIGN LOADS AND MATERIALS INCLUDING VERIFYING ANY MEMBER SIZES SHOWN. DESIGN BY SUPPLIERS ENGINEER SHALL INCLUDE ALL CONNECTIONS AND MISCELLANEOUS MATERIALS NECESSARY FOR A COMPLETE STRUCTURE. THE FINAL MEMBER SIZES AND GAGES SHALL BE CALCULATED BY THE LIGHT GAGE
- 2. LIGHT GAGE MEMBERS SHALL BE DESIGNED, MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE AMERICAN IRON AND STEEL INSTITUTE (AISI) INCLUDING ANY REQUIRED CLIPS, STIFFENERS, AND
- 3. MEMBER SIZES INDICATED ON DRAWINGS ARE MINIMUM DEPTH AND GAGE REQUIRED TO MEET THE DESIGN INTENT AND ARE BASED ON THE PROPERTIES AND MATERIALS LISTED IN THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) PRODUCT CATALOG. ALTERNATE MANUFACTURERS ARE ACCEPTABLE IF THE PHYSICAL PROPERTIES ARE EQUAL OR BETTER THAN THOSE LISTED ACCEPTABLE TO THE PROJECT ARCHITECT AND ENGINEER, AND MEET OR EXCEED PERFORMANCE CRITERIA.
- 4. LIGHT GAGE DOCUMENTS SUBMITTED BY THE LIGHT GAGE FRAMING SUPPLIER IS A "DEFERRED SUBMITTAL" PER SECTION 107.3.4.1 OF THE MBC 2012
- 5. ALL LIGHT GAGE BACK UP STUDS FOR BRICK VENEER TO BE 16 GA. MINIMUM (54) AND BE DESIGNED FOR L/600 MINIMUM LATERAL DEFLECTION REQUIREMENT.

SPECIAL INSPECTION

- 1. SHORE STRUCTURE AS REQUIRED TO MAINTAIN STRUCTURAL INTEGRITY.
- 2. ALL SHORING, UNDERPINNING, ETC., SHALL BE PERFORMED BY EXPERIENCED CONTRACTORS.
- 3. SHORE, UNDERPIN, ETC., ALL QUESTIONABLE AREAS PRIOR TO REMOVAL OF ANY STRUCTURAL SUPPORT TO INSURE STRUCTURAL INTEGRITY.
- 4. MAINTAIN SHORING UNTIL NEW PERMANENT STRUCTURE IS IN PLACE AND SECURE TO MAINTAIN STRUCTURAL INTEGRITY.

#### 5. REMOVE SHORING AFTER NEW WORK IS IN PLACE AND CONNECTED.

- 1. WORK CONSTRUCTED SHALL BE INSPECTED BY AN INDEPENDENT TESTING AGENCY TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE DRAWINGS. INSPECTIONS REQUIRED BY CHAPTER 17 OF THE MICHIGAN BUILDING CODE; LOCAL BUILDING DEPARTMENTS AND THE CONTRACT DOCUMENTS SHALL BE PERFORMED BY AN INDEPENDENT TESTING AGENCY. SITE
- 2. THE FOLLOWING ITEMS SHALL BE INSPECTED IN ACCORDANCE WITH MBC 2012 SEC. 1704 BY A CERTIFIED SPECIAL INSPECTOR UNLESS NOTED OTHERWISE IN REMARKS COLUMN. ALL INSPECTION SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. ALL PRODUCTS WITH ICC APPROVALS SHALL BE INSTALLED PER THE APPROVAL AND PER MANUFACTURER'S RECOMMENDATIONS. FOR MATERIAL TESTING REQUIREMENTS. SEE SPECIFICATIONS AND/OR GENERAL NOTES. TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE ARCHITECT.

VISITS BY THE DESIGN ENGINEER DO NOT CONSTITUTE OR REPLACE INSPECTION

#### FABRICATOR'S SHOP (SEC. 1704.2) \*

c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

#### STEEL FABRICATION

\*SPECIAL INSPECTION IS NOT REQUIRED FOR FABRICATOR SHOP IF CERTIFICATE OF APPROVAL SUBMITTED BY FABRICATOR'S INSPECTION AGENCY PER 1704.2.1 EXCEPTION AND 1704.2.2

#### TABLE 1704.3 REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	NOT APPLICABLE	REFERENCED STANDARD	MBC REFERENCE
<ol> <li>MATERIAL VERIFICATION OF HIGH-STRENGHT BOLTS, NUTS AND WASHERS:</li> </ol>					
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	Х	-	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS	
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	Х	-	-	-
2. INSPECTION OF HIGH-STRENGTH BOLTING:	•				
a. SNUG-TIGHT JOINTS.	-	Х	-		
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN- OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	-	Х	-	AISC 360, SECTION M2.5	1704.3.3
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN- OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	х	-	-		
<ol> <li>MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD- FORMED STEEL DECK:</li> </ol>					
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360.	-	Х	·	AISC 360, SECTION M5.5	
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	<u>.</u>	Х	-	APPLICABLE ASTM MATERIAL STANDARDS	
c. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	Х	-		
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:					
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	Х	i	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	ē
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	Х	-	ē	•
5. INSPECTION OF WELDING:					
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:					
<ol> <li>COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS.</li> </ol>	Х	-	-		
2) MULTIPASS FILLET WELDS.	Х	i	-		
3) SINGLE-PASS FILLET WELDS > 5/16"	Х	-	-	AWS D1.1	1704.3.1
4) PLUG AND SLOT WELDS.	Х	-	•		
5) SINGLE-PASS FILLET WELDS < 5/16"	-	Х	•		
6) FLOOR AND ROOF DECK WELDS.	-	Х	-	AWS D1.3	
b. REINFORCING STEEL:					
<ol> <li>VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.</li> </ol>	-	Х	-		
<ol> <li>REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.</li> </ol>	Х	-	-	AWS D1.4 ACI 318: SECTION 3.5.2	-
3) SHEAR REINFORCEMENT.	Х	-	-		
4) OTHER REINFORCING STEEL.	-	Х	-		
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:					
a. DETAILS SUCH AS BRACING AND STIFFENING.	-	Х	•		
b. MEMBER LOCATIONS.	-	Х	-	-	1704.3.2

#### TABLE 1704.4 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	NOT APPLICABLE	REFERENCED STANDARD	MBC REFERENCED
INSPECTION OF REINFORCING STEEL INCLUDING     PRESTRESSING TENDONS AND PLACEMENT.	-	х	-	ACI 318: 3.5, 7.1-7.7	1913.4
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3 ITEM 5b	-	-	-	AWS D1.4 ACI 318: 3.5.2	-
3. INSPECTION OF BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	х	-	-	ACI 318 8.13,2128	1911.5 1912.1
4. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE.	-	Х	-	ACI 318 3.8.6,8.1.3,21.2.8	1912.1
5. VERIFYING USE OF REQUIRED DESIGN MIX.	-	Х	-	ACI 318: CH.4,5.2-5.4	1904.2.2, 1913.2,1913.
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS PERFORM SLUMP AND AIR CONTENT TESTS AND DETERMINE THE TEMPERATURE OF THE CONCRETE	Х	-	-	ASTM C 172 ASTM C 31 ACI 318: 5.6,5.8	1913.10
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	Х	-	-	ACI 318: 5.9,5.10	1913.6, 1913.7,1913.
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	х	-	ACI 318: 5.11-5.13	1913.9
9. INSPECTION OF PRESTRESSED CONCRETE a. APPLICATION OF PRESTRESSING FORCES b. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC FORCE RESISTING SYSTEM	X X	-	-	ACI 318: 18.20 ACI 318: 18.18.4	-
10. ERECTION OF PRECAST CONCRETE MEMBERS.	-	Х	-	ACI 318: CH.16	-
11. VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS IN POSTTENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS BEAMS AND STRUCTURAL SLABS.	-	х	-	ACI 318: 6.2	-
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	Х		ACI 318: 6.1.1	
Т	ABLE 1704	.5.1		_	

#### LEVEL 1 REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	NOT APPLICABLE	IBC SECTION	TMS 402/ACI 530/ASCE 5	TMS 602/ACI 530.1/ASCE 6
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED.	-	Х	-	-	-	ART. 1.5
2. VERIFICATION OF f', AND f', PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE.	-	Х	-	-	-	ART. 1.4B
3. VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT.	Х	-	-	-	-	ART. 1.5B.1.b.3
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:						
a. PROPORTIONS OF SITE-PREPARED MORTAR.	-	Х	-	-	-	ART. 2.6A
b. CONSTRUCTION OF MORTAR JOINTS.	-	Х	-	-	-	ART. 3.3B
c. LOCATION OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS AND ANCHORAGES.	-	х	-	-	-	ART. 3.4, 3.6A
d. PRESTRESSING TECHNIQUE.	-	Х	-	-	-	ART. 3.6B
e. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES.	-	х	-	-	-	ART 2.4B, 2.4H
<ol><li>DURING CONSTRUCTION THE INSPECTION PROGRAM SHALL VERIFY:</li></ol>						
a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	-	Х	-	-	-	ART. 3.3F
b. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION.	-	х	-	-	SEC. 1.2.2(e), 1.16.1	-
C. SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT, ANCHOR BOLTS, PRESTRESSING TENDONS AND ANCHORAGES.	-	Х	-	-	SEC. 1.15	ART. 2.4, 3.
d. WELDING OF REINFORCING BARS.	Х	-	-	-	SEC. 2.1.9.7.2, 3.3.3.4(b)	-
e. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	-	Х	-	SEC. 2104.3, 2104.4	-	ART. 1.8C 1.8D
f. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE.	Х	-	-	-	-	ART. 3.6B
6. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:						
a. GROUT SPACE IS CLEAN.	•	Х	-	•	-	ART. 3.2D
b. PLACEMENT OF REINFORCEMENT AND CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES.	-	Х	-	-	SEC. 1.13	ART. 3.4
C. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS.	-	Х	-	-	-	ART. 2.6B
d. CONSTRUCTION OF MORTAR JOINTS.	-	Х	-	-	-	ART. 3.3B
7. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE	Х	·	-	-	-	ART. 3.5
a. GROUTING OF PRESTRESSING BONDED TENDONS.	Х	-	-	-	-	ART. 3.6C
8. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED.	-	х	-	SEC 2105.2.2 2105.3	-	ART. 1.4

#### TABLE 1704.7

REQUIRED VERIFICATION AND INSPECTION OF SOILS						
VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	NOT APPLICABL			
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	Х				
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	х				
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	х				
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	Х	-				
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		х				

- B. MANUAL OF STEEL CONSTRUCTION BY AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- C. LATEST MASONRY STANDARDS JOINT COMMITTEE (MSJC) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402/ACI 530/ASCE 5) AND SPECIFICATIONS FOR MASONRY
- STRUCTURES (TMS 602/ACI 530.1/ASCE 6) D. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) STANDARDS AND SPECIFICATIONS.

AMERICAN FOREST AND PAPER ASSOCIATION.	
	CODE REFERENC

SNOW LOADS/ROOF LIVE LOADS				
SNOW CRITERIA		CODE REFERENCE		
GROUND SNOW LOAD	Pg = 25 PSF	MBC FIG. 1608.2 ASCE Fig. 7-1		
FLAT ROOF SNOW LOAD	Pf = 20 PSF (MINIMUM)	ASCE Sec. 7.3		
EXPOSURE FACTOR	Ce = 1.0	ASCE Table 7-2		
IMPORTANCE FACTOR	I = 1.0	ASCE Table 1.5-2		
THERMAL FACTOR	Ct = 1.0	ASCE Table 7-3		
ROOF LIVE LOADS	Lr = 20 PSF	ASCE Table 4-1		
NOTE: SNOW LOADS ADJACENT VERTICAL PROJECTIONS TO HIGH ROOFS, OR SLOPED ROOFS ARE INCRE				

WIND LOADS					
WIND CRITERIA		CODE REFERENCE			
BASIC WIND SPEED (3 SEC. GUST)	V = 115 MPH	ASCE FIG. 26.5-1A, 26.5-1B, 26.5-1C			
RISK FACTOR	II	ASCE Table 1.5-1			
EXPOSURE CATEGORY	В	ASCE Sec. 26.7.3			
INTERNAL PRESSURE COEFFICIENT	± 0.18 (ENCLOSED)	ASCE TABLE 26.11-1			
MWFRS ANALYSIS PROCEDURE	DIRECTIONAL PROCEDURE	ASCE CHAP. 27			
COMPONENTS AND CLADDING	± 33 PSF MINIMUM AND PER CODE REQUIREMENTS BASED ON ABOVE INFORMATION	ASCE Sec. 30.2.2			

SEISMIC LOADS		
SEISMIC CRITERIA		CODE REFERENCE
SEISMIC IMPORTANCE FACTOR	I = 1.0	ASCE Table 1.5-2
-0.2 SEC MAPPED SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING) Ss	Ss = 0.09	ASCE Sec. 11.4
-1.0 SEC MAPPED SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING) S1	S <sub>1</sub> = 0.0457	ASCE Sec. 11.4
SOIL SITE CLASS	D	ASCE Sec. 11.4.2
SEISMIC DESIGN CATEGORY	В	ASCE Sec. 11.6
SEISMIC FORCE RESISTING SYSTEM	STEEL NOT SPECIFICALLY DETAILED FOR SEISMIC	ASCE Table 12.2-1
RESPONSE MODIFICATION FACTOR	R = 3.0	ASCE Table 12.2-1
DEFLECTION AMPLIFICATION FACTOR	Cd = 3.0	ASCE Table 12.2-1
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE	ASCE Sec. 12.8
<u> </u>		

- ODE: MBC 2012 THE STRUCTURE IS DESIGNED FOR THE FOLLOWING LIVE LOADS, IN ADDITION TO THE DS, SUPER-IMPOSED DEAD LOADS, & SELF WEIGHT OF THE STRUCTURE. WHERE APPLICABLE LIVE LOADS ARE REDUCED IN ACCORDANCE WITH THE PROVISIONS OF THE BUILDING CODE.
- A. AMERICAN CONCRETE INSTITUTE BUILDING CODE (ACI-318).
- E. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) AS PUBLISHED BY

		CODE REFERENCE
BUILDING OCCUPANCY CATEGORY	11	MBC-Table 1604.5 ASCE Table 1.5-1

SNOW LOADS/ROOF LIVE LOADS		
SNOW CRITERIA		CODE REFERENCE
GROUND SNOW LOAD	Pg = 25 PSF	MBC FIG. 1608.2 ASCE Fig. 7-1
FLAT ROOF SNOW LOAD	Pf = 20 PSF (MINIMUM)	ASCE Sec. 7.3
EXPOSURE FACTOR	Ce = 1.0	ASCE Table 7-2
IMPORTANCE FACTOR	I = 1.0	ASCE Table 1.5-2
THERMAL FACTOR	Ct = 1.0	ASCE Table 7-3
ROOF LIVE LOADS	Lr = 20 PSF	ASCE Table 4-1
NOTE: SNOW LOADS ADJACENT VERTICAL PROJECTIONS	ON LOWER ROOFS AD IACENT	-

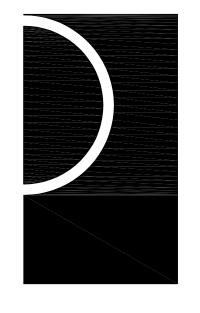
WIND LOADS		
WIND CRITERIA		CODE REFERENCE
BASIC WIND SPEED (3 SEC. GUST)	V = 115 MPH	ASCE FIG. 26.5-1A, 26.5-1B, 26.5-1C
RISK FACTOR	II	ASCE Table 1.5-1
EXPOSURE CATEGORY	В	ASCE Sec. 26.7.3
INTERNAL PRESSURE COEFFICIENT	± 0.18 (ENCLOSED)	ASCE TABLE 26.11-1
MWFRS ANALYSIS PROCEDURE	DIRECTIONAL PROCEDURE	ASCE CHAP. 27
COMPONENTS AND CLADDING	± 33 PSF MINIMUM AND PER CODE REQUIREMENTS BASED ON ABOVE INFORMATION	ASCE Sec. 30.2.2

SEISMIC LOADS		
SEISMIC CRITERIA		CODE REFERENCE
SEISMIC IMPORTANCE FACTOR	I = 1.0	ASCE Table 1.5-2
-0.2 SEC MAPPED SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING) Ss	Ss = 0.09	ASCE Sec. 11.4
-1.0 SEC MAPPED SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING) S:	S <sub>1</sub> = 0.0457	ASCE Sec. 11.4
SOIL SITE CLASS	D	ASCE Sec. 11.4.2
SEISMIC DESIGN CATEGORY	В	ASCE Sec. 11.6
SEISMIC FORCE RESISTING SYSTEM	STEEL NOT SPECIFICALLY DETAILED FOR SEISMIC	ASCE Table 12.2-1
RESPONSE MODIFICATION FACTOR	R = 3.0	ASCE Table 12.2-1
DEFLECTION AMPLIFICATION FACTOR	Cd = 3.0	ASCE Table 12.2-1
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE	ASCE Sec. 12.8
	_	

#### -RAKE TOP OF FOOTING #4 @ 12" O.C.x1'-0" LONG DOWEL AT DOOR OPENING. DOWEL 4" INTO - #4 @ 12" O.C. EACH EXISTING SLAB. ANCHOR WALL BEYOND **WAY BOTTOM** WITH HILTI HIT HY-200 ADHESIVE. LOCATE DOWEL SLOPE. EACH FACE OF OPENING #4 @ 12" DOWELS ÄLL AROUND x 6" (4 SIDES) ASSUMED EXISTING-MASS ENTRY SLAB MASS ENTRANCE SLAB

**DETAIL AT EXISTING BUILDING** 

#### **PARTNERS**



PARTNERS in Architecture, PLC MOUNT CLEMENS, MI 48043 P 586.469.3600 F 586.469.3607

#### Statement of Intellectual Property

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CONSULTANT

# STRUCTURAL ENGINEERS 33426 Five Mile Rd

Livonia, Michigan 48154 ph. 734.855.4810 fx. 734.855.4809 email@sastructuralengineers.com

18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

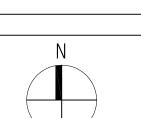
Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

> PROJECT NO. 15-161

ISSUES / REVISIONS

Bids/Construction



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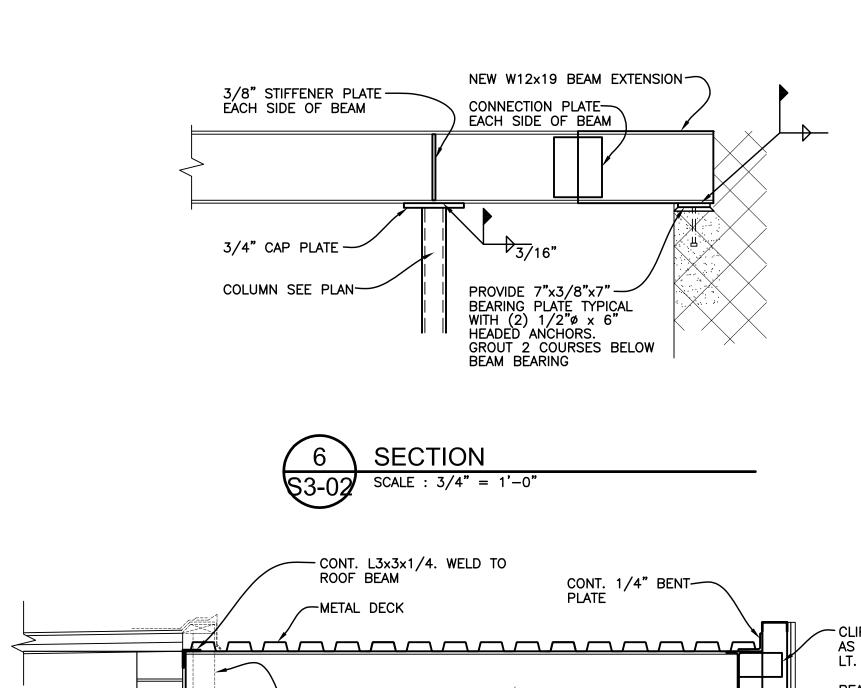
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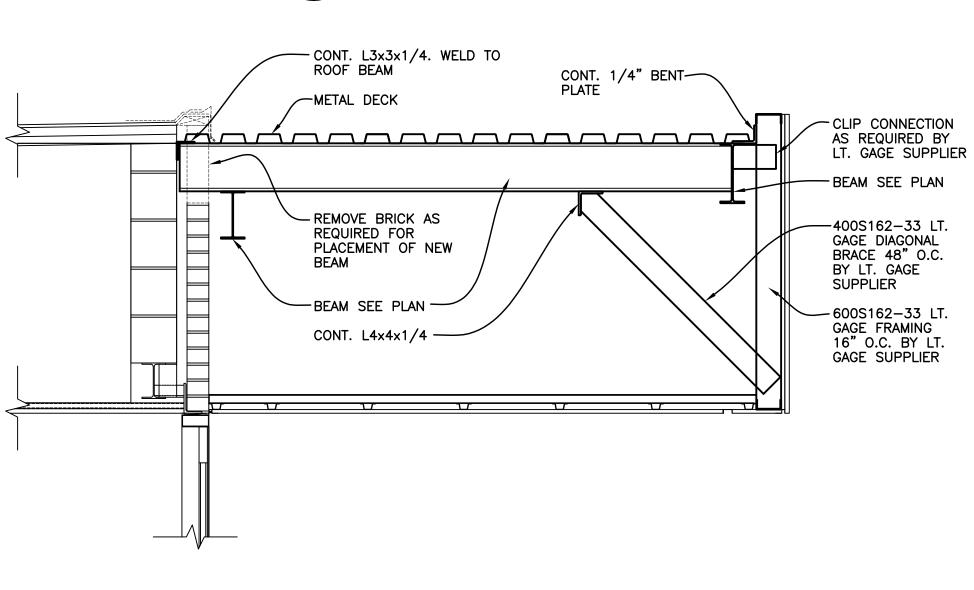
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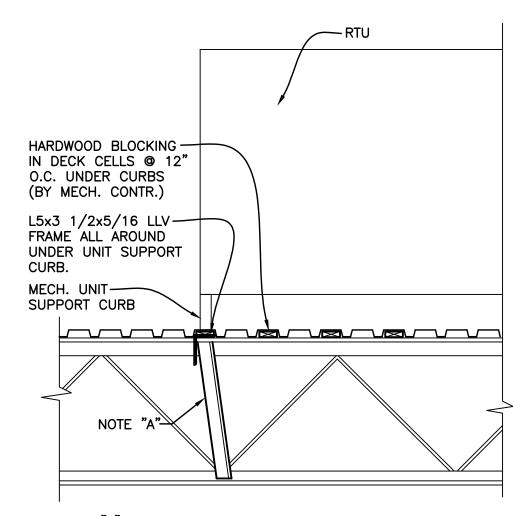
S3-01





SECTION

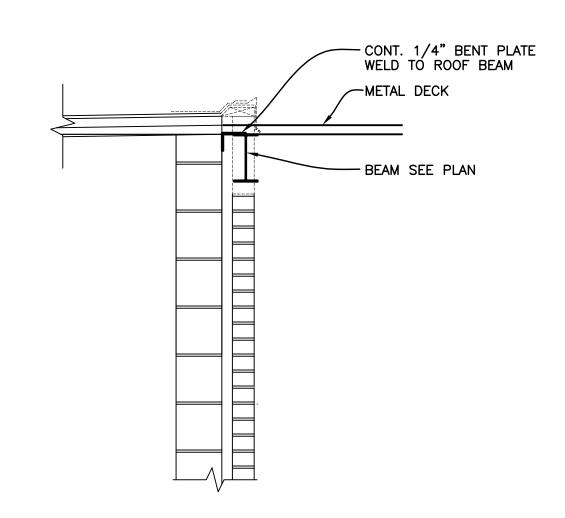
SCALE : 3/4" = 1'-0"

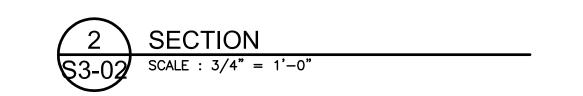


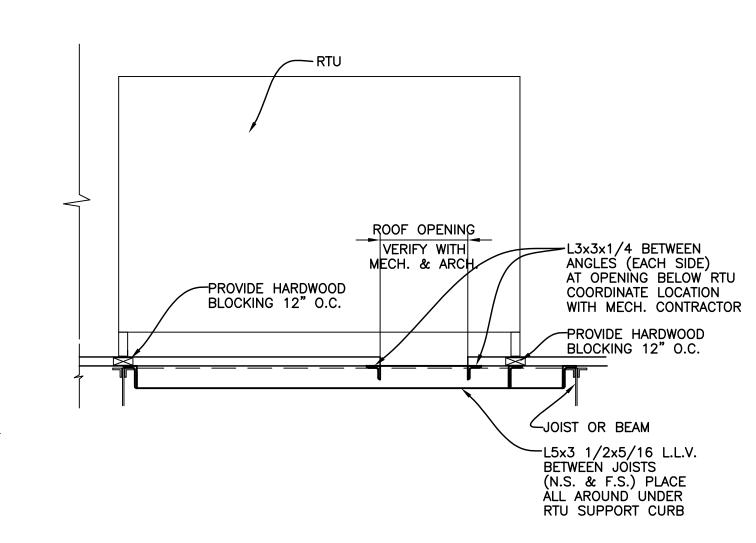
NOTE "A"

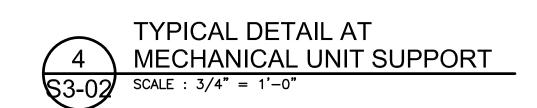
REINF. TOP CHORD OF JOIST W/
(2)L2x2x3/16" WELDED TO TOP CHORD
OF JOIST AT LOAD AND TO BOTTOM CHORD
AT PANEL POINT WHEN LOAD IS FARTHER
THAN 6" FROM TOP CHORD PANEL POINT

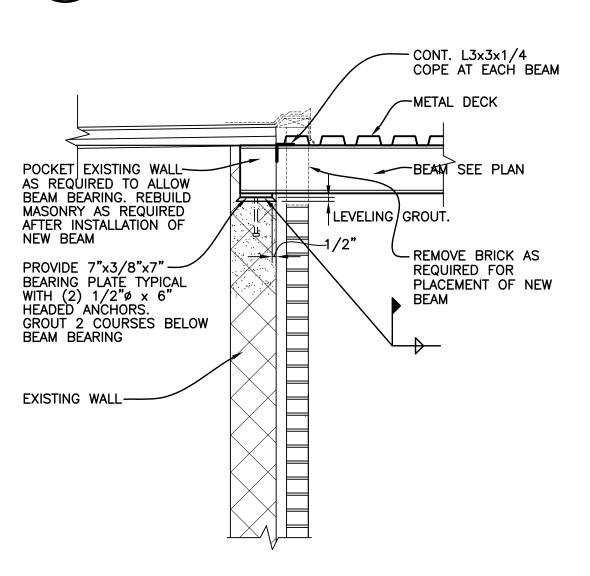
# TYPICAL JOIST REINFORCING DETAIL AT NEW MECHANICAL UNIT S3-02 SCALE : NONE





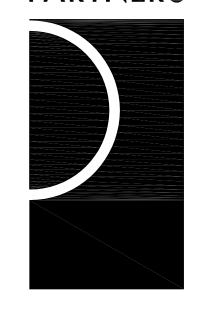






1 SECTION S3-02 SCALE : 3/4" = 1'-0"

# **PARTNERS**



PARTNERS in Architecture, PLC

65 MARKET STREET MOUNT CLEMENS, MI 48043 P 586.469.3600 F 586.469.3607

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CONSULTANT

# Shymanski & Associates, L.L.C.

STRUCTURAL ENGINEERS
33426 Five Mile Rd
Livonia, Michigan 48154
ph. 734.855.4810 fx. 734.855.4809
email@sastructuralengineers.com

KEY PLAN

OWNE

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

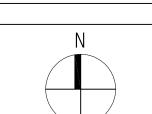
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bids/Construction 04/01,



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SHEET NAME

DETAILS

FOR CONSTRUCTION

NOT

SHEET NO. S3-02

#### **ABBREVIATIONS**

AAV	AUTOMATIC AIR VENT	FP	FIRE PUMP	OD	OUTSIDE DIAMETER
ACC	AIR COOLED CONDENSER	FPB	FAN POWERED BOX	OED	OPEN ENDED DUCT
ACCU	AIR COOLED CONDENSING UNIT	FPI	FINS PER INCH	OF	OVERFLOW
AD	ACCESS DOOR	FPM	FEET PER MINUTE	OS&Y	OUTSIDE SCREW AND YOKE
AFF	ABOVE FINISHED FLOOR	FS	FLOOR SINK	OX	OXYGEN
AHU	AIR HANDLING UNIT	FS	FLOW SWITCH FOOT	P	PUMP
APD.	ACCESS PANEL AIR PRESSURE DROP	FT FTR	FINNED TUBE RADIATION	PCHW	PROCESS CHILLED WATER
APD ARCH	ARCHITECTURAL	FV	FACE VELOCITY	PCHWR	PROCESS CHILLED WATER RETURN
ASR	AUTOMATIC SPRINKLER RISER			PCHWS	PROCESS CHILLED WATER SUPPLY PRESSURE DROP
		- G GA	NATURAL GAS GAUGE	PD PPM	PARTS PER MILLION
B	BOILER BALANCE	GAL	GALLON	PRESS	PRESSURE
BAL BCU	BLOWER COIL UNIT	GPH	GALLONS PER HOUR	PRV	PRESSURE REDUCING VALVE
BFP	BACKFLOW PREVENTER	GPM	GALLONS PER MINUTE	PSI	POUNDS PER SQUARE INCH
BHP	BRAKE HORSEPOWER	GWH	GAS WATER HEATER	PSIA	POUNDS PER SQUARE INCH - ABSOLUT
BOD	BOTTOM OF DUCT	HB	HOSE BIBB	PSIG	POUNDS PER SQUARE INCH - GAUGE
ВОР	BOTTOM OF PIPE	HC	HEATING COIL	RA	RETURN AIR
BTU	BRITISH THERMAL UNIT	HHW	HEATING HOT WATER	RAT	RETURN AIR TEMPERATURE
BTUH	BRITISH THERMAL UNIT PER HOUR	HHWR	HEATING HOT WATER RETURN	RCP	RADIANT CEILING PANEL
CAV	CONSTANT AIR VOLUME	- HHWS	HEATING HOT WATER SUPPLY	RD	ROOF DRAIN
CC	COOLING COIL	НО	HUB OUTLET	REQ'D	REQUIRED
CFH	CUBIC FEET PER HOUR	HOA	HAND/OFF/AUTO	RF	RETURN FAN
CFM	CUBIC FEET PER MINUTE	HP	HEAT PUMP	RG	RETURN AIR GRILLE
СН	CHILLER	HP	HORSEPOWER	RH	RELATIVE HUMIDITY
CHW	CHILLED WATER	HR	HOUR	RHC	REHEAT COIL
CHWR	CHILLED WATER RETURN	HTG	HEATING	RL	REFRIGERANT LIQUID
CHWS	CHILLED WATER SUPPLY	HVAC	HEATING, VENTILATING, AIR CONDITIONING	RPM	REVOLUTIONS PER MINUTE
CO	CLEAN OUT	HW	DOMESTIC HOT WATER	RS	REFRIGERANT SUCTION
C02	CARBON DIOXIDE	HWR	DOMESTIC HOT WATER RETURN	RTU	ROOFTOP UNIT
COND	CONDENSATE	HX	HEAT EXCHANGER	SA	SUPPLY AIR
CONT	CONTINUATION	HZ	HERTZ	SA	SOUND ATTENUATOR
CRAC	COMPUTER ROOM AIR CONDITIONER	ID	INSIDE DIAMETER	SAN	SANITARY WASTE
CT CUH	COOLING TOWER	IE IN	INVERT ELEVATION	SAT SD	SUPPLY AIR TEMPERATURE SMOKE DETECTOR
CW	CABINET UNIT HEATER DOMESTIC COLD WATER	IN IR	INCHES	SD SD	SUPPLY AIR DIFFUSER
CWR	CONDENSER WATER RETURN	IW	INFRARED HEATER INDIRECT WASTE	SF	SUPPLY FAN
CWS	CONDENSER WATER SUPPLY	JC JC	JANITOR'S CLOSET	SH	SHOWER
DB	DRY BULB	-		SK	SINK
DDC	DIRECT DIGITAL CONTROL	KW	KILOWATT	SP	STATIC PRESSURE
DEG	DEGREE	KWH	KILOWATT-HOUR	SR	SUPPLY AIR REGISTER (FLOOR)
DFU	DRAINAGE FIXTURE UNITS	LAB	LABORATORY	SS	SERVICE SINK
DIA	DIAMETER	LAT	LEAVING AIR TEMPERATURE	ST	STORM
DN	DOWN	LAV LBS	LAVATORY POUNDS	STK	STACK
DWG	DRAWING	LPC	LOW PRESSURE CONDENSATE	STM	STEAM
DWH	DOMESTIC WATER HEATER	LPC	LOW PRESSURE STEAM	STP	STAND PIPE
EA	EACH	LRA	LOCKED ROTOR AMPS	TA	TRANSFER AIR
EA	EXHAUST AIR	LWT	LEAVING WATER TEMPERATURE	TC	TEMPERATURE CONTROL
EAT	ENTERING AIR TEMPERATURE	MAT	MIXED AIR TEMPERATURE	TD	TRENCH DRAIN
ECUH	ELECTRIC CABINET UNIT HEATER	MAU	MAKE-UP AIR UNIT	TEMP	TEMPERATURE
EF	EXHAUST FAN	MAX	MAXIMUM	TEMP	TEMPORARY
ггг	EFFICIENCY		1,000 BRITISH THERMAL UNITS PER HOUR	TG	TRANSFER AIR GRILLE
EFF	LITIOILITOI	MBH	1,000 DKITISH HILKMAL DIVIS LEK HOOK L		
EG	EXHAUST GRILLE	MCA	MEDICAL COMPRESSED AIR	TSP	TOTAL STATIC PRESSURE
EG EHC	EXHAUST GRILLE ELECTRIC HEATING COIL		-	TYP	TYPICAL
EG EHC ELEC	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL	MCA	MEDICAL COMPRESSED AIR	TYP UH	TYPICAL UNIT HEATER
EG EHC ELEC ESP	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE	MCA MCA	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS	TYP UH UON	TYPICAL UNIT HEATER UNLESS OTHERWISE NOTED
EG EHC ELEC ESP EUH	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER	MCA MCA MECH	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL	TYP UH UON UR	TYPICAL UNIT HEATER UNLESS OTHERWISE NOTED URINAL
EG EHC ELEC ESP EUH EWC	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER	MCA MCA MECH MEZZ	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE	TYP UH UON UR V	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE
EG EHC ELEC ESP EUH EWC EWH	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER	MCA MCA MECH MEZZ MFR	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER	TYP UH UON UR V	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT
EG EHC ELEC ESP EUH EWC EWH	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE	MCA MCA MECH MEZZ MFR MIN MISC MOCP	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER-CURRENT PROTECTION	TYP UH UON UR V V VAC	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT  VACUUM
EG EHC ELEC ESP EUH EWC EWH EWT	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT	TYP UH UON UR V V VAC VAV	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT  VACUUM  VARIABLE AIR VOLUME
EG EHC ELEC ESP EUH EWC EWH EWT EX	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST	MCA MCA MECH MEZZ MFR MIN MISC MOCP	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER-CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM	TYP UH UON UR V V VAC VAV VD	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT  VACUUM  VARIABLE AIR VOLUME  VOLUME DAMPER
EG EHC ELEC ESP EUH EWC EWH EWT EX EXH	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST FIRE PROTECTION	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN	TYP UH UON UR V V VAC VAV VD	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT  VACUUM  VARIABLE AIR VOLUME  VOLUME DAMPER  VARIABLE FREQUENCY DRIVE
EG EHC ELEC ESP EUH EWC EWH EWT EX EXH F	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST FIRE PROTECTION DEGREES FAHRENHEIT	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N2O	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE	TYP UH UON UR V V VAC VAV VD VFD VOL	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME
EG EHC ELEC ESP EUH EWC EWH EX EXH F FF&B	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N20 NC	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER-CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA	TYP UH UON UR V VAC VAV VD VFD VOL VTR	TYPICAL  UNIT HEATER  UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT  VACUUM  VARIABLE AIR VOLUME  VOLUME DAMPER  VARIABLE FREQUENCY DRIVE  VOLUME  VENT THROUGH ROOF
EG EHC ELEC ESP EUH EWC EWH EWT EX EXH F *F F&B FCO	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N20 NC NC	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER-CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED	TYP UH UON UR V VAC VAV VD VFD VOL VTR	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME VENT THROUGH ROOF
EG EHC ELEC ESP EUH EWC EWH EX EXH F F FCO FCU	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST  FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT FAN COIL UNIT	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N20 NC NC NFWH	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED NON—FREEZE WALL HYDRANT	TYP UH UON UR V VAC VAV VD VFD VOL VTR W WADG	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME VENT THROUGH ROOF  WASTE WASTE ANESTHETIC GAS DISPOSAL
EG EHC ELEC ESP EUH EWC EWH EX EXH F *F F&B FCO FCU FD	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST  FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT FAN COIL UNIT FLOOR DRAIN	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N20 NC NC NC NFWH NIC	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED NON—FREEZE WALL HYDRANT NOT IN CONTRACT	TYP UH UON UR V VAC VAV VD VFD VOL VTR W WADG WB	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME VENT THROUGH ROOF  WASTE WASTE ANESTHETIC GAS DISPOSAL WET BULB
EG EHC ELEC ESP EUH EWC EWH EX EXH F *F F&B FCO FCU FD	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST  FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT FAN COIL UNIT FLOOR DRAIN	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N20 NC NC NC NFWH NIC NK	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER-CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED NON-FREEZE WALL HYDRANT NOT IN CONTRACT NECK	TYP UH UON UR V VAC VAV VD VFD VOL VTR W WADG WB WC	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME VENT THROUGH ROOF  WASTE WASTE ANESTHETIC GAS DISPOSAL WET BULB WATER CLOSET
EG EHC ELEC ESP EUH EWC EWH EWT EX EXH F F CO FCU FD FFD FFD	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST  FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT FAN COIL UNIT FLOOR DRAIN FUNNEL FLOOR DRAIN FIRE HOSE CABINET	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV  MVAC N N20 NC	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED NON—FREEZE WALL HYDRANT NOT IN CONTRACT NECK NORMALLY OPEN	TYP UH UON UR V VAC VAV VD VFD VOL VTR W WADG WB WC	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME VENT THROUGH ROOF  WASTE WASTE ANESTHETIC GAS DISPOSAL WET BULB WATER CLOSET WATER COLUMN
EG EHC ELEC ESP EUH EWC EWH EX EXH F *F F&B FCO FCU FD FHC FHC	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST  FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT FAN COIL UNIT FLOOR DRAIN FUNNEL FLOOR DRAIN FIRE HOSE CABINET FULL LOAD AMPS	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV MVAC N N20 NC NC NC NFWH NIC NK NO NOM	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED NON—FREEZE WALL HYDRANT NOT IN CONTRACT NECK NORMALLY OPEN NOMINAL	TYP UH UON UR V VAC VAV VD VFD VOL VTR W WADG WB WC WCO	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED  URINAL  VALVE  VENT  VACUUM  VARIABLE AIR VOLUME  VOLUME DAMPER  VARIABLE FREQUENCY DRIVE  VOLUME  VENT THROUGH ROOF  WASTE  WASTE ANESTHETIC GAS DISPOSAL  WET BULB  WATER CLOSET  WALL CLEANOUT
EG EHC ELEC ESP EUH EWC EWH	EXHAUST GRILLE ELECTRIC HEATING COIL ELECTRICAL EXTERNAL STATIC PRESSURE ELECTRIC UNIT HEATER ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXHAUST  FIRE PROTECTION DEGREES FAHRENHEIT FACE AND BYPASS FLOOR CLEANOUT FAN COIL UNIT FLOOR DRAIN FUNNEL FLOOR DRAIN FIRE HOSE CABINET	MCA MCA MECH MEZZ MFR MIN MISC MOCP MV  MVAC N N20 NC	MEDICAL COMPRESSED AIR MINIMUM CIRCUIT AMPS MECHANICAL MEZZANINE MANUFACTURER MINIMUM MISCELLANEOUS MAXIMUM OVER—CURRENT PROTECTION MANUAL AIR VENT MEDICAL VACUUM NITROGEN NOTROUS OXIDE NOISE CRITERIA NORMALLY CLOSED NON—FREEZE WALL HYDRANT NOT IN CONTRACT NECK NORMALLY OPEN	TYP UH UON UR V VAC VAV VD VFD VOL VTR W WADG WB WC	TYPICAL  UNIT HEATER UNLESS OTHERWISE NOTED URINAL  VALVE VENT VACUUM VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE VOLUME VENT THROUGH ROOF  WASTE WASTE ANESTHETIC GAS DISPOSAL WET BULB WATER CLOSET WATER COLUMN

#### METHODS OF NOTATION

IVIETHO	DS OF NOTATION		
(3)S-1 12Ø NK 450 CFM R-1 12x12 NK 500 CFM VAV-1 600/200 1.3 GPM	POINT OF NEW CONNECTION  DEMOLITION KEY NOTE  NEW WORK KEY NOTE  INDICATES 100 CFM OF TRANSFER AIR FLOWING FROM ONE SPACE TO ANOTHER, TYPICALLY UNDER DOORWAYS.  INDICATES SUPPLY DIFFUSER, SCHEDULE TYPE S-1 TYPICAL OF (3) 12 INCH DIAMETER NECK SIZE BALANCE TO 450 CFM  INDICATES RETURN GRILLE, SCHEDULE TYPE R-1 12 INCH BY 12 INCH NECK SIZE BALANCE TO 500 CFM  INDICATES TERMINAL UNIT TYPE (VAV, CAV, FPB, ETC.) MAXIMUM/MINIMUM CFM REHEAT COIL CAPACITY (HOT WATER OR ELECTRIC)	18x6 18x6 18x6 12ø 9	NEW WORK — HEAVY LINE WEIGHT  EXISTING WORK — LIGHT LINE WEIGHT  DEMOLITION WORK — DASHED LINE W/ HATCHING  INDICATES RECTANGULAR DUCT 18 INCHES WIDE AND 6 INCHES DEEP (NET INSIDE DIMENSIONS). SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.  INDICATES FLAT OVAL DUCT 18 INCHES WIDE AND 6 INCHES DEEP (NET INSIDE DIMENSIONS). SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.  INDICATES ROUND DUCT 12 INCHES IN DIAMETER (NET INSIDE DIMENSION). SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.  SECTION VIEW/ENLARGED PLAN TAG, REFER TO DETAIL NUMBER 2 ON SHEET NUMBER M—601 FOR CORRESPONDING SECTION VIEW/ENLARGED PLAN

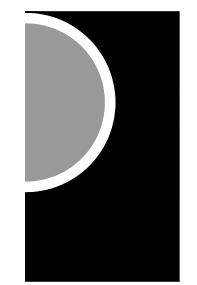
	SYMBOL LIST
SYMBOL	<u>DESCRIPTION</u>
→ AAV	AIR ADMITTANCE VALVE
—— <del>▼·····</del>	AIR VENT — AUTOMATIC
<del>丫   W V</del>	AIR VENT — MANUAL
BFP BFP	BACKFLOW PREVENTER
-XX	BACKFLOW PREVENTER - REDUCED PRESSURE
	CIRCULATING PUMP
	CIRCULATING PUMP
	CLEANOUT - FLANGE
FC0 ————	CLEANOUT - FLOOR
WC0 ————————	CLEANOUT - WALL
<b></b>	DIRECTION OF FLOW
SLOPE	DIRECTION OF SLOPE - DOWN
¢	FIRE DEPARTMENT CONNECTION - FREE STANDING
	FIRE DEPARTMENT CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
·····	FIRE PROTECTION — SPRINKLER HEAD, UPRIGHT
	FLOOR DRAIN
	FLOOR DRAIN — FUNNEL
□FS	FLOW SWITCH
HB	HOSE BIBB
NFWH	NON-FREEZE WALL HYDRANT
	PIPE - ALIGNMENT GUIDE
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - CONCENTRIC REDUCER
	PIPE — ELBOW DOWN
O	PIPE - ELBOW UP
	PIPE — EXPANSION JOINT
	PIPE - FLEXIBLE CONNECTION
Î	PIPE — TEE DOWN
<u> </u>	PIPE - TEE UP
	PIPE - TRAP
——  ——	PIPE - UNION
φ	PRESSURE GAUGE
<u></u> ∓ PT	PRESSURE/TEMPERATURE TEST PLUG
VTR	VENT THROUGH ROOF
<u>[O]</u>	ROOF/OVERFLOW DRAIN
T	STEAM TRAP
<del> </del>	STRAINER
<u> </u>	THERMOMETER
<u> </u>	VALVE - ANGLE
	VALVE - BALANCING
<del>\</del>	VALVE - CHECK
—— ▽ ——	VALVE - GAS
——>>	VALVE - ISOLATION
	VALVE - OS&Y
	VALVE - PRESSURE REGULATING
<b>*</b>	VALVE - RELIEF
<del>X</del>	VALVE - THREE-WAY MODULATING CONTROL
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MELE HAT MODULATING CONTINUE

SYMBOL	DESCRIPTION	DOUBLE LINE D	UCTWORK
$\leftarrow$	AIR TERMINAL UNIT	<u>SYMBOL</u>	DESCRIPTION
			AIR TERMINAL UNIT
	AIR TERMINAL UNIT W/ HEATING COIL		
	DAMPER - VERTICAL FIRE (EXISTING, NEW)		AIR TERMINAL UNIT W/ HEATING COIL
_ <i>&gt;</i> _ <i>&gt;</i> _	DAMPER - HORIZONTAL FIRE (EXISTING, NEW)		DUCT - FLEXIBLE CONNECTION
	DAMPER - COMBINATION FIRE/SMOKE	ļ <u> </u>	DUCT TAKE OFF - RECTANGULAR W/ SHOE T
M	DAMPER - MOTORIZED		·
	DAMPER - MANUAL VOLUME CONTROL		DUCT TAKE OFF — ROUND CONICAL
	DIFFUSER - SQUARE		ELBOW - RECTANGULAR W/ TURNING VANES
	DIFFUSER - LINEAR SLOT		ELBOW - RECT. RADIUS W/ SPLITTER VANES
	DIFFUSER - ROUND		FL DOW DOLIND
	DUCT CROSS SECTION - SUPPLY		ELBOW — ROUND
	DUCT CROSS SECTION - RETURN OR EXHAUST		ELBOW - RECTANGULAR SMOOTH RADIUS
	DUCT CROSS SECTION - EXHAUST		ELBOW DOWN - RECTANGULAR
<b>\</b>	DUCT - FLEXIBLE CONNECTION		ELBOW DOWN — ROUND
<b>\\\\\\</b>	DUCT - FLEXIBLE DUCT (5'-0" MAXIMUM)		
\\	DUCT TAKE OFF - SPIN-IN W/ VOLUME DAMPER	<u> </u>	ELBOW UP — RECTANGULAR
<b>S</b>	DUCT TAKE OFF - ROUND CONICAL	8 10	ELBOW UP - ROUND
\\	DUCT TAKE OFF - RECTANGULAR W/ SHOE TAP		HEATING COIL
<u> </u>	ELBOW - RECTANGULAR W/ TURNING VANES	↓ DN }	INCLINED DROP IN DIRECTION OF AIRFLOW
	ELBOW - RECTANGULAR/ROUND SMOOTH RADIUS		
<u> </u>	ELBOW DOWN — RECTANGULAR	↓ UP →	INCLINED RISE IN DIRECTION OF AIRFLOW
·	ELBOW DOWN — ROUND		TRANSITION - CONCENTRIC
<u> </u>	ELBOW UP - RECTANGULAR		TRANSITION - ECCENTRIC
S	ELBOW UP - ROUND		
	HEATING COIL		TRANSITION - RECTANGULAR TO ROUND
S DN	INCLINED DROP IN DIRECTION OF AIRFLOW	TEMPERATURE C	ONTROLS  DESCRIPTION
<u>UP</u>	INCLINED RISE IN DIRECTION OF AIRFLOW	(CO2) (CO)	CARBON DIOXIDE SENSOR  CARBON MONOXIDE SENSOR
<b>S</b>	GRILLE — DUCTED RETURN OR EXHAUST	NOX	NITROGEN OXIDE SENSOR
	GRILLE — PLENUM RETURN	SD	DUCT SMOKE DETECTOR
	GRILLE - PLENUM RETURN W/ ACOUSTICAL BOOT	(H) (T)	HUMIDISTAT/HUMIDITY SENSOR THERMOSTAT/TEMPERATURE SENSOR
	GRILLE - TRANSFER	TEMPERATURE C	ONLY A PARTIAL LIST OF SYMBOLS, REFER TO CONTROL DRAWINGS FOR A LEGEND OF ADDITIONA
	ROOF EXHAUST FAN	SYMBOLS THAT	MAY BE USED.
$\leftarrow$	TRANSITION - CONCENTRIC		
\\	TRANSITION - ECCENTRIC		
	TRANSITION - RECTANGULAR TO ROUND		
$\square \stackrel{\checkmark}{\rightarrow}$	UNIT HEATER		

#### MECHANICAL SHEET INDEX

м0-00	MECHANICAL LEGEND & SHEET INDEX
M0-01	MECHANICAL SPECIFICATIONS
MD1-01	PLUMBING DEMOLITION PLAN
MD2-01	HVAC DEMOLITION PLAN
MD2-02	HVAC DEMOLITION PLAN - ROOF LEVEL
M1-01	PLUMBING NEW WORK PLAN
M2-01	HVAC NEW WORK PLAN
M2-02	HVAC NEW WORK PLAN - ROOF LEVEL
м3-00	MECHANICAL SCHEDULES
M4-00	MECHANICAL DETAILS

**PARTNERS** 



PARTNERS in Architecture, PLC 65 MARKET STREET MOUNT CLEMENS, MI 48043

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P 586.469.3600

F 586.469.3607

CONSULTANT



KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

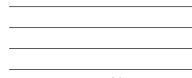
Village of Beverly Hills Office Renovation

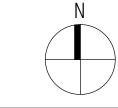
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS Bidding - Construction 04/01/2016





DRAWN BY DMH

CHECKED BY

JDR APPROVED BY

MECHANICAL LEGEND & SHEET INDEX

SHEET NO.

#### MECHANICAL SPECIFICATIONS

MECHANICAL MATERIALS, METHODS AND EXECUTION

#### WORK INCLUDED:

FURNISH ALL LABOR AND MATERIAL, APPLIANCES, EQUIPMENT AND SUPERVISION TO PUT IN PLACE A COMPLETE AND FUNCTIONING MECHANICAL INSTALLATION READY FOR OPERATION, AS SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS. SYSTEMS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO THE FOLLOWING MAJOR EQUIPMENT OR OPERATIONS:

#### 1 PLLIMBING

2. HEATING, VENTILATION AND AIR CONDITIONING

#### INSULATION

4. TEMPERATURE CONTROLS

#### DEFINITIONS:

"PROVIDE": TO FURNISH AND COMPLETELY INSTALL SPECIFIED PRODUCTS AND INCIDENTALS, WHETHER SPECIFICALLY INDICATED OR NOT, NECESSARY FOR A COMPLETE, FUNCTIONAL INSTALLATION. INCLUDES ALL GENERAL AND SPECIALIZED LABOR, EQUIPMENT AND TOOLS NECESSARY TO COMPLETE THE INSTALLATION.

"PIPING": A COMPLETE SYSTEM, INCLUDING PIPE, TUBING, FITTINGS, HANGERS, SUPPORTS, VALVES, AND ALL SPECIALTIES THAT COMPRISE A FULLY FUNCTIONAL PIPING SYSTEM, WHETHER SPECIFICALLY INDICATED OR NOT.

#### CODES, ORDINANCES, AND STANDARDS:

ALL WORK SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF THE LATEST ADOPTED FEDERAL, STATE, LOCAL AND UNIVERSITY OF MICHIGAN CODES, ORDINANCES, AND STANDARDS HAVING JURISDICTION OVER THE WORK.

WHERE CONTRACT DOCUMENT REQUIREMENTS EXCEED THE REQUIREMENTS OF THE REFERENCED CODES, ORDINANCES, AND STANDARDS, THE CONTRACT DOCUMENT REQUIREMENTS SHALL BE TAKEN AS MINIMUM.

TALLED THE CONTINUE DECEMBER REQUIREMENT CONTINUE DE FINANCIA DE MINIMONIE

ALL EQUIPMENT CONTAINING ELECTRICAL WIRING AND/OR ELECTRICAL COMPONENTS SHALL HAVE A UNDERWRITERS LABORATORIES (UL) "PACKAGE" LABEL.

ALL GAS FIRED EQUIPMENT SHALL HAVE THE AMERICAN GAS ASSOCIATION (AGA) LABEL.

#### PERMITS, FEES AND INSPECTIONS:

SECURE ALL NECESSARY PERMITS, CONNECTION FEES, TAD FEES, LICENSES AND APPROVALS AND ARRANGE FOR ALL INSPECTIONS,

FURNISH CERTIFICATES OF FINAL INSPECTION AND APPROVAL UPON COMPLETION OF PROJECT.

#### EXAMINATION OF SITE:

VISIT PROJECT SITE AND BECOME FULLY COGNIZANT OF ALL EXISTING ARCHITECTURAL, MECHANICAL, ELECTRICAL, STRUCTURAL AND SITE CONDITIONS, OR EXISTING CODE VIOLATIONS WHICH MAY AFFECT THE WORK.

NOTIFY ARCHITECT PRIOR TO SUBMITTING BID IF REVISIONS TO CONTRACT DOCUMENTS ARE NECESSARY TO RECTIFY ANY OF THE AFOREMENTIONED EXISTING CONDITIONS.

NO "EXTRAS" TO CONTRACT PRICE WILL BE ALLOWED AFTER RECEIVING BID IN ORDER TO RECTIFY EXISTING CONDITIONS IN ORDER TO MEET THE DESIGN INTENT OF THE CONTRACT DOCUMENTS OR SATISFY CODE REQUIREMENTS.

#### COORDINATION WITH OTHER TRADES:

COORDINATE ALL WORK BEFORE AND DURING CONSTRUCTION WITH ALL OTHER AFFECTED TRADES.

WHERE INTERFERENCES DEVELOP, NOTIFY ARCHITECT FOR RESOLUTION OF CONFLICT.

RELOCATION OF CONFLICTING INSTALLED WORK, DUE TO LACK OF COORDINATION, OR POOR COORDINATION WILL NOT BE CONSIDERED EXTRA WORK.

#### APPROVED MANUFACTURERS:

USE ONLY MATERIALS SPECIFICALLY INDICATED IN CONTRACT DOCUMENTS, OR COMPARABLE MATERIALS BY OTHER LISTED ACCEPTABLE MANUFACTURERS. NOTE THAT "ACCEPTABLE MANUFACTURER" DOES NOT CONSTRUE AUTOMATIC APPROVAL OF SPECIFIC MATERIALS BY ONE OR ALL OF THE LISTED ACCEPTABLE MANUFACTURERS. ARCHITECT AND/OR ENGINEER OF RECORD RESERVES THE RIGHT OF FINAL DETERMINATION OF ACCEPTABILITY OF EACH ITEM.

#### SHOP DRAWINGS:

SUBMIT COMPLETE SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT INTENDED FOR USE ON THIS PROJECT.

SHOP DRAWINGS SHALL CLEARLY INDICATE ALL PHYSICAL, PERFORMANCE AND ELECTRICAL CHARACTERISTICS FOR ALL MATERIALS AND EQUIPMENT.

#### SUBMIT ELECTRONIC COPIES OF ALL SHOP DRAWINGS FOR REVIEW BY ARCHITECT.

NO WORK IS TO BE INSTALLED PRIOR TO RETURN OF ARCHITECT REVIEWED SHOP DRAWINGS.

#### OPERATION AND MAINTENANCE MANUALS:

UPON COMPLETION OF PROJECT, SUBMIT TWO (2) COMPLETE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND SYSTEMS INSTALLED IN THIS PROJECT.

MANUALS SHALL INCLUDE GUARANTEE(S), COMPLETE OPERATING INSTRUCTIONS, REPAIR PARTS LIST, PREVENTATIVE MAINTENANCE SCHEDULE, BELT AND FILTER SCHEDULE, AND LIST OF ALL SUBCONTRACTORS ASSOCIATED WITH THE WORK, INCLUDING TELEPHONE NUMBER AND CONTACT PERSON.

#### OPERATING AND MAINTENANCE INSTRUCTIONS:

PRIOR TO FINAL ACCEPTANCE BY OWNER, PROVIDE ALL PERSONNEL, EQUIPMENT, AND LABOR AS NECESSARY TO INSTRUCT OWNER'S PERSONNEL IN PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND EQUIPMENT INSTALLED IN THIS PROJECT. PROVIDE INSTRUCTIONAL SESSION DURING TIME PERIOD AGREED TO WITH OWNER.

#### CUTTING AND PATCHING:

ALL CUTTING AND PATCHING SHALL BE PROVIDED BY THE GENERAL TRADES UNDER THE DIRECTION OF THE MECHANICAL TRADES. COST WILL BE PAID BY THE MECHANICAL TRADE REQUESTING THE WORK.

RESTORED SURFACES SHALL BE OF SAME MATERIALS AND QUALITY AS ADJACENT SURFACES, AND SHALL MATCH SURROUNDING SURFACES, AND/OR BE RESTORED TO PRE-CONSTRUCTION CONDITION.

#### PROTECTION OF EXISTING SERVICES:

PROTECT FROM ALL DAMAGE, EXISTING SERVICES (I.E., GAS, WATER, ELECTRICAL, ETC.), ENCOUNTERED IN THE WORK, NOT SPECIFICALLY INDICATED TO BE DEMOLISHED. INCLUDE ALL RELATED COSTS.

REPAIR AND/OR REPLACE EXISTING ACTIVE SERVICES INTENDED TO REMAIN IN SERVICE, BUT DAMAGED DURING THE COURSE OF CONSTRUCTION. ABSORB ALL RELATED COSTS. NO "EXTRAS" WILL BE PAID TO RESTORE EXISTING ACTIVE SERVICES DAMAGED DURING CONSTRUCTION.

ARCHITECT WILL DETERMINE COURSE OF ACTION WHEN EXISTING INACTIVE SERVICES ARE DAMAGED DURING COURSE OF CONSTRUCTION. ABSORB ALL COSTS RELATIVE TO ADDITIONAL DEMOLITION, TERMINATION, RELOCATION AND/OR RESTORATION OF EXISTING, DAMAGED INACTIVE SERVICES AS DIRECTED BY ARCHITECT.

#### ELECTRICAL WORK:

PROVIDE ALL ELECTRICAL WORK ASSOCIATED WITH, AND NECESSARY TO COMPLETE THIS PROJECT, WHICH IS NOT INCLUDED AS ELECTRICAL TRADES WORK.

PROVIDE ALL ELECTRICAL WORK, AS APPLICABLE, IN ACCORDANCE WITH DIVISION 16 REQUIREMENTS.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION (WITH ELECTRICAL TRADES) OF CORRECT VOLTAGES FOR ALL MECHANICAL EQUIPMENT. IN CASE OF DISCREPANCY, NOTIFY ENGINEER IMMEDIATELY AND PRIOR TO SHOP DRAWING SUBMITTALS. FAILURE TO COMPLY WITH THIS REQUIREMENT HOLDS THE CONTRACTOR FULLY RESPONSIBLE FOR ANY SUBSEQUENT PROBLEMS

#### CLEANING AND FINISHING:

PRIOR TO FINAL ACCEPTANCE BY OWNER, THOROUGHLY CLEAN ALL WORK INSIDE AND OUT AS APPLICABLE, AND LEAVE ALL SYSTEMS AND EQUIPMENT IN PERFECT WORKING ORDER. THOROUGHLY CLEAN ALL PLUMBING FIXTURES, EXPOSED PIPING, FLOOR DRAIN GRATES, AND CLEANOUT COVERS AS APPLICABLE.

#### **GUARANTEE:**

REFER TO ARCHITECTURAL SPECIFICATIONS FOR GUARANTEES, IF NONE EXIST THE FOLLOWING MINIMUM GUARANTEES SHALL BE

PROVIDE A ONE (1) YEAR GUARANTEE COVERING ALL LABOR AND MATERIAL PROVIDED IN THIS PROJECT. GUARANTEE SHALL INCLUDE ALL SHIPPING AND TRANSPORTATION CHARGES NECESSARY TO RETURN DEFECTIVE MATERIALS TO MANUFACTURER, AS WELL AS LABOR CHARGES NECESSARY TO REMOVE AND REPLACE DEFECTIVE MATERIALS.

#### PROVIDE 5 YEAR GUARANTEE FOR ALL COMPRESSORS.

DEFECTIVE MATERIALS AND/OR EQUIPMENT MAY BE REPAIRED IN LIEU OF REPLACED WITH PRIOR APPROVAL OF ARCHITECT AND/OR

#### DEMOLITION:

DEMOLITION DRAWINGS ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF THE WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, PIPING AND APPROXIMATE SIZES AND APPROXIMATE LOCATIONS. DO NOT SCALE DRAWINGS FOR EXACT MEASUREMENTS.

ALL MECHANICAL WORK SHOWN ON THE DEMOLITION DRAWINGS HAS BEEN TAKEN FROM THE OWNER'S RECORD DRAWINGS AND/OR CERTAIN FIELD OBSERVATIONS. EXACT SIZES, LOCATIONS, ARRANGEMENT AND ELEVATIONS OF ALL EXISTING MECHANICAL EQUIPMENT, EXISTING DUCTWORK, EXISTING PIPING AND EXISTING MECHANICAL DEVICES SHALL BE VERIFIED IN THE FIELD.

THE CONTRACTOR SHALL INCLUDE, IN HIS QUOTE, ALLOWANCES FOR REASONABLE DEVIATIONS BETWEEN WHAT IS SHOWN AND ACTUAL JOB CONDITIONS IN ORDER TO COMPLETE THE WORK IN THE SCOPE INDICATED.

REMOVE, RECONNECT, CAP, PLUG AND REPLACE EXISTING PIPING AND DUCTWORK ONLY WHERE INDICATED IN THE CONTRACT

DOCUMENTS.

REMOVE AND/OR REPLACE EXISTING EQUIPMENT, VALVES, CONTROLS, ETC., ONLY WHERE INDICATED IN THE CONTRACT

INTERRUPTION OF EXISTING ACTIVE PIPING: WHERE THE WORK MAKES TEMPORARY SHUT-DOWNS OF SERVICE UNAVOIDABLE, SHUT-DOWN AT TIME AS APPROVED BY THE OWNER. WHICH WILL CAUSE LEAST INTERFERENCES WITH ESTABLISHED OPERATING

ROUTINE. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED TO MAKE NECESSARY CONNECTION TO EXISTING WORK.

UNLESS SPECIFICALLY NOTED TO THE CONTRARY, REMOVED MATERIALS SHALL NOT BE REUSED IN THE WORK. SALVAGE MATERIALS

THAT ARE TO BE REUSED SHALL BE STORED SAFE AGAINST DAMAGE AND TURNED OVER TO THE APPROPRIATE TRADE FOR REUSE.

SALVAGED MATERIALS OF VALUE THAT ARE NOT TO BE REUSED SHALL REMAIN THE PROPERTY OF THE OWNER UNLESS POSSESSION RIGHTS ARE WAIVED. THE MATERIALS ARE TO BE REMOVED FROM THE SYSTEMS BY THIS CONTRACTOR AND TURNED OVER TO THE OWNER IN THEIR ORIGINAL CONDITIONS. THE OWNER SHALL MOVE AND STORE THE MATERIALS. WHERE THE OWNER WAIVES POSSESSION RIGHTS, THESE MATERIALS SHALL BECOME THE PROPERTY OF THIS CONTRACTOR, WHO SHALL REMOVE AND

#### SANITARY WASTE AND VENT PIPING:

ABOVEGROUND, STORM AND UNDERGROUND:

PIPE: ASTM A53, SCHEDULE 40 GALVANIZED STEEL.
FITTINGS: ANSI B16.12 CAST IRON THREADED DRAINAGE FITTINGS.

LEGALLY DISPOSE OF THE SAME, AWAY FROM THE PREMISES.

PIPE: ANSI A21.6 SERVICE WEIGHT CAST IRON, TYLER "NO-HUB". HUBLE

PIPE: ANSI A21.6 SERVICE WEIGHT CAST IRON, TYLER "NO-HUB", HUBLESS. FITTINGS: ANSI A21.10, TYLER, "NO-HUB", HUBLESS.

JOINTS: TYLER "NO-HUB", NEOPRENE SLEEVE, STAINLESS STEEL SHIELD CONFORMING TO CISPI 301 AND ASTM C564.

ALTERNATE SCHEDULE 40 SOLID CORE DWV PIPING FOR UNDERGROUND AND NON-PLENUM SPACES.

#### PROVIDE "SURE SEAL" TRAP PRIMERS.

#### CLEANOLIT

PROVIDE CLEANOUTS AS REQUIRED BY LOCAL CODES. THE FINISH OF COVER PLATES, TOP AND TOP FRAME ACCESS COVERS SHALL BE NICKEL BRONZE, UNLESS OTHERWISE SCHEDULED.

#### DOMESTIC WATER PIPING:

ABOVEGROUND DOMESTIC HOT AND COLD WATER 2" AND SMALLER:

PIPE: ASTM B88, TYPE L, SEAMLESS HARD DRAWN RIGID COPPER WATER TUBE.

FITTINGS: ANSI B16.22, WROUGHT COPPER. JOINTS: ASTM B32-95TA SOLDER JOINT.

#### DOMESTIC HOT AND COLD WATER VALVES:

BALL VALVES 2" AND SMALLER: BRONZE, 2 PIECE, FULL PORT, CHROME BALL. NIBCO OR APPOLLO

CHECK VALVES: 150 LB., SWP 300 LB., WOG COMPOSITION DISC, THREADED ENDS. MILWAUKEE NO. 510.

#### NATURAL GAS PIPING:

#### ABOVE GRADE:

PIPE 4" AND UNDER: ASTM A-120, SCHEDULE 40, BLACK STEEL
PIPE OVER 4": ASTM A-53, GRADE A OR GRADE B, SEAMLESS OR ERW, SCHEDULE 40, BLACK STEEL.
FITTINGS: ANSI B16.3, 150 POUND, MALLEABLE IRON SCREWED; ANSI B16.9 STEEL BUTTWELD.
JOINTS: 2" AND SMALLER, ANSI B2.1 THREADS; 2-1/2" AND LARGER, ANSI B16.25 BUTTWELD.

#### NATURAL GAS SYSTEM VALVES:

FOR PIPING 2" AND SMALLER MILWAUKEE VALVE CO., INC., MODEL #BB-1-100 "BUTTERBALL" OR APPROVED EQUAL AGA CERTIFIED AND UL LISTED QUARTER-TURN BUTTERFLY VALVE, BRONZE BODY, THREADED ENDS, STAINLESS STEEL STEM AND DISC, VITON SEAL WITH POSITIVE SHUT-OFF AND RATED FOR 175 LB. WORKING

#### EACH VALVE SHALL BE PROVIDED WITH A WRENCH OPERATOR.

#### VALVES GENERAL:

PROVIDE ALL VALVES NECESSARY FOR THE PROPER OPERATION AND DRAINAGE OF THE SYSTEMS. PROVIDE DRAIN VALVES AT ALL LOW POINTS IN ALL SYSTEMS.

PROVIDE BALL VALVES AT EACH PIECE OF EQUIPMENT REQUIRING A WATER CONNECTION, IN RISERS AND MAIN BRANCHES AT POINTS OF TAKE-OFF FROM THEIR SUPPLY AND RETURN MAINS, ADJACENT TO CONTROL VALVES AND ALL EQUIPMENT REQUIRING DISCONNECTION FOR REPAIRS.

PROVIDE CHECK VALVES WHERE SHOWN OR NECESSARY TO PREVENT BACKFLOW.

PROVIDE BALANCING VALVES IN LINES WHERE IT IS NECESSARY TO REGULATE THE QUANTITY OF WATER FLOWING IN A CIRCUIT.

ALL VALVES SHALL BE LINE SIZE UNLESS OTHERWISE INDICATED.

ALL PRODUCTS THAT CONSTITUTE A PART OF ANY VALVE ASSEMBLY SHALL BE ASBESTOS-FREE.

#### PIPING INSTALLATION:

INSTALL ALL PIPING PARALLEL OR PERPENDICULAR TO BUILDING WALL AND COLUMNS IN LOCATIONS TO AVOID INTERFERENCE WITH DUCTWORK, STRUCTURE, OTHER PIPING, LIGHTING AND ELECTRICAL EQUIPMENT OR OTHER EQUIPMENT.

DO NOT LOCATE PIPING ABOVE OR WITHIN 3 FEET HORIZONTALLY OF ELECTRICAL PANELS OR EQUIPMENT.

FOR PIPING PASSING THROUGH WALLS, PACK VOID BETWEEN PIPE AND STRUCTURE WITH APPROVED, NON-COMBUSTIBLE MATERIAL.

DO NOT ALLOW CONTACT BETWEEN PIPING AND MASONRY OF CONCRETE SURFACES.

PROVIDE ALL THE NECESSARY HANGERS, RODS, SUPPORTS, CHANNELS, ANGLES, STRUCTURAL MEMBERS AND CONCRETE INSERTS TO PROPERLY SECURE PIPING AND RELATED EQUIPMENT. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF ANSI CODE FOR PRESSURE PIPING B31.1, AND MSS STANDARD PRACTICE SP-58.

PROTECT ALL INSULATED PIPE LINES AGAINST INSULATION DAMAGE AT ALL HANGERS BY THE USE OF 1 FOOT LONG, 12 GAUGE STEEL SEMI-CIRCULAR SHIELDS FOR PIPE SIZES WITH 12" OD AND LESS (INCLUDING INSULATION) AND 2 FOOT LONG, 1/2" STEEL SEMI-CIRCULAR SHIELDS FOR PIPE SIZES OVER 12" OD (INCLUDING INSULATION). SECURELY CEMENT ALL SHIELDS TO THE INSULATION. PROVIDE RIGID PIPE INSULATION AT EACH HANGER.

#### PLUMBING/PIPING TESTING AND BALANCING:

TEST AND ADJUST ALL NEW PIPING SYSTEMS INSTALLED IN THIS PROJECT. PROVIDE ALL TESTING INSTRUMENTS, GAUGES, PUMPS AND OTHER EQUIPMENT REQUIRED OR NECESSARY FOR TEST. REPAIR ALL DEFECTS DISCLOSED BY TESTS WITHOUT ADDITIONAL COST TO THE OWNER. REPEAT TESTS AFTER ANY DEFECTS DISCLOSED ARE REPAIRED OR REPLACED, UNLESS WAIVED BY ARCHITECT. ARRANGE AND PAY THE COST OF ALL UTILITIES USED ON TESTS. COMPLETE ALL TESTS BEFORE COVERING IS APPLIED. ISOLATE ALL PIPING SYSTEM COMPONENTS NOT CONSTRUCTED TO WITHSTAND TEST PRESSURES.

#### DDAINAGE SYSTEM.

THE DRAINAGE SYSTEM SHALL BE TESTED IN ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS AND IN THE PRESENCE OF THE PROPER INSPECTOR. AIR TEST SHALL BE 5 PSIG AND SHALL REMAIN IN OPERATION FOR A PERIOD OF 15 MINUTES.

TEST AT 150 PSIG FOR EIGHT (8) HOURS WITH ZERO LOSS IN PRESSURE. CHECK JOINTS AND FITTINGS FOR LEAKS WITH LIQUID SOAP SOLUTION.

#### NATUDAL CAS SYSTEM

ALL GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH RULES AND REGULATIONS OF THE COMPANY OR UTILITY SERVING THE PROJECT, AND IN ANY CASE SHALL NOT BE LESS THAN THE FOLLOWING:

THE PIPING SYSTEM OR PORTIONS OF THE PIPING SYSTEM TO BE TESTED SHALL BE SUBJECTED TO AN AIR PRESSURE, USING OIL—FREE COMPRESSOR AIR, OF NOT LESS THAN 100 POUNDS PER SQUARE INCH, EQUAL 204" OF MERCURY. THE PRESSURE SHALL BE APPLIED WITH A FORCE PUMP AND SHALL BE MAINTAINED FOR NOT LESS THAN 30 MINUTES WITHOUT LEAKAGE. A MERCURY COLUMN GAUGE SHALL BE USED IN MAKING THE TESTS. TESTS SHALL BE SCHEDULED WITH LOCAL AUTHORITY FOR PRESENCE OF PROPER INSPECTOR. THE CONTRACTOR INSTALLING THESE PIPING SYSTEMS SHALL BE HELD RESPONSIBLE FOR THE TEST AND SHALL CERTIFY THE APPLICATION AND SUCCESS OF THE TEST.

#### NATURAL GAS LINES SHALL BE BLOWN OUT WITH DRY, OIL-FREE COMPRESSED AIR.

#### PIPING INSULATION:

ALL ADHESIVES, SEALERS AND COATINGS SHALL BE INCOMBUSTIBLE. INSULATION SHALL BE APPLIED BY EXPERIENCED PIPE COVERERS AS PER BEST TRADE PRACTICE. WHERE EXISTING INSULATED PIPING AND SURFACES ARE EXPOSED DUE TO RENOVATIONS, RE-INSULATE EXPOSED SURFACES TO MATCH THE EXISTING INSTALLATION.

APPLY INSULATION TO PIPE LINES AND EQUIPMENT ONLY AFTER TESTING AND INSPECTION, AND ALL SURFACES HAVE BEEN THOROUGHLY CLEANED.

#### DOMESTIC COLD, HOT AND HOT WATER RETURN PIPING INSULATION:

1" THICK FIBERGLASS INSULATION WITH ALL SERVICE JACKET. PIPING INSULATION AND COVERING SHALL HAVE FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 AND SHALL BE SIMILAR TO OWENS—CORNING NO. 25ASJ/55L—11. PROVIDE PUC FITTING COVERS BY PROTO AT ALL FITTINGS. FINISH WITH MASTIC VAPOR BARRIER.

#### PIPE IDENTIFICATION:

IDENTIFY ALL NEW PIPING INSTALLED IN THIS PROJECT IN ACCORDANCE WITH ANSI A13.1 1981, OSHA, AND OWNER'S STANDARDS USING COILED PLASTIC MARKERS.

#### SHEET METAL NOTES:

UNITED SHEET METAL, FLINTKOTE.

BLANK-OFF RETURN DUCTWORK IN AREAS OF WORK THAT CREATES DUST TO PREVENT DEBRIS FROM ENTERING MECHANICAL

DUCTWORK: ALL DUCTWORK AND SHALL BE CONSTRUCTED AND SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SMACNA'S ISSUE OF DUCT CONSTRUCTION STANDARDS". IN ADDITION, ALL JOINTS AND SEAMS SHALL BE SEALED WITH DUCT SEALANT EQUAL TO FOSTER #32-14. APPROVED SEALANT MANUFACTURERS: 3M COMPANY, BENJAMIN FOSTER COMPANY,

ALL ROUND TAKE-OFFS DOWNSTREAM OF TERMINAL UNITS SHALL BE MADE WITH CONICAL TAKE-OFF SPIN-IN FITTINGS TYPE SM-2DG, WITH FACTORY INSTALLED ADJUSTABLE DAMPER AS MANUFACTURED BY GENERAL ENVIRONMENT CORPORATION, GLENDALE,

FLEXIBLE CONNECTIONS: AT EACH POINT OF CONNECTION OF DUCTWORK TO FANS, PROVIDE A FLEXIBLE CONNECTION, VENTFABRICS, INC., "VENTGLAS L.A." NOT LESS THAN 12" IN LENGTH AND MADE OF HEAVY GRADE GLASS FABRIC DOUBLE COATED WITH NEOPRENE AND PROVIDED WITH A SUITABLE FRAME AT EACH END ARRANGED FOR BOLTING TO INLET AND OUTLET OF FAN AND DUCTWORK, RESPECTIVELY. FOR RANGE HOOD EXHAUST FANS, WHERE INDICATED, PROVIDE VENTFABRICS, INC., "VENTBESTOS" FLEXIBLE CONNECTIONS. ALL AS APPROVED BY THE FIRE MARSHAL, AND ANY OTHER LOCAL AUTHORITY HAVING

VANES AND DEFLECTORS: ALL ELBOWS AND TURNS SHALL BE MADE WITH A RADIUS NOT LESS THE 1-1/2" TIMES THE DUCT DIAMETER OR WIDTH. WHERE BUILDING CONSTRUCTION DOES NOT PERMIT A LONG RADIUS ELBOW OR TURN OR IF SHOWN ON THE CONTRACT DOCUMENTS. ACOUSTICAL TURNING VANES AND DEFLECTORS SHALL BE PROVIDED.

FLEXIBLE DUCTWORK: ALL LOW PRESSURE AND HIGH PRESSURE FLEXIBLE DUCT SHALL BE FLEXMASTER USA, INC., TYPE 1
INSULATED FLEXIBLE DUCT CONSISTING OF A FACTORY FABRICATED ASSEMBLY OF A TRILAMINATE ALUMINUM FOIL, FIBERGLASS AND
POLYESTER. THE FLEXIBLE DUCT SHALL BE UL LISTED 181 CLASS 1 AIR DUCT AND COMPLY WITH NFPA 90A AND 90B AND
HAVE A FLAME SPREAD OF NOT OVER 25 AND A SMOKE DEVELOPED OF NOT OVER 50. THE FLEXIBLE DUCT SHALL HAVE A
MINIMUM PRESSURE RATING OF 12" WC THROUGH TEMPERATURE RANGE OF -20 DEGREES F. TO + 250 DEGREES F.

#### EXTERIOR DUCTWORK

EXTERIOR DUCTWORK SHALL BE NON-FIBROUS, CLOSED CELL OUTDOOR DUCTWORK AS MANUFACTURED BY THERMADUCT WITH A SMACNA LEAKAGE, CLASS 1 OR LESS.

THERMADUCT SHALL INCORPORATE A KINGSPAN KOOLDUCT FORTIFIED INNER LINER AND SHALL BE COMPLIANT TO UL (C-UL) 181

STANDARD FOR SAFETY LISTED, CLASS 1 SYSTEM.

THERMADUCT OUTER SHELL SHALL BE A UV STABLE, 38 MIL HIGH IMPACT RESISTANT TITANIUM INFUSED VINYL.

THE PANEL SHALL BE MANUFACTURED OF CFC-FREE KOOLTHERM CLOSED CELL RIGID THERMOSET RESIN THERMALLY BONDED ON BOTH SIDES TO A FACTORY APPLIED .001" (25 MICRON) ALUMINUM FOIL FACING REINFORCED WITH A FIBERGLASS SCRIM. AN ADDED UV STABLE, 38 MIL HIGH IMPACT RESISTANT TITANIUM INFUSED VINYL IS FACTORY BONDED TO THE OUTER SURFACES TO PROVIDE A ZERO PERMEABILITY WATER TIGHT BARRIER.

THE THERMAL CONDUCTIVITY SHALL BE NO GREATER THAN 0.13BTU IN/HR FT2°F (.018W/M°C), THE THERMAL CONDUCTIVITY SHALL BE NO GREATER THAN 0.13BTU IN/HR FT2°F (.018W/M°C).

THE DENSITY OF THE KOOLTHERM FOAM SHALL NOT BE LESS THAN 3.5 PCF (56 KG/M3) WITH A MINIMUM COMPRESSIVE STRENGTH OF 28 PSI (.2 MPA).

THE PANEL IS 1 1/4" THICK WITH R-8.1 (1.5 RSI).

INSTALL, CONNECT AND SUPPORT DUCTWORK IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND DIRECTIONS.

#### DUCT INSULATION - GENERAL:

ALL DUCTWORK SHALL BE THERMALLY INSULATED AS SPECIFIED.

ALL DUCT INSULATION SHALL HAVE A FLAME SPREAD CLASSIFICATION OF 25 OR LESS, A FUEL CONTRIBUTED RATING OF 35 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS, AS RATED BY UNDERWRITERS' LABORATORIES.

#### BLANKET TYPE (UP TO 1-1/2 LB./CU. FT. INSULATION):

INSULATION WITH ATTACHED FACING SHALL BE SECURED TO THE DUCTS WITH ADHESIVE APPLIED IN 6" BRUSH WIDTHS EVERY 12". THE ADHESIVE SHALL BE RIDGED SLIGHTLY BY USING A SERRATED TROWEL.

INSULATION WITHOUT ATTACHED FACING (PLAIN) SHALL BE SECURED TO THE DUCTS THE SAME AS ABOVE THEN BIND WITH TYING CORD, SPIRAL WRAPPED OR HALF HITCHED.

DUCT FITTINGS SHALL BE INSULATED BY WRAPPING WITH A GLASS FIBER BLANKET. BLANKETS SHALL BE SECURED TO THE DUCT FITTINGS BY INSULATION STAPLES OR JUTE TWINE. THE BLANKET SHALL BE COVERED WITH AN OPEN MESH CLOTH OR GLASS

FIBER HEAVILY COATED WITH VAPOR BARRIER ADHESIVE. THE INSULATION THICKNESS SHALL BE EQUAL TO THE THICKNESS OF THE

#### DUCT INSULATION APPLICATION:

INSULATION ON THE ADJOINING DUCTWORK

THE FOLLOWING DUCTWORK SHALL BE INSULATED AS DESCRIBED HEREIN. REFER TO PREVIOUS PARAGRAPHS FOR RELATED INSULATION MATERIALS, DUCT INSULATION AND FINISH APPLICATIONS.

CONCEALED AIR CONDITIONING SUPPLY AIR DUCTWORK, CONCEALED OUTDOOR INTAKE DUCTWORK AND CONCEALED MIXING PLENUMS: (THIS INCLUDES DUCTWORK IN CEILING SPACES USED AS RETURN AIR PLENUM, DUCTWORK IN UNVENTED ATTIC SPACES OR UNVENTED CEILINGS SPACES WITH ROOF INSULATION). OWENS—CORNING FIBERGLAS FACED DUCTWRAP COMMERCIAL GRADE TYPE 100 1—1/2" THICK, MINIMUM INSTALLED R VALUE 4.5, 1 LB./CU. FT. DENSITY WITH FACTORY "FRK" VAPOR BARRIER JACKET OR LAMINATED ALUMINUM FOIL, OPEN MESH GLASS FIBER REINFORCING MESH SCRIM AND FLAMEPROOF KRAFT PAPER.

HEATING AND AIR CONDITIONING SUPPLY AIR DUCTWORK, OUTDOOR AIR INTAKE DUCTWORK, RETURN AIR DUCTWORK AND MIXING PLENUMS LOCATED IN CONCEALED SPACES VENTED TO THE OUTDOORS (THIS INCLUDES DUCTWORK IN VENTED CEILING SPACES OR ATTICS) AND IN UNVENTED ATTICS OR CEILINGS SPACES WITH INSULATED CEILINGS: OWENS—CORNING FIBERGLAS FACED DUCTWRAP COMMERCIAL GRADE TYPE 100 2" THICK MINIMUM INSTALLED R VALUE 6.0 1 LB./CU. FT. DENSITY WITH FACTORY "FRK" VAPOR BARRIER JACKET OR LAMINATED ALUMINUM FOIL, OPEN MESH GLASS FIBER REINFORCING MESH SCRIM AND FLAMEPROOF KRAFT PAPER.

#### AIR TESTING AND BALANCING:

BALANCE ALL OUTLETS AND TERMINAL BOXES TO WITHIN 10% OF RATED C.F.M IN ACCORDANCE WITH AABC AND NEBB, SUBMIT BALANCING REPORT.

#### TEMPERATURE CONTROLS:

THE CONTROLS CONTRACTOR SHALL PROVIDE ALL WIRING, TRANSFORMERS, SENSORS, HARDWARE, SOFTWARE AND PROGRAMMING FOR A COMPLETE AND OPERATIONAL CONTROLS SYSTEM. COORDINATE ALL DEVICES WITH HVAC EQUIPMENT. ALL WIRING SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS.

CONTROLS CONTRACTOR SHALL PROVIDE ALL REQUIRED 120V WIRING FROM SPACE ELECTRICAL CIRCUIT.

#### FIXTURE CONNECTIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

FIXTURE	SOIL OR WASTE	VENT	TRAP	HOT WATER	COLD WATER
WATER CLOSETS (FLUSH VALVE)	4"	2"			1-1/2"
URINAL	2"	2"			1"
LAVATORY	1-1/2"	1-1/2"	1-1/4"	1/2"	1/2"
DRINKING FOUNTAINS	1-1/2"	1-1/2"	1-1/4"		1/2"
ELECTRIC WATER COOLERS	1-1/2"	1-1/4"			1/2"
SERVICE SINKS	3"	1-1/2"	3"	3/4"	3/4"
SHOWERS				1/2"	1/2"
SINKS	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"
WALL HYDRANTS					3/4"
HOSE BIBS					1/2"

OTHERS AS INDICATED IN THE CONTRACT DOCUMENTS.
FIXTURES SHALL BE ZURN, AMERICAN STANDARD, KOHLER, MANSFIELD OR AS SPECIFY BELOW.
FIXTURE SUPPORTS SHALL BE ZURN. J.R. SMITH, JOSAM OR WADE.
FLUSH VALVE SHALL BE SLOAN, ZURN OR DELTA.

WALL HUNG, WALL OUTLET AND 1-1/2" TOP SPUD. AMERICAN STANDARD OR ZURN.

#### PLUMBING FIXTURE SCHEDULE:

FAUCETS SHALL BE ZURN, CHICAGO, DELTA OR SPEAKMAN.

c. ZURN SERIES 1200 CARRIER.

THE COMPARTMENT.

P-1 WALL HUNG WATER CLOSET: KOHLER K4330 KINGSTON, 1.28 GPF, WHITE VITREOUS CHINA, SIPHON JET, ELONGATED BOWL,

- q. Flush valve: Kohler K10674 wave or sloan model 8111 g2 optima plus 1.28 gpf quiet action flush valve with vacuum breaker, chromium plated, for either left or right hand supply less handle and equipped with a battery-operated actuator with chromium-plated metal cover with sensor and override button, daily flush, 1" ips screwdiver-operated stop with protective cap, flush connection and coupling for 1 1/2" top screwdiver-operated stop and applied to the protective cap.
- FOR 1-1/2" TOP SPUD, WALL AND SPUD FLANGES AND ADJUSTABLE TAILPIECE.

  b. SEAT: KOHLER K4731-SC, WHITE MOLDED SEAMLESS OPEN FRONT AND CONCEALED SELF-SUSTAINING CHECK HINGE.

  c. ZURN SERIES 1200 CARRIER.

P-1A WALL HUNG WATER CLOSET: KOHLER K4330 KINGSTON, 1.28 GPF, WHITE VITREOUS CHINA, SIPHON JET, ELONGATED BOWL, WALL HUNG, WALL OUTLET AND 1-1/2" TOP SPUD. AMERICAN STANDARD OR ZURN.

a. Flush valve: Kohler K10674 wave or sloan model 8111 g2 optima plus 1.28 gpf quiet action flush valve with vacuum breaker, chromium plated, for either left or right hand supply less handle and equipped with a battery-operated actuator with chromium-plated metal cover with sensor and override button, daily flush, 1" ips screwdriver-operated angle stop with protective cap, flush connection and coupling for 1-1/2" top spud, wall and spud flanges and adjustable tailpiece.
 b. SEAT: KOHLER K4731-SC, WHITE MOLDED SEAMLESS OPEN FRONT AND CONCEALED SELF-SUSTAINING CHECK HINGE.

REQUIREMENTS AND ADA REQUIREMENTS, MOUNTING OF FLUSH VALVE TO BE WITH THE LEVER ON THE WIDE SIDE OF

THE COMPARTMENT.

P-2A URINALS: KOHLER BARDON K72524 HIGH EFFICIENCY 0.5 GPF WHITE VITREOUS CHINA WALL HUNG WASH DOWN, WITH 3/4"

d. INSTALL FIXTURE IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF LABOR CONSTRUCTION CODE "BARRIER FREE"

- INLET TOP SPUD, FLUSHING RIM 2" WALL OUTLET, WALL HANGERS. AMERICAN STANDARD OR ZURN.

  a. Flush valve: Kohler 0.5 GPF wave or zurn zer6003-cp quiet action flush valve with vacuum breaker, chromium plated, for either left or right hand supply less handle and equipped with a battery-operated actuator with chromium-plated metal cover with sensor and override button, daily flush, 1" ips screwdriver-operated angle stop with protective cap, flush connection and coupling for
- 3/4" TOP SPUD, WALL AND SPUD FLANGES AND ADJUSTABLE TAILPIECE.
   b. CARRIER: SMITH FIG. 637
   c. INSTALL FIXTURE IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF LABOR CONSTRUCTION CODE "BARRIER FREE"
   REQUIREMENTS AND ADA REQUIREMENTS, MOUNTING OF FLUSH VALVE TO BE WITH THE LEVER ON THE WIDE SIDE OF
- P-3 UNDER-MOUNT LAVATORIES: KOHLER CAXTON K2211 19"x15" OVAL LAVATORY, WHITE VITREOUS CHINA, FITTING EDGE AND FRONT OVERFLOW, NO DRILLINGS, COLOR SELECTION BY ARCHITECT.
- a. SUPPLIES: 1/2" x 3/8" ANGLE SUPPLIES WITH LOOSE KEY STOPS, FLEXIBLE STAINLESS BRAIDED RISERS AND CP ESCUTCHEON PLATES.
- b. TRAP: CP 1-1/4" CAST BRASS ADJUSTABLE "P" TRAP WITH CLEANOUT AND TUBING OUTLET TO WALL COMPLETE WITH CP CAST BRASS ESCUTCHEON WITH LOCK NUT.
   c. TRIM: DECK MOUNTED BATTERY OPERATED FAUCET, SLOAN OPTIMA PLUS 187. CAST BRASS CONSTRUCTION, SPLASH-PROOF CIRCUIT CONTROL MODULE, FIBER OPTIC, AUTOMATIC SELF-ADAPTIVE SENSING, ISOLATED LATCHING SOLENOID OPERATOR, AUDIBLE TONE LOW BATTERY INDICATOR, SERVICEABLE FILTERED SOLENOID VALVE, CHROME PLATED METAL THROAT PLATE, BAK-CHEK® TEE FOR HOT/COLD SUPPLY, TRIM PLATE WITH ANTI-ROTATION PIN, VANDAL RESISTANT SPRAY HEAD WITH PRESSURE COMPENSATING FLOW CONTROL. FAUCET SHALL HAVE A SMOOTH

DRAIN AND 1-1/4" CP TAILPIECE. ALL EXPOSED SURFACES TO BE HEAVILY CHROME PLATED.

BRIGHT FINISH, 4" CENTERSET WITH 3/8" OD COPPER INLETS, AERATOR, 0.5 GPM MAXIMUM FLOW RESTRICTOR, GRID

- d. PROVIDE ASSE 1070 MIXING VALVE AND TRUEBRO ADA INSULATING KIT.

  P-4 ELECTRIC WATER COOLER: SELF-CONTAINED WALL MOUNT ELECTRIC TWO-LEVEL WATER COOLER, HAWS MODEL H1011.8. UNIT SHALL INCLUDE DUAL 18 GAUGE TYPE 304 STAINLESS STEEL SATIN FINISH BASINS WITH INTEGRAL SWIRL DESIGN, 14 GAUGE TYPE 304 STAINLESS STEEL WALL BRACKET, 100% LEAD-FREE WATERWAYS, PUSH-BUTTON OPERATED STAINLESS STEEL VALVES WITH FRONT-ACCESSIBLE CARTRIDGE AND FLOW ADJUSTMENT, POLISHED CHROME-PLATED BRASS VANDAL-RESISTANT BUBBLER HEADS WITH INTEGRAL LAMINAR ANTI-SQUIRT FLOW, CHROME-PLATED BRASS VANDAL-RESISTANT WASTE STRAINERS, VANDAL-RESISTANT BOTTOM PLATES, STAINLESS STEEL SATIN FINISH BACK PANEL AND LOUVERED INTRUSION-PROOF GRILL, HIGH AND LOW FOUNTAIN MOUNTING LEVELS, AND 1-1/4" O.D. WASTE PIPE. THE R-134A REFRIGERATION SYSTEM IS HERMETICALLY SEALED AND DELIVERS A MINIMUM OF 8 GPH OF WATER AT 50°F COOLED
- FROM 80°F, INLET WATER AT 90°F AMBIENT. 115 VOLTS, 60HZ, RATED WATTS: 370, FULL LOAD AMPS: 5

  a. SUPPLY: 1/2" x 3/8" ANGLE SUPPLY WITH WHEEL STOP, FLEXIBLE SUPPLY AND CP ESCUTCHEON.
- b. TRAP: 1-1/4" OD CP BRASS WITH ADJUSTABLE "P" TRAP OUTLET TUBE TO WALL AND CP ESCUTCHEON.
   c. SMITH 800 SERIES FLOOR MOUNTED CARRIER.
   d. INSTALL UNIT IN CONFORMANCE WITH MICHIGAN DEPARTMENT OF LABOR CONSTRUCTION CODE "BARRIER FREE"

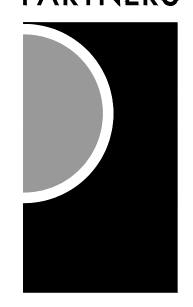
e. APPROVED MANUFACTURERS: OASIS, ELKAY, HALSEY, TAYLOR, SUNROC, HAWS

REQUIREMENTS AND ADA REQUIREMENTS.

- P-5 ELKAY "LUSTERTONE" MODEL LRAD252155 21" x 15-3/4" x 5-3/8" DEEP SINK COMPARTMENT, SOUND DEADENED TYPE 302, 18-8 STAINLESS STEEL, COUNTER-MOUNT, ADA COMPLIANT.
- a. SUPPLIES: 1/2" x 3/8" ANGLE SUPPLIES WITH LOOSE KEY STOPS, FLEXIBLE RISERS AND CP ESCUTCHEON PLATES.
   b. TRAP: 1-1/2" CP CAST BRASS WITH ADJUSTABLE "P" TRAP WITH CLEANOUT AND TUBING OUTLET TO WALL WITH CP CAST BRASS ESCUTCHEON.
- c. DRAIN: PROVIDE DRAIN TO ACCEPT GARBAGE DISPOSER. DISPOSER SHALL BE SIMILAR TO GE MODEL GFC 525F CONTINUOUS FEED TYPE WITH MANUAL TEST OVERLOAD, 1/2 HP, 120V MOTOR, PLUG AND CORD. d. TRIM: CHICAGO 201-AGN8E29-317AB, CP. 8" SWING GOOSENECK WITH 8" CENTERS, 4" WRIST BLADE HANDLES.
- CERAMIC VALVE CARTRIDGES, 2.2 GPM AERATOR. ALL EXPOSED SURFACES TO BE CHROME PLATED.

  e. ALL SINK DIMENSIONS SHALL BE CONFIRMED WITH ARCHITECTURAL BASE CABINET DRAWINGS TO INSURE THAT TOP AND SINK COMPARTMENTS MATE THE COMPANION BASE CABINET.

# **PARTNERS**



PARTNERS in Architecture, PLC 65 MARKET STREET MOUNT CLEMENS, MI 48043

#### Statement of Intellectual Property

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F 586.469.3607

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OMME

Office Renovatio

18500 W 13 Mile Road

Beverly Hills, MI 48025

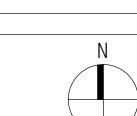
18500 W 13 Mile Road

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



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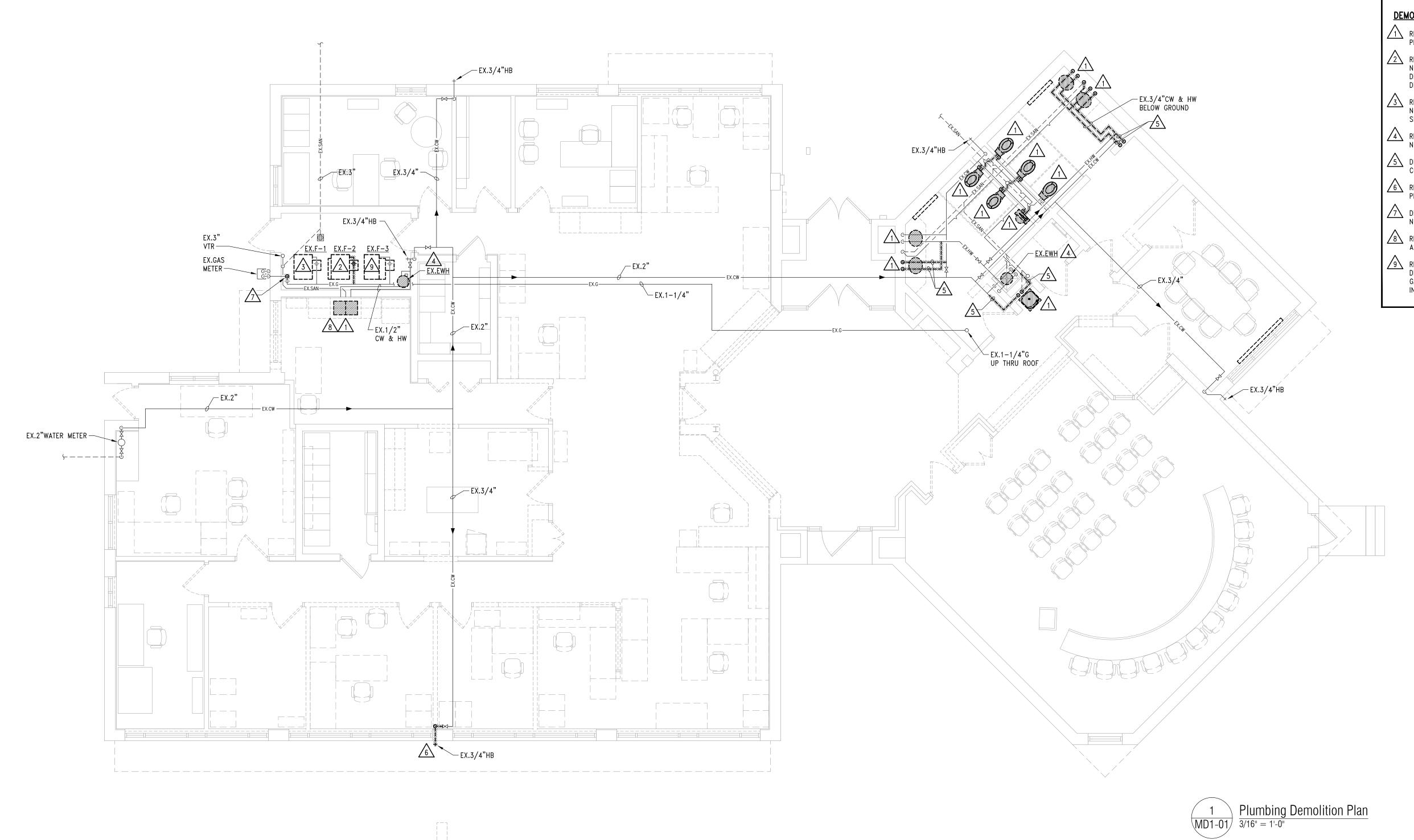
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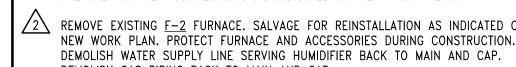


#### **DEMOLITION GENERAL NOTES:**

- 1. COORDINATE ALL DEMOLITION WORK WITH ARCHITECTURAL AND ELECTRICAL DEMOLITION AND PHASING PLANS, WITH OWNER'S PROJECT REPRESENTATIVE AND
- 2. THESE DEMOLITION PLANS ARE DIAGRAMMATIC AND DO NOT FULLY REPRESENT THE EXTENT OF DEMOLITION WORK REQUIRED TO INSTALL NEW WORK. REFER TO ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF INCIDENTAL DEMOLITION WORK NOT INDICATED ON THIS PLAN.
- 3. COORDINATE THE USE OF SALVAGED ITEMS AND COMPONENTS THAT ARE TO BE REUSED ON NEW WORK AS INDICATED ON DRAWINGS AND WITHIN SPECIFICATIONS.
- 5. REMOVE ALL PIPING, DUCTWORK AND EQUIPMENT COMPLETELY INCLUDING ALL RELATED ITEMS INCLUDING HANGERS, SUPPORTS, CONTROLS AND ACCESSORIES. DISPOSE OF ALL MATERIALS IN A LEGAL MANNER.
- PIPING OR DUCTWORK IN THE AREA OF WORK.

#### **DEMOLITION KEY NOTES:**

PREPARE FOR NEW CONNECTIONS AS INDICATED ON NEW WORK PLAN.



 $\sqrt{3}$  REMOVE EXISTING  $\overline{f-1}$  FURNACE. SALVAGE FOR REINSTALLATION AS INDICATED ON NEW WORK PLAN. PROTECT FURNACE, ACCESSORIES AND ASSOCIATED UTILITY SERVICES DURING CONSTRUCTION.

4 REMOVE EXISTING ELECTRIC WATER HEATER. PREPARE PIPING FOR CONNECTION TO NEW WATER HEATER AS INDICATED ON NEW WORK PLAN.

6 REMOVE EXISTING HOSE BIBB. DEMOLISH PIPING BACK TO ISOLATION VALVE.

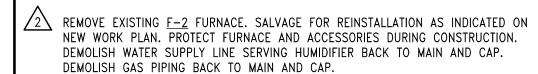
8 REMOVE EXISTING INSTANT HOT WATER DISPENSER. SALVAGE FOR REINSTALLATION

 $\sqrt{9}$  REMOVE EXISTING  $\overline{F-3}$  FURNACE AND ASSOCIATED CONDENSING UNIT ON ROOF. DEMOLISH ASSOCIATED REFRIGERANT PIPING UP TO CONDENSING UNIT. PREPARE GAS PIPING AND HUMIDIFIER WATER SUPPLY LINE FOR NEW CONNECTION AS

THE FOLLOWING GENERAL NOTES APPLY TO ALL MECHANICAL DEMOLITION SHEETS INCLUDED WITHIN THIS DOCUMENT SET, EXCEPT WHERE OTHERWISE INDICATED.

- WITH OWNER'S FACILITY MANAGER.
- 4. COORDINATE ANY SHUTDOWNS OF EXISTING SERVICES OR EQUIPMENT WITH OWNER. PERFORM SHUTDOWNS AT A SCHEDULED TIME AS TO MINIMIZE DISRUPTION OF BUILDING OPERATIONS.
- 6. CAP ALL OPEN ENDED PIPING AND DUCTWORK. DO NOT LEAVE ANY ABANDONED

REMOVE EXISTING FIXTURE. DEMOLISH PIPING BACK TO SOURCE AND CAP, OR



DEMOLISH PIPING AS INDICATED. CAP AT SOURCE OR PREPARE FOR NEW CONNECTION AS INDICATED ON NEW WORK PLAN.

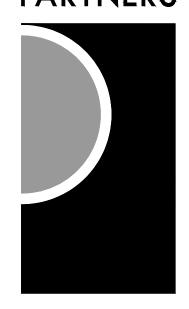
PREPARE FOR NEW CONNECTION AS INDICATED ON NEW WORK PLAN.

DEMOLISH GAS PIPING AS REQUIRED FOR NEW CONNECTION AS INDICATED ON NEW WORK PLAN.

AS INDICATED ON NEW WORK PLAN. PROTECT DURING CONSTRUCTION.

INDICATED ON NEW WORK PLAN.





PARTNERS in Architecture, PLC 65 MARKET STREET

MOUNT CLEMENS, MI 48043

P 586.469.3600 F 586.469.3607

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CONSULTANT



200 E. Brown Street tl 248 l 258 l 1610 Birmingham, Michigan 48009 fl 248 l 258 l 9538

KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

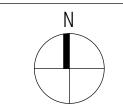
Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS Bidding - Construction 04/01/2016



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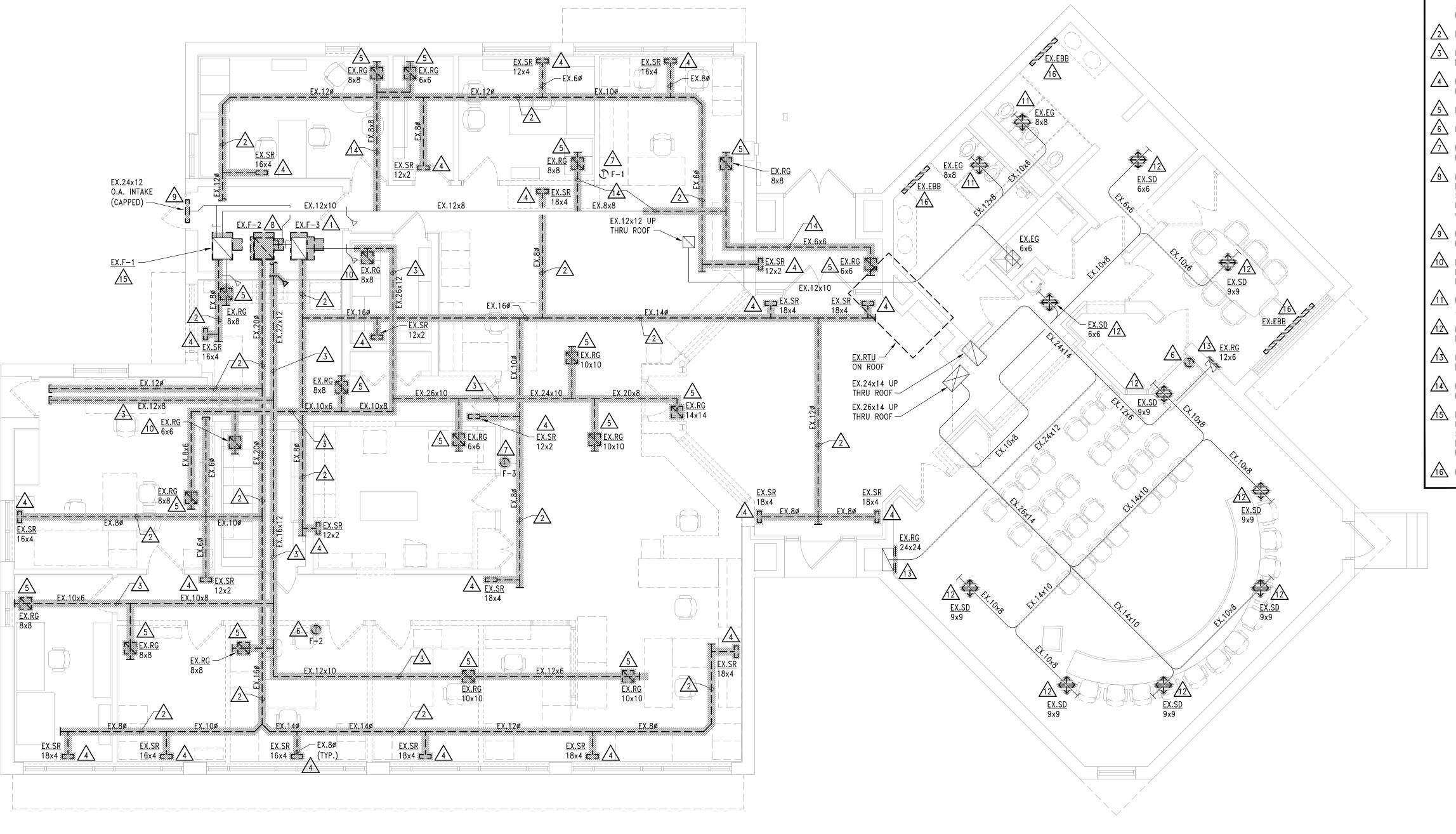
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> JDR APPROVED BY

SHEET NAME

PLUMBING DEMOLITION PLAN

SHEET NO.
MD1-01



#### **DEMOLITION GENERAL NOTES:**

- WITH OWNER'S FACILITY MANAGER.
- 2. THESE DEMOLITION PLANS ARE DIAGRAMMATIC AND DO NOT FULLY REPRESENT THE EXTENT OF DEMOLITION WORK REQUIRED TO INSTALL NEW WORK. REFER TO ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF INCIDENTAL DEMOLITION WORK NOT INDICATED ON THIS PLAN.
- 3. COORDINATE THE USE OF SALVAGED ITEMS AND COMPONENTS THAT ARE TO BE REUSED ON NEW WORK AS INDICATED ON DRAWINGS AND WITHIN SPECIFICATIONS.
- 4. COORDINATE ANY SHUTDOWNS OF EXISTING SERVICES OR EQUIPMENT WITH OWNER. PERFORM SHUTDOWNS AT A SCHEDULED TIME AS TO MINIMIZE DISRUPTION OF BUILDING OPERATIONS.
- RELATED ITEMS INCLUDING HANGERS, SUPPORTS, CONTROLS AND ACCESSORIES. DISPOSE OF ALL MATERIALS IN A LEGAL MANNER.
- PIPING OR DUCTWORK IN THE AREA OF WORK.

#### **DEMOLITION KEY NOTES:**

REMOVE EXISTING F-3 FURNACE AND ASSOCIATED CONDENSING UNIT ON ROOF. DEMOLISH ASSOCIATED HUMIDIFIER, SUPPORTS, CONTROLS AND ACCESSORIES. CAP ASSOCIATED UNDERGROUND SUPPLY DUCTWORK. PREPARE RETURN DUCTWORK AND FLUE VENT FOR NEW CONNECTIONS AS INDICATED ON NEW WORK PLAN.

2 EXISTING UNDERGROUND SUPPLY DUCTWORK TO BE ABANDONED.

DEMOLISH RETURN DUCTWORK BACK TO MECHANICAL ROOM. REMOVE ASSOCIATED

75 REMOVE EXISTING RETURN GRILLE. DEMOLISH ASSOCIATED DUCTWORK.

REMOVE EXISTING THERMOSTAT. SALVAGE FOR REINSTALLATION AS INDICATED ON

PREPARE WALL AND EXISTING DUCTWORK FOR INSTALLATION OF NEW 24x12

10 REMOVE EXISTING FIRE RATED RETURN GRILLE. DEMOLISH ASSOCIATED DUCTWORK. PREPARE CEILING OPENING FOR INSTALLATION OF NEW GRILLE AS INDICATED ON

REMOVE EXISTING RETURN GRILLE. PREPARE DUCTWORK FOR INSTALLATION OF NEW GRILLE AS INDICATED ON NEW WORK PLAN.

REMOVE EXISTING  $\underline{\mathsf{F-1}}$  FURNACE. SALVAGE FOR REINSTALLATION AS INDICATED ON NEW WORK PLAN. PROTECT FURNACE, ACCESSORIES AND ASSOCIATED UTILITY

16\ REMOVE EXISTING ELECTRIC BASEBOARD HEATER AND ASSOCIATED CONTROLS.

THE FOLLOWING GENERAL NOTES APPLY TO ALL MECHANICAL DEMOLITION SHEETS INCLUDED WITHIN THIS DOCUMENT SET, EXCEPT WHERE OTHERWISE INDICATED.

- 1. COORDINATE ALL DEMOLITION WORK WITH ARCHITECTURAL AND ELECTRICAL DEMOLITION AND PHASING PLANS, WITH OWNER'S PROJECT REPRESENTATIVE AND

- . REMOVE ALL PIPING, DUCTWORK AND EQUIPMENT COMPLETELY INCLUDING ALL
- 6. CAP ALL OPEN ENDED PIPING AND DUCTWORK. DO NOT LEAVE ANY ABANDONED

4 REMOVE EXISTING FLOOR SUPPLY REGISTER. CAP UNDERGROUND SUPPLY DUCTWORK AT FLOOR AND SEAL WATERTIGHT.

6 REMOVE EXISTING THERMOSTAT.

NEW WORK PLAN.

REMOVE EXISTING F-2 FURNACE. SALVAGE FOR REINSTALLATION AS INDICATED ON NEW WORK PLAN. PROTECT FURNACE, ACCESSORIES AND ASSOCIATED UTILITY SERVICES DURING CONSTRUCTION. CAP ASSOCIATED UNDERGROUND SUPPLY DUCTWORK. DEMOLISH ASSOCIATED RETURN DUCTWORK AND FLUE VENT. CAP OUTDOOR AIR DUCT AT MAIN.

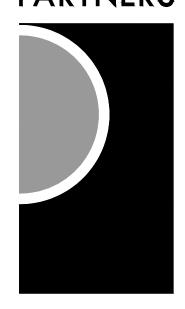
REMOVE EXISTING EXHAUST GRILLE. PREPARE FOR INSTALLATION OF NEW GRILLE AS INDICATED ON NEW WORK PLAN

REMOVE EXISTING SUPPLY DIFFUSER. DEMOLISH ASSOCIATED DUCTWORK BACK TO MAIN. PREPARE MAIN FOR NEW CONNECTION AS INDICATED ON NEW WORK PLAN.

DEMOLISH RETURN DUCTWORK BACK TO MAIN AND CAP. REMOVE ASSOCIATED HANGERS.

SERVICES DURING CONSTRUCTION. CAP ASSOCIATED UNDERGROUND SUPPLY DUCTWORK. PREPARE RETURN DUCTWORK FOR NEW CONNECTION AS INDICATED ON

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KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

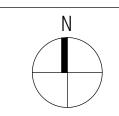
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



DRAWN BY

DMH CHECKED BY

APPROVED BY

HVAC DEMOLITION PLAN

SHEET NO. MD2-01

**HVAC** Demolition Plan

 $\frac{1}{3/16"} = 1'-0"$ 



#### **DEMOLITION GENERAL NOTES:**

- EXTENT OF DEMOLITION WORK REQUIRED TO INSTALL NEW WORK. REFER TO ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF INCIDENTAL DEMOLITION WORK NOT INDICATED ON THIS PLAN.
- REUSED ON NEW WORK AS INDICATED ON DRAWINGS AND WITHIN SPECIFICATIONS.
- 5. REMOVE ALL PIPING, DUCTWORK AND EQUIPMENT COMPLETELY INCLUDING ALL RELATED ITEMS INCLUDING HANGERS, SUPPORTS, CONTROLS AND ACCESSORIES. DISPOSE OF ALL MATERIALS IN A LEGAL MANNER.
- PIPING OR DUCTWORK IN THE AREA OF WORK.

PIPING BACK TO FURNACE.

REMOVE EXISTING EXHAUST FAN AND ASSOCIATED CONTROLS. PREPARE EXHAUST DUCTWORK AND ROOF CURB FOR INSTALLATION OF NEW FAN AS INDICATED ON

REMOVE EXISTING CURB CAP. PREPARE FOR INSTALLATION OF NEW CURB CAB AS INDICATED ON NEW WORK PLAN.

REMOVE EXISTING RTU AND ASSOCIATED CONTROLS AND ACCESSORIES. PREPARE ROOF CURB FOR INSTALLATION OF NEW RTU AND CURB ADAPTOR AS INDICATED ON NEW WORK PLAN.

DEMOLISH EXISTING GAS PIPING BACK TO ROOF PENETRATION. PREPARE FOR NEW CONNECTION AS INDICATED ON NEW WORK PLAN.

THE FOLLOWING GENERAL NOTES APPLY TO ALL MECHANICAL DEMOLITION SHEETS INCLUDED WITHIN THIS DOCUMENT SET, EXCEPT WHERE OTHERWISE INDICATED.

- 1. COORDINATE ALL DEMOLITION WORK WITH ARCHITECTURAL AND ELECTRICAL DEMOLITION AND PHASING PLANS, WITH OWNER'S PROJECT REPRESENTATIVE AND WITH OWNER'S FACILITY MANAGER.
- 2. THESE DEMOLITION PLANS ARE DIAGRAMMATIC AND DO NOT FULLY REPRESENT THE
- 3. COORDINATE THE USE OF SALVAGED ITEMS AND COMPONENTS THAT ARE TO BE
- 4. COORDINATE ANY SHUTDOWNS OF EXISTING SERVICES OR EQUIPMENT WITH OWNER. PERFORM SHUTDOWNS AT A SCHEDULED TIME AS TO MINIMIZE DISRUPTION OF BUILDING OPERATIONS.
- 6. CAP ALL OPEN ENDED PIPING AND DUCTWORK. DO NOT LEAVE ANY ABANDONED

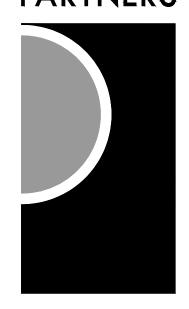
#### **DEMOLITION KEY NOTES:**

REMOVE EXISTING CONDENSING UNIT AND SUPPORTS. DEMOLISH REFRIGERANT

2 REMOVE FLUE VENT STACK. CAP ROOF PENETRATION AND SEAL WATERTIGHT.

4 DEMOLISH EXISTING EXTERIOR DUCTWORK FROM RTU TO ROOF PENETRATION. PREPARE RTU INLET/DISCHARGE OPENINGS AND INTERIOR DUCTWORK FOR NEW CONNECTIONS AS INDICATED ON NEW WORK PLAN.

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KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

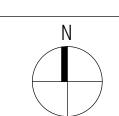
Village of Beverly Hills Office Renovation

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PROJECT NO.

15-161

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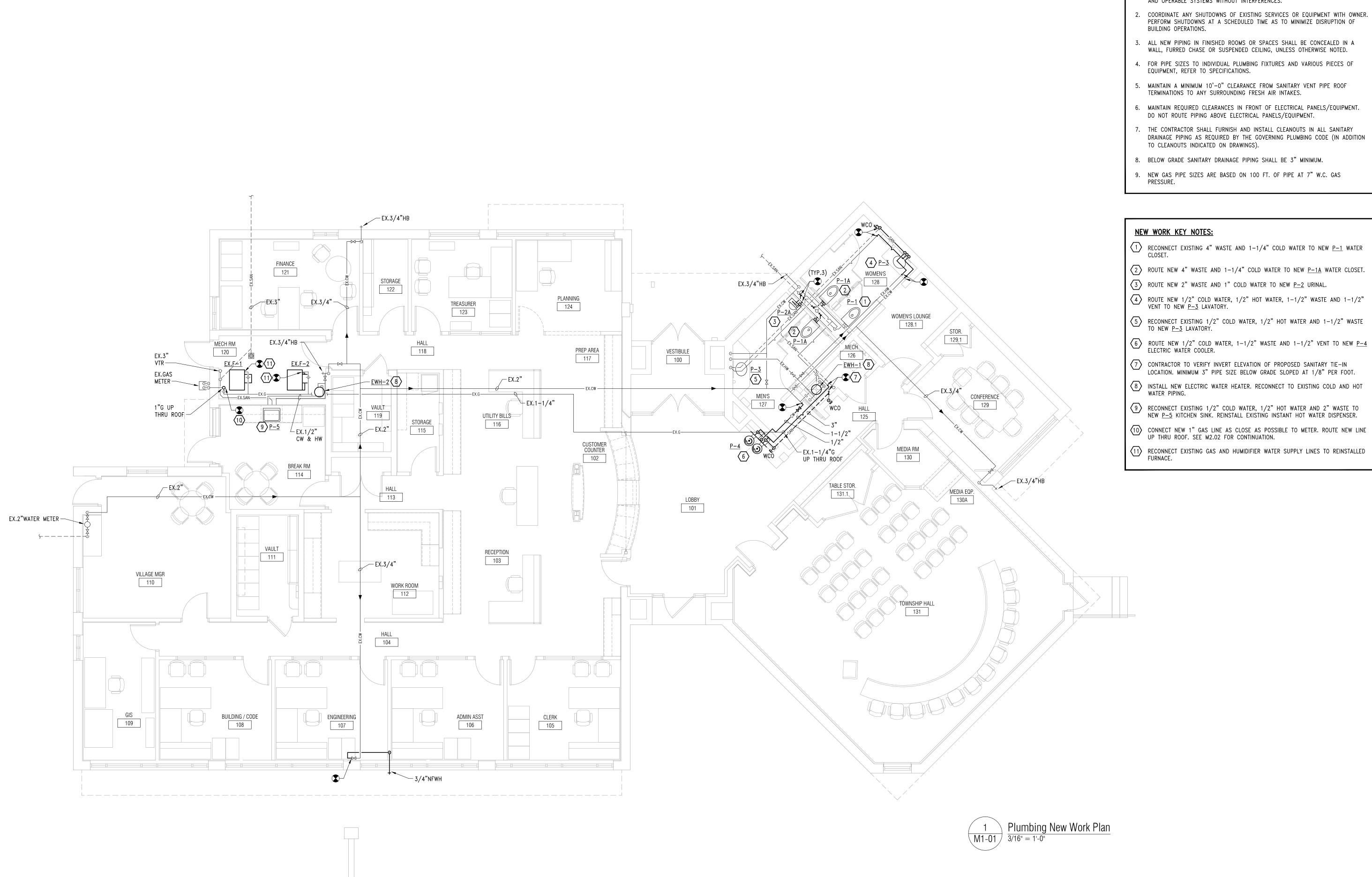
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APPROVED BY

HVAC **DEMOLITION PLAN ROOF LEVEL** 

SHEET NO.
MD2-02

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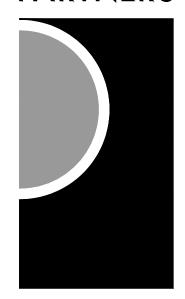
#### **PLUMBING GENERAL NOTES:**

THE FOLLOWING GENERAL NOTES APPLY TO ALL PLUMBING SHEETS INCLUDED WITHIN THIS DOCUMENT SET, EXCEPT WHERE OTHERWISE INDICATED.

- . PIPING OFFSETS ARE SHOWN TO PROVIDE INDICATION OF PHYSICAL CONDITIONS WITHIN THE SPACE. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL REQUIRED OFFSETS. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT INTERFERENCES.
- 2. COORDINATE ANY SHUTDOWNS OF EXISTING SERVICES OR EQUIPMENT WITH OWNER. PERFORM SHUTDOWNS AT A SCHEDULED TIME AS TO MINIMIZE DISRUPTION OF
- 3. ALL NEW PIPING IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A
- 4. FOR PIPE SIZES TO INDIVIDUAL PLUMBING FIXTURES AND VARIOUS PIECES OF
- 5. MAINTAIN A MINIMUM 10'-0" CLEARANCE FROM SANITARY VENT PIPE ROOF
- 6. MAINTAIN REQUIRED CLEARANCES IN FRONT OF ELECTRICAL PANELS/EQUIPMENT.
- 7. THE CONTRACTOR SHALL FURNISH AND INSTALL CLEANOUTS IN ALL SANITARY DRAINAGE PIPING AS REQUIRED BY THE GOVERNING PLUMBING CODE (IN ADDITION
- 9. NEW GAS PIPE SIZES ARE BASED ON 100 FT. OF PIPE AT 7" W.C. GAS
- ROUTE NEW 4" WASTE AND 1-1/4" COLD WATER TO NEW P-1A WATER CLOSET.

- 5 RECONNECT EXISTING 1/2" COLD WATER, 1/2" HOT WATER AND 1-1/2" WASTE

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KEY PLAN

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PROJECT NAME

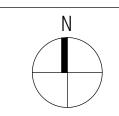
Village of Beverly Hills Office Renovation

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PROJECT NO.

15-161

ISSUES / REVISIONS Bidding - Construction 04/01/2016



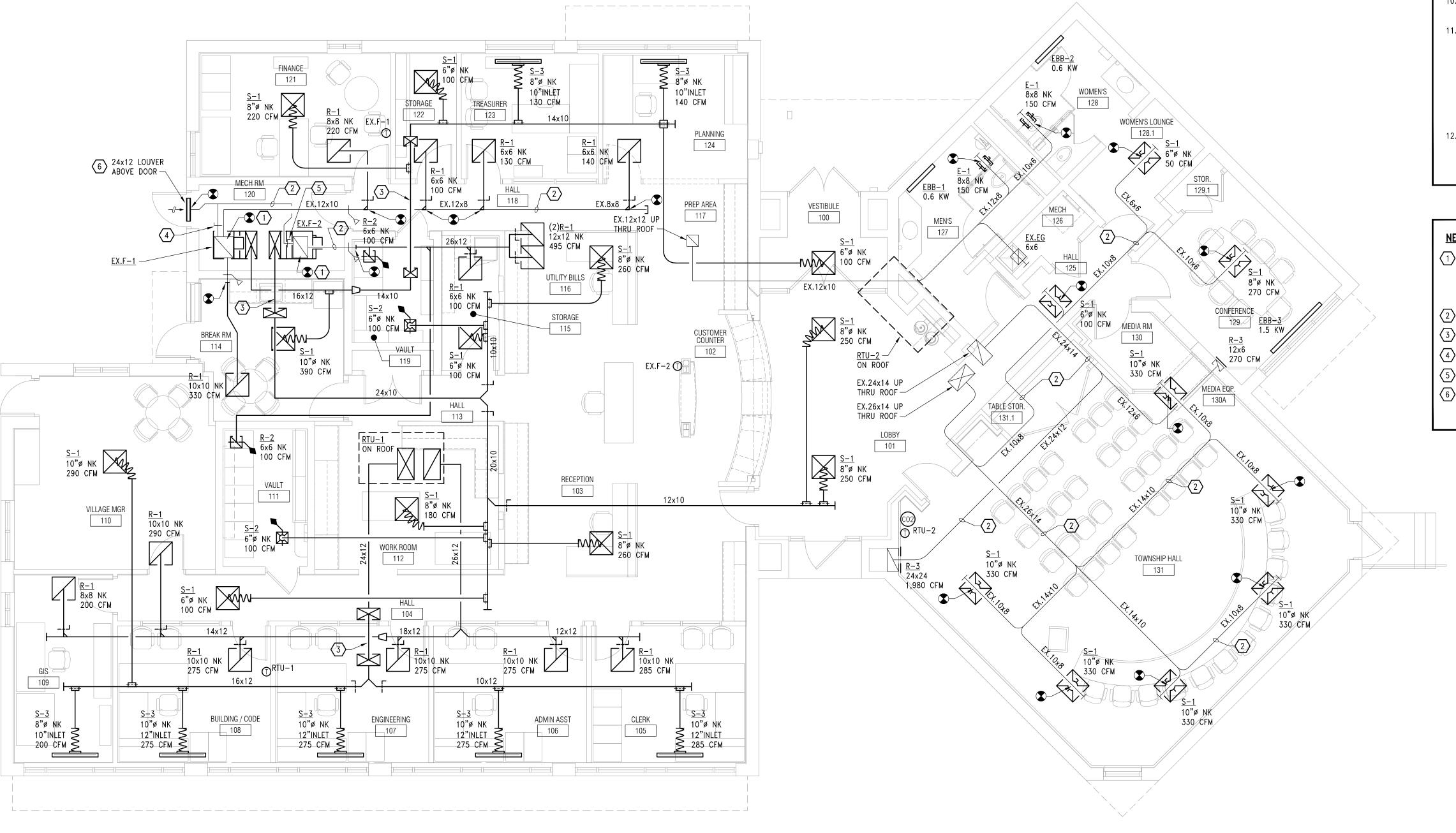
DRAWN BY DMH

CHECKED BY

APPROVED BY

PLUMBING NEW WORK PLAN

SHEET NO. **M1-01** 



#### **HVAC GENERAL NOTES:**

THE FOLLOWING GENERAL NOTES APPLY TO ALL HVAC SHEETS INCLUDED WITHIN THIS DOCUMENT SET, EXCEPT WHERE OTHERWISE INDICATED.

- 1. SHEET METAL OFFSETS AND TRANSITIONS ARE SHOWN TO PROVIDE INDICATION OF PHYSICAL CONDITIONS WITHIN THE SPACE. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL REQUIRED OFFSETS AND TRANSITIONS. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT
- . COORDINATE ANY SHUTDOWNS OF EXISTING SERVICES OR EQUIPMENT WITH OWNER. PERFORM SHUTDOWNS AT A SCHEDULED TIME AS TO MINIMIZE DISRUPTION OF BUILDING OPERATIONS.
- 3. COORDINATE GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- 4. ALL NEW DUCTWORK IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A
- 5. ALL DUCT PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES SHALL BE PROVIDED
- 6. ALL EXHAUST GRILLES SHALL BE HARD DUCT CONNECTION.
- 7. ALL ROUND DUCT RUNOUTS AND DROPS TO DIFFUSERS SHALL BE THE SAME NOMINAL SIZE AS INDICATED BY THE DIFFUSER TAG ON THE DRAWINGS, UNLESS OTHERWISE NOTED.
- 8. SUPPLY DUCTWORK PRESSURE CONSTRUCTION SHALL BE 3" W.G. UPSTREAM OF
- 9. MAINTAIN A MINIMUM 10'-0" CLEARANCE FROM EXHAUST FANS, EXHAUST TERMINATIONS AND FLUE GAS VENTS TO ANY SURROUNDING FRESH AIR INTAKES.
- 10. MAINTAIN REQUIRED CLEARANCES IN FRONT OF ELECTRICAL PANELS/EQUIPMENT. DO NOT ROUTE DUCTWORK ABOVE ELECTRICAL PANELS/EQUIPMENT.
- 11. ACCESS PANELS AND DOORS ARE REQUIRED THROUGHOUT BUILDING CONSTRUCTION ASSEMBLIES SUCH AS WALLS, HARD CEILINGS, PARTITIONS AND FLOORS TO SERVICE AND MAINTAIN TERMINAL UNITS, BALANCING DAMPERS, CONTROL MOTORS, ETC. ACCESS PANELS AND DOORS SHALL BE PROVIDED AND INSTALLED PER ARCHITECTURAL SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL VERIFY THE EXACT QUANTITY, SIZE, FIRE-RATING AND LOCATION OF ACCESS PANELS AND DOORS FOLLOWING INSTALLATION OF SYSTEMS AND COMPONENTS REQUIRING ACCESS, BUT PRIOR TO THE CLOSURE OF THE AFFECTED CEILING AND BUILDING ASSEMBLIES. MINIMUM ACCESS PANEL AND DOOR SIZE SHALL BE 24 INCHES BY
- 12. WHERE VOLUME DAMPERS OCCUR ABOVE CEILINGS WITHOUT REMOVABLE TILE OR ACCESS PANEL, PROVIDE A FLUSH-MOUNTED CONCEALED DAMPER REGULATOR TO ALLOW FOR DAMPER ADJUSTMENT BELOW CEILING. UNIT TO BE EQUAL TO VENTLOCK NO. 666 IN 1/2" OR 3/8" ROD SIZE.

- $\langle 1 \rangle$  REINSTALL EXISTING <u>F-1</u> & <u>F-2</u> FURNACES. PROVIDE ELBOW AT BOTTOM DISCHARGE OPENING. MODIFY RETURN AIR DUCTWORK, FLUE DUCTWORK, COIL CASING AND REFRIGERANT PIPING AS REQUIRED TO ALLOW FOR INSTALLATION OF
- 2 CLEAN ALL EXISTING SUPPLY AND RETURN DUCTWORK THAT IS TO REMAIN.
- 3 ROUTE DUCTWORK UP INTO JOIST SPACE AS REQUIRED.
- 4 BALANCE OUTDOOR AIR DAMPER TO 15% (160 CFM).
- 6 NEW OUTDOOR AIR INTAKE LOUVER WITH BIRD SCREEN, SIMILAR TO RUSKIN MODEL ELF375DX. LOUVER SHALL BE ALUMINUM DRAINABLE WITH MINIMUM 50%

- INTERFERENCES.

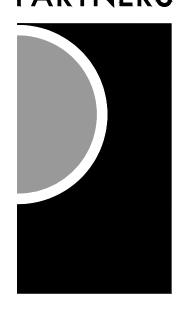
- FURRED CHASE OR SUSPENDED CEILING, UNLESS OTHERWISE NOTED.
- WITH FIRE DAMPERS AND ACCESS DOORS.
- TERMINAL UNITS AND 2" W.G. DOWNSTREAM OF TERMINAL UNITS.

- 18 INCHES, UNLESS OTHERWISE NOTED.

#### **NEW WORK KEY NOTES:**

- NEW ELBOW AND RAISED FURNACE HEIGHT. TUNE UP EXISTING FURNACES AND PROVIDE NEW SET OF FILTERS.
- 5 BALANCE OUTDOOR AIR DAMPER TO 15% (230 CFM).
- FREE AREA. FINISH/COLOR BY ARCHITECT.

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KEY PLAN

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PROJECT NAME

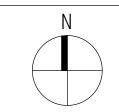
Village of Beverly Hills Office Renovation

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PROJECT NO.

15-161

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> JDR APPROVED BY

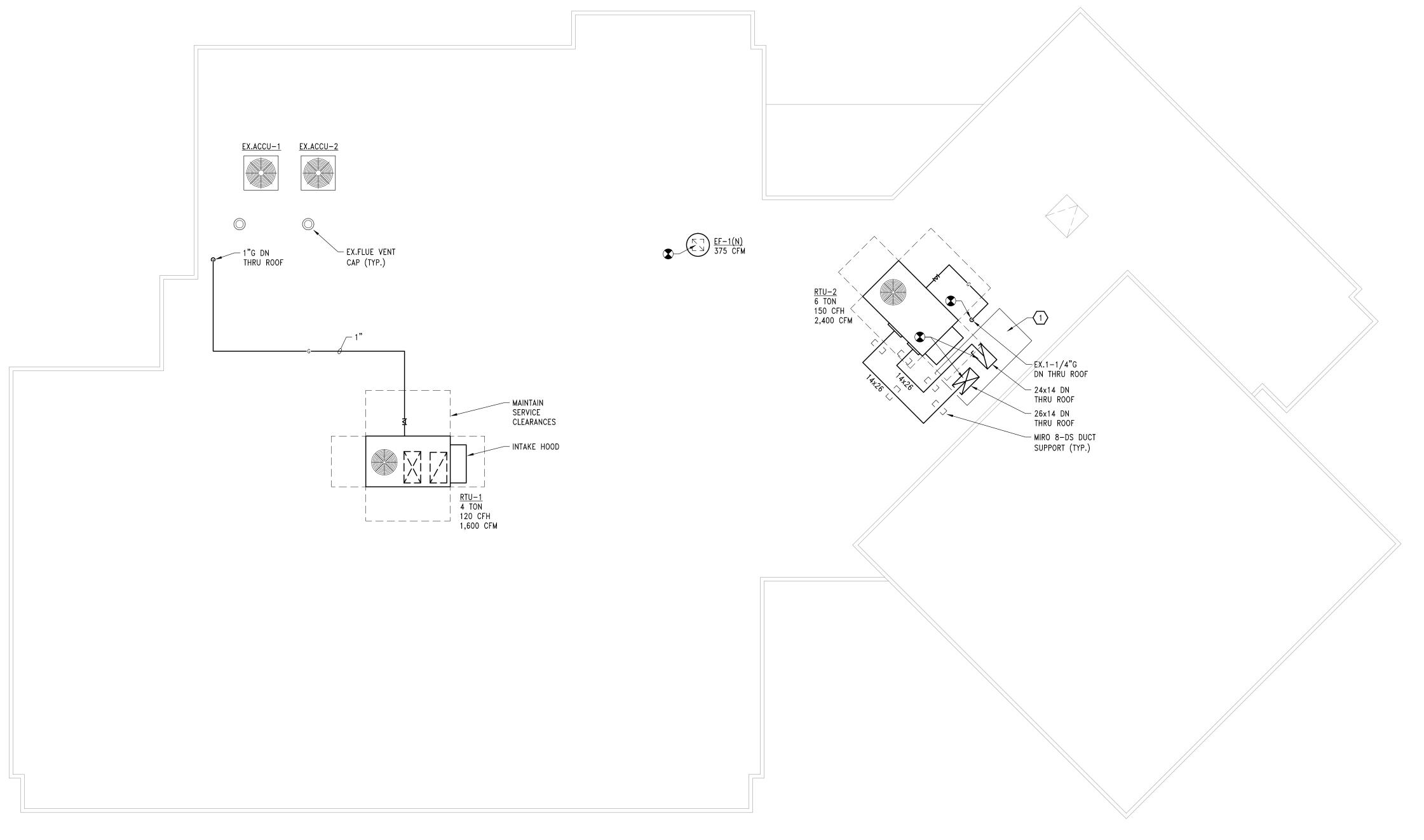
SHEET NAME

HVAC NEW WORK PLAN

SHEET NO. M2-01

**HVAC New Work Plan** 

M2-01 3/16" = 1'-0"



#### **HVAC GENERAL NOTES:**

THE FOLLOWING GENERAL NOTES APPLY TO ALL HVAC SHEETS INCLUDED WITHIN THIS DOCUMENT SET, EXCEPT WHERE OTHERWISE INDICATED.

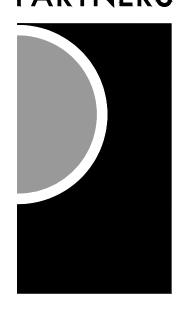
- 1. SHEET METAL OFFSETS AND TRANSITIONS ARE SHOWN TO PROVIDE INDICATION OF PHYSICAL CONDITIONS WITHIN THE SPACE. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL REQUIRED OFFSETS AND TRANSITIONS. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT INTERFERENCES.
- 2. COORDINATE ANY SHUTDOWNS OF EXISTING SERVICES OR EQUIPMENT WITH OWNER. PERFORM SHUTDOWNS AT A SCHEDULED TIME AS TO MINIMIZE DISRUPTION OF BUILDING OPERATIONS.
- 3. COORDINATE GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- 4. ALL NEW DUCTWORK IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR SUSPENDED CEILING, UNLESS OTHERWISE NOTED.
- 5. ALL DUCT PENETRATIONS THROUGH FIRE—RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRE DAMPERS AND ACCESS DOORS.
- 6. ALL EXHAUST GRILLES SHALL BE HARD DUCT CONNECTION.
- 7. ALL ROUND DUCT RUNOUTS AND DROPS TO DIFFUSERS SHALL BE THE SAME NOMINAL SIZE AS INDICATED BY THE DIFFUSER TAG ON THE DRAWINGS, UNLESS OTHERWISE NOTED.
- 8. SUPPLY DUCTWORK PRESSURE CONSTRUCTION SHALL BE 3" W.G. UPSTREAM OF TERMINAL UNITS AND 2" W.G. DOWNSTREAM OF TERMINAL UNITS.
- 9. MAINTAIN A MINIMUM 10'-0" CLEARANCE FROM EXHAUST FANS, EXHAUST TERMINATIONS AND FLUE GAS VENTS TO ANY SURROUNDING FRESH AIR INTAKES.
- 10. MAINTAIN REQUIRED CLEARANCES IN FRONT OF ELECTRICAL PANELS/EQUIPMENT.

  DO NOT ROUTE DUCTWORK ABOVE ELECTRICAL PANELS/EQUIPMENT.
- 11. ACCESS PANELS AND DOORS ARE REQUIRED THROUGHOUT BUILDING CONSTRUCTION ASSEMBLIES SUCH AS WALLS, HARD CEILINGS, PARTITIONS AND FLOORS TO SERVICE AND MAINTAIN TERMINAL UNITS, BALANCING DAMPERS, CONTROL MOTORS, ETC. ACCESS PANELS AND DOORS SHALL BE PROVIDED AND INSTALLED PER ARCHITECTURAL SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL VERIFY THE EXACT QUANTITY, SIZE, FIRE—RATING AND LOCATION OF ACCESS PANELS AND DOORS FOLLOWING INSTALLATION OF SYSTEMS AND COMPONENTS REQUIRING ACCESS, BUT PRIOR TO THE CLOSURE OF THE AFFECTED CEILING AND BUILDING ASSEMBLIES. MINIMUM ACCESS PANEL AND DOOR SIZE SHALL BE 24 INCHES BY 18 INCHES, UNLESS OTHERWISE NOTED.
- 12. WHERE VOLUME DAMPERS OCCUR ABOVE CEILINGS WITHOUT REMOVABLE TILE OR ACCESS PANEL, PROVIDE A FLUSH-MOUNTED CONCEALED DAMPER REGULATOR TO ALLOW FOR DAMPER ADJUSTMENT BELOW CEILING. UNIT TO BE EQUAL TO VENTLOCK NO. 666 IN 1/2" OR 3/8" ROD SIZE.

#### **NEW WORK KEY NOTES:**

PROVIDE NEW CURB CAP. REFER TO DUCT PENETRATION THRU ROOF DETAIL ON SHEET M4-00.

## **PARTNERS**



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OW

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

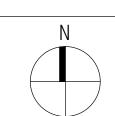
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PROJECT NO.

15-161

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DRAWN BY

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JDR
APPROVED BY

SHEET NAME

HVAC

HVAC NEW WORK PLAN ROOF LEVEL

SHEET NO.
M2-02

 $\frac{1}{M2-02} \frac{HVAC \ New \ Work \ Plan - Roof \ Level}{3/16" = 1'-0"}$ 

		VENTIL	ATION AIR S	CHEC	ULE				
ROOM NAME	ROOM TYPE	OCCUPANT DENSITY (PEOPLE/1,000 FT <sup>2</sup> )	PEOPLE OUTDOOR AIR RATE (CFM/PERSON)	AREA FT²	AREA OUTDOOR AIR (CFM/FT <sup>2</sup> )	MAXIMUM NUMBER OF PEOPLE	ASSOCIATED HVAC UNIT	OUTDOOR AIR REQUIRED (CFM)*	OUTDOOR AIR PROVIDED (CFM)
CLERK (105)	OFFICE SPACES	5	5	160	0.06	1	RTU-1	19	42
ADMIN ASST (106)	OFFICE SPACES	5	5	160	0.06	1	RTU-1	19	41
ENGINEERING (107)	OFFICE SPACES	5	5	160	0.06	1	RTU-1	19	41
BUILDING/CODE (108)	OFFICE SPACES	5	5	160	0.06	1	RTU-1	19	41
GIS (109)	OFFICE SPACES	5	5	140	0.06	1	RTU-1	17	30
VILLAGE MGR (110)	OFFICE SPACES	5	5	285	0.06	2	RTU-1	34	43
CONFERENCE (129)	CONFERENCE ROOMS	50	5	175	0.06	8	RTU-2	51 <b>**</b>	54
TOWNSHIP HALL (131)	CONFERENCE ROOMS	50	5	860	0.06	43	RTU-2	267**	396
VESTIBULE (100)	CORRIDORS	N/A	N/A	75	0.06	N/A	EX.F-1	6	15
BREAK RM (114)	CONFERENCE ROOMS	50	5	130	0.06	7	EX.F-1	54	58
FINANCE (121)	OFFICE SPACES	5	5	180	0.06	1	EX.F-1	20	33
STORAGE (122)	STORAGE ROOMS	N/A	N/A	60	0.12	N/A	EX.F-1	9	15
TREASURER (123)	OFFICE SPACES	5	5	130	0.06	1	EX.F-1	16	19
PLANNING (124)	OFFICE SPACES	5	5	140	0.06	1	EX.F-1	17	21
LOBBY (101)	MAIN ENTRY LOBBIES	10	5	330	0.06	4	EX.F-3	50	75
OPEN OFFICE AREA (102, 103, 116, 117)	OFFICE SPACES	5	5	700	0.06	4	EX.F-3	78	78
VAULT (111)	STORAGE ROOMS	N/A	N/A	90	0.12	N/A	EX.F-3	14	15
WORKROOM (112)	OFFICE SPACES	5	5	200	0.06	1	EX.F-3	22	27
STORAGE (115)	STORAGE ROOMS	N/A	N/A	60	0.12	N/A	EX.F-3	9	15
VAULT (119)	STORAGE ROOMS	N/A	N/A	65	0.12	N/A	EX.F-3	10	15

REFERENCE CODE: 2012 MICHIGAN MECHANICAL CODE, TABLE 403.3 \*CFM CALCULATION BASED ON REQUIRED AIRFLOW @ 80% HEATING EFFECTIVENESS (CEILING SUPPLY, CEILING RETURN) \*\*CFM CALCULATION BASED ON REQUIRED AIRFLOW @ 100% HEATING EFFECTIVENESS (CEILING SUPPLY, FLOOR RETURN)

										R	OOFT	OP UI	NIT SC	HEDU	LE									
	MANUFACTURER	AREA				COOLING						HEATING				SUPPL	Y FAN		El	LECTRICAL		SIZE	MAX.	NOTES (1.0050000150
TAG	& MODEL NO.	SERVED	TOTAL MBH	SENS. MBH	MIN. O.A. CFM	OAT °F DB/WB	RAT °F DB/WB	MAT °F DB/WB	LAT °F DB/WB	INPUT MBH	OUTPUT MBH	O.A. DB	R.A. DB	EAT/LAT °F	CFM	ESP IN. W.C.	RPM	ВНР	VOLTAGE	MCA	МОСР	L x W x H (IN.)	WEIGHT (LBS)	NOTES/ACCESSORIES
RTU-1	TRANE YHC048F3	SEE PLAN	49.6	32.9	240	95.0/86.0	75.0/61.0	78.6/66.5	59.6/56.6	120.0	96.0	6.0	70.0	60.4/115.7	1,600	1.00	990	0.68	230/3/60	27.2	40	88-5/8 x 53-1/4 x 40-7/8	948	A B C D E F G H I J K L M
RTU-2	TRANE YHC072F3	SEE PLAN	71.7	52.3	480	95.0/86.0	75.0/61.0	78.8/66.7	58.7/57.1	150.0	120.0	6.0	70.0	57.2/103.3	2,400	1.20	941	1.46	230/3/60	32.3	50	88-5/8 x 53-1/4 x 46-7/8	1,129	A B C D E F G H I J K L N O P
											NOTES	S AND ACCE	SSORIES DES	SIGNATION					•					
A	STAINLESS STEEL HEA	T EXCHANGER						G	HINGED	ACCESS DC	OORS							М	18" ROOF (	CURB				
В	DUCT SMOKE DETECTO	R IN RETURN						Н	POWER	EXHAUST								N	CO2 SENSO	R				
С	UNIT MOUNTED NON-F	USED DISCONNEC	т					1	ENTHALF	Y ECONOMI	IZER							0	CURB ADAP	TOR				
D	CONVENIENCE OUTLET							J	SUBJECT ALTERNA		LIANCE WITH	ALL PROJE	CT DOCUMEN	NTS, DAIKIN, Y	YORK, AAO	N ARE ACCEP	PTABLE	Р	HORIZONTAL	. DISCHAR	GE			
E	DDC MICROPROCESSOR	CONTROLS						К	MOTORIZ	ED O.A. DA	AMPER							R						

L HIGH HEAT MODEL

			ΕY	 НЛПО	T FAN	I SCL						
	MANUFACTURER			FAN	WHEEL		FA			мото	DR .	
TAG	& MODEL NO.	LOCATION	SERVICE	TYPE	TYPE	CFM	ESP IN. W.C.	RPM	ВНР	VOLTAGE	НР	- NOTES/ACCESSORIES
EF-1(N)	LOREN COOK 80 ACEB	ROOF	TOILET EXHAUST	RMC	BI	375	0.25	1,152	0.074	120/1/60	1/6	АВС
RMC - RMA - WMC - ILC -	'PE:  ROOF MOUNTED PROPELL ROOF MOUNTED CENTRIF ROOF MOUNTED AXIAL - WALL MOUNTED CENTRIF INLINE CENTRIFUGAL INLINE AXIAL	UGAL	VA — VANE TA — TUBE / CLG — CEILIN UTL — UTILIT WMP — WALL CB — CENTR	AXIAL NG MOUNT Y SET MOUNTED			FC BI - AF RAD		RD CURVE ARD INCLI - NL			
				NOTES AN	ND ACCESSO	RIES DES	IGNATION					
А	DISCONNECT SWITCH					С	MOTORIZE	ED BACKD	RAFT DAN	MPER, INTERL	OCK WITH	1 STARTER
В	BIRDSCREEN					D						

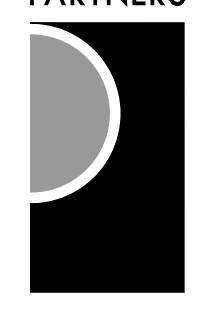
DIGITAL PROGRAMMABLE THERMOSTAT

		ELECTR	IC HO	T WAT	ER H	EATER	SCH	EDULE	
710	MANUFACTURER			CAPACITIES			ELECTRICAL		NOTES (LOSESSONES
TAG	& MODEL NO.	LOCATION	STORAGE GAL	RECOVERY GPH	TEMP RISE °F	VOLTAGE	KW	AMPS	NOTES/ACCESSORIES
EWH-1	LOCHINVAR CHA3 005A	SEE PLAN	5	12	100	240/1/60	3	12.5	ВС
EWH-2	LOCHINVAR CHA3 005A	SEE PLAN	5	12	100	240/1/60	3	12.5	A C
			NOT	ES AND ACC	CESSORIES I	DESIGNATION			
A	T & P RELIEF VALVE,	DRAIN TO FLOOF	R DRAIN		С	DRAIN F	'AN		
В	T & P RELIEF VALVE,	DRAIN TO SERVI	CE SINK		D				

	GR	RILLE, RE	GISTER	ANE	DIF	FUSER	SCHEDL	JLE
TAG	MANUFACTURER & MODEL NO.	SERVICE	ТҮРЕ	MOUN	ITING	NECK SIZE	OVERALL SIZE	NOTES/ACCESSORIES
S-1	TITUS OMNI	SUPPLY	DIFFUSER	LAY CEIL		SEE PLAN	24" x 24"	A
S-2	TITUS PAS-FR	SUPPLY	DIFFUSER	SURI CEIL		SEE PLAN	12" x 12"	АВС
S-3	TITUS EOS	SUPPLY	LINEAR DIFFUSER	LAY CEIL		SEE PLAN	4'-0"	D
R-1	TITUS RETURN GRILLE		LAY CEIL		SEE PLAN	24" x 24"	А	
R-2	TITUS PAR-FR	RETURN	GRILLE	SURI CEIL		SEE PLAN	12" x 24"	АВС
R-3	TITUS 56FL	RETURN	GRILLE	WA	.LL	N/A	SEE PLAN	А
E-1	TITUS PAR	EXHAUST	GRILLE	SURI CEIL	FACE LING	SEE PLAN	12" x 12"	A C
			NOTES AND	) ACCESS	ORIES D	ESIGNATION		
A	STANDARD WHITE FINIS	SH			D	AUTO-CHAN	GEOVER DIFFUSER	R
В	FIRE RATED DIFFUSER				E			
С	PROVIDE MATCHING TR	IM FOR SURFACE	CEILING INSTALL	ATION	F			

	ELECT	RIC BAS	SEBOA	ARD HE	EATER	R SCH	EDULE
TAG	MANUFACTURER	LOCATION	LENGTH	ELE	CTRICAL D	ATA	NOTES/ACCESSORIES
,,,,	& MODEL NO.	2007.11011		VOLTAGE	KW	AMPS	
EBB-1	MARKEL E2906-036C	MEN'S (127)	36"	120/1/60	0.6	5.0	АВС
EBB-2	MARKEL E2906-036C	WOMEN'S (128)	36"	120/1/60	0.6	5.0	АВС
EBB-3	MARKEL E2915-072C	CONFERENCE (129)	72"	120/1/60	1.5	12.5	АВС
		NOT	ES AND AC	CESSORIES DE	ESIGNATION		
A	INTEGRAL THERMOSTAT						
В	DISCONNECT SWITCH						
С	WALL-MOUNTED						

# **PARTNERS**



PARTNERS in Architecture, PLC 65 MARKET STREET MOUNT CLEMENS, MI 48043

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CONSULTANT



KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

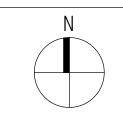
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



DRAWN BY

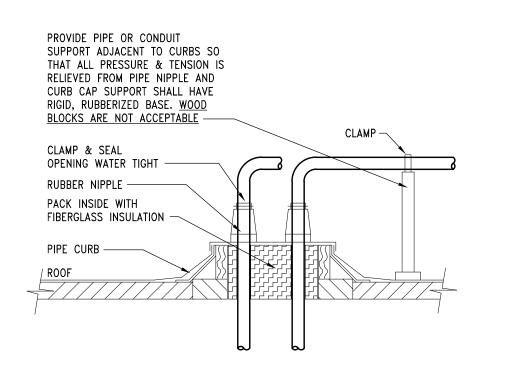
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JDR

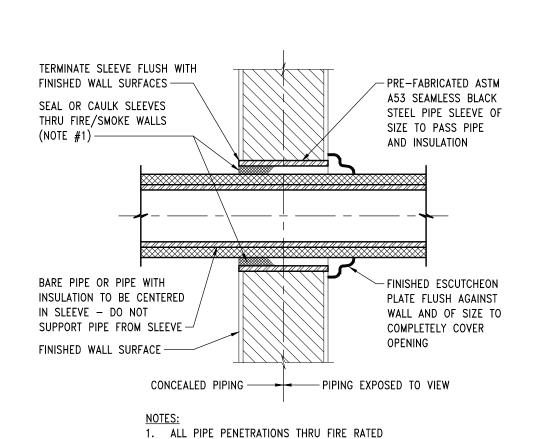
APPROVED BY

MECHANICAL SCHEDULES

SHEET NO. M3-00



PIPE FLASHING SYSTEM DETAIL NO SCALE

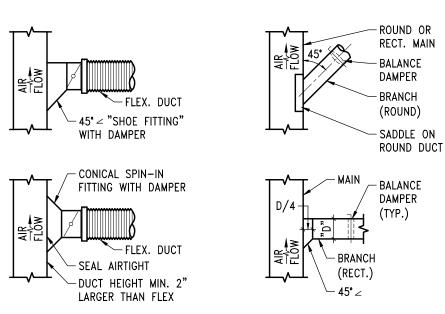


PIPE SLEEVE THRU INTERIOR WALL

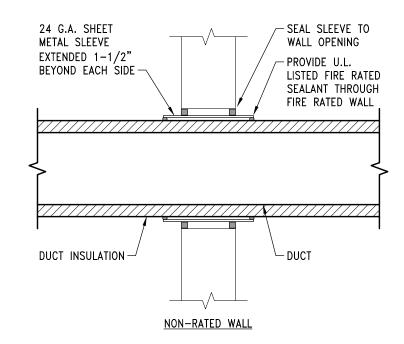
NO SCALE

ASSEMBLIES SHALL BE SEALED IN ACCORDANCE

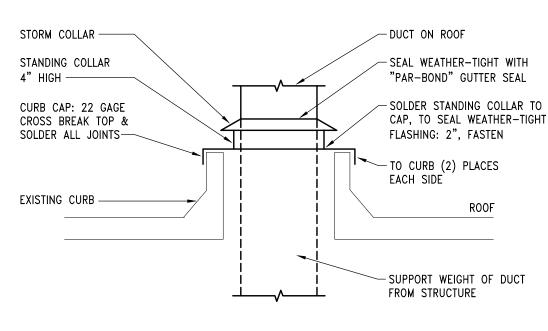
WITH AN APPROVED UL LISTED INSTALLATION.



TYPICAL DUCT TAP DETAILS NO SCALE



DUCT PENETRATION THRU INTERIOR WALL DETAIL

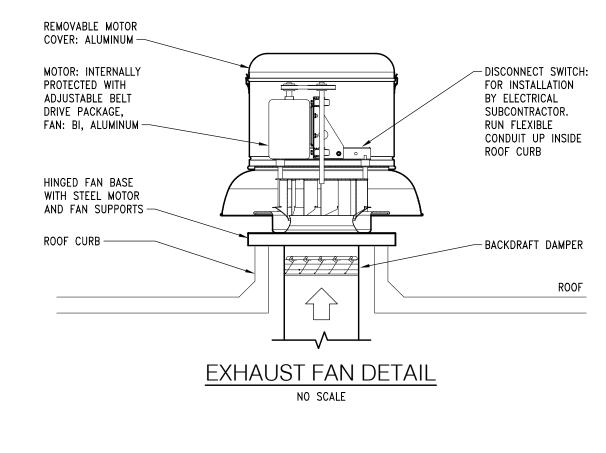


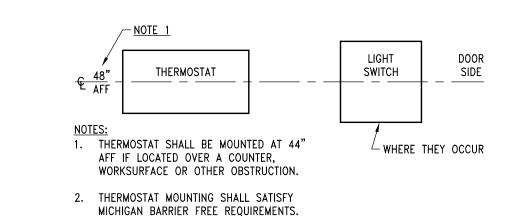
**DUCT PENETRATION** THRU ROOF DETAIL NO SCALE

POLYCARBONATE PIPE SUPPORTS MIRO MODEL 3-R-4

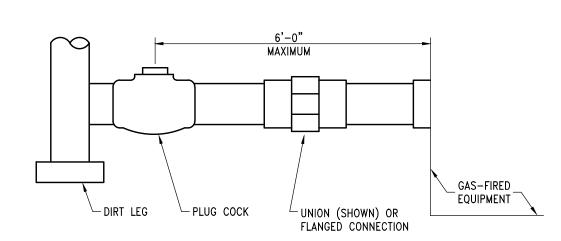
(FOR 3"ID AND SMALLER PIPES):

PIPE WITH 2 COATS ENAMEL PAINT.

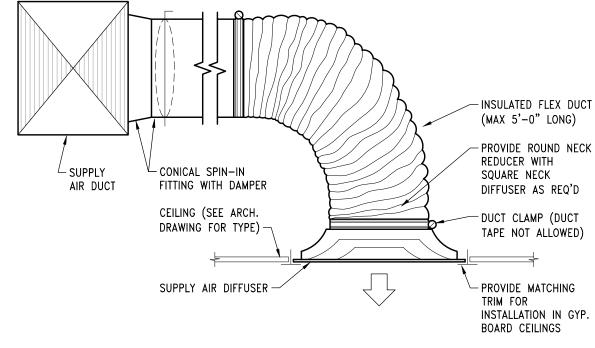




THERMOSTAT MOUNTING DETAIL NO SCALE



GAS PIPING CONNECTION DETAIL NO SCALE



4" CLEARANCE HEIGHT. A ROLLER BEARING PIPE SUPPORT USED TO SUPPORT ROOF MOUNTED GAS

SITUATED IN A POLYCARBONATE RESIN SEAT. EACH PIPE STAND WILL ACCOMMODATE UP TO 3-3/4"

FOOT SPACING IS REQUIRED. IF APPLICABLE, PLACE BASE SHEETS ON ROOFING BEFORE ANY GRAVEL

IS APPLIED. INSTALL GAS PIPE TO ALLOW FOR EXPANSION AND CONTRACTION. PAINT EXTERIOR GAS

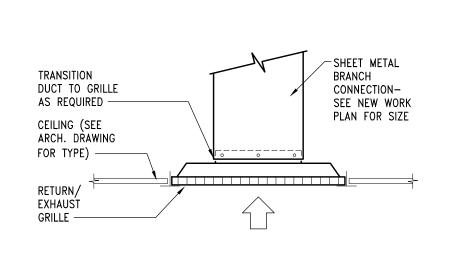
ROOF MOUNTED PIPE SUPPORT DETAIL

NO SCALE

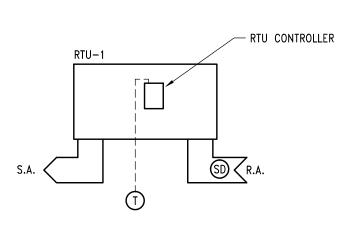
OUTSIDE DIAMETER PIPES. SUPPORT SPACING IS 8 FOOT CENTERS. FOR PIPE SMALLER THEN 1" A 6

PIPES. UNIQUE DESIGN ABSORBS THERMAL EXPANSION AND CONTRACTION OF PIPES THUS PREVENTING DAMAGE TO THE ROOF MEMBRANE. PIPES REST ON A POLYCARBONATE RESIN ROLLER AND A ROD

SUPPLY AIR DIFFUSER WITH FLEX DUCT DETAIL NO SCALE



RETURN / EXHAUST AIR GRILLE DETAIL



RTU-1 CONTROL DIAGRAM NO SCALE

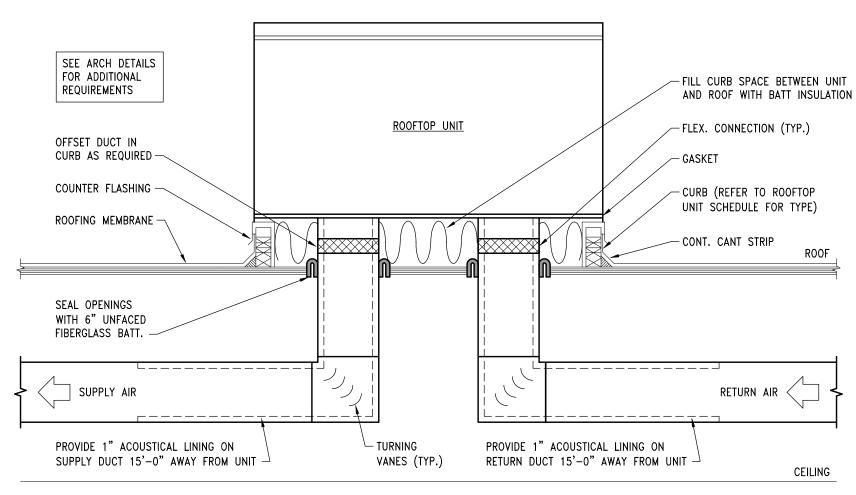
#### CONTROLS:

THE CONTROLS CONTRACTOR SHALL PROVIDE ALL WIRING, TRANSFORMERS, SENSORS, HARDWARE, SOFTWARE AND PROGRAMMING FOR A COMPLETE AND OPERATIONAL CONTROLS SYSTEM. COORDINATE ALL DEVICES WITH HVAC EQUIPMENT. ALL WIRING SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS.

#### SEQUENCE OF OPERATION: RTU-1

- 1. THE ROOFTOP UNIT SETPOINT TEMPERATURE IS CONTROLLED BY A SEVEN DAY PROGRAMMABLE DIGITAL THERMOSTAT CONTROLLER WITH FAN RUN OPTIONS
- FOR EACH MODE. 2. THE UNIT STAGES HEATING, ECONOMIZER AND COOLING TO MAINTAIN ROOM
- SETPOINT TEMPERATURE. 3. THE UNIT OCCUPANCY SCHEDULE IS PROGRAMMED THROUGH THE THERMOSTAT.
- DURING UNOCCUPIED MODES, THE OUTDOOR AIR DAMPER IS CLOSED AND THE UNIT CYCLES ON AND OF TO MAINTAIN SPACE SETBACK TEMPERATURE.

#### 4. A SMOKE DETECTOR, LOCATED IN THE RETURN AIR DUCT, SHUTS DOWN THE UNIT IF ACTIVATED.



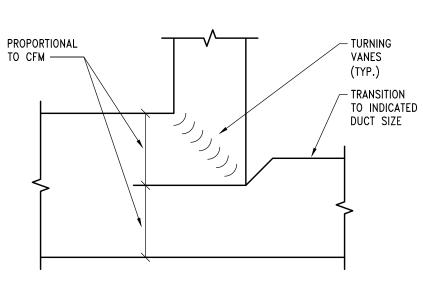
ROOFTOP UNIT DETAIL NO SCALE

MIXING VALVE -REMOVABLE INSULATION COVERS PER ADA (FOR FIXTURES IN ADA SPACES)

LAVATORY/SINK

1. ALL LAVATORY/SINK ADA AND SHOWER MIXING VALVES SHALL BE PROVIDED WITH EXTERNAL BRONZE BODY & TRIM CHECK VALVES ON THE INCOMING HOT & COLD PIPING, REGARDLESS IF MIXING VALVE HAS INHERENT CHECK

TYPICAL MIXING VALVE DETAIL NO SCALE



- RTU CONTROLLER

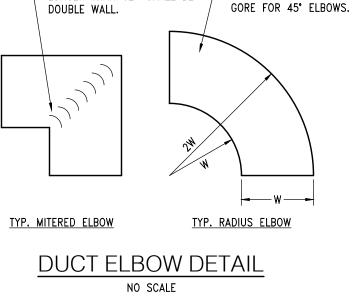
RTU-2 CONTROL DIAGRAM NO SCALE

#### **CONTROLS:**

THE CONTROLS CONTRACTOR SHALL PROVIDE ALL WIRING, TRANSFORMERS, SENSORS, HARDWARE, SOFTWARE AND PROGRAMMING FOR A COMPLETE AND OPERATIONAL CONTROLS SYSTEM. COORDINATE ALL DEVICES WITH HVAC EQUIPMENT. ALL WIRING SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS.

#### SEQUENCE OF OPERATION: RTU-2

- 1. THE ROOFTOP UNIT SETPOINT TEMPERATURE IS CONTROLLED BY A SEVEN DAY PROGRAMMABLE DIGITAL THERMOSTAT CONTROLLER WITH FAN RUN OPTIONS FOR EACH MODE.
- 2. THE UNIT STAGES HEATING, ECONOMIZER AND COOLING TO MAINTAIN ROOM
- SETPOINT TEMPERATURE. 3. A ROOM CO2 SENSOR MODULATES THE OUTDOOR AIR DAMPER FROM CLOSED
- TO MAXIMUM POSITION TO MAINTAIN CO2 LEVELS DURING OCCUPIED PERIODS TO LESS THAN 900 PPM. 4. THE UNIT OCCUPANCY SCHEDULE IS PROGRAMMED THROUGH THE THERMOSTAT. DURING UNOCCUPIED MODES, THE OUTDOOR AIR DAMPER IS CLOSED AND THE
- UNIT CYCLES ON AND OF TO MAINTAIN SPACE SETBACK TEMPERATURE. 5. A SMOKE DETECTOR, LOCATED IN THE RETURN AIR DUCT, SHUTS DOWN THE UNIT IF ACTIVATED.



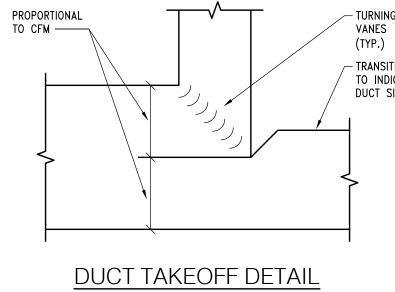
TURNING VANES PER SMACNA, FIF DUCT IS ROUND OR

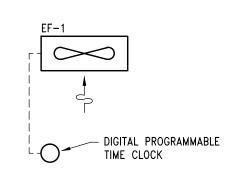
OVAL, PROVIDE 5 GORE

FOR 90° ELBOWS AND 3

FIG. 2-3 AND 2-4. VANES

LONGER THAN 12" SHALL BE





**EF-1 CONTROL DIAGRAM** NO SCALE

#### CONTROLS:

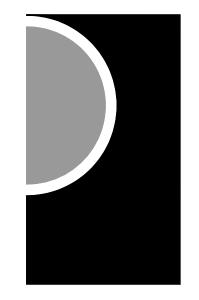
THE CONTROLS CONTRACTOR SHALL PROVIDE ALL WIRING, TRANSFORMERS, SENSORS, HARDWARE, SOFTWARE AND PROGRAMMING FOR A COMPLETE AND OPERATIONAL CONTROLS SYSTEM. COORDINATE ALL DEVICES WITH HVAC EQUIPMENT. ALL WIRING SHALL BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS.

#### SEQUENCE OF OPERATION: EF-1

1. THE EXHAUST FAN HAND OFF AUTO SWITCH IS NORMALLY IN THE AUTO

2. THE EXHAUST FAN IS SCHEDULED ON AND OFF THROUGH A DIGITAL PROGRAMMABLE TIME CLOCK AND IS NORMALLY ON WHEN THE BUILDING IS

## **PARTNERS**



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KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

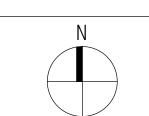
Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS Bidding - Construction 04/01/2016



DRAWN BY DMH

CHECKED BY

JDR

APPROVED BY

SHEET NAME **MECHANICAL** 

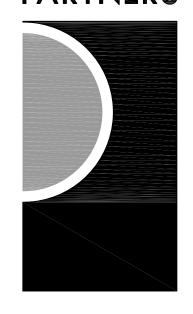
**DETAILS** 

M4-00

"A"	CTRICAL LEGEND this is standard symbol list	- 20MF (	OF THESE STMBOL MAT NOT	APPEAR	ON DRAWINGS.		
<b>——</b>	FIXTURE TYPE	$\nabla$	COMMUNICATIONS OUTLET. REFER TO REQUIREMENTS	TYPICAL (	COMMUNICATIONS OUTLET DETAIL FOR	<u>s</u>	SPEAKER
	FLUORESCENT STRIP LIGHTING FIXTURE	▼	PHONE OUTLET SAME AS COMMUNICA (W: WALL MOUNTED AT +48")	ATIONS OUT	LETS	M	MICROPHONE
	FLUORESCENT LIGHTING FIXTURE	WAP	WIRELESS ACCESS POINT — SAME AS BOX ABOVE FINISHED CEILING	S COMMUN	CATIONS OUTLET EXCEPT LOCATE		VOLUME CONTROL
	EMERGENCY FIXTURE (NIGHT LIGHT) UNSWITCHED					DH	DOOR HOLD OPEN CONNECTED TO FIRE ALARM SYSTEM
	EMERGENCY FIXTURE SAME AS NIGHT LIGHT EXCEPT SWITCHED		CELLULAR ANTENNA	CD WITH D	HOT HOHT LOCKABLE OFF FOR		
	H.I.D.,INCANDESCENT, OR COMPACT FLUORESCENT LTG. FIXTURE		MANUAL SINGLE PHASE MOTOR START MOTOR APPLICATIONS. MANUAL SINGLI LOCKABLE OFF AND WITHOUT OVERLO	E PHASE M ADS FOR D	OTOR SWITCH WITH PILOT LIGHT, USCONNECT APPLICATIONS TO	HCR	CARD READER CONTROLLED DOOR  ELECTRONIC ACCESS CONTROL — SAME AS CARD READER CONTROLLED DOOR
О/Ш	WALL MOUNTED LIGHTING FIXTURE		EQUIPMENT NOT REQUIRING OVERLOAD ARE INTEGRAL TO MOTOR-BASED LOAFINISHED SPACES. SURFACE MOUNT II	OS AND FOI	R APPLICATIONS WHERE OVERLOADS	EAC	EXCEPT WITHOUT CARD READER
-⊗ / ⊗	EXIT LIGHTING FIXTURE (WALL / CEILING MOUNTED) — SHADING INDICATES ILLUMINATED FACE—CHEVRONS AS INDICATED	lacktriangle	MOTOR STARTER	N UNTINION	EU SPACES.	ISTAR	ISTAR ACCESS CONTROL PANEL
 □	EMERGENCY LIGHTING UNIT EQUIPMENT	₩	COMBINATION MAGNETIC FUSIBLE MO	TOR STARTI	-R	RTE	REQUEST TO EXIT CONTROL
 S	SINGLE POLE LIGHT SWITCH. HUBBELL HBL1221 OR APPROVED EQUAL		FUSIBLE DISCONNECT SWITCH	TOK STAKTI	-	HPP AUTO	MOTORIZED DOOR PUSH PLATE.
S <sub>2</sub>	DOUBLE POLE LIGHT SWITCH (SAME SERIES AS SINGLE POLE SWITCH)		NON-FUSIBLE DISCONNECT SWITCH			AUTO	AUTO DOOR OPERATOR
S <sub>3</sub>	THREE WAY LIGHT SWITCH (SAME SERIES AS SINGLE POLE SWITCH)	 ₩ <b>Z</b> Y	BUS DUCT PLUG-IN UNIT			CP TS	TIME SWITCH
S4	FOUR WAY LIGHT SWITCH (SAME SERIES AS SINGLE POLE SWITCH)		MOTOR - SINGLE PHASE			FACP	FIRE ALARM CONTROL PANEL
 Sk	KEY OPERATED SWITCH - MATCH EXISTING KEYING					NACP	NOTIFICATION APPLIANCE CONTROL PANEL
Sp.	SWITCH WITH PILOT LIGHT - FOR EMERGENCY CIRCUITS, RED TOGGLE ILLUMINATED	<u>Ø</u>	MOTOR — THREE PHASE				FIRE ALARM CONNECTORS FOR COMBINATION PNUMATIC FIRE/SMOKE DAMPER. PROVIDE CONNECTION TO FIRE ALARM SYSTEM TO SIGNAL DAMPER TO CLOSE.
S <sub>0</sub>	WHEN LIGHTS ARE OFF, HUBBELL HBL 1221ILR OR APPROVED EQUAL  DIMMER SWITCH - LUTRON NOVA T-STAR. FOR INCANDESCENT LOAD PROVIDE LARGE CONTROL. 1500W NT-1503P. FOR FLUORESCENT OR LED LOADS,	CB CB	MOLDED CASE CIRCUIT BREAKER - S  MOLDED CASE CIRCUIT BREAKER - F			FS	PROVIDE CONNECTION TO FIRE ALARM SYSTEM TO SIGNAL DAMPER TO CLOSE. PROVIDE CONNECTION TO FIRE ALARM SYSTEM TO SIGNAL DAMPER POSITION FIRE ALARM SYSTEM
	COORDINATE SWITCH TYPE WITH SELECTED BALLAST OR DRIVER FOR COMPATIBILITY.	T	TRANSFORMER		The state of the s	<b>SD</b>	SMOKE DETECTOR
S <sub>L1</sub>	LOW VOLTAGE DIGITAL SWITCH (LIGHTING CONTROL RELAY SYSTEM)		CONTACTOR			(DS)	DUCT SMOKE DETECTOR
G 	FACELESS GFCI DEVICE IN SERIES WITH LOCAL SWITCH. GANG IN SAME OUTLET BOX AS SWITCH.		BUS DUCT PLUG-IN TYPE			F	MANUAL FIRE ALARM STATION
OS	CEILING MOUNTED OCCUPANCY SENSOR CONTROL-INDICATES ROOM/SPACE WITH OCCUPANCY SENSOR LIGHTING CONTROL. PROVIDE SYSTEM DESIGN AND ALL WORK AS SPECIFIED IN MICHIGAN UNIFORM ENERGY CODE. SYMBOL DOES NOT IMPLY QUANTITY,				(2)	FO	FIRE ALARM STROBE
	TYPE OR LOCATION OF DEVICES. (CEILING MOUNT SENSOR DEVICES).		LIGHTING AND/OR RECEPTACLE PANE	EL (FLUSH/	'SURFACE MOUNTED)	F⊲a	FIRE ALARM AUDIBLE/STROBE, "A" INDICATES AUDIBLE ONLY
HOS	WALL MOUNTED OCCUPANCY SENSOR, SINGLE POLE. DUAL TECHNOLOGY (PIR/MICROPHONICS), 120/277V. SENSOR SWITCH WSD-PDT (NO SUBSTITUTIONS).		DISTRIBUTION PANEL			ф <sub>а</sub>	FIRE ALARM AUDIBLE/STROBE - CEILING MOUNTED, "A" INDICATES AUDIBLE
	SWITCH IS RATED 800W AT 120V AND 1200W AT 277V, 1/4 HP. PROVIDE SPECIFIED COVERPLATE. FACTORY COLOR-MATCHED PLATE IS NOT ACCEPTABLE.		LCP - LIGHTING CONTROL RELAY PA	NEL			
H <mark>OS2</mark>	WALL MOUNTED OCCUPANCY SENSOR, TWO-POLE. DUAL TECHNOLOGY (PIR/MICROPHONICS), TWO POLE, 120/277V WITH TWO PUSHBUTTONS FOR INDEPENDENT CONTROL OF TWO LOADS	<b>├</b> -G <b>-</b> -	GROUND BUS		_		WORKING CLEARANCE AROUND ELECTRICAL EQUIPMENT
	(DUAL-LEVEL SWITCHING). SENSOR SWITCH WSD-PDT (NO SUBSTITUTIONS). SWITCH IS RATED 800W AT 120V AND 1200W AT 277V, 1/4 HP. PROVIDE SPECIFIED COVERPLATE. FACTORY COLOR-MATCHED PLATE IS NOT ACCEPTABLE.	<b>—</b> ТВВ <b>—</b>	TELEPHONE BACKBOARD. 3/4"C FIRE INDICATED. NOT PAINTED.	RATED PL	YWOOD. 8' TALL BY WIDTH AS	1 🔾	
	FACTORT COLOR-MATCHED FLATE IS NOT ACCEPTABLE.	GDP	GENERATOR DERANGEMENT PANEL				SECURITY CAMERA. PROVIDE JUNCTION BOX ABOVE CAMERA LOCATION AND 1 CABLE TRAY. PROVIDE CAT 5E TO COMMUNICATIONS CLOSET SECURITY PANEL
Φ	DUPLEX RECEPTACLE, 20A, 120V GROUNDING TYPE, WHITE WITH STAINLESS STEEL COVERPLATE UNLESS OTHERWISE NOTED.	——  III	GROUND HOMERUN TO PANEL: 3/4"C, 2#12	& 1#12G I	JNLESS OTHERWISE NOTED FOR	c	UNDERGROUND TELECOMMUNICATIONS SERVICE CONDUIT
	HUBBELL HBL5362 OR APPROVED EQUAL	<b>—</b>	ONE 20A. 1P BRANCH CIRCUITS FOR INCREASE CONDUIT AND WIRE SIZE I	CIRCUITS	UP TO 100' IN LENGTH.		
$\Phi_{TR}$	DUPLEX RECEPTACLE, 20A, TAMPER RESISTANT, 2 POLE, 3 WIRE, GROUNDING TYPE, 20A, 125V. HUBBELL BR20TR OR APPROVED EQUAL		HOMERUN TO PANEL: 3/4"C, 4#10			FA —	AV OUTLET BOX:
•	COMBINATION DUPLEX RECEPTACLE/USB CHARGER, TAMPER RESISTANT, 20A, 125VAC, 2-POLE, 3-WIRE GROUNDING, DUPLEX WITH 5VDC 2-PORT USB CHARGING AND LED CHARGING INDICATOR LIGHT.		TWO 20A. 1P BRANCH CIRCUITS FO			r <sub>©</sub> ^,	LARGE CAPACITY (113 CU. IN.), FLUSH MOUNTED, WELDED STEEL OUTLET BO 3-1/4" DEEP AND SUITABLE FOR 4" SQUARE COVERPLATES WITH THREE
<b>♥</b> USB	CHARGING AND LED CHARGING INDICATOR LIGHT.  COOPER/ARROW-HART TR7746 SERIES OR APPROVED EQUAL.		HOMERUN TO PANEL: 3/4"C, 6#10				FACTORY-INSTALLED GROUNDING SCREW, STUD MOUNTING BRACKETS AND TAR FOR SPANNER MOUNTING STRAPS, CONDUIT KNOCKOUTS FOR 3/4" THROUGH
	,	<b>***</b>	THREE 20A. 1P BRANCH CIRCUITS INCREASE CONDUIT AND WIRE SIZE I				CONDUIT. PROVIDE 2" CONDUIT FROM UPPER BOX TO ACCESSIBLE LOCATION ABOVE FINISHED CEILING IN ROOM SERVED BY BOX, AND 2"C BETWEEN UPPI AND LOWER AV BOXES.
<b>₽</b> т∨	SAME AS DUPLEX RECEPTACLE EXCEPT MOUNTED AT SAME HEIGHT AS TV OUTLET  QUAD. RECEPTACLE — SAME AS DUPLEX RECEPTACLE EXCEPT TWO DEVICES	<b></b> PS <b>-</b> □	PLUG-IN STRIP				RACO #263 OR APPROVED EQUAL. TERMINATE CONDUIT ABOVE FINISHED CEIL WITH INSULATING BUSHING.
<b>T</b>	UNDER COMMON COVERPLATE  GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE, 20A, TAMPER	⊢SR1 <del>-</del>	SURFACE RACEWAY			<b>⊢</b> JAV1	PROVIDE NEMA 1 PULL BOX WITH FLUSH MOUNTED SCREW COVER AND WITHOUT KNOCKOUTS, 18" X 18" X 6" DEEP. PROVIDE GROMMETED OPENING IN COVER
<b>#</b>	RESISTANT, 2 POLE, 3 WIRE, GROUNDING TYPE, 20A, 125V. LED INDICATOR LIGHT TO INDICATE PROPER OPERATION, AND TEST/RESET PUSHBUTTONS	<b>—</b> ст <b>—</b>	CABLE TRAY	LDADDIED	DETWEEN DOWED AND	COLORS	WIRING DEVICES (RECEPTACLES AND LIGHTING CONTROLS) ARE WHITE WITH STAINLES STEEL COVERPLATES AS SPECIFIED UNLESS OTHERWISE NOTED.
	WHICH MATCH DEVICE BODY COLOR. HUBBELL GFRTR20 SERIES OR APPROVED EQUAL	<b>~</b> □□#	ALUMINUM DUAL COMPARTMENT WITH TELECOMMUNICATIONS COMPARTMENTS CEILING INSTALLATION. PROVIDE WITH	S. COORD	INATE LENGTH FOR FLOOR TO		STEEL COVERPLATES AS SPECIFIED UNLESS OTHERWISE NOTED.
			DUPLEX RECEPTACLE, AND ONE TELE AFF. PROVIDE WHITE FINISH, WITH	COMMUNICATE BAR ASS	ATIONS OUTLET, BOTH AT 18" SEMBLY FOR MOUNTING IN CEILING		
		GFI/GFR	TILE AND CEILING TILE TRIM KIT. HU GROUND FAULT CIRCUIT INTERRUPTER				
Ю	JUNCTION BOX (P: POWER, D: VOICE/DATA)	<u>,</u>	PROTECTION AND NOT DOWNSTREAM	PROTECTIO			
•	OUTLET BOX WITH BLANK COVERPLATE	A A/E	ABOVE COUNTER  ARCHITECT / ENGINEER	GFR GTD	INTERRUPTER TYPE RECEPTACLE GENERATOR TRANSFER DEVICE		
₩		~/ L	ABOVE FINISH FLOOR	HG	HOSPITAL GRADE		
<b>⊢</b> ① <b>≥</b> ✓	JUNCTION BOX FOR FLEXIBLE CONNECTION TO SYSTEMS FURNITURE (P: POWER, D:	ΔFF	ADOAE LIMPH LIDOR	110			I
	DATA). PROVIDE LIQUIDTIGHT FLEXIBLE METAL CONDUIT WHIPS FOR POWER AND DATA CONNECTION TO SYSTEMS FURNITURE WHIPS TO MATCH CONDUIT SIZES	AFF AH.I		ПUV	HAND-OFF-AUTOMATIC		
	DATA). PROVIDE LIQUIDTIGHT FLEXIBLE METAL CONDUIT WHIPS FOR POWER AND DATA CONNECTION TO SYSTEMS FURNITURE WHIPS TO MATCH CONDUIT SIZES NOTED. PROVIDE 1 1/4"C (EMT) FROM BOX TO NEAREST EXISTING CABLE TRAY FOR DATA ABOVE CEILING. PROVIDE 3/4"C EMT FROM BOX FOR POWER WITH CIRCUITING INDICATED. COORDINATE LOCATION WITH FURNITURE SYSTEM SUPPLIER.	AHJ	AUTHORITY HAVING JURISDICTION	HOA	HAND-OFF-AUTOMATIC  ISOLATED GROUND		
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<b>⊢</b> ⊕≈\$	DATA). PROVIDE LIQUIDTIGHT FLEXIBLE METAL CONDUIT WHIPS FOR POWER AND DATA CONNECTION TO SYSTEMS FURNITURE WHIPS TO MATCH CONDUIT SIZES NOTED. PROVIDE 1 1/4"C (EMT) FROM BOX TO NEAREST EXISTING CABLE TRAY FOR DATA ABOVE CEILING. PROVIDE 3/4"C EMT FROM BOX FOR POWER WITH CIRCUITING INDICATED. COORDINATE LOCATION WITH FURNITURE SYSTEM SUPPLIER. PROVIDE COVERPLATE SUITABLE FOR WHIP CONNECTION — MAKE FINAL CONNECTION	AHJ  ATS  AV OR  A/V  AFCI  C	AUTHORITY HAVING JURISDICTION  AUTOMATIC TRANSFER SWITCH  AUDIO VISUAL  ARC FAULT CIRCUIT INTERRUPTER  CEILING MOUNTED	IG NIC NL RT	ISOLATED GROUND  NOT IN CONTRACT  NIGHT LIGHT  RAINTIGHT		
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# **PARTNERS**



PARTNERS in Architecture, PLC

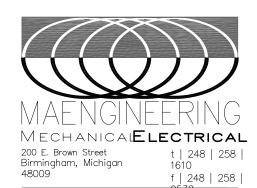
65 MARKET STREET MOUNT CLEMENS, MI 48043 P 586.469.3600 F 586.469.3607

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CONSULTANT



KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

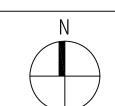
Village of Beverly Hills Office Renovation

18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS Bidding - Construction 04/01/2016



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APPROVED BY

SHEET NAME

ELECTRICAL LEGEND

SHEET NO.

#### **ELECTRICAL DEMOLITION GENERAL NOTES:**

- A. DEMOLITION GENERAL NOTES APPLY TO ALL ELECTRICAL DEMOLITION PLANS INCLUDED WITHIN THIS DOCUMENT SET.
- B. COORDINATE ALL DEMOLITION WORK WITH MECHANICAL AND ARCHITECTURAL DEMOLITION PLANS, OWNER'S FACILITY MANAGER, AND ALL TRADE CONTRACTORS PERFORMING DEMOLITION.
- C. THESE DEMOLITION NOTES AND PLAN DO NOT FULLY REPRESENT ALL DEMOLITION WORK REQUIRED TO INSTALL NEW WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS, BUT ARE INTENDED TO SERVE AS GENERAL DEMOLITION GUIDELINES. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF INCIDENTAL DEMOLITION WORK NOT INDICATED ON THIS PLAN.
- D. WHERE ITEMS ARE REMOVED, PATCH SURFACES TO MATCH ADJACENT SURFACES OR TO RECEIVE NEW FINISHES WHERE SCHEDULED. PATCHING OF NEW OR EXISTING FINISHES SHALL EXTEND TO NEAREST CORNER OR NATURAL TERMINATION FOR A CONSISTENT, SMOOTH, INVISIBLE TRANSITION FINISHES AT THE END OF CONSTRUCTION.
- E. THE EXISTING FLOOR SLAB IS BEING REMOVED, CUT OR CORED AS PART OF DEMOLITION OR NEW WORK, PROVIDE SCANNING/TRACING OF FLOOR TO IDENTIFY AND PROTECT ANY EXISTING TO REMAIN ELECTRICAL CONDUITS AND WIRING AND OTHER UTILITIES AND STRUCTURAL ELEMENTS IN/UNDER SLAB PRIOR TO DEMOLITION OF THE SLAB. HAND DIG AROUND EXISTING TO REMAIN UTILITIES. PROTECT AND MAINTAIN FEEDERS AND CIRCUITS SERVING LOADS OUTSIDE THE AREA OF WORK. TYPICAL FOR OTHER UTILITIES.
- F. COORDINATE ANY SERVICE SHUTDOWNS WITH OWNER.
- G. WHERE DEMOLITION IS SPECIFIED OR INDICATED, REMOVE WORK AS NOTED BELOW AND PATCH SURFACE TO MATCH EXISTING OR NEW FINISH AS APPLICABLE. FIRE STOP ALL PENETRATIONS LEFT IN FLOORS AND FIRE/SMOKE-RATED WALLS. POWER, LIGHTING CONTROLS, BLANK OUTLET BOXES: REMOVE WIRING DEVICE. REMOVE WIRING BACK TO SOURCE OR TO THE NEAREST EXISTING TO REMAIN JUNCTION BOX IF CIRCUIT SERVES EXISTING TO REMAIN ACTIVE LOADS. REMOVE OUTLET BOX DO NOT PROVIDE BLANK COVERPLATES. ABANDON CONDUIT CONCEALED IN WALLS. CUT OFF CONDUIT WHERE IT EMERGES FROM WALL ABOVE CEILING AND PLUG OR CAP END. REMOVE CONDUIT BACK TO SOURCE WHERE OTHERWISE ACCESSIBLE, INCLUDING ABOVE FINISHED CEILINGS. PLUG OPENINGS IN PANELS AND BOXES FROM REMOVED CONDUIT. REMOVE FLEXIBLE CONDUIT IN WALLS COMPLETELY.

  TELECOMMUNICATIONS/DATA: IT CONTRACTOR TO DISCONNECT AT SOURCE IN COMMUNICATIONS AND AT EACH OUTLET. ELECTRICAL CONTRACTOR TO REMOVE CABLE, OUTLET BOX AND CONDUIT AS NOTED FOR POWER AND LIGHTING CONTROLS. IF ELECTRICAL CONTRACTOR'S CONSTRUCTION SCOPE INCLUDES IT WORK, ELECTRICAL CONTRACTOR TO PERFORM IT SCOPE NOTED.
- H. REFER TO DRAWINGS FOR EXISTING BUILDING COMPONENTS TO BE REMOVED, SALVAGED, AND REUSED IN NEW WORK. THE CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS TO BE SALVAGED AND RELOCATED, THROUGHOUT THE CONSTRUCTION PERIOD, INCLUDING SAFE STORAGE OF SAME. UPON DEMOLITION, THE OWNER SHALL RETAIN THOSE ITEMS DEEMED SALVAGEABLE. ITEMS NOT RETAINED SHALL BECOME THE PROPERTY OF THE CONTRACTOR, WHO SHALL LEGALLY DISPOSE OF SAME.

#### ELECTRICAL GENERAL NOTES

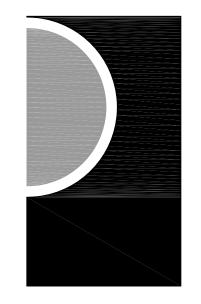
- A. ELECTRICAL GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS.
- B. WIRING DEVICE COVERPLATES FOR NORMAL POWER SWITCHES, DIMMERS, RECEPTACLES AND MANUAL MOTOR SWITCHES ARE TO BE BRUSHED STAINLESS STEEL UNLESS OTHERWISE NOTED. LABEL WIRING DEVICE COVERPLATES (SWITCHES, RECEPTACLES, DIMMERS, OCCUPANCY SENSORS) WITH PANEL AND BRANCH CIRCUIT NUMBERS USING WATERPROOF CLEAR PLASTIC LETTERED TAPE AND BLACK MACHINE PRINTED LETTERING. LOCATE LABEL CENTERED ON BOTTOM OF COVERPLATE. FOR WEATHERPROOF APPLICATIONS LOCATE LABEL INSIDE WEATHERPROOF COVER. LABEL MOTORIZED DOOR OPERATORS AND HARDWIRED ELECTRICAL UTILIZATION EQUIPMENT IN THE SAME MANNER AS WIRING DEVICE COVERPLATES. TYPICAL FOR ALL NEW, RELOCATED AND EXISTING TO REMAIN WIRING DEVICE COVERPLATES AND EQUIPMENT WITHIN THE AREA OF WORK.

  LABEL OUTLET BOX COVERPLATES SERVING FLEXIBLE WHIPS FOR SYSTEMS FURNITURE, EQUIPMENT, AND FOODSERVICE LOADS WITH PANEL AND CIRCUIT NUMBERS SIMILAR TO WIRING DEVICES. LABEL LIGHTING CONTROLS AND RECEPTACLES (FACTORY AND FIELD—INSTALLED) IN SYSTEMS FURNITURE, EQUIPMENT AND POWER POLES WITH PANEL AND CIRCUIT NUMBERS SIMILAR TO WIRING DEVICES.
- C. PROVIDE IDENTIFICATION AND COLOR CODING OF ELECTRICAL EQUIPMENT AND WORK. PROVIDE PLASTIC LAMINATE NAMEPLATES FOR ALL DISTRIBUTION EQUIPMENT. TYPICAL FOR ALL NEW AND EXISTING TO REMAIN DISTRIBUTION EQUIPMENT WITHIN THE AREA OF WORK.
- D. ALL NECESSARY ELECTRICAL EQUIPMENT REQUIRED FOR THE WORK PROPOSED SHALL BE FURNISHED AND INSTALLED BY THE
- E. REMOVE AND REINSTALL CEILINGS AS REQUIRED TO PERFORM WORK.
- F. MOUNTING HEIGHTS TO CENTER UNLESS OTHERWISE NOTED:
- REFER TO ARCHITECTURAL ELEVATIONS OF ALL AREAS PRIOR TO INSTALLATION OF ELECTRICAL WORK. MOUNT AS INDICATED
  ON ARCHITECTURAL ELEVATIONS. IF ANY DISCREPANCY EXISTS BETWEEN ELECTRICAL AND ARCHITECTURAL ELEVATIONS. THE
  ELEVATIONS TAKE PRECEDENCE.
- RECEPTACLES & VOICE/DATA OUTLETS: 18" AFF.
- WALL MOUNTED FIRE ALARM VISIBLE ONLY AND AUDIBLE/VISIBLE COMBINATION DEVICES: MOUNT SUCH THAT ENTIRE LENS IS NOT LESS THAN 80" AFF AND NOT GREATER THAN 96" AFF. MOUNT ALL SIMILAR DEVICES AT THE SAME HEIGHT.
- WALL MOUNTED FIRE ALARM AUDIBLE ONLY DEVICES: MOUNT SUCH THAT THE TOP OF THE DEVICE IS A MINIMUM OF 90"AFF AND A MINIMUM OF 6" BELOW THE FINISHED CEILING. MOUNT ALL SIMILAR DEVICES AT THE SAME HEIGHT.
- COORDINATE THE LOCATION OF ALL FIRE ALARM DEVICES IN THE AREA OF WORK OF ANY WORK, AND NOTIFY A/E OF ANY MOUNTING LOCATION DISCREPANCIES PRIOR TO THE INSTALLATION OF ANY FIRE ALARM WORK.
- SWITCHES AND FIRE ALARM PULL STATIONS: 48" AFF.
   DISCONNECT SWITCHES AND CIRCUIT BREAKERS: MOUNT SUCH THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE SWITCH OR CIRCUIT BREAKER, WHEN IN ITS HIGHEST POSITION, IS NOT MORE THAN 6 FEET 7 INCHES ABOVE FINISHED FLOOR.
- G. UNLESS OTHERWISE NOTED, TYPICAL BRANCH CIRCUIT WIRING IS 3/4"C, 2#12 + 1#12GRD. FOR CIRCUITS UP TO 100 FT. IN LENGTH. PROVIDE #10 WIRE FOR CIRCUITS GREATER THAN 100 FT. IN LENGTH. PROVIDE DEDICATED NEUTRAL CONDUCTORS FOR ALL BRANCH CIRCUITS. PROVIDE RIGID STEEL CONDUIT FOR ALL WORK IN SLAB AND FOR ANY CONDUITS IN CHASES.
- H. CIRCUIT TRACE TO VERIFY ALL EXISTING BRANCH CIRCUITS IN AREA OF WORK. INDICATE ACTUAL CIRCUIT TRACED BRANCH CIRCUIT NUMBERS ON AS-BUILT DOCUMENTS FOR EACH CIRCUIT AFFECTED BY WORK (DEMOLITION, NEW AND RELOCATED).
- I. WHERE EXISTING SPARES OR SPACES IN PANELBOARDS ARE INDICATED FOR USE IN THE PROJECT, REMOVE THE PANEL COVERS PRIOR TO INSTALLING ANY CONDUIT AND WIRING RELATED TO THE PANEL AND CONFIRM THAT SPARES ARE AVAILABLE (NO WIRING TO UNLABELED BREAKERS), AND CONFIRM THAT POSITIONS INDICATED AS SPACES CONTAIN BUSSING SUITABLE FOR THE ADDITION OF BREAKERS. SEND PHOTOGRAPHS TO A/E OF ANY CONDITIONS FOUND WHICH ARE NOT CONSISTENT WITH USABLE SPARES AND SPACES.
- J. COORDINATE PHASING OF WORK WITH CONSTRUCTION COORDINATOR INCLUDING BUT NOT LIMITED TO THE USE OF TEMPORARY PARTITIONS IN CORRIDORS TO MAINTAIN PEDESTRIAN CIRCULATION AND MULTIPLE PHASES OF CONSTRUCTION. REFER TO ARCHITECTURAL DOCUMENTS FOR ADDITIONAL PHASING REQUIREMENTS. PROVIDE ALL WORK AND TEMPORARY SERVICES AS REQUIRED TO ACCOMMODATE PHASING. INCLUDING BUT NOT LIMITED TO TEMPORARY NORMAL AND EMERGENCY EGRESS AND EXIT LIGHTING. TEMPORARY LIGHTING DESIGN / LAYOUT IS MEANS AND METHODS BY ELECTRICAL CONTRACTOR. PROVIDE PREMIUM TIME WORK IF DIRECTED AS REQUIRED TO ACCOMMODATE PROJECT SCHEDULING.
- K. WHERE WALLS, STRUCTURE AND OTHER BUILDING SYSTEMS ARE REMOVED AND ABOVE FINISHED CEILINGS, INDEPENDENTLY RE-SUPPORT ANY EXISTING TO REMAIN RACEWAYS. PROVIDE MISCELLANEOUS STEEL AS REQUIRED TO SUPPORT RACEWAY. REFER TO ARCHITECTURAL DOCUMENTS FOR WALLS TO BE REMOVED.
- L. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO BEGINNING WORK OR SUPPLYING
- M. PROVIDE FLUSH INSTALLATION OF OUTLET BOXES AND CONCEAL CONDUIT FOR ALL SYSTEMS IN FINISHED AREAS. WORK MAY BE EXPOSED IN MECHANICAL AND ELECTRICAL SPACES.

  CUT AND PATCH EXISTING SURFACES AS REQUIRED AND REFINISH TO MATCH FINAL ARCHITECTURAL FINISH OF SPACE, OR PRE—CONSTRUCTION CONDITIONS IF NO OTHER ARCHITECTURAL FINISH WORK IS PERFORMED IN THE AREA. REFER TO ARCHITECTURAL DRAWINGS TO DETERMINE LOCATIONS OF INCIDENTAL ADDITIONAL FINISH WORK ASSOCIATED WITH RESTORATION OF EXISTING FINISHES WHERE ALTERED BY ELECTRICAL WORK. FINISH ANY DAMAGED/ALTERED SURFACES PER ARCHITECT'S DIRECTION.
- N. CONTRACTOR IS TO DETERMINE ROUTING OF ALL CIRCUITS ABOVE FINISHED CEILING AS MEANS AND METHODS. FIELD SURVEY TO DETERMINE ROUTING. PROVIDE CONCEALED ROUTING FOR ALL WORK. REMOVE AND REINSTALL CEILING AS REQUIRED TO PERFORM WORK.
- O. PROVIDE A LOCAL DISCONNECTING MEANS FOR ALL EQUIPMENT AND LOADS WHICH ARE NOT CORD-AND-PLUG CONNECTED.
- P. ALL WIRING IS TO BE PERFORMED BY LICENSED ELECTRICIANS.
- Q. EXISTING DEVICES/EQUIPMENT TO REMAIN ARE SHOWN WITH LIGHT LINE WEIGHT, NEW DEVICES/EQUIPMENT ARE SHOWN WITH DARK LINE WEIGHT AND DEVICES/EQUIPMENT SHOWN HATCHED ARE TO BE REMOVED.
- R. PROVIDE NEUTRAL CONDUCTORS FROM THE SAME BRANCH CIRCUIT TO NEW LIGHTING CONTROLS IF NOT ALREADY PRESENT AT THE CONTROL LOCATION.
- S. MAINTAIN INTEGRITY OF ALL EXISTING FIRE RATED PARTITIONS. REFER TO ARCHITECTURAL DOCUMENTS FOR RATINGS.
- T. INSTALL WORK AND EQUIPMENT AS INDICATED ON DRAWINGS, AND PER NEC, STANDARDS AND DESIGN GUIDELINES.
- U. MAKE FINAL CONNECTION TO ALL EQUIPMENT INDICATED PER MANUFACTURER'S INSTALLATION INSTRUCTION. COORDINATE LOCATION OF SERVICE TO ALL EQUIPMENT WITH APPROVED SUBMITTALS AND WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
- V. FOR POWER, DATA AND FIRE ALARM CONDUITS TO ROOF-MOUNTED MECHANICAL EQUIPMENT, LOCATE CONDUIT PENETRATIONS UNDER THE FOOTPRINT OF EQUIPMENT WHEREVER POSSIBLE TO AVOID ADDITIONAL EXPOSED PENETRATIONS ON THE ROOF OUTSIDE OF THE EQUIPMENT FOOTPRINT. COORDINATE WITH ROOFING AND MECHANICAL TRADES FOR INSTALLATION LOCATION. COORDINATE WITH ROOFING TRADES TO ENSURE PROPER WATERPROOFING OF ALL PENETRATIONS.
- W. ANY EQUAL LIGHT FIXTURES SUBMITTED AND MUST BE APPROVED BY THE A/E AND THE OWNER. IF ANY SUBMITTED "EQUAL" FIXTURES ARE REJECTED, CONTRACTOR IS TO PROVIDE THE SPECIFIED PRODUCT AT NO ADDITIONAL COST.
- X. RESUPPORT ANY UNSUPPORTED WIRING AND RACEWAYS ABOVE CEILING IN WORK AREA.
- Y. PROVIDE UL LISTED SYSTEM FOR FIRE STOPPING PENETRATIONS THROUGH FIRE RATED ASSEMBLIES. PROVIDE SYSTEM WITH EQUAL OR GREATER RATING THAN ASSEMBLY. REFER TO ARCHITECTURAL DOCUMENTS FOR RATINGS AND LOCATIONS OF ASSEMBLIES. FIRE STOPPING MUST BE INSTALLED BY CERTIFIED PERSONNEL.
- Z. EXISTING CONDUIT SIZES NOTED ARE APPROXIMATE ONLY. CONFIRM ACTUAL DIMENSIONS AND MATCH FOR ANY EXTENSION OF CIRCUITS UNLESS OTHERWISE NOTED.
- AA. WHERE EMERGENCY LIGHTING FIXTURES, UNIT LIGHTING EQUIPMENT, AND EXIT SIGNS CONTAIN BATTERIES AS THE EMERGENCY

- SOURCE, WIRE TO NORMAL LIGHTING CIRCUIT SERVING THE GENERAL LIGHTING IN THE SPACE AHEAD OF ANY MANUAL AND AUTOMATIC CONTROL. BATTERIES ARE TO BE SELF DIAGNOSTIC HARDWARE.
- AB. PROVIDE ACCESS PANELS WHERE REQUIRED FOR ELECTRICAL WORK. PANELS ARE NOT SHOWN. COORDINATE LOCATION WITH ARCHITECT PRIOR TO INSTALLATION OF PANEL AND RELATED ELECTRICAL WORK.
- AC. AT ALL WORKSTATIONS, COORDINATE LOCATION OF POWER AND TELECOMMUNICATIONS OUTLETS WITH APPROVED WORKSTATION/FURNITURE/MILLWORK SUBMITTALS PRIOR TO INSTALLATION OF BOXES AND RACEWAYS. LOCATE OUTLETS IN ACCESSIBLE KNEESPACE OF WORKSTATIONS UNLESS OTHERWISE NOTED. ALSO AVOID INTERFERENCES WITH FILING CABINETS AND WORKSTATION ACCESSORIES SUCH AS COMPUTER LOCATIONS AS APPLICABLE.
- AD. WHERE "TYPICAL" IS NOTED, THE CONDITION APPLIES FOR ALL ROOMS ALL SHEETS IN THE WORK.
- AE. COORDINATE AND ATTEND COORDINATION MEETING BETWEEN CONTRACTOR TRADES PRIOR TO CONSTRUCTION. REVIEW AND PLAN EQUIPMENT LOCATIONS AND ROUTING OF MECHANICAL AND ELECTRICAL WORK TO AVOID INTERFERENCES AND MAINTAIN WORKING CLEARANCES.
- AF. DISTRIBUTION SYSTEM IS A 120/240V 3Ø 4W HIGH LEG SYSTEM. TRACE EVERY EXISTING TO REMAIN AND EXTENDED FEEDER AND BRANCH CIRCUIT IN FACILITY AND IDENTIFY THE HIGH-LEG CONDUCTOR WHERE USED. PROVIDE COLOR CODING (ORANGE TAPE) ON EVERY EXISTING 208V CONDUCTOR AT EVERY ACCESSIBLE POINT IN JUNCTION BOXES, OUTLET BOXES AND PANELBOARDS.

**PARTNERS** 



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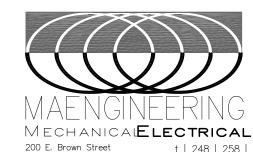
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KEY PLAN

Birmingham, Michigan

OV

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

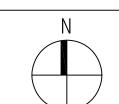
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



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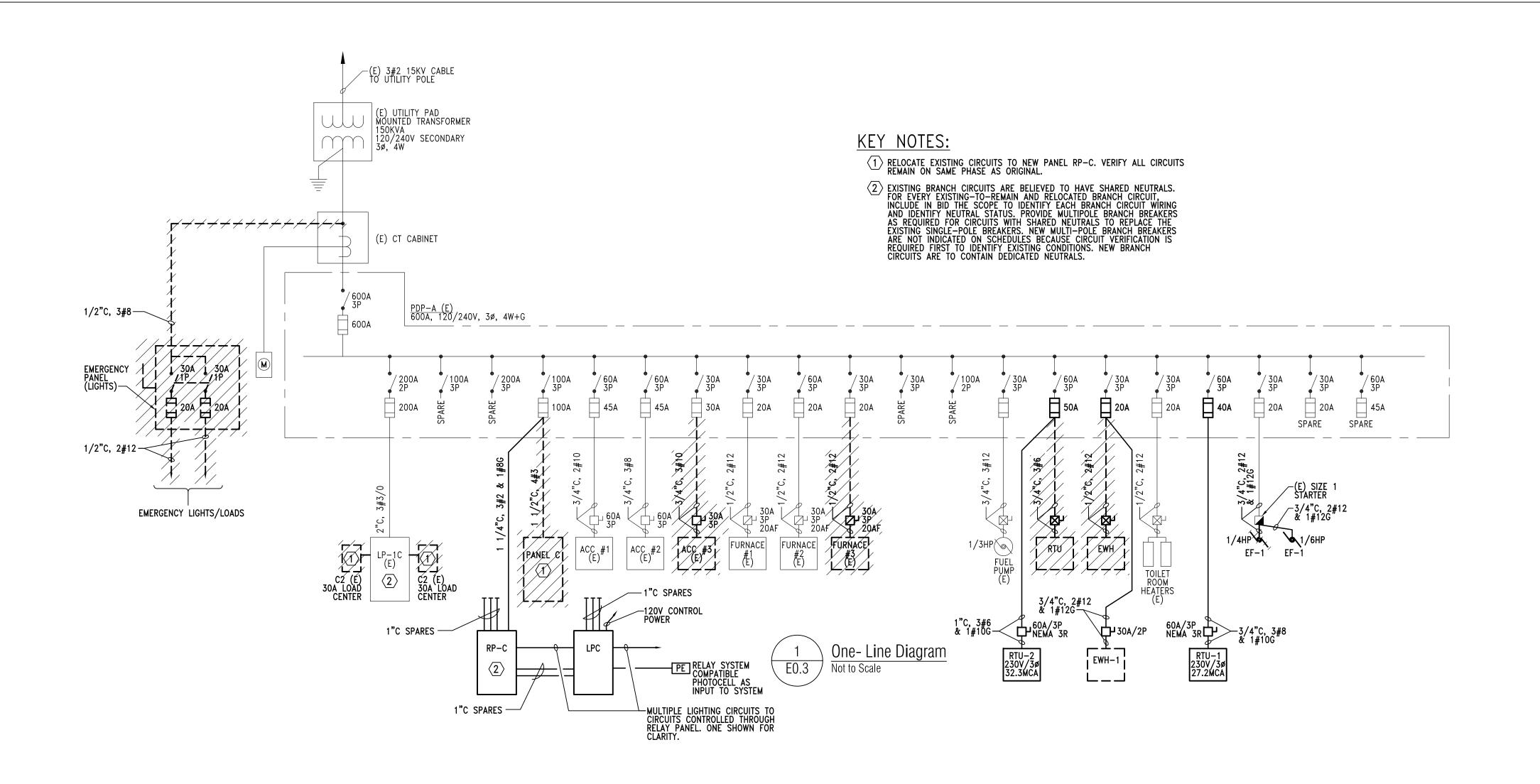
APPROVED BY

SHEET NAME

ELECTRICAL

GENERAL NOTES

SHEET N



PA	NELBO	ARD:	LP-1C EXISTING COND	ITION	MOUNTING: AS INDICATED		
			120/240V, 1 PHASE, 3 WI				
			225 A MCB				
	LOCA	TION:	MECH RM 120				
Circ	Brea	aker		Load Information		Connected	Watts
No	Pole	Trip	Location	Description	Code	Phase A	Phase C
1	2			8UB C1 / /			///
3		30					
5	1	20	TOILET RIMS, VILL HALL,	LUGHTING//			
7	1	///	VILLAGE HALL	CANLIGHTS /			
9/	1	-	VILLAGE HALL	CANLIGHTS /			
11/	1/1/	-	SOUTH OFFICE///	LIGHTING /			
13/	1/1/	/20/		NIGHT LIGHTS			///.
15	1	/	BREAK ROOM	DISPOSAL & INST	TA HOT		///
17	1	20	CORRIDOR	EWC			
19	1	20	NO LABEL				
21	1		WORK ROOM	COPIER			
23	1		SOUTH/PLOTTER	RECEPTACLES			
25	1		SOUTH WALL	RECEPTACLES			
27	1		OPEN OFFICE EAST	RECEPTACLES			
29	1		RECEPTION NORTH	RECEPTACLES			
31	1	20	PHONE CLOSET	PLUGSTRIP			
33	1	20		WALL PACK			
35/	1/1/	20/	VILLAGE HALL///	CAN LIGHTS /	///////////////////////////////////////		///
27	///	-	MECH ROOM	EWH///		/////	
39	1	15	OPEN OFFICE	RECEPTACLES		-	
41	1	15	OPEN OFFICE	RECEPTACLES			
2	/2/	//		SUB/C2///		////	///
4		30		<del>////////</del>			
6	1/1/	-	VILLAGE HALL	CANLIGHTS /			
8	1/1/	-	VILLAGE HALL	CANLIGHTS			///.
10/	1/1/	-	SOUTH OFFICE///	LIGHTING			///
12/	1/1/	-	OPEN OFFICE	LIGHTING		////	
14	1	-	NORTH OFFICE	RECEPTACLES			
16	1		BREAK ROOM	RECEPTACLES		1	
18	1	V-7.7-27.	SOUTH	RECEPTACLES		-	
20	1		TOILET RMS & LOBBY	RECEPTACLES			
22	1		VILLAGE HALL	RECEPTACLES			
24	1		VILLAGE HALL	RECEPTACLES		1	
26	1		NO LABEL				
28	1	20	NO LABEL				
30	1	20		SERVER & RECE	PTACLES		
32	1		NO LABEL	322			
34	1	20	OFFICE	RECEPTACLES			
36	2		NO LABEL				
		20				1	1
38	1	20 15	OPEN OFFICE	RECEPTACLES			

//	_ / /	/ /	<b>RP-C EXISTING CO</b> 120/240V 3 PHASE,		S; SURFACE			
			100/AMLO/			////		
	/ /	/ /	RM 120 MECH			////		
	///		////////			////		
Øirg/	Brea	aker		Load Information		//çø	nnected W	atts//
No	Pole	Trip	Løcation /	// Description /////	Code	Phase A	Phase B	Phase C
1		20	VILLAGE HALL	// AV/CONTROL#1	////			
3			SPACE///					
5	1		SPAÇÉ///					
7	(X)		SPACE///		////			
9	[1]		SPACE///					<i>Y///</i>
/11/	1/1/		SPACE///					
/13/	1/1/		SPACE///					Y//,
15/	1/1/	$\angle \angle$	SPACE///					V//,
<u> </u>		$\angle \angle$	SPACE///					
/2/		20/	VILLAGE HALL	// AV/CONTROL#2///				
4/	$\Delta \Delta$		SPACE///			I///		
6			SPACÉ///					
8	11	20	VILLAGE/HALL/	DESKRECEPTACLES/				
10	1/		SPACE///			V///		
12	1/		SPACE //					
/14/	VI		SPACE///	<u> </u>	////	V///		ľ///
/16/	VV	$\angle \angle$	SPACE///		////	1///		<i>///</i>
/18/	/1/		SPACE////	<u> </u>	////	1///		

		MAIN:	120/240V, 1 PHASE, 3 WI 225 A MCB MECH RM 120	RE + G				
Circ	Brea	aker		Load Information	v		Connected V	Natts
No			Location	Description		Code	Phase A	
1	2		SPARE					
3		30						
5	1	20	SPARE					
7	1		SPARE					
9	1	20	SPARE					
11	1	20	SPARE					
13	1	20	SPARE					
15	1	20	BREAK ROOM	DISPOSAL & IN	ISTA HOT			
17	1	20	CORRIDOR	EWC				
19	1		NO LABEL					
21	1		WORK ROOM	COPIER				
23	1		SOUTH/PLOTTER	RECEPTACLE				
25	1		SOUTH WALL	RECEPTACLE				
27	1		OPEN OFFICE EAST	RECEPTACLE				
29	1		RECEPTION NORTH	RECEPTACLE	S			
31	1		PHONE CLOSET	PLUGSTRIP				
33	1	20	Destruction	WALL PACK				
35	2		MECH	EWH-2				1500
37		20					1500	
39	1		OPEN OFFICE	RECEPTACLE				
41	1	15	OPEN OFFICE	RECEPTACLE	S			
2	2		SPARE					
4		30						
6	1		SPARE					
8	1		SPARE					
10	1		SPARE					
12	1		SPARE					
14	1		NORTH OFFICE	RECEPTACLE				
16	1		BREAK ROOM	RECEPTACLE				
18	1		SOUTH	RECEPTACLE				
20	1		TOILET RMS & LOBBY	RECEPTACLE				
22	1	20	VILLAGE HALL	RECEPTACLE				
24 26	1		VILLAGE HALL NO LABEL	RECEPTACLE	3			
28	1	20	NO LABEL				_	
30	1	20	NO LABEL	SERVER & RE	CEPTACI	FS		
32	1		NO LABEL	SERVER & RE	OLF IAUL	.LU		
34	1		OFFICE	RECEPTACLE	S			
36	2	20	NO LABEL	NEOLF IMOLE			_	
38	-	20	INO LADEL					
40	1		OPEN OFFICE	RECEPTACLE	S			
42	1		SPARE	NEOLI IAOLL				
-T-Z	'	10		ECTED KW:	3		+	
				TED AMPS:	13	Phase Watts	s: 1,500	1,500
				EMAND KW:	3	i nase vvals	1,000	1,000
				IAND AMPS:	13	7% Loaded	1	

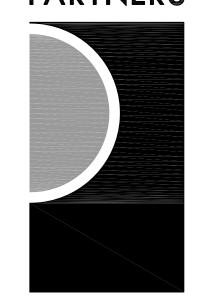
Circ	Brea	aker		Load Information	on		]	Connected	d Watts	
No	Pole	Trip	Location	Description		Cod	е	Phase A		
1	1	20	OFFICES & BRK RM	LIGHTING				1260		
3	1	20	OPEN OFFICE/CORR.	LIGHTING					918	
5	1	20	LOBBY,TOILET,CONF.	LIGHTING				546		
7	1	20	TOWNSHIP HALL	LIGHTING					636	
9	1	20	EXT BLDG MOUNTED	LIGHTING				207		
11	1	20	SPARE				ì			
13	1	20	SPARE							
15	1		SPARE							
17	1	20	SPARE							
19	1	20	SPARE							
21	1		SPARE							
23	1		SPARE					3		
25	1	100000000000000000000000000000000000000	SPARE						92	
27	1		SPARE					ii .		
29	1		SPARE							
31	1	20	SPARE							
33	1	20	SPARE							
35	1		SPARE					-3		
37	1		SPARE							
39	1	20	SPARE							
41	1	20	SPARE							
2	1	20	VILLAGE HALL	AV CONTRO	L #1			600		•
4	1	20	NORTH OFFICE	RECEPTACL					900	/
6	1	20	VILLAGE HALL	AV CONTRO				600		-
8	1	7.777.7	STORAGE 115	LCP					200	
10	1	20	VILLAGE HALL	DESK RECE	PTACLES			1260		_/
12	1	20	OFFICE & STORAGE	RECEPTACL				1200	720	/
14	1	20	TELECOM CLOSET	PLUGSTRIP				720	720	/
16	1	20	OFFICE & BRK RM	RECEPTACL	FS			120	900	/
18	1	20	OPEN OFFICE	RECEPTACL				180		/
20	1		WORKROOM	RECEPTACL	- Annual Contract			,,,,	900	
22	1		SOUTH OFFICE	RECEPTACL				1080		
24	1		SOUTH OFFICE	RECEPTACL			-	1000	1260	
26	1		OPEN OFFICE	RECEPTACL				900		
28	1		CUST. COUNTER	RECEPTACL				330	1080	
30	1	20	VEST., TOILET, CONF.	RECEPTACL				540	1000	
32	1		BREAK RM	GARBAGE DI				0,70	600	
34	1	20	BREAK RM	MICROWAVE				600		
36	1	20	BREAK RM	REFRIGERA					600	
38	1	20	BREAK RM	RECEPTACL				200	000	
40	1	20	SPARE	ALULI IAUL			<u> </u>	200		
42	1	20	SPARE				-			
72	1	20		ECTED KW:	17					
				TED AMPS:	73		Phase Watts:	8,693	8,714	
				EMAND KW:	17		i ilase vvalis.	0,093	0,7 14	
				IAND AMPS:	73	91% Loaded				

MOUNTING: AS INDICATED

PANELBOARD: RP-C NEW PANEL

VOLTAGE: 120/240V, 1 PHASE, 3 WIRE + G

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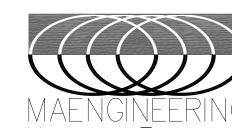
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MECHANICAL **ELECTRICAL**200 E. Brown Street
Birmingham, Michigan
48009

t | 248 | 258 |
f | 248 | 258 |

KEY PLAN

OV

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

18500 W 13 Mile Road

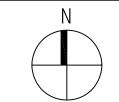
Beverly Hills, MI 48025

15-161

PROJECT NO.

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



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CHECKED BY SW

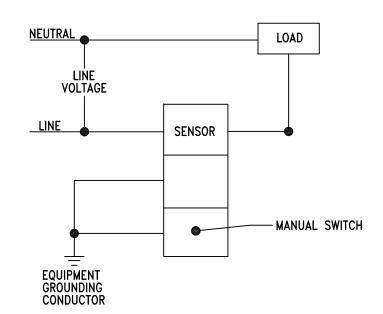
APPROVED BY

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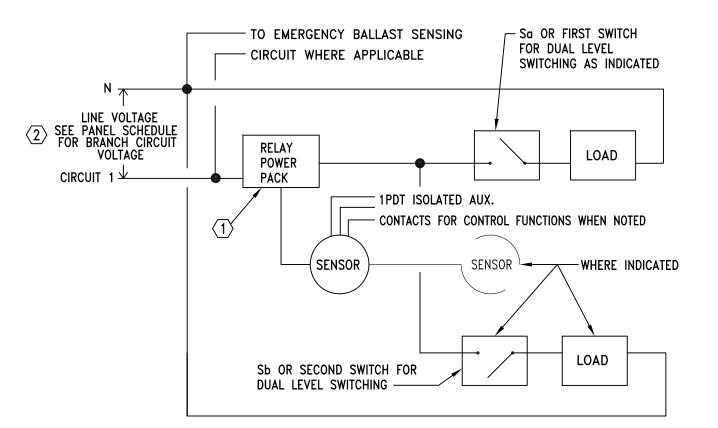
ELECTRICAL

ONE-LINE
DIAGRAM & PANEL
SCHEDULES

SHEET NO.



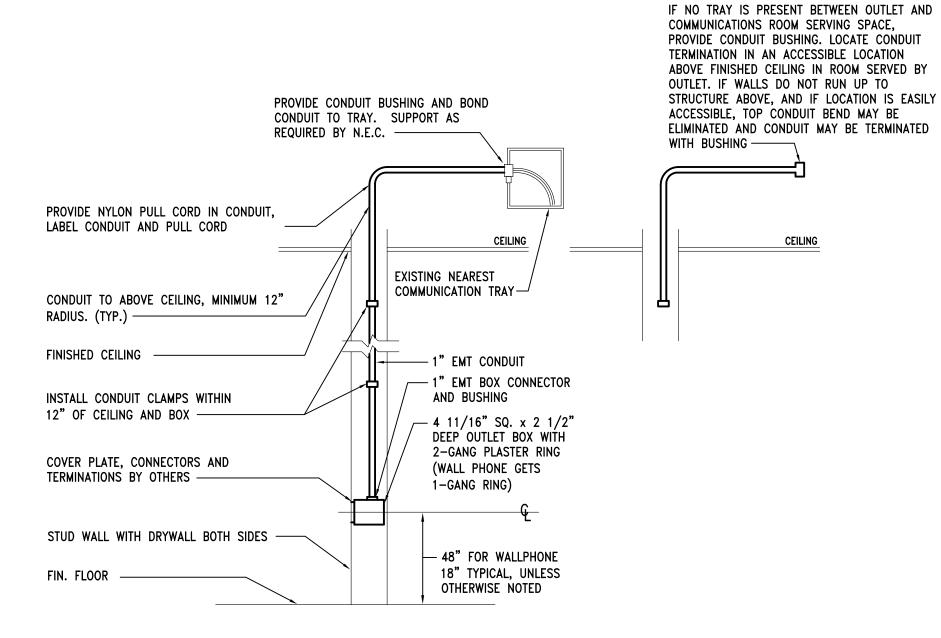
# SCHEMATIC OCCUPANCY CONTROL DETAIL WALL MOUNTED SENSOR NO SCALE



# SCHEMATIC OCCUPANCY CONTROL DETAIL (CEILING MOUNTED SENSOR)

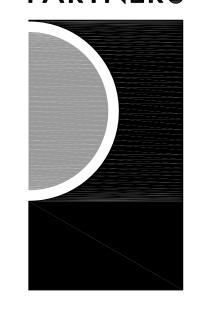
# KEY NOTES:

- PROVIDE MULTIPLE SUPPLEMENTAL POWER PACK/RELAY CONTROLLED BY SENSOR(S) IN SPACE AS REQUIRED TO CONTROL 120V FIXTURES (SUCH AS TASK LIGHTS OR DOWNLIGHTS IN CONFERENCE ROOMS) IF THE ROOM CONTAINS 277V FLUORESCENT AND 120V FIXTURES. TYPICAL FOR SWITCHED EMERGENCY AND NORMAL CIRCUITS CONTROLLED BY THE SAME SENSOR(S). COORDINATE VOLTAGE OF SECOND RELAY / POWER PACK AS REQUIRED FOR EACH CONTROLLED CIRCUIT.
- WHERE NORMAL AND SWITCHED EMERGENCY FIXTURES ARE PRESENT, WIRE THE SENSOR AND MASTER POWER PACK TO THE EMERGENCY SWITCH LEG AND WIRE THE NORMAL SWITCH LEGS TO THE AUXILIARY POWER PACKS. THIS IS TO ENSURE THAT THE SENSOR AND SWITCHED EMERGENCY FIXTURES STILL OPERATE UNDER EMERGENCY POWER.



TYPICAL COMMUNICATIONS OUTLET DETAIL
NO SCALE

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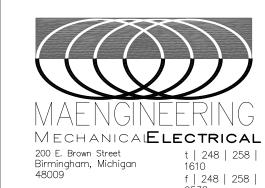
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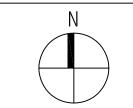
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PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



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APPROVED BY

SHEET NAME
ELECTRICAL

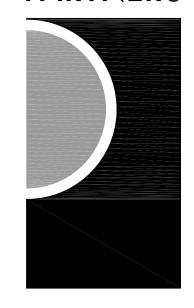
DETAILS

SHEET NO.
E0.3

H:\ACAD\FILES\69\69230-Beverly Hills Offices Assessment\CAD\ELEC\69230 - E0.4\_DETAILS.dwg Wed, 06 Apr 2016 - 8:14am

# STORAGE OPEN OFFICE LOBBY FIXTURES TO BE RELOCATED— OFFICE $\frac{1}{\text{ED1-01}} \frac{\text{Lighting Demolition Plan}}{\frac{3}{16"} = \frac{1}{-0"}}$

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KEY PLAN

OWNE

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PROJECT NAME

Village of Beverly Hills Office Renovation

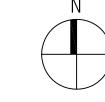
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



DRAWN

CR

CHECKEI S**W** 

APPROVED BY

SHEET NAME

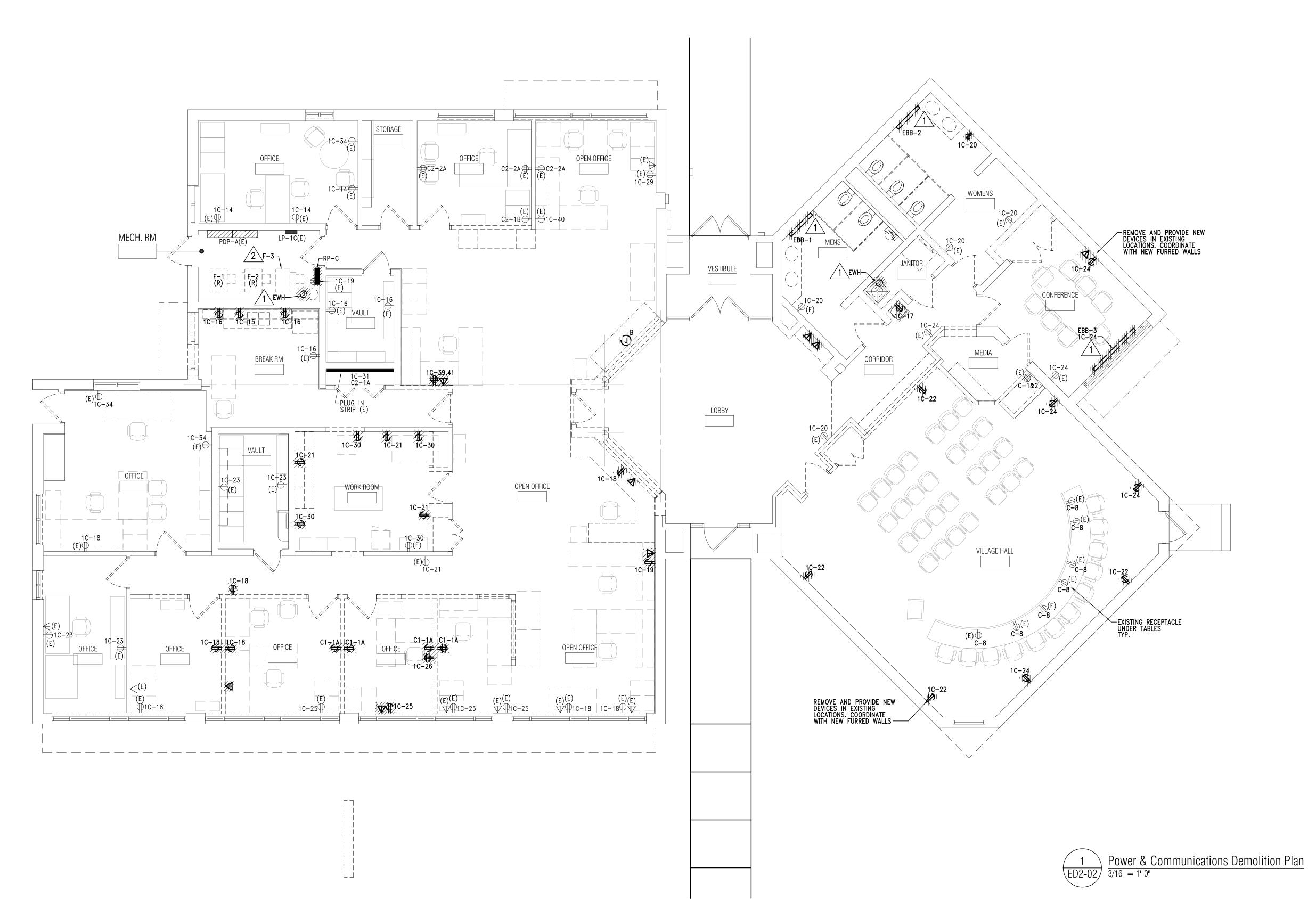
LIGHTING DEMOLITION PLAN

SHEET NO.
ED1-01

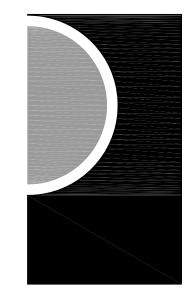


DISCONNECT EQUIPMENT FOR REMOVAL BY OTHER TRADES.
PROTECT AND MAINTAIN CONDUIT AND WIRE FOR REUSE.
REFER TO NEW WORK PLAN FOR ADDITIONAL INFORMATION.

2 DISCONNECT AND REMOVE ALL CONDUIT AND WIRING



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MOUNT CLEMENS, MI 48043
P 586.469.3600

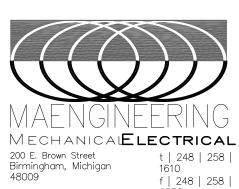
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KEY PLAN

OWN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

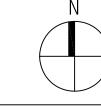
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PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



DRAWN BY

СВ

CHECKE

APPROVED BY

APPROVED BY SW

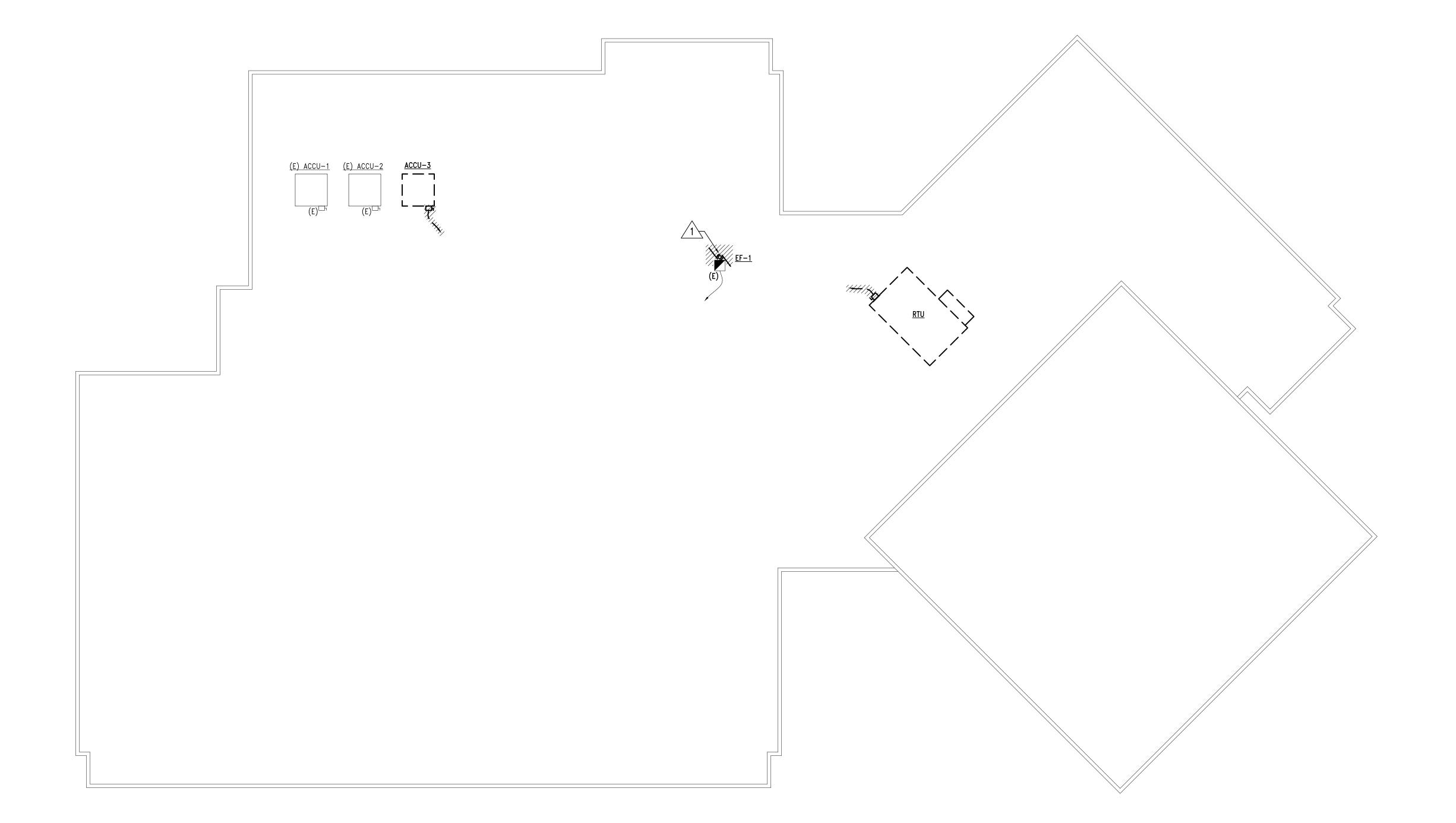
POWER &
COMMUNICATIONS
DEMOLITION PLAN

SHEET NO. ED2-01



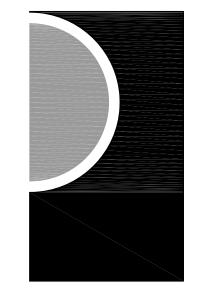
DISCONNECT EQUIPMENT FOR REMOVAL BY OTHER TRADES.
PROTECT AND MAINTAIN CONDUIT AND WIRE FOR REUSE.
REFER TO NEW WORK PLAN FOR ADDITIONAL INFORMATION.

2 DISCONNECT AND REMOVE ALL CONDUIT AND WIRING





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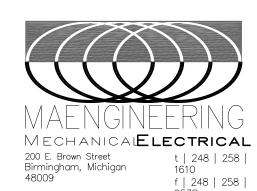
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ONSHI TANT



KEY PLAN

Village of Beverly Hills 18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NAME

Village of Beverly Hills Office Renovation

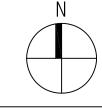
18500 W 13 Mile Road Beverly Hills, MI 48025

PROJECT NO.

15-161

ISSUES / REVISIONS

Bidding - Construction 04/01/2016



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SHEET NAME

ELECTRICAL DEMOLITION ROOF PLAN

SHEET NO.
ED2-02

#### LIGHTING FIXTURE SCHEDULE:

- "A" LED RECESSED 2'X4' VOLUMETRIC TYPE FIXTURE, ROUND ACRYLIC DIFFUSER, DIE FORMED HOUSING, POST PAINTED WHITE POLYESTER POWDER FINISH. WITH 34W, 4000 LUMEN, 3500K LEDS.
  METALUX CRUZE SERIES OR APPROVED EQUAL.
- "AE" SAME AS TYPE "A" EXCEPT WITH BUILT-IN EMERGENCY BATTERY BACKUP FOR 90 MINUTES OF OPERATION UPON LOSS OF NORMAL POWER.
- "A1" SAME AS TYPE "A" EXCEPT 1'X4' AND WITH 36W, 3500 LUMEN LEDS.
- "B" LED DOWNLIGHT FIXTURE, 6" APERTURE, STEEL HOUSING CLEAR SEMI-SPECULAR REFLECTOR WITH WHITE PAINTED FLANGE. 17W, 1500 LUMEN, 3500K LEDS, WITH 0-10V DIMMING DRIVER, MINIMUM DIMMING LEVEL 10%. HALO PD615 SERIES OR APPROVED EQUAL.
- "BE" SAME AS TYPE "B" EXCEPT WITH BUILT-IN EMERGENCY BATTERY BACKUP FOR 90 MINUTES OF OPERATION UPON LOSS OF NORMAL POWER.
- "B1" LED VANDAL RESISTANT DOWNLIGHT FIXTURE, 6" APERTURE, STEEL HOUSING CLEAR SEMI-SPECULAR REFLECTOR WITH WHITE PAINTED FLANGE, CLEAR TEMPERED GLASS LENS. 27W, 1500 LUMEN, 4000K LEDS. FAILSAFE FVR6 SERIES OR APPROVED EQUAL.
- "B1E" SAME AS TYPE "B1" EXCEPT WITH BUILT-IN COLD WEATHER EMERGENCY BATTERY BACKUP FOR 90 MINUTES OF OPERATION UPON LOSS OF NORMAL POWER.
- LED WALL MOUNTED DIRECT/INDIRECT FIXTURE. 8' LONG STEEL HOUSING WITH WHITE FINISH, ACRYLIC LENS. 37W, 3560 LUMEN, 3500K LEDS. FINELITE SERIES 12-WD-ID-LED OR APPROVED EQUAL.
- "D" LED SURFACE MOUNTED WRAPAROUND FIXTURE. 4' LONG STEEL HOUSING WITH WHITE FINISH, ACRYLIC LENS. 40W, 4000 LUMEN, 3500K LEDS. METALUX SLWP SERIES OR APPROVED EQUAL.

- DECORATIVE INCANDESCENT 5.6" DIA PENDANT FIXTURE AS SELECTED BY ARCHITECT. (1) 50W GU5.3 BASE MR1 LAMP. PROVIDE ALL CONNECTIONS AND TRANSFORMERS AS RECOMMENDED BY MANUFACTURE.
- WALL MOUNTED EXTERIOR LENSED TRAPEZOIDAL WEDGE-SHAPED SCONCE. DIE-CAST ALUMINUM HOUSING. TYPE III DISTRIBUTION, 25W, 2700 LUMEN, 4000K LEDS, BRONZE FINISH, WET LOCATION LISTED, FLAT TEMPERED GLASS LENS, GASKETED DOOR, FULL CUTOFF PERFORMANCE. MCGRAW EDISON IST SERIES OR APPROVED EQUAL.
- "G" LED LOW PROFILE UNDERCABINET LIGHTING FIXTURE, ALUMINUM HOUSING, HIGH IMPACT ACRYLIC LENS, WHITE POWDER COAT FINISH, 48" LENGTH. 20W, 1320 LUMEN, 3500K LEDS HALO HU10 SERIES OR APPROVED EQUAL.
- "G2" SAME AS "G" EXCEPT 24" LENGTH, 10W, 660 LUMEN LEDS.
- "H" LED CHAIN HUNG STRIP LIGHT 4' LONG. COLD-ROLLED CODE GAUGE STEEL HOUSING, WHITE FINISH. 42W, 4725 LUMEN, 3500K LEDS. MOUNT FIXTURE 8' METALUX SNLED SERIES OR APPROVED EQUAL.
- "HE" SAME AS TYPE "H" EXCEPT WITH BUILT-IN EMERGENCY BATTERY BACKUP FOR 90 MINUTES OF OPERATION UPON LOSS OF NORMAL POWER.
- "J" LED PENDANT MOUNTED DIRECT/INDIRECT FIXTURE. 8' LONG STEEL HOUSING WITH WHITE FINISH, ACRYLIC LENS. 75W, 6875 LUMEN, 3500K LEDS. FINELITE SERIES 12-LED-ID OR APPROVED EQUAL.
- "X" LED EXIT SIGN WITH CHEVRONS AS INDICATED, FACES AS INDICATED, UNIVERSAL MOUNT, RED LETTERS ON WHITE THERMOPLASTIC HOUSING. UNIVERSAL VOLTAGE. SHADED ON SYMBOL INDICATES ILLUMINATED FACE(S). LITHONIA ZL1N SERIES OR APPROVED EQUAL.

- PROVIDE WITH EMERGENCY BATTERY BACKUP COMPATIBLE WITH EXISTING LED FIXTURE FOR 90 MINUTE OPERATION UPON LOSS OF NORMAL POWER.

#### **KEY NOTES:**

ALL EXIT LIGHTS AND NIGHT LIGHTS SHALL BE WIRED TO AREA LIGHTING CIRCUIT AHEAD OF ANY LOCAL AND AUTOMATIC LIGHTING CONTROL.

**PARTNERS** 

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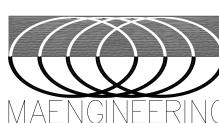
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MECHANICAL **ELECTRICAL** 200 E. Brown Street t | 248 | 258 | Birmingham, Michigan 48009 f | 248 | 258 |

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PROJECT NAME

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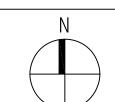
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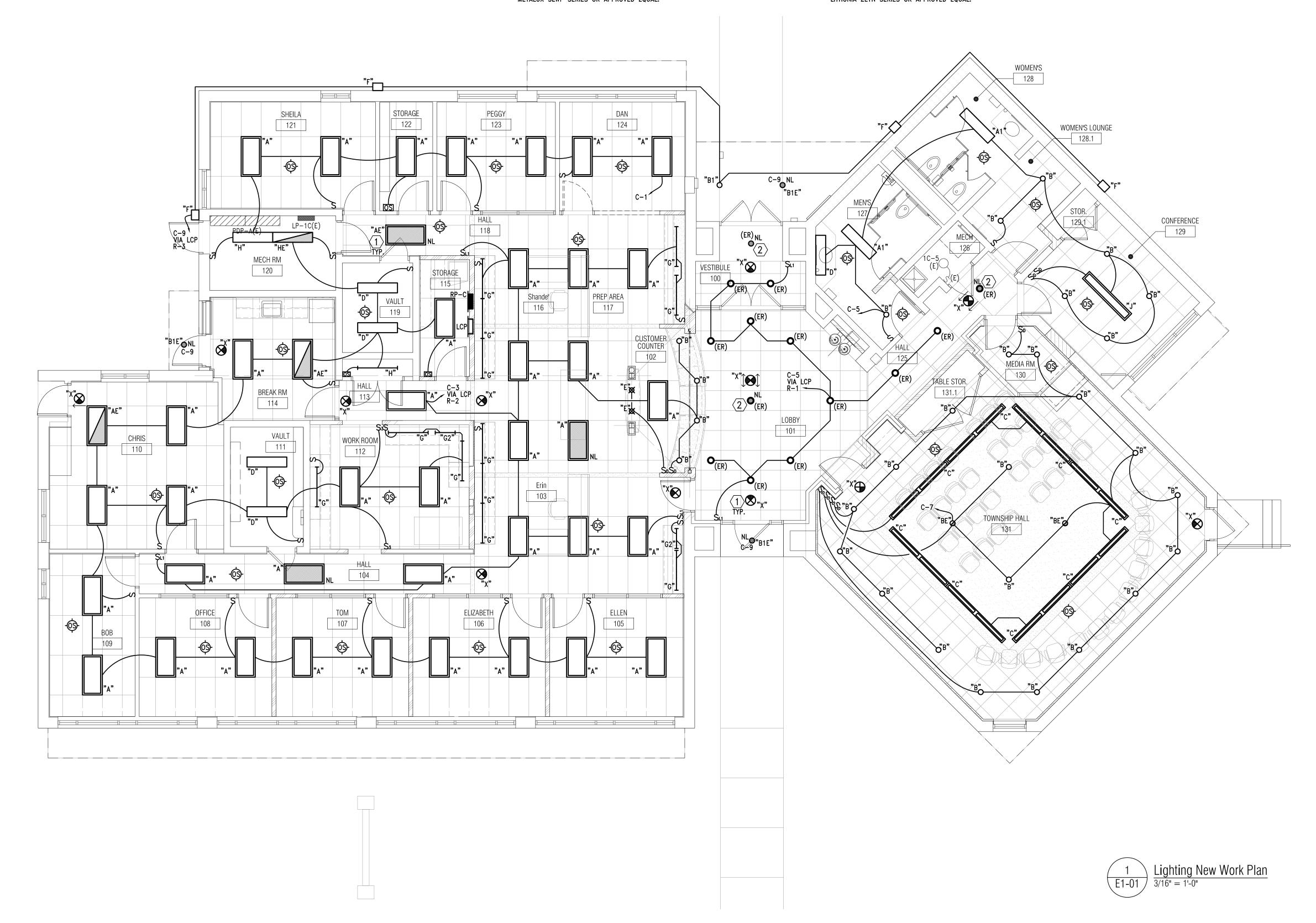
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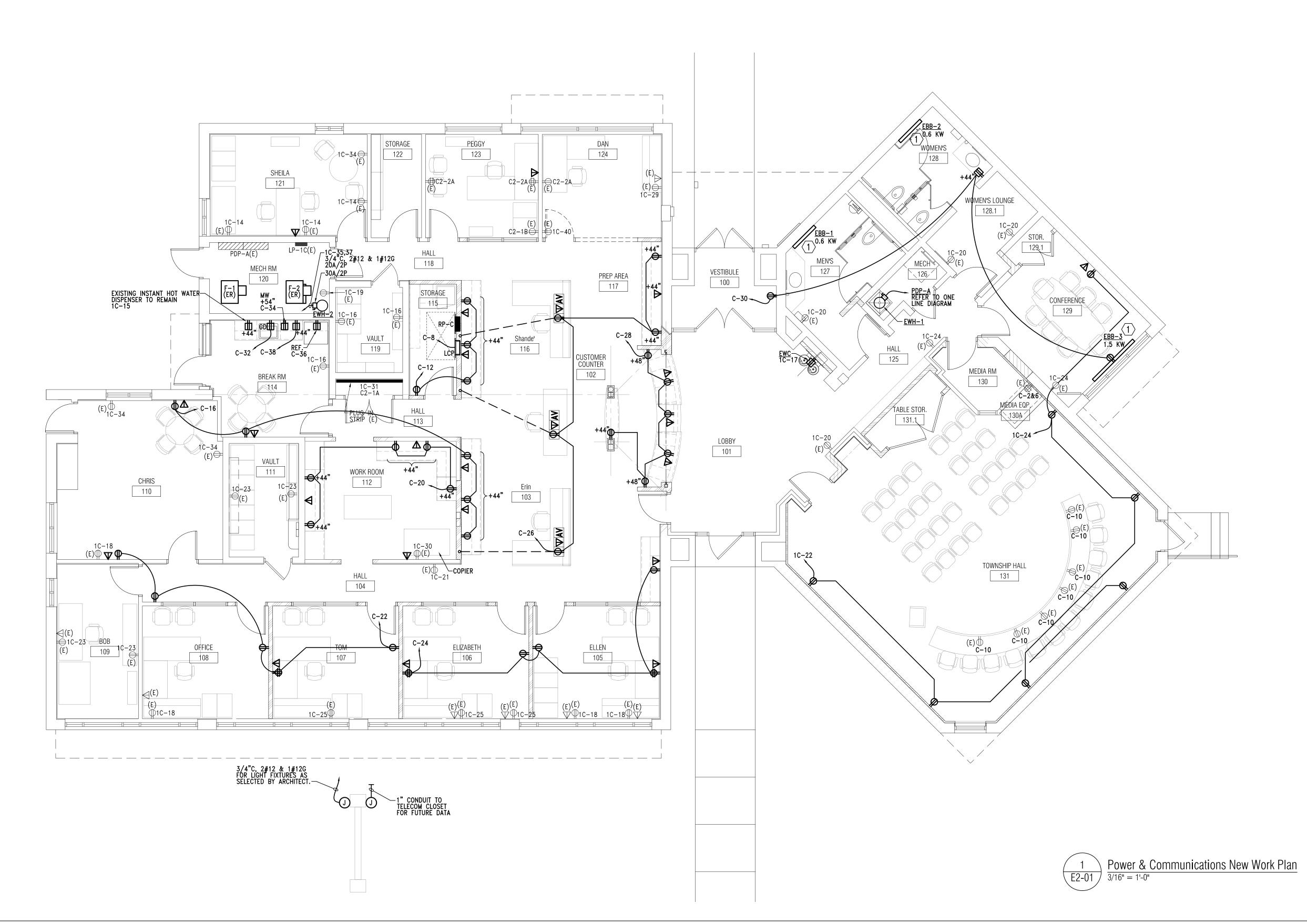
SHEET NAME

LIGHTING NEW **WORK PLAN** 

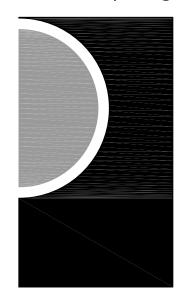
SHEET NO. **E1-01** 



# **KEY NOTES:** 1 RECONNECT NEW BASE BOARD HEATER TO EXISTING CONDUIT AND WIRE SALVAGED DURING DEMOLITION.



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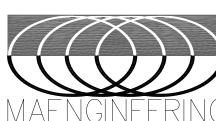
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PROJECT NAME

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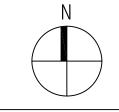
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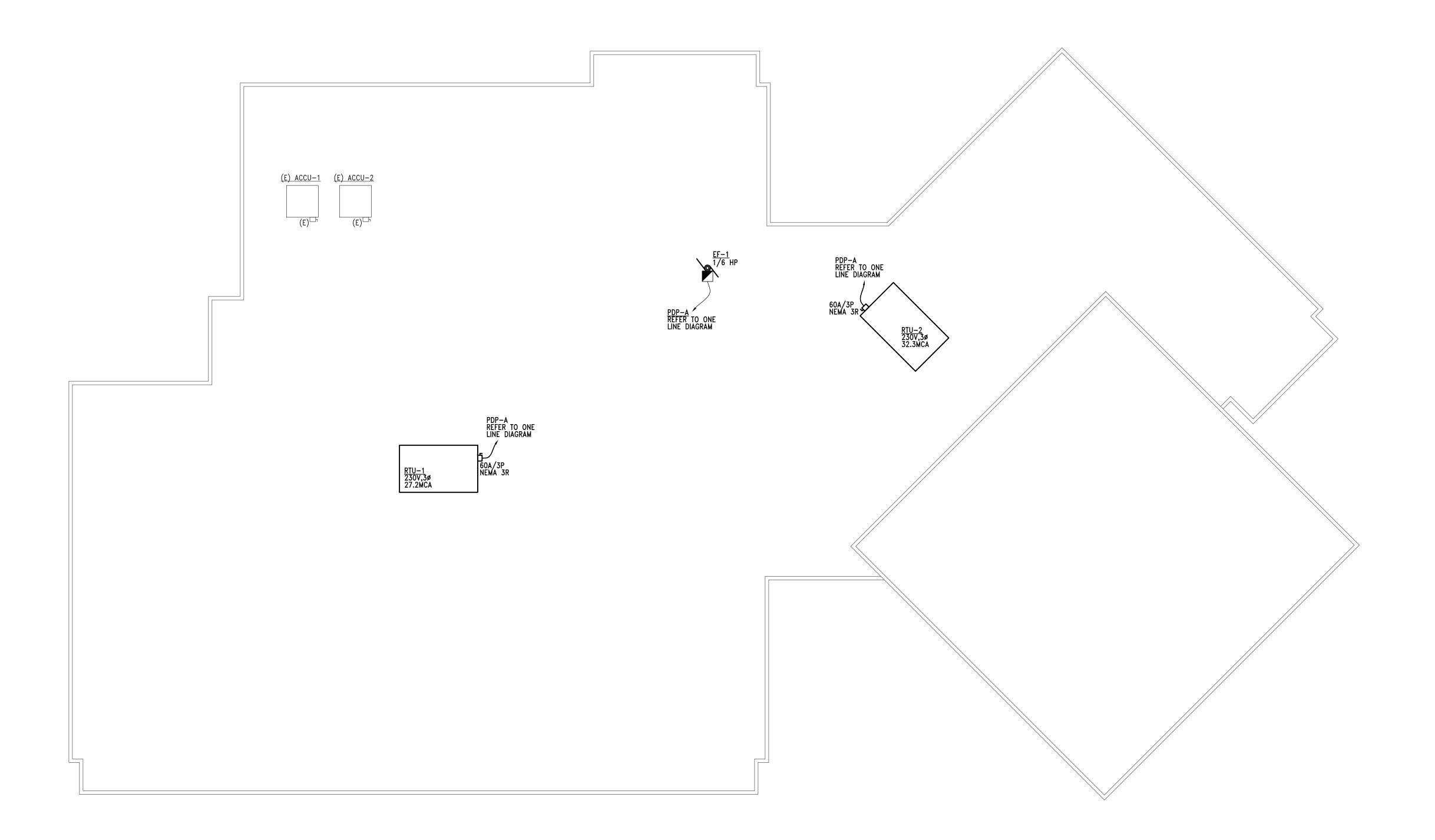
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SHEET NAME POWER & COMMUNICATIONS NEW WORK PLAN

SHEET NO.

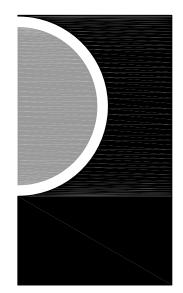
**KEY NOTES:** 

1 RECONNECT NEW NEW EQUIPMENT TO EXISTING CONDUIT AND WIRE SALVAGED DURING DEMOLITION.





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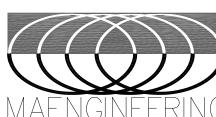
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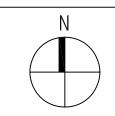
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ELECTRICAL NEW WORK ROOF PLAN

SHEET NO. E2-02