

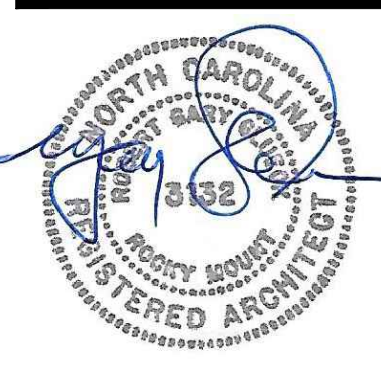


R. Gary Glueck
Architecture
Planning

North Carolina Office
3797 Loop Road
Nashville, NC 27856

Florida Office
56511 Elm Road
Astor, FL 32102

252-452-3000
plans4u2@yahoo.com



12-16-21

CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT JOB SITE.

WASHLAND LAUNDROMAT

BUILDING RENOVATIONS FOR THE PROPOSED WASHLAND LAUNDROMAT

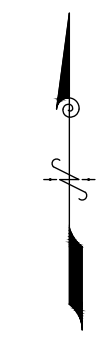
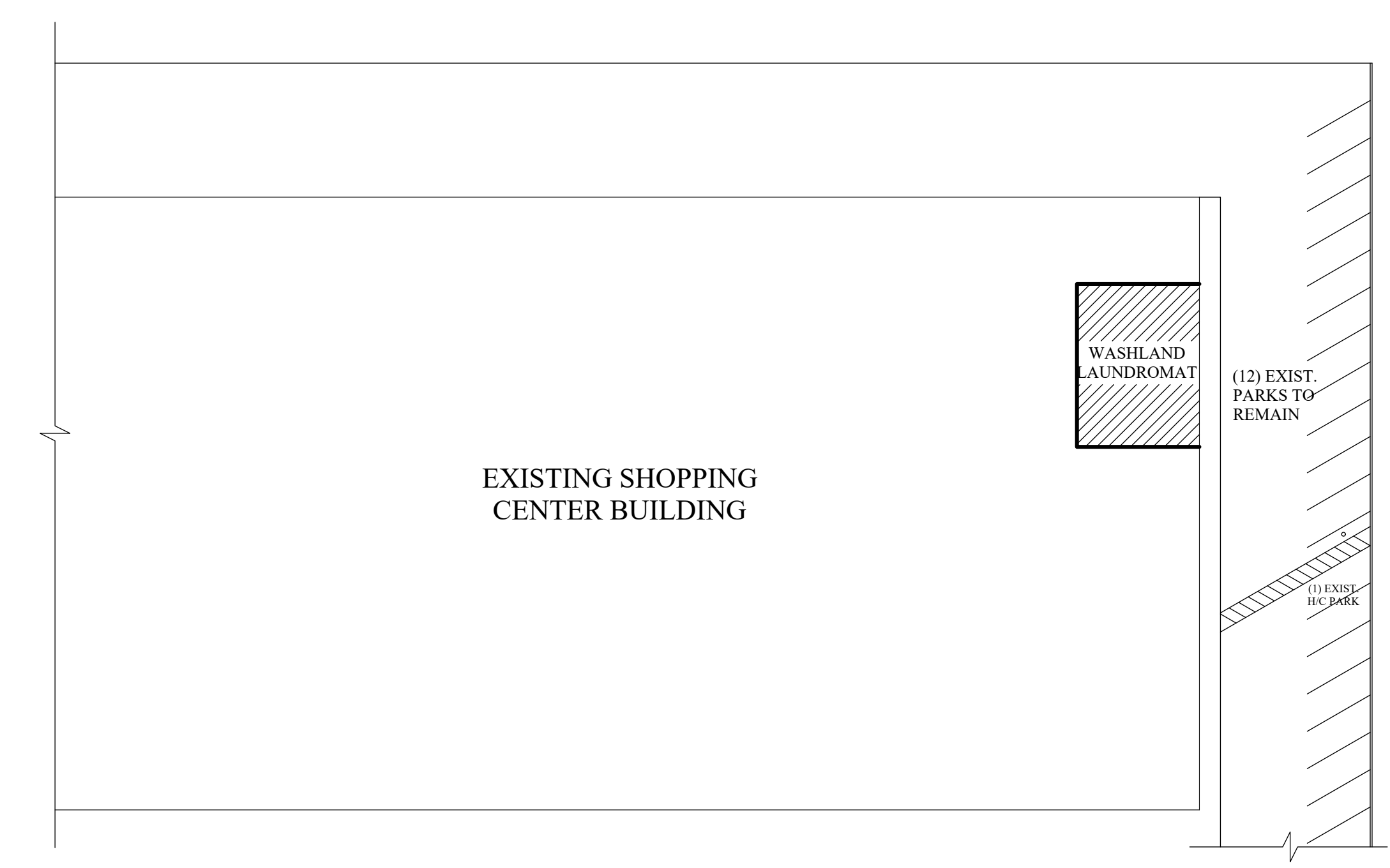
559 N. RALEIGH STREET
ANGIER, NORTH CAROLINA

PROJECT TEAM

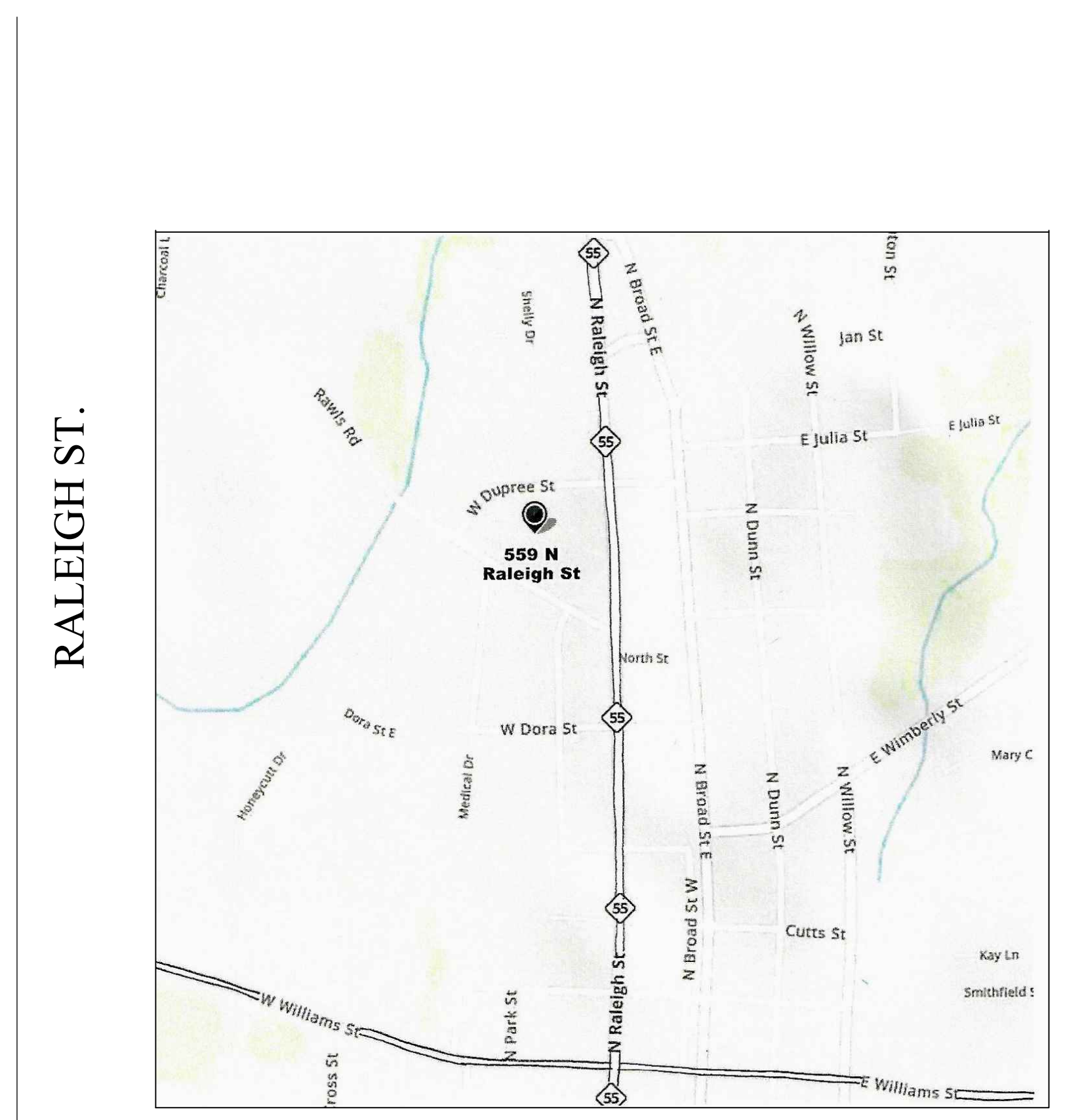
OWNER	CONTACT	ARCHITECT	PME ENGINEER
Washland Brian Hennen P.O. BOX 307 WILLOW SPRINGS, NC 27592 919-901-3936	Wagner Design Services, Inc. Andy Wagner 109-B Candlewood Rd. Rocky Mount, NC 27804 252-447-9900	R. GARY GLUECK ARCHITECTURE GARY GLUECK, A.I.A. 3797 LOOP ROAD NASHVILLE, NORTH CAROLINA 27856 252-459-5900 252-459-8900 FAX	KILIAN ENGINEERING, INC. MICHAEL KILIAN, P.E. P.O. BOX 3301 HENDERSON, NORTH CAROLINA 27536 252-438-8778 252-438-8741 FAX

INDEX OF DRAWINGS

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SITE MAP
NOT TO SCALE



VICINITY MAP

BUILDING RENOVATIONS FOR THE PROPOSED
WASHLAND LAUNDROMAT
559 N. RALEIGH STREET
ANGIER, NORTH CAROLINA

REVISIONS	
DRAWN BY:	WDSI
CHECKED BY:	RGG
DATE:	DECEMBER 2021
SHEET	1 OF 15
PROJECT	SHEET NO.
3810	C1

CITY OF ANGIER
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS NC 2018 BUILDING CODE
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: WASHLAND LAUNDROMAT
Address: 559 N. RALEIGH STREET, ANGIER, NC
Owner or Authorized Agent: BRYAN HENNER
Phone # (919)901-3936
Suite #
Email: bhenn123@gmail.com
Fax:
Owned By: Privately City/County State
Code Enforcement Jurisdiction: City ANGIER County State
Name of Jurisdiction: ANGIER

2018 EDITION OF NC CODE FOR New Construction Addition Upfit
EXISTING Reconstruction Alteration Level 1 Alteration Level 2 Alteration Level 3 Repair Renovation
CONSTRUCTED (date) Unknown Original uses (Ch 3) Business
RENOVATED (date) Unknown Current uses (Ch 3) Business
Proposed uses (Ch 3) Business

BUILDING DATA
Construction Type: I-A I-B II-A II-B III-A III-B
Mixed Construction: No Yes Types
Sprinklers: No Yes NFPA 13 NFPA 13R
Standpipes: No Yes Class I II III Wet Dry
Fire District: No Yes
Building Height: 1 Story
Mezzanine: No Yes
Basement: No Yes
High Rise: No Yes
Gross Building Area: FLOOR EXISTING (SQ FT) NEW (SQ FT) SUB-TOTAL
6th Floor
5th Floor
4th Floor
3rd Floor
2nd Floor
Mezzanine
1st Floor 1,362 SQ.FT.
Basement
TOTAL 1,362 SQ.FT.

Primary Occupancies: Assembly A-1 A-2 A-3 A-4 A-5
Business Educational Factory-Industrial F-1 F-2
High-Hazard: H-1 H-2 H-3 H-4 H-5
Institutional: I-1 I-2 I-3 I-4 I-5
I-3 USE CONDITION: 1 2 3 4 5
Mercantile Residential: R-1 R-2 R-3 R-4
Storage: S-1 S-2 High-piled
S-1 SPECIAL CONDITION: Repair Garage (406.6) Enclosed (406.4)
S-2 SPECIAL CONDITION - Parking Garage: Open (406.3) Enclosed (406.4)
Accessory Occupancies: Assembly A-1 A-2 A-3 A-4 A-5
Business Educational Factory-Industrial F-1 F-2
High-Hazard: H-1 H-2 H-3 H-4 H-5
Institutional: I-1 I-2 I-3 I-4 I-5
I-3 USE CONDITION: 1 2 3 4 5
Mercantile Residential: R-1 R-2 R-3 R-4
Storage: S-1 S-2 High-piled
S-1 SPECIAL CONDITION: Repair Garage (406.6) Enclosed (406.4)
S-2 SPECIAL CONDITION - Parking Garage: Open (406.3) Enclosed (406.4)
Utility and Miscellaneous
Incidental uses: Furnace room where any piece of equipment is over 400,000 BTU per hour input
Rooms with boilers with the largest piece of equipment is over 15 psi and 10 horsepower
Refrigerant machine room
Hydrogen cutoff rooms, not classified as group H
Incinerator rooms
Paint shops, not classified as group H, located in occupancies other than group F
Laboratories and vocational shops, not classified as group H, located in a group E or 1-2 occupancy
Laundry rooms over 100 square feet
Group 1-3 cells equipped with padded surfaces
Group 1-2 waste and linen collection rooms
Waste and linen collection rooms over 100 square feet
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
Rooms containing fire pumps
Group 1-2 storage rooms over 100 square feet
Group 1-2 commercial kitchen
Group 1-2 laundries equal to or less than 100 square feet
Group 1-2 rooms or spaces that contain fuel-fired heating equipment
Special Occupancies: 402 403 404 405 406 407 408
409 410 411 412 413 414 415
416 417 418 419 420 421 422
423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800
Special Provisions: 509.2 509.3 509.4 509.5 509.6 509.7 509.8
Mixed Occupancy: No Yes Separation: HR Exemption:
Incidental Use Separation (508.2.5)

Mixed Occupancy: No Yes Separation: 0 HOUR
Exception:
Non-Separated Mixed Occupancy (508.3.2)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies for the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
Separated Mixed Occupancy (508.4)
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1
Actual Area of Occupancy A + Actual Area of Occupancy B ≤ 1
Allowable Area of Occupancy A Allowable Area of Occupancy B

ALLOWABLE AREA AND HEIGHT CALCULATIONS
THIS SECTION FOR NEW, ADDITION, CHANGE OF USE, AND INTERIOR COMPLETION
Table with columns: EXTERIOR WALLS, ACTUAL LENGTH, OPEN LENGTH, WIDTH OF PUBLIC WAY OR OPEN SPACE, INCREASE FRONTAGE SPRINKLERS.

NUMBER AND ARRANGEMENT OF EXITS
THIS SECTION REQUIRED FOR ALL PROJECTS

Table with columns: FLOOR, ROOM OR SPACE DESIGNATION, MIN. NUMBER OF EXITS, TRAVEL DISTANCE, ARRANGEMENT MEANS OF EGRESS.

BOTH BUILDING AND TENANT MUST BE INDICATED ON CHART BELOW
Table with columns: STORY NO., OCCUPANCY, (A) BLDG AREA PER STORY, (B) TABLE 503.5, (C) % NO OPEN SPACE INCREASE, (D) % SPRINKLER INCREASE, (E) ALLOWABLE FLOOR AREA OR UNLIMITED, (F) MAXIMUM BUILDING AREA, SEPARATION RATING REQUIRED.

1 Corridor dead ends (Section 1016.3)
2 Single exits (Table 1018.2)
3 Common Path of Travel (Section 1013.3)

ALLOWABLE HEIGHT (EXIST)
Table with columns: Type, ALLOWABLE (TABLE 503), INCREASE FOR SPRINKLERS, SHOWN ON PLANS, CODE REFERENCE.

FIRE PROTECTION REQUIREMENTS

Table with columns: BUILDING ELEMENT, FIRE SEPARATION DISTANCE (FEET), RATING (REQD PROVIDED), DETAIL # AND SHEET #, DESIGN # FOR RATED ASSEMBLY, DESIGN # FOR RATED PENETRATION, DESIGN # FOR RATED JOINTS.

* Indicate section number permitting reduction
** Indicated if using Table 601 Note C exception

LIFE SAFETY SYSTEM REQUIREMENTS
THIS SECTION REQUIRED FOR ALL PROJECTS

Emergency Lighting: No Yes
Exit Signs: No Yes
Fire Alarm: No Yes
Smoke Detection Systems: No Yes Partial
Panic Hardware: No Yes

Life Safety Plan Sheet #, if Provided

- Fire and/or smoke rated wall locations (chapter 7)
Assumed and real property line locations
Exterior wall opening area with respect to distance to assumed property lines (705.8)
Existing structures within 30' of the proposed building
Occupancy types for each area as it relates to occupant load calculation
Occupant loads for each area
Exit access travel distance (1016)
Common path of travel distance (1014.3 & 1028.8)
Dead end lengths (1018.4)
Clear exit widths for each exit door
Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
Actual occupant load for each exit door
A separate schematic plan indicating where fire rated floor/celling and/or roof structure is provided for purpose of occupancy separation
Location of doors with panic hardware (1008.1.10)
Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
Location of doors with electromagnetic egress locks (1008.1.9.8)
Location of doors equipped with hold open devices
Location of emergency escape windows (1029)
The square footage of each fire area (902)
The square footage of each smoke compartment (407.4)
Note any code exceptions or table notes that may have been utilized regarding the items above.

ACCESSIBLE PARKING (EXISTING TO REMAIN)

Table with columns: LOT OR PARKING AREA, TOTAL # OF PARKING SPACES, # OF ACCESSIBLE PARKING SPACES PROVIDED, TOTAL # ACCESSIBLE PROVIDES.

OCCUPANT LOAD AND EXIT WIDTH
THIS SECTION REQUIRED FOR ALL PROJECTS

Table with columns: USE GROUP OR SPACE DESCRIPTION, AREA sq. ft., OCCUPANT (TABLE 1004.1.1), CALCULATED OCCUPANT LOAD, EGRESS WIDTH PER OCCUPANT, REQUIRED WIDTH (SECTION 1005.1), ACTUAL WIDTH SHOWN ON PLANS.

- See Table 1004.1.2 to determine whether net or gross area is applicable.
See definition "Area, Gross" and "Area, Net" (Section 1002)
Minimum stairway width (Section 1009.1), min. corridor width (Section 1018.2), min. door width (Section 1008.1.1)
Minimum width of exit passageway (Section 1023.2)
The loss of one means of egress shall not reduce the available capacity to less than 50 percent of the total required (Section 1005.1)
Assembly occupancies (Section 1028)

ASSEMBLY OCCUPANCY INFORMATION
THIS SECTION FOR ASSEMBLY USE AREA(S)

Table with columns: Space Description, Area - SF, Occupant Load Factor, Occupant Load, Exit Width, Exit Quantity.

Structural Design Loads (EXIST)

- Yes, continue No, Go to Line 9
Roof Live Load = PSF
Floor Live Load = PSF
Ground Snow Load (Pg) = PSF
Basic Wind Speed, 3 sec. Gust = MPH
Seismic Site Class =
Seismic Design Category =
Live Loads =
Floor Live Load (indicate area) = PSF
Floor Live Load (indicate area) = PSF
Floor Live Load (indicate area) = PSF
Live Load Reduction used in Design = PSF
Wind Exposure =
Internal Pressure Coefficient =

NOT APPLICABLE
THE PROJECT IS AN ALTERATION OF AN EXISTING BUILDING

- Components and Cladding Loads =
Wind Base Shear, Wx
Wind Base Shear, Wyx
Earthquake Design Data
Seismic Important Factor (Ie) =
Occupancy Category =
Mapped Spectral Response Acceleration Ss =
Mapped Spectral Response Acceleration S1 =
Site Class =
Spectral Response Coefficient, Sds =
Spectral Response Coefficient, Sd1 =
Seismic Design Category =
Building (Structural) System =
Basic Seismic Force Resisting System =
Seismic Response Coefficient (Cs) =
Response Modification Factor, R =
Analysis Procedure Used =
Seismic Base Shear, Sx
Seismic Base Shear, Sy
Soil Data =
Presumptive Soil Bearing Pressure =
Bearing Pressure per Soils Report =
Deep Foundation Type =
Deep Foundation Allowable Loads =
Uplift =
Lateral =

NOT APPLICABLE
THE PROJECT IS AN ALTERATION OF AN EXISTING BUILDING

PLUMBING FIXTURE REQUIREMENT
THIS SECTION REQUIRED FOR ALL PROJECTS

Table with columns: OCCUPANCY, WATERCLOSETS (MALE FEMALE), URINALS, LAVATORIES (MALE FEMALE), SHOWERS/TOILETS, JANITORIAL SINK, DRINKING FOUNTAINS (REGULAR ACCESSIBLE).

Table with columns: BUILDING DRAIN SIZE, NUMBER OF BUILDING DRAINING, TOTAL FIXTURE UNIT LOAD, WATER SERVICE SIZE, NUMBER OF WATER SERVICES, TOTAL FIXTURE UNIT LOAD, NOTES.

SPECIAL APPROVALS:

(Describe special approvals from local jurisdictions, County or State Department of Health, NC Department of Insurance, International Code Council, etc.)

ALL EXISTING TO REMAIN
AS IS.

ENERGY SUMMERY
ANGIER, HARNETT COUNTY CLIMATE ZONE 4c

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portion of the project information for the plan data sheet. If energy cost budget method, state the annual energy cost budget vs allowable annual energy cost budget.

THERMAL ENVELOPE

Method of Compliance:
Prescriptive 1, 7% Glazed Wall Area
Performance Energy Cost Budget
Roof/Ceiling Assembly (each assembly)
Description of assembly: Existing Bar Joists, metal decking
U-Value of total assembly: R-30 ci
R-Value of insulation: N/A
Skylights in each assembly: N/A
U-Value of skylight: N/A
total square footage of skylights in each assembly

Exterior Walls (each assembly) - EXISTING TO REMAIN

Description of assembly: Existing masonry
U-Value of total assembly: 0.064 Minimum
R-Value of insulation: Existing
Openings (windows or doors with glazing): U-Value of assembly Store front
Door U-Values: Entrance door Non Entrance
Walls adjacent to unconditioned space (each assembly) N/A
Description of assembly: Existing
U-Value of total assembly: Existing
R-Value of insulation: Existing
Openings (windows or doors with glazing): U-Value of assembly Low e required, if applicable
Door R-Values

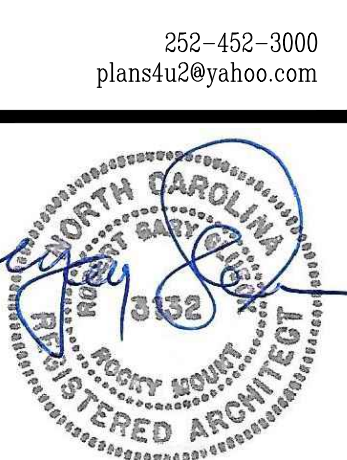
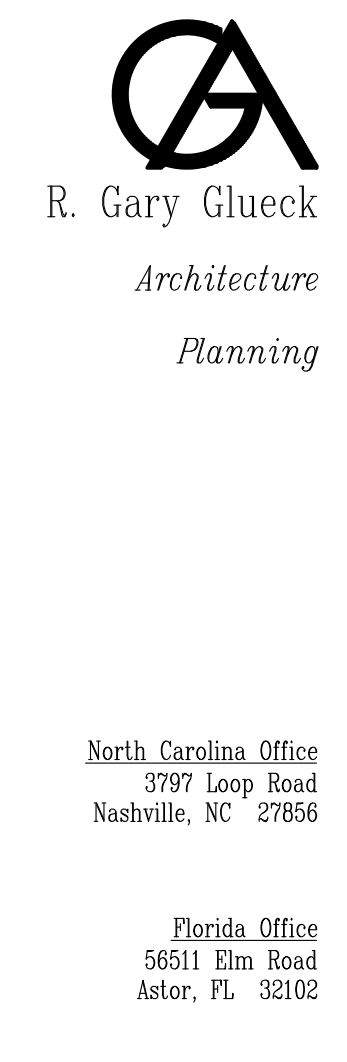
Walls below grade (each assembly) N/A

Description of assembly: Existing
U-Value of total assembly: Existing
R-Value of insulation: Existing
Horizontal/vertical requirement

Floors over unconditioned space (each assembly) N/A

Description of assembly: Existing
U-Value of total assembly: Existing
R-Value of insulation: Existing
Horizontal/vertical requirement

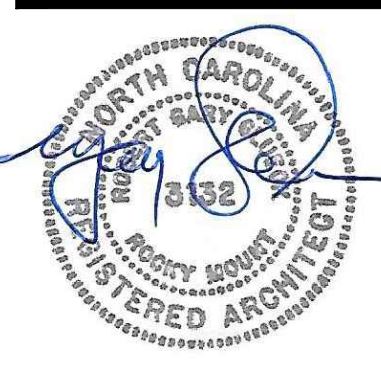
ALL EXTRIOR WALLS, ROOF, STORE FRONT (ENVELOPE) ARE EXISTING AND SHALL REMAIN. NO WORK IS BEING DONE IN THESE AREAS, U.N.O.. ALL WORK IS WITHIN THE SPACE AS AN INTERIOR UPFIT.



CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT JOB SITE.

BUILDING RENOVATIONS FOR THE PROPOSED WASHLAND LAUNDROMAT
559 N RALEIGH STREET ANGIER, NORTH CAROLINA

REVISIONS
DRAWN BY: WDS1
CHECKED BY: RGG
DATE: DECEMBER 2021
SHEET 2 OF 15
PROJECT SHEET NO. 3810 AB1



12-16-21

CONTRACTOR SHALL
VERIFY AND BE
RESPONSIBLE FOR
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JOB SITE.

BUILDING RENOVATIONS FOR THE PROPOSED
WASHLAND LAUNDROMAT
559 N. RALEIGH STREET
ANGER, NORTH CAROLINA

REVISIONS

DRAWN BY: WDSI
CHECKED BY: RGG
DATE: DECEMBER 2021
SHEET 3 OF 15
PROJECT SHEET NO.
3810 LS1.1

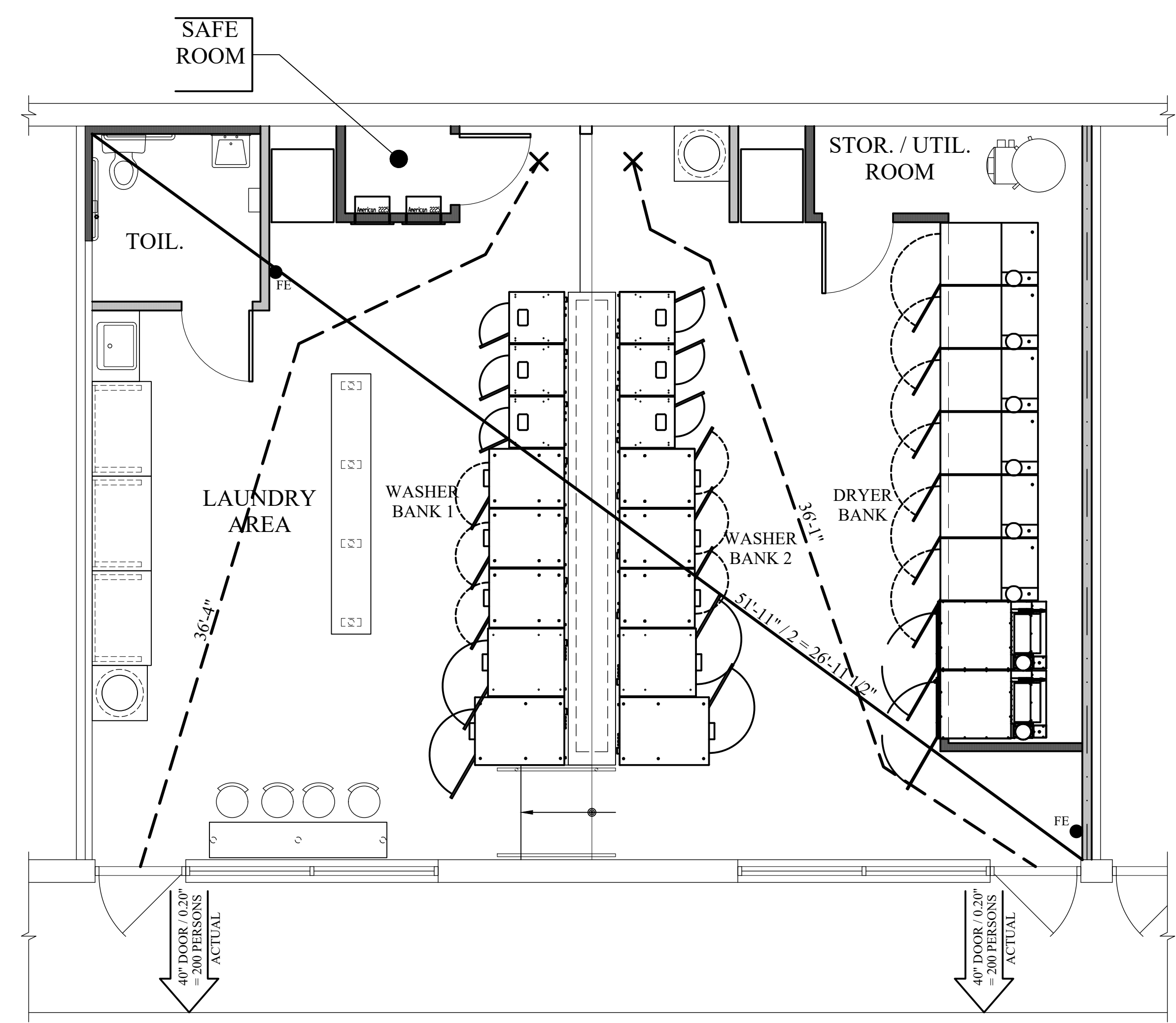
EGRESS DESIGN OCCUPANT LOAD		
SPACE	SF / AREA PER OCCUPANT (PER TABLE 1004.1.2)	LOAD
BUSINESS	1,362 SF / 100 GROSS	14
TOTAL		14

GENERAL LIFE SAFETY NOTES:

1. FIRE EXTINGUISHERS SHOWN ARE IN APPROXIMATE LOCATIONS AND ARE TO BE INSTALLED AT THE REQUIRED CODE HEIGHT.
2. REFER TO ELECTRICAL DRAWINGS FOR ALL, BUT NOT LIMITED TO, EMERGENCY LIGHTING, EXIT SIGNAGE, PULL STATIONS, STROBES, ETC. ON ALL ELECTRICAL LIFE SAFETY REQUIREMENTS.
3. AISLES IN OPEN AREAS SHALL BE 48" MIN. TO BE MAINTAINED THROUGH-OUT WHEN PLACING MOVEABLE ITEMS.

LEGEND

- INDICATES TRAVEL DISTANCES - ACTUAL DIMENSION - SEE PLAN
- INDICATES EGRESS DISTANCE - REQUIRED AND DIMENSION - SEE PLAN
- ← XX" DOOR / 0.20" = XX PERSONS ACTUAL REPRESENTS MAXIMUM ALLOWABLE OCCUPANT LOAD THRU EGRESS, VARIES - SEE PLAN FOR ACTUAL LOAD
- FE INDICATES FIRE EXTINGUISHER - MOUNT FE 48" A.F.F. MAX. - SEE DETAIL



LIFE SAFETY PLAN

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

1,362 SQ.FT. - TOTAL FITUP AREA

GENERAL DEMOLITION NOTES:

- THE CONTRACTOR SHALL VISIT AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND VERIFY EXISTING CONDITIONS. IF ANY EXISTING CONDITIONS VARY FROM INFORMATION INDICATED ON THE DRAWINGS, IT SHALL BE IN WRITTEN FORM AND GIVEN TO OWNER IMMEDIATELY PRIOR TO ANY DEMOLITION OR CONSTRUCTION.
- DEMOLITION SHOULD BE COORDINATED WITH CONSTRUCTION PLAN TO DETERMINE EXTENT OF WORK. THE DRAWINGS DO NOT NECESSARILY SHOW COMPLETE DEMOLITION WORK REQUIRED, BUT RATHER SHOWN INTENT OF DEMOLITION/CONSTRUCTION DEMOLISH TO A POINT TO PROVIDE SUITABLE "BONDING"/"PATCHING" OF EXISTING WORK TO REMAIN WITH NEW WORK.
- THE CONTRACTOR SHALL CAREFULLY REMOVE ALL ITEMS, COORDINATED WITH OWNER TO BE SAVED. OWNER TO DIRECT CONTRACTOR ON LOCATION OF ANY SALVAGED ITEMS. CONTRACTOR TO TAKE EVERY EFFORT NOT TO DAMAGE ITEMS TO BE SALVAGED AND STORED.
- SELECTIVE NON-STRUCTURAL DEMOLITION AS REQUIRED INCLUDES BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING EXISTING CONSTRUCTION COMPONENTS:
 - GYPSUM DRYWALL PARTITIONS AND CEILINGS.
 - APPLIED FINISHES SUCH AS CARPET (COORDINATE WITH FINISH PLAN FOR EXTENT), VINYL COMPOSITION TILE, RESILIENT BASE (COORDINATE WITH FINISH PLAN FOR EXTENT), PAINTED COATINGS AND OTHER FINISHES ENCOUNTERED. REMOVE RESIDUE FROM ADHESIVES.
 - HOLLOW METAL OR ALUMINUM FRAMES AND RELATED DOORS AND HARDWARE.
 - NON-STRUCTURAL MISCELLANEOUS METALS FABRICATION AND RELATED WORK.
 - ROUGH AND FINISH CARPENTRY AS NOTED. ALL CHAIR RAILING AND MOLDING TO BE REMOVED.
 - ACCESS DOORS AND PANELS.
 - DOMESTIC PLUMBING SYSTEM COMPONENTS SUCH AS FIXTURES, PIPING, VALVES AND OTHER CONTROLS, PIPE INSULATION, AND RELATED WORK. SEAL PENETRATIONS THROUGH SLAB TO BE ABANDONED, AS REQUIRED BY CODE.
 - ELECTRICAL POWER AND COMMUNICATION DISTRIBUTION SYSTEMS COMPONENTS SUCH AS WIRING AND CONDUIT, PANELS AND PANEL BOARDS, TERMINAL STRIPS, BACKBOARDS, JUNCTION AND PULL BOXES, SWITCHES AND OTHER CONTROLS, WIRING DEVICES AND RELATED WORK. REMOVE ALL ELEC. CONDUIT, WIRING, ETC. COMPONENTS BACK TO IT SOURCE.
 - ELECTRICAL LIGHTING SYSTEMS INCLUDING LIGHT FIXTURES, SWITCHES AND RELATED WORK.
- PREPARE EXIST. AND NEW SURFACES AS REQUIRED TO RECEIVE NEW FINISHES.
- WHEN EXIST. MATERIALS AND FINISHES TO REMAIN ARE AT THE TRANSITION POINT TO MATERIALS AND FINISHES TO BE REMOVED, TAKE THE UTMOST CARE NOT TO DAMAGE THE ADJOINING SURFACE.
- CONTRACTOR TO CAREFULLY COORDINATE WITH OWNER AND PROVIDE A SCHEDULE / PROCEDURE FOR REMOVAL, AS SPECIFIED, AND CONSTRUCTION TO MINIMIZE THE EXPOSED SPACE TO THE ELEMENTS. DISCUSS WITH OWNER ON PROTECTION PROCEDURES FOR THE CHANCE OF INCLEMENT WEATHER FOR THE PROTECTION OF THE BUILDING'S INTERIOR.
- ANY AND ALL ROOF COMPONENTS BEING MODIFIED FOR NEW, THE CONTRACTOR TO CAREFULLY COORDINATE WITH OWNER AND PROVIDE A SCHEDULE / PROCEDURE FOR REMOVAL/ MODIFICATION, AS SPECIFIED, AND CONSTRUCTION TO MINIMIZE THE EXPOSED SPACE TO THE ELEMENTS. DISCUSS WITH OWNER ON PROTECTION PROCEDURES FOR THE CHANCE OF INCLEMENT WEATHER FOR THE PROTECTION OF THE BUILDING'S INTERIOR.

LEGEND

- EXISTING WALLS, DOORS, WINDOWS, ETC. TO REMAIN AS IS, U.N.O.
- EXISTING WALLS, DOORS, WINDOWS, ETC. TO BE REMOVED

GENERAL NOTES:

- ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE PLUS ALL LOCAL CODES AND REGULATIONS. THE ARCHITECT AND DESIGNER WILL NOT BE RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OF PROCEDURES, SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK; NOR WILL THE ARCHITECT AND DESIGNER BE RESPONSIBLE FOR THE G.C. FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT AND BUILDING CODE DOCUMENTATION.
- THE LAUNDRY MAT EQUIPMENT SCHEDULE ARE FOR REFERENCE ONLY. OWNER TO COORDINATE WITH LAUNDRY MAT EQUIPMENT PROVIDER FOR EQUIPMENT MANUFACTURERS SPECIFICATIONS, CLEARANCES, ETC. PRIOR TO INSTALLATION AND ADJUST ACCORDINGLY.
- OWNER WILL BE RESPONSIBLE FOR ALL INTERIOR FLOOR, BASE, WALL, CEILING, DOORS, FRAME, ETC. FINISH SELECTIONS DURING CONSTRUCTION. G.C. TO COORDINATE WITH OWNER ON THEIR RESPECTIVE FINISHES TO CURRENT TRADE INSTALLATION PRACTICES.
- G.C. TO COORDINATE WITH MECHANICAL DRAWINGS FOR ANY AND ALL NEW OPENINGS FOR NEW INTAKE AIR SYSTEM. REFER TO TYPICAL LOUVER OPENING DETAIL FOR MASONRY OPENING SUPPORT.
- OPERABLE PARTS TO BE INSTALLED PER 309 OF ANSI.
- TACTILE EXIT SIGNAGE OF CHAPTER 10 "MEANS OF EGRESS", SECTION 1011, 1011.3 WHICH STATES, "A TACTILE SIGN STATING "EXIT" AND COMPLYING WITH ICC A117.1, SHALL BE PROVIDED ADJACENT TO EACH DOOR TO AN AREA OF REFUGE, EXTERIOR AREA OF ASSISTANCE RESCUE, EXIT STAIRWAY, EXIT RAMP, EXIT PASSAGEWAY, AND EXIT DISCHARGE". EXIT SIGNAGE SHALL BE INSTALLED 12" FROM LATCH SIDE OF DOOR FRAME AND A MAX HEIGHT OF 60" A.F.F. AT EXIT DISCHARGE / PASSAGEWAY. REFER TO DETAIL 202 ON SHEET A2.1 FOR ADDITIONAL INFORMATION
- G.C. TO COORDINATE WITH HARDWARE REPRESENTATIVE FOR ANY AND ALL HARDWARE ON THIS PROJECT TO MEET MINIMUM BUILDING CODE.
- G.C. TO EXTEND STEP TO COVER NEW SUPPLY PIPING. SEE PLUMBING PLANS, WITH CONC. PROVIDE EMBED ANCHORS INTO EXIST. CONC. FOR REINFORCING. ONCE COMPLETE A 8"W. PAINTED YELLOW STRIP CONTINUOUS THRU LENGTH OF NEW EXTENDED STEP BOTH TREAD AND RISER.
- G.C. TO COORDINATE WITH ELEC. CONTRACTOR ON THEIR EXT. ELEC. EQUIP. BOARD ON EXIST. ROOF. SECURELY FASTEN BOARD TO EXIST. ROOF STRUCTURE AND PROVIDE A WATERTIGHT SEAL.

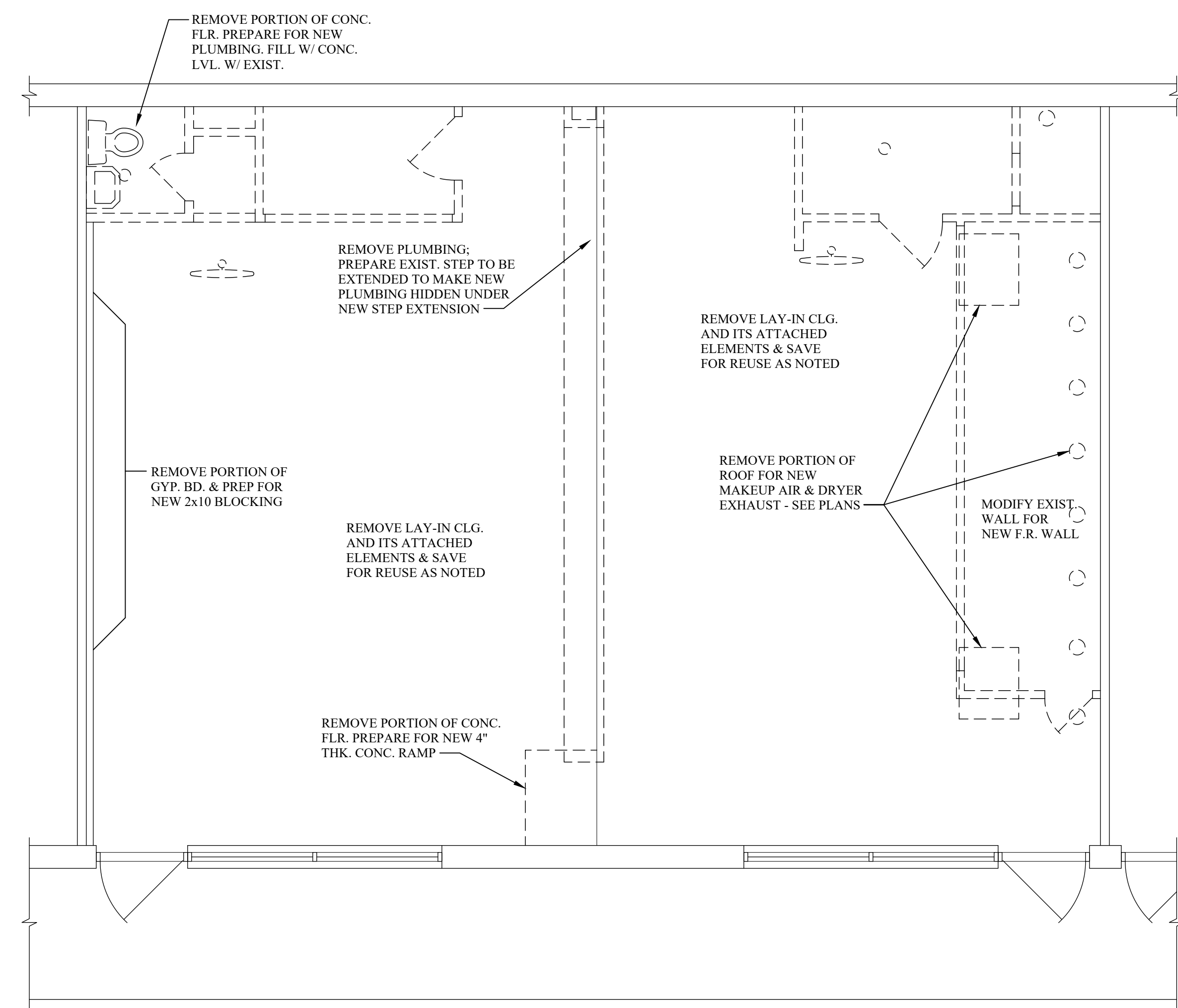
LEGEND

- EXISTING WALLS, DOORS, WINDOWS, ETC. TO REMAIN AS IS, U.N.O.
- 2x4 STUDS @ 16" O.C. WITH 1-LAYER 5/8" TYPE 'X' FIRE RATED GYPSUM WALLBOARD ON EACH SIDES; U.N.O. - REFER TO UL U305 FOR ADDITIONAL DETAILS FOR CONSTRUCTION OF FIRE RATED WALL SYSTEM.
- 2x4 STUDS @ 16" O.C. WITH GYPSUM WALLBOARD ON BOTH SIDES - SEE NOTES; U.N.O.
- 2x4 STUDS @ 16" O.C. WITH GYPSUM WALLBOARD ON (1) SIDE ONLY; U.N.O. - SEE NOTES

- NOTES:**
- ALL INTERIOR DIMENSIONS ARE TO CENTERLINE OF STUD. DIMENSIONS TO EXTERIOR WALL ARE TO THE EXTERIOR FACE OF BUILDING FRAME.
 - PROVIDE 1-LAYER OF 1/2" GYPSUM WALLBOARD ON BOTH SIDES, TYPICAL; UNLESS AT CAVITY WALLS.

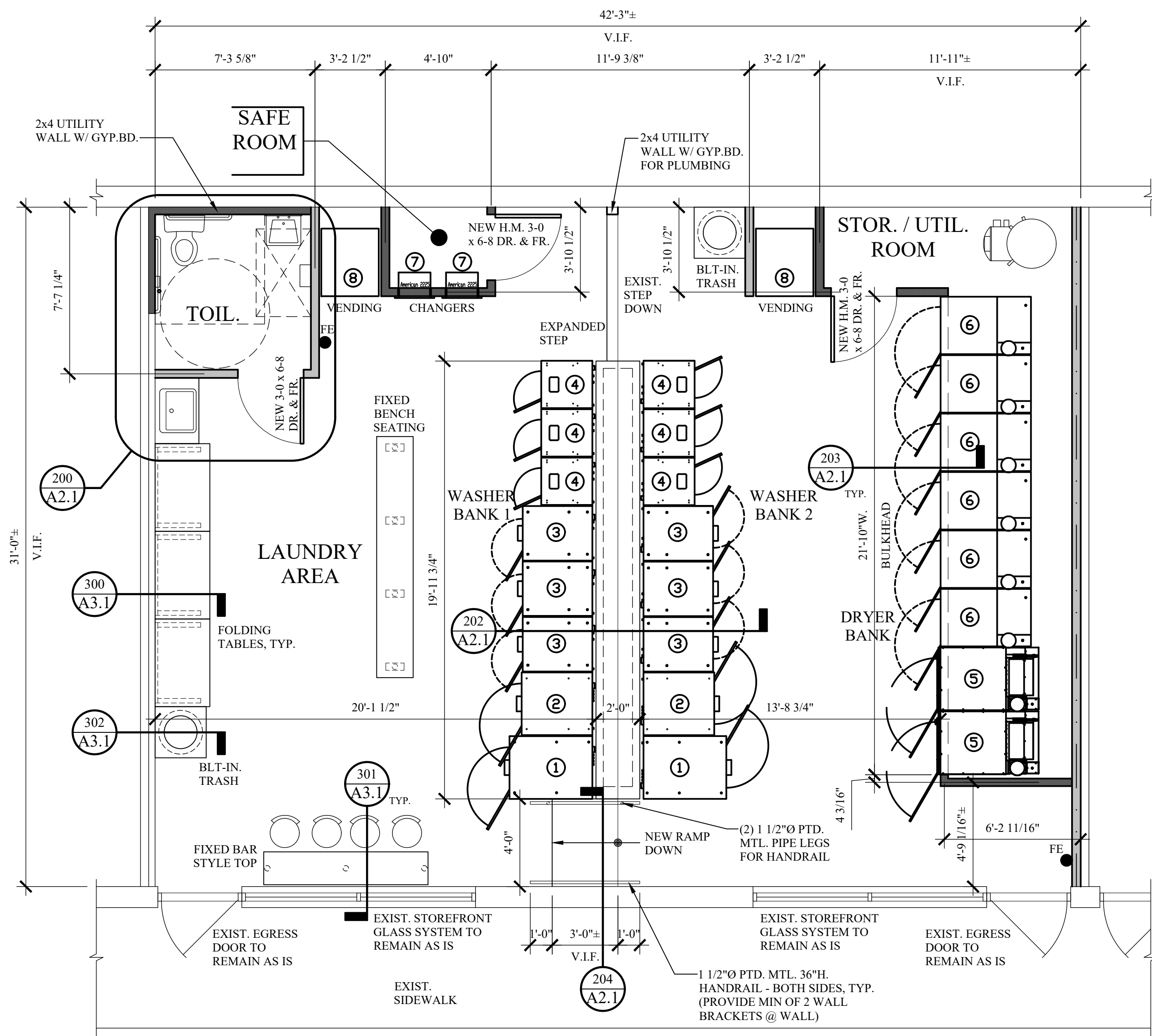
EQUIPMENT SCHEDULE

ITEM #	MANUFACTURER DESCRIPTION	QUANTITY
1	T-1200C-SERIES WASHER	2
2	T-950EX WASHER	2
3	T-650EX WASHER	6
4	T-350EX WASHER	6
5	T50x2 STACKED DRYER	2
6	T30x2 STACKED DRYER	6
7	BILL CHANGER	2
8	SOAP VENDING	2



DEMOLITION PLAN

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



FLOOR PLAN

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

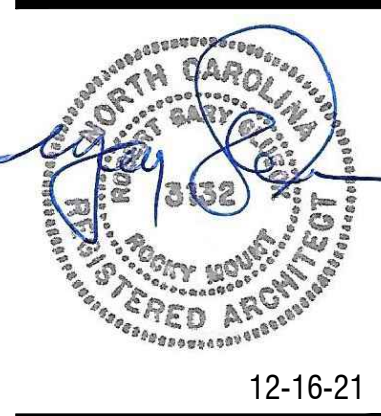
1,362 SQ.FT. - TOTAL FITUP AREA

R. Gary Glueck
Architecture
Planning

North Carolina Office
 3797 Loop Road
 Nashville, NC 27856

Florida Office
 56511 Elm Road
 Astor, FL 32102

252-452-3000
 plansr2@yahoo.com



CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT JOB SITE.

BUILDING RENOVATIONS FOR THE PROPOSED
WASHLAND LAUNDROMAT
 559 N. RALEIGH STREET
 ANGER, NORTH CAROLINA

REVISIONS

DRAWN BY:	WDS1
CHECKED BY:	RGG
DATE:	DECEMBER 2021
SHEET	4 OF 15
PROJECT	3810
SHEET NO.	A1.1

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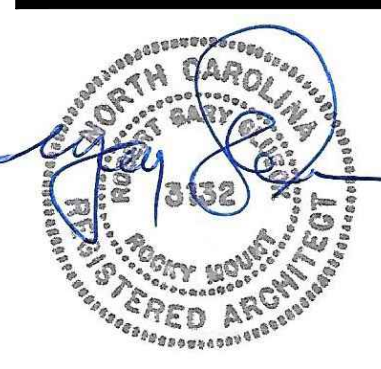


R. Gary Glueck
Architecture
Planning

North Carolina Office
3797 Loop Road
Nashville, NC 27856

Florida Office
56511 Elm Road
Astor, FL 32102

252-452-3000
plans4u2@yahoo.com



12-16-21

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BUILDING RENOVATIONS FOR THE PROPOSED
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559 N. RALEIGH STREET
ANGER, NORTH CAROLINA

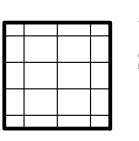
REVISIONS


DRAWN BY: WDSI
CHECKED BY: RGG
DATE: DECEMBER 2021
SHEET 5 OF 15
PROJECT SHEET NO.
3810 A1.2

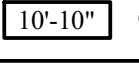
GENERAL RCP NOTES:

1. THE GC SHALL COORDINATE WITH MECHANICAL, ELECTRICAL LIGHTING DRAWINGS FOR ADDITIONAL INFORMATION ON ANY AND ALL NEW DEVICES.
2. NEW LAY-IN GRID & TILE TO BE INSTALLED IN ORDER TO MODIFY / INSTALL NEW HVAC SYSTEM. GC TO COORDINATE W/ MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION. REUSE EXISTING LIGHT FIXTURES. CLEAN FIXTURE AND REPLACE FLUORESCENT TUBES.
3. PROVIDE NEW R-19 ON NEW LAY-IN GRID AND TILES THROUGH-OUT.

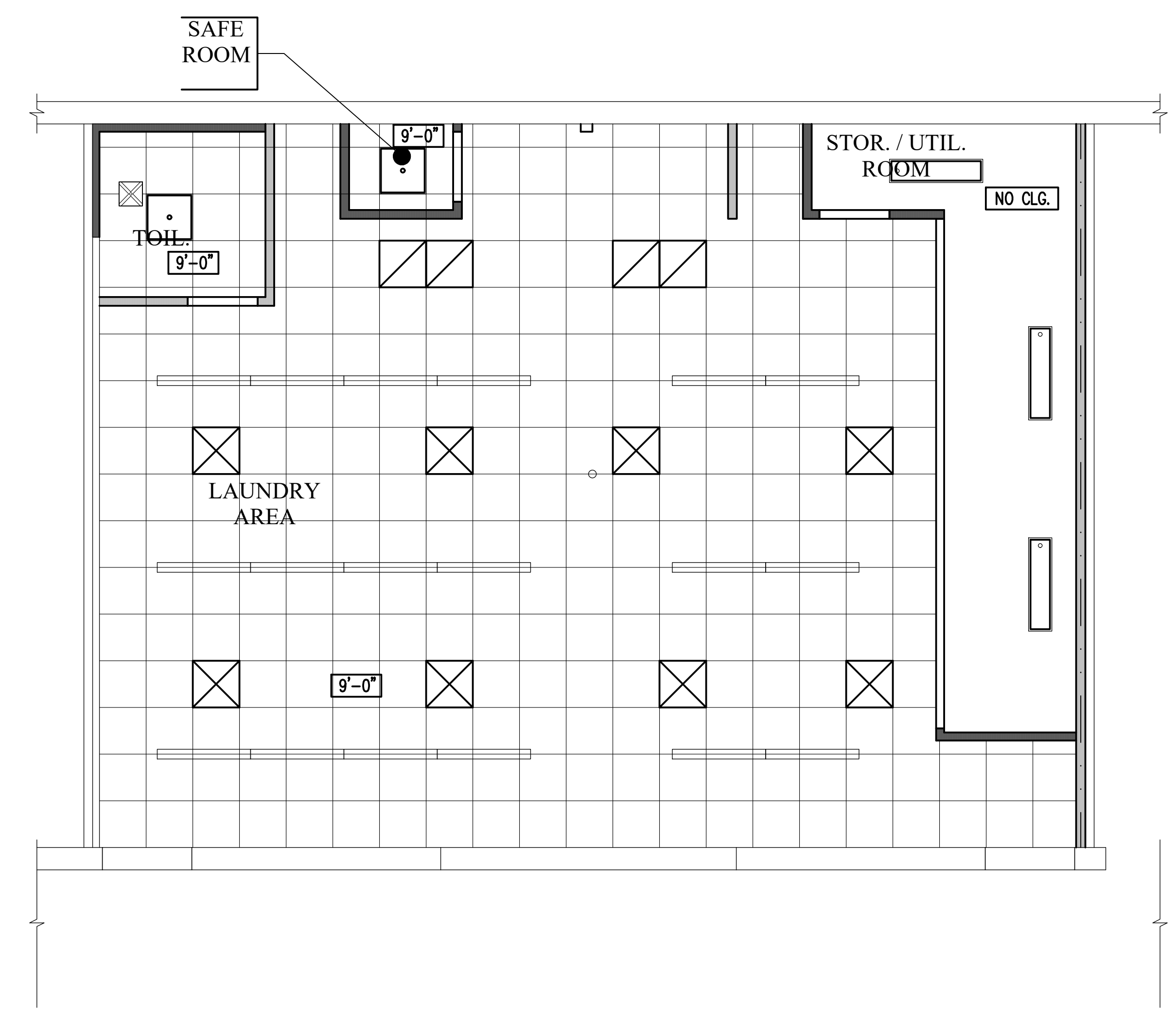
RCP LEGEND

 NEW 2X2 ACOUSTICAL LAY-IN CEILING SYSTEM UNLESS NOTED OTHERWISE

 NEW GYPSUM WALLBOARD CEILING TO BE INSTALLED DIRECTLY TO STRUCTURE; UNLESS OTHERWISE NOTED ON PLANS

 CEILING HEIGHT KEY

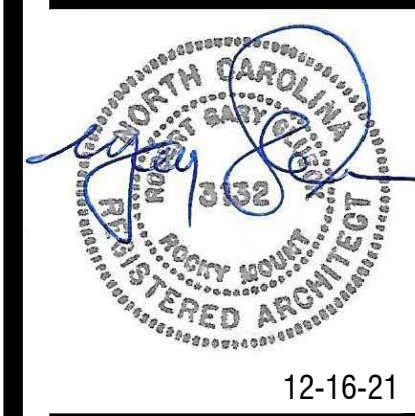
NOTE:
REFER TO LIGHTING AND MECHANICAL PLAN FOR FULL DESCRIPTION OF SYSTEMS.



REFLECTED CEILING PLAN

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

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12-16-21

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BUILDING RENOVATIONS FOR THE PROPOSED
WASHLAND LAUNDROMAT
559 N. RALEIGH STREET
ANGER, NORTH CAROLINA

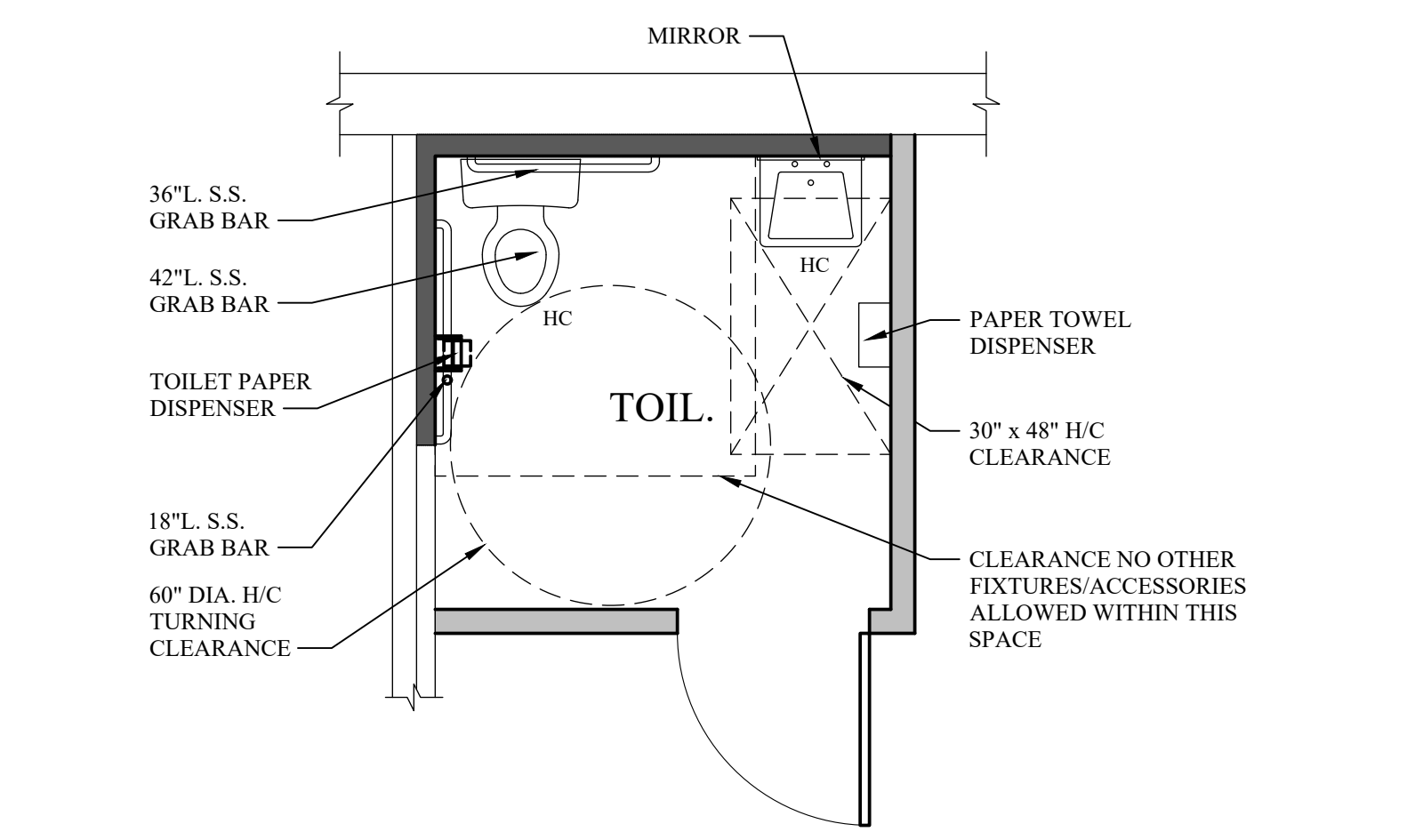
REVISIONS

DRAWN BY: WDSI
CHECKED BY: RGG
DATE: DECEMBER 2021
SHEET 6 OF 15
PROJECT SHEET NO.
3810 A2.1

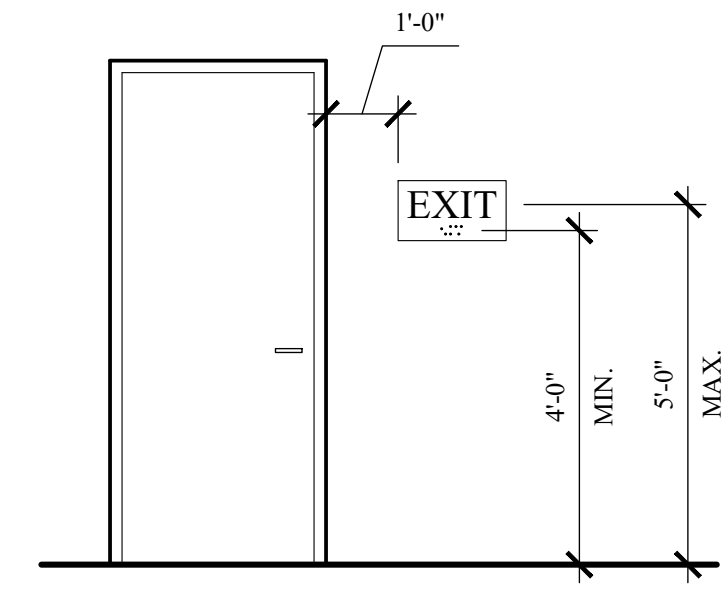
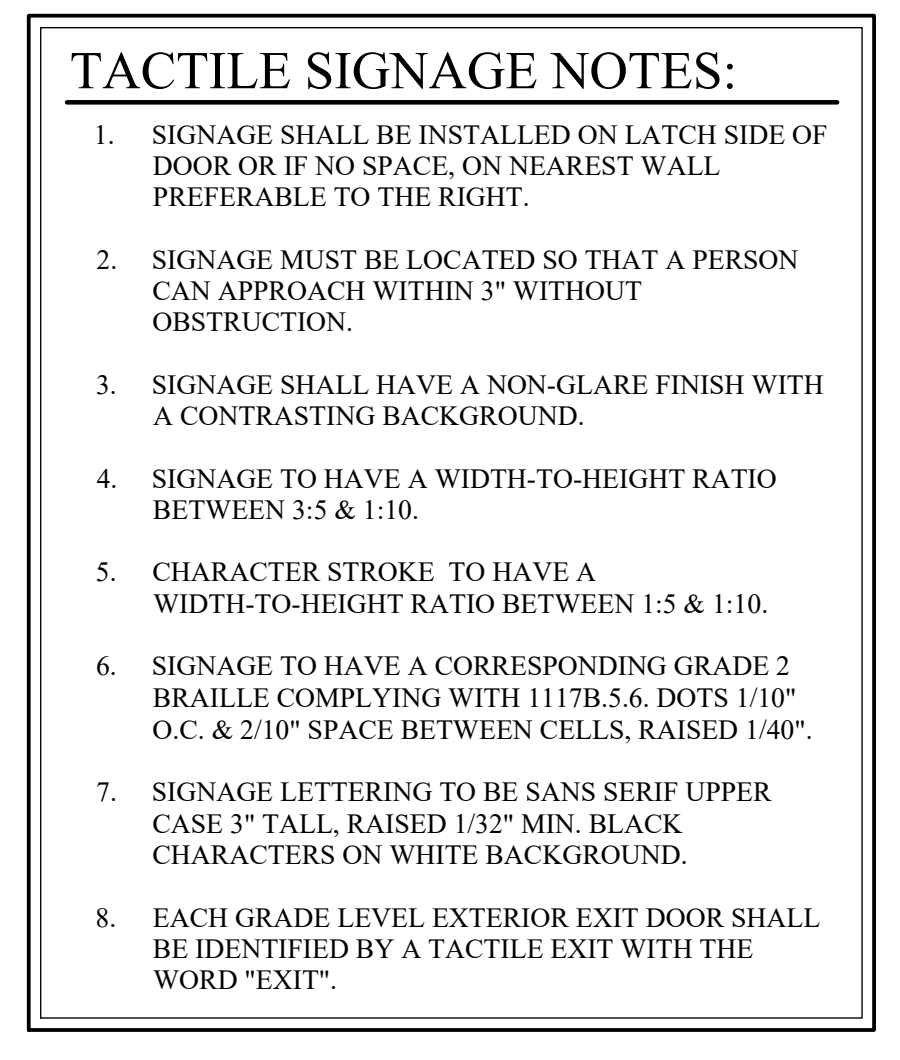
GENERAL NOTES:

TOILET ROOMS AND FIXTURES

- TOILET ELEVATION SHOWN IS A STANDARD REPRESENTATION. ACTUAL SINGLE TOILET DIMENSIONS WILL VARY AND NECESSARY ADJUSTMENTS SHOULD BE MADE TO ACCOMMODATE.
- ALL FIXTURES TO BE ADA COMPLIANT AND INSTALLED PER ADA REQUIREMENTS.
- PROVIDE 2X BLOCKING FOR INSTALLATION OF ALL ACCESSORIES - PROVIDE BLOCKING FOR ANY FUTURE ACCESSORIES AS NOTED.
- ALL DIMENSIONS ON THIS SHEET UNDERSTOOD TO BE "CLEAR" TO FINISH.
- ALL FLOOR, BASE, WALL, AND CEILING FINISHES SHALL BE FINALIZED BY OWNER. ALL FINISHES INDICATED ON THIS AND ALL PAGES REQUIRE COORDINATION WITH OWNER. BASE SHALL BE AS FOLLOWS: FLOOR - C.T.; BASE - C.T.; WALLS - EPOXY PAINT; CEILING - PAINT.
- ALL TOILET ACCESSORIES AND FIXTURES INDICATED IN DETAILS ARE OF ADA REQUIRED REPRESENTATION ONLY. FLOOR PLANS AND ENLARGED PLANS SHALL DIRECT G.C. ON LAYOUT AND LOCATIONS OF ALL TOILET ACCESSORIES, FIXTURES, PARTITIONS, ETC.
- ALL EXISTING TOILET AREAS AND ACCESSORIES SHALL BE VERIFIED OPERATIONAL AND FREE FROM DAMAGE; REPLACE AS NECESSARY.



200 PLAN ENLARGEMENT
SCALE: 3/8" = 1'-0"



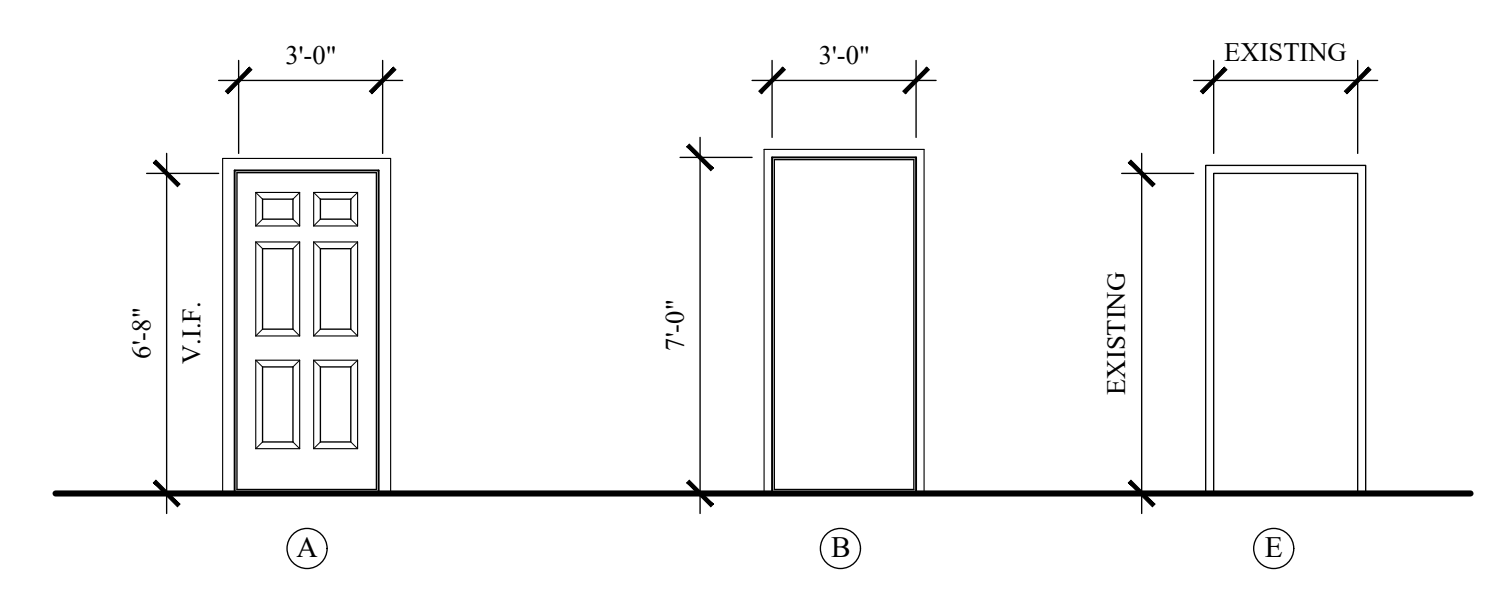
TACTILE EXIT SIGNAGE
NOT TO SCALE

DOOR SCHEDULE

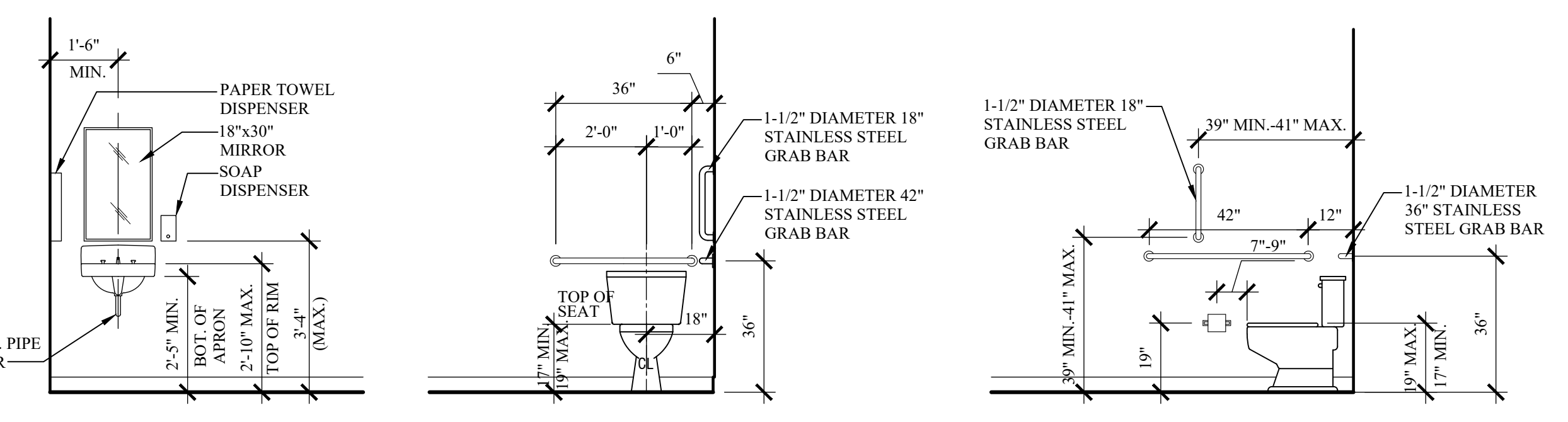
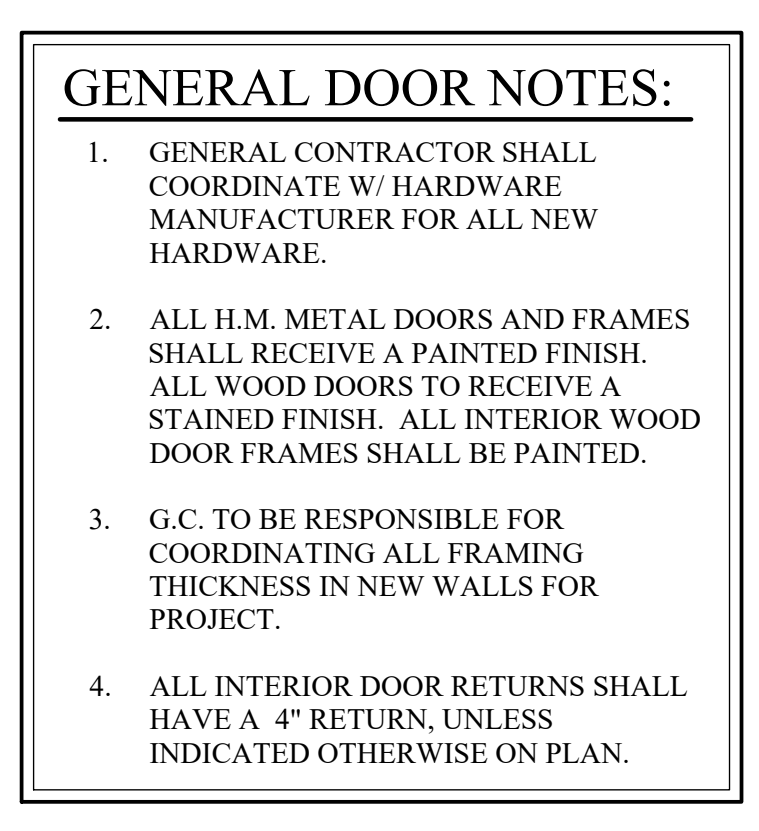
DOOR NUMBER	SIZE			DOOR				FRAME				HARDWARE	REMARKS	
	WIDTH	HEIGHT	THICKNESS	MATERIAL	DESCRIPTION	ELEV.	RATING	MATERIAL	DESCRIPTION	ELEV.	RATING			
100	3'-6"	7'-0"	1 3/4"	EXISTING TO REMAIN	GLAZING									
101	3'-0"	6'-8"	1 1/2"	HOLLOW CORE WOOD	N/A	A	N/A	PREFAB. WOOD	A	N/A		PER CODE		
102	3'-0"	7'-0"	1 3/4"	SOLID WOOD CORE	N/A	B	N/A	16 ga. METAL FRAME	B	N/A		PER CODE	ADDTL. FRAME ANCHORS	
103	3'-0"	6'-8"	1 1/2"	HOLLOW CORE WOOD	N/A	A	N/A	PREFAB. WOOD	A	N/A		PER CODE		
104	3'-6"	7'-0"	1 3/4"	EXISTING TO REMAIN										

GENERAL NOTES:

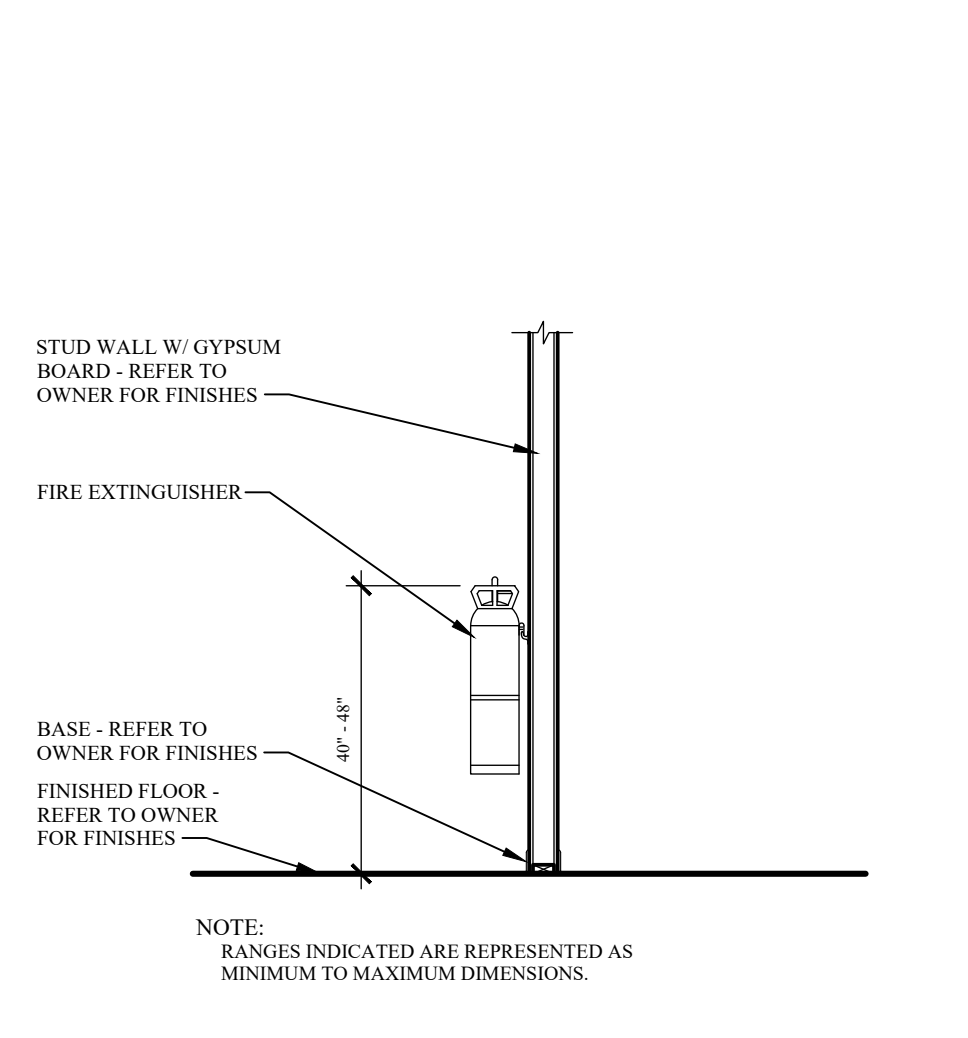
- CONTRACTOR TO CONFORM TO COMMERCIAL INDUSTRY STANDARDS FOR QUALITY AND INSTALLATION.
- CONTRACTOR TO COORDINATE ALL HARDWARE REQUIREMENTS WITH HARDWARE SPECIALISTS AND OWNER FOR ANY SECURITY HARDWARE PRIOR TO PROVISIONS AND INSTALLATION.
- ALL PAINTED WOOD SURFACES SHALL RECEIVE (1) COAT OF PRIMER AND (2) COATS OF FINISHED COLOR.



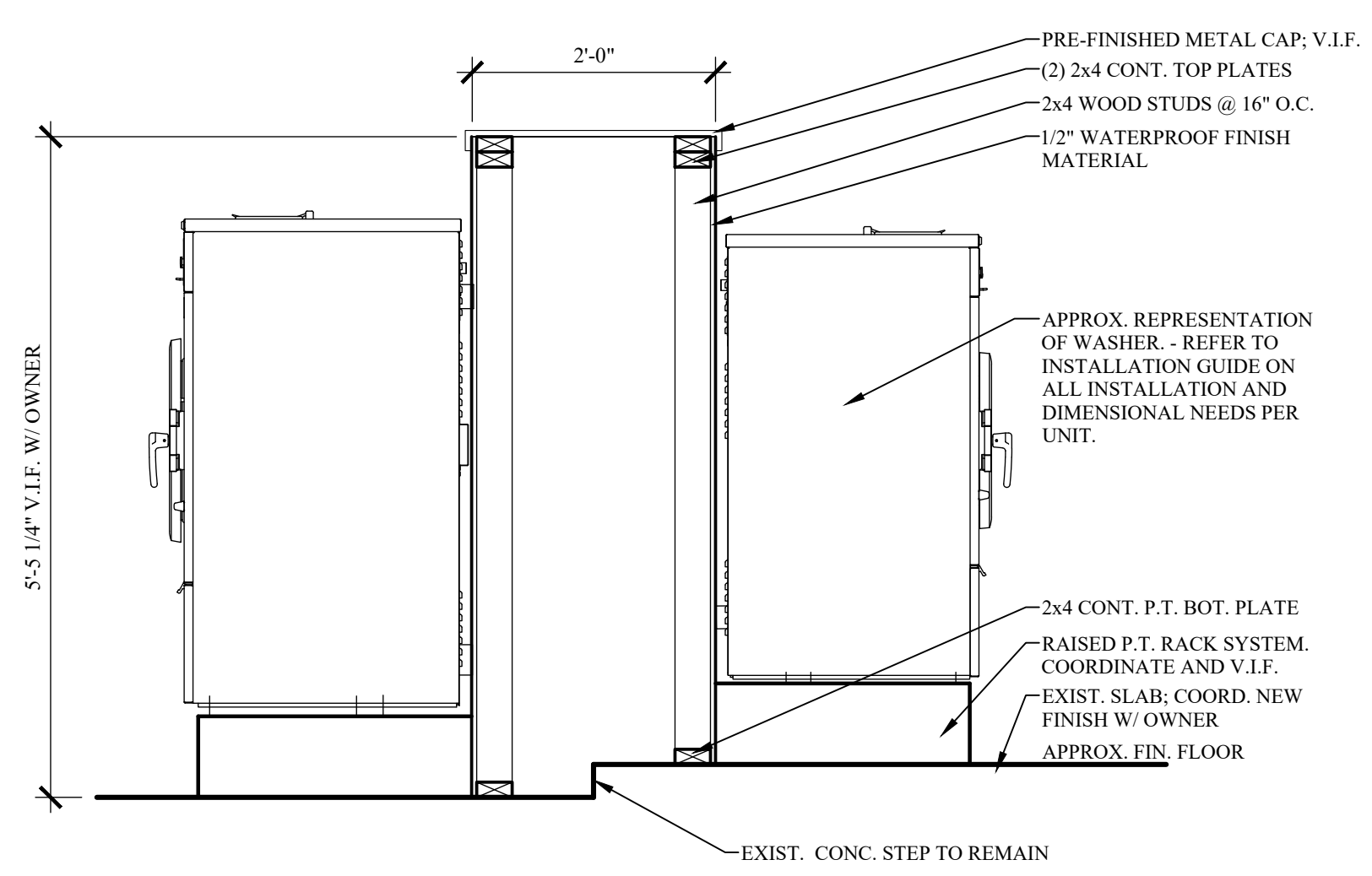
DOOR SCHEDULE
SCALE: 1/4" = 1'-0"



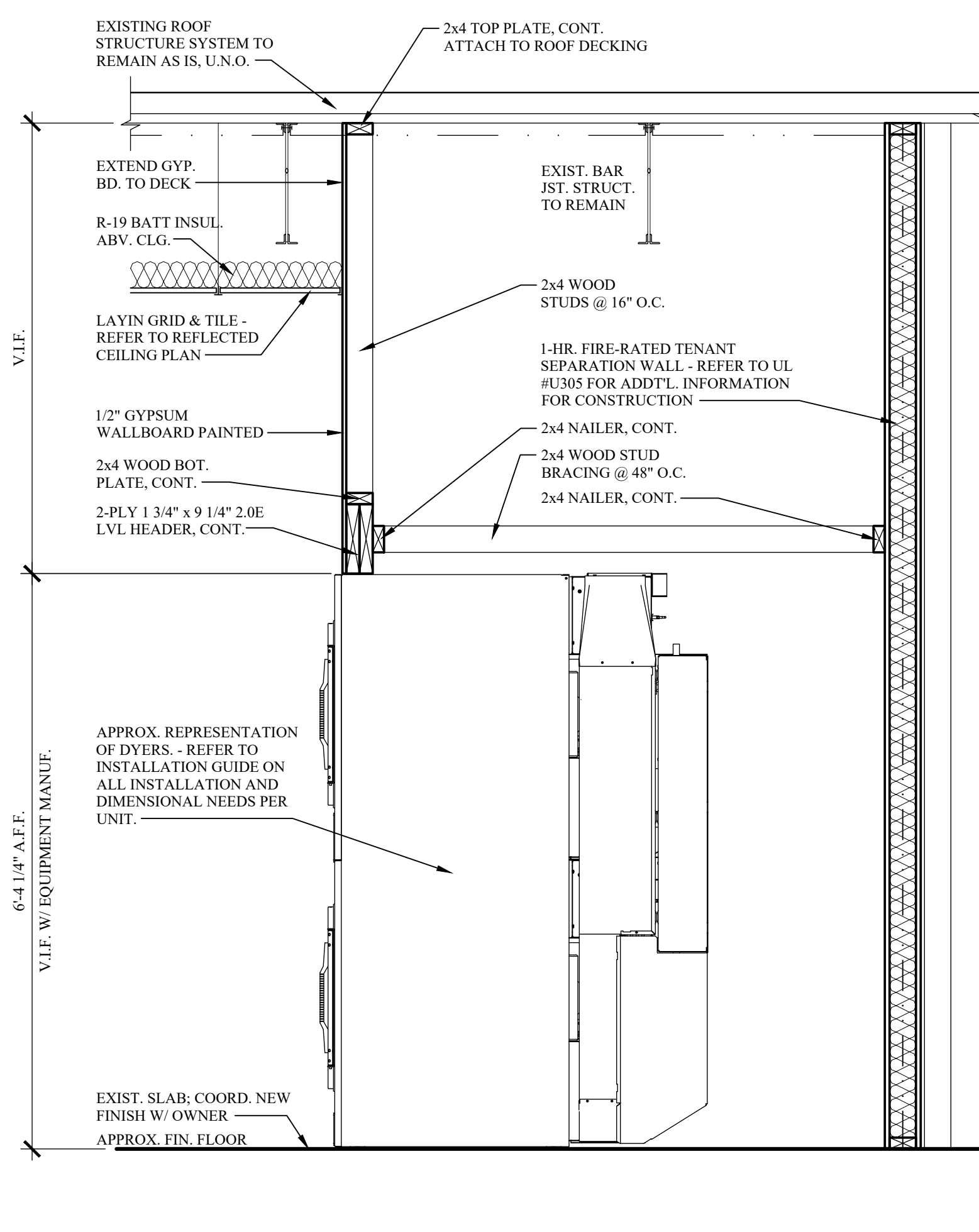
TYPICAL TOILET ELEVATIONS
SCALE: 3/8" = 1'-0"



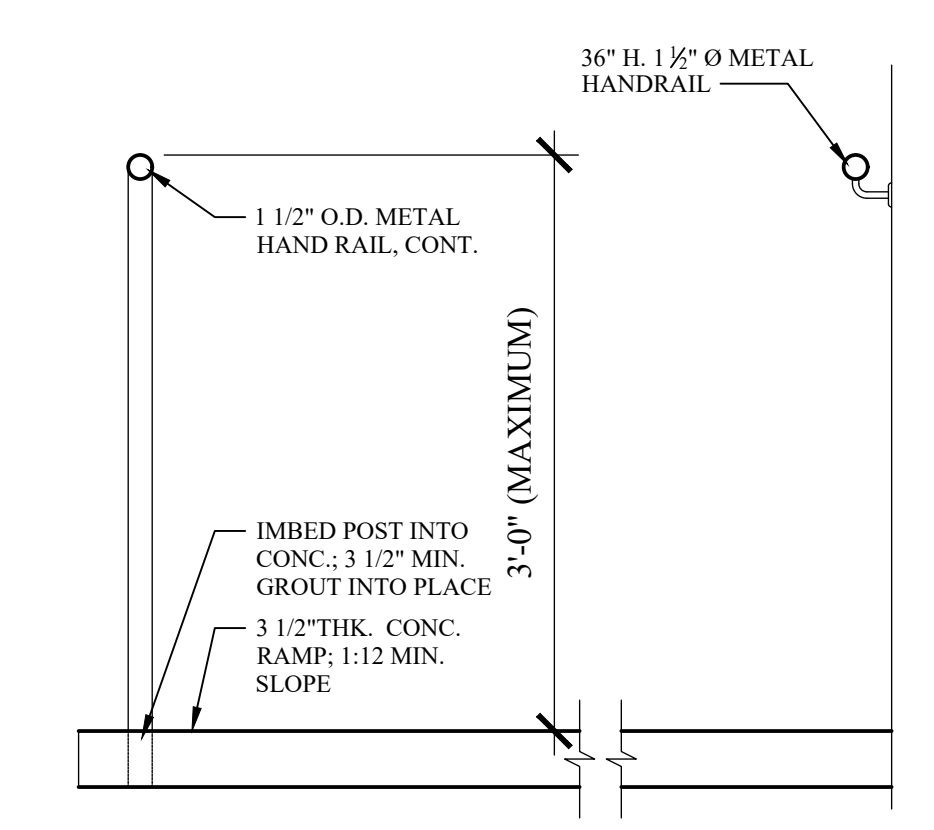
201 FIRE EXTINGUISHER DETAIL
SCALE: 3/8" = 1'-0"



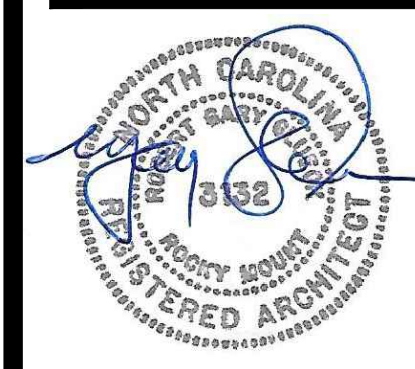
202 CROSS SECTION THROUGH WASHER BANK
SCALE: 3/4" = 1'-0"



203 SECTION THRU DRYER BANK
SCALE: 3/4" = 1'-0"



204 HANDRAIL SECTION
SCALE: 1" = 1'-0"



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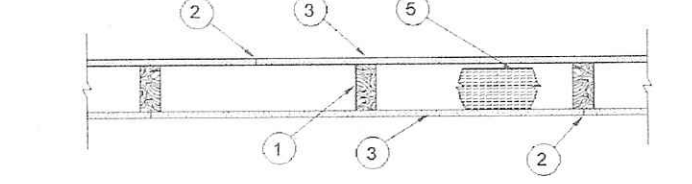
REVISIONS

DRAWN BY: WDSI
CHECKED BY: RGG
DATE: DECEMBER 2021
SHEET 7 OF 15
PROJECT SHEET NO.
3810 A3.1

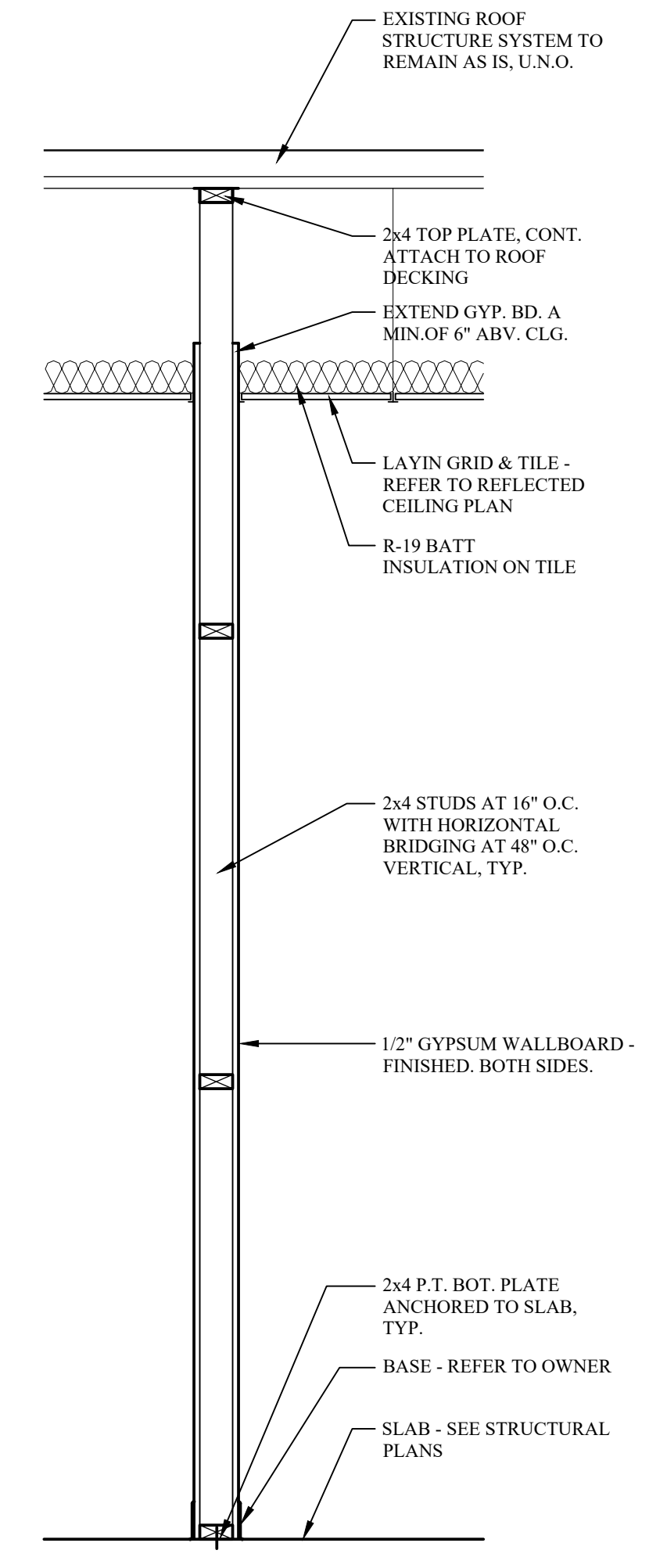
GENERAL ROOF NOTES:

- THE G.C. SHALL COORDINATE WITH PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION ON ANY AND ALL NEW UNITS, INTAKE, EXHAUST AND ELECTRIC EQUIP. MOUNT LOCATIONS.
- THE G.C. SHALL COORDINATE WITH PLUMBING AND ELECTRICAL DRAWINGS FOR ANY NEW PLUMBING AND ELECTRICAL REQUIREMENTS FOR THE NEW SPACE.
- G.C. TO PROVIDE PROTECTION TO SURROUNDING EXIST. AREAS TO REMAIN FROM INSTALLATION OF ATTACHMENT PROCEDURES ON ROOF OPENINGS.
- ROOF CONTRACTOR TO USE CURRENT COMMERCIAL INSTALLATION PROCEDURES FOR THE INSTALLATION OF NEW ROOF CURBS AND ROOFING. CONTRACTOR SHALL PROVIDE, BUT NOT LIMITED TO, NEW FLASHING'S, COUNTER-FLASHING, ETC. FOR A WATERTIGHT SEAL.
- EXIST. ROOF IS AN EPDM ROOFING OVER EXIST. METAL DECKING. MATERIALS UNDER EPDM IS UNKNOWN. ONCE OPEN, ROOF CONTRACTOR TO REPLACE ANY DAMAGED MATERIAL AND MATCH THICKNESS FOR A SEAMLESS TRANSITION BETWEEN EXIST. AND NEW.
- G.C. TO PROVIDE EPDM BASE PIPE FLASHING BOOTS AROUND ALL ROUND EXHAUST VENTS FOR TOILET, DRYERS AND WATER HEATERS. USE CURRENT COMMERCIAL INSTALLATION PROCEDURES TO PROVIDE WATERPROOF SEAL TO EXISTING EPDM ROOFING.
- FASTEN AND PROVIDE FLASHING AROUND ELEC. EQUIP. SUPPORT LEGS ON EXIST. EPDM ROOF FOR A WATERTIGHT SEAL.

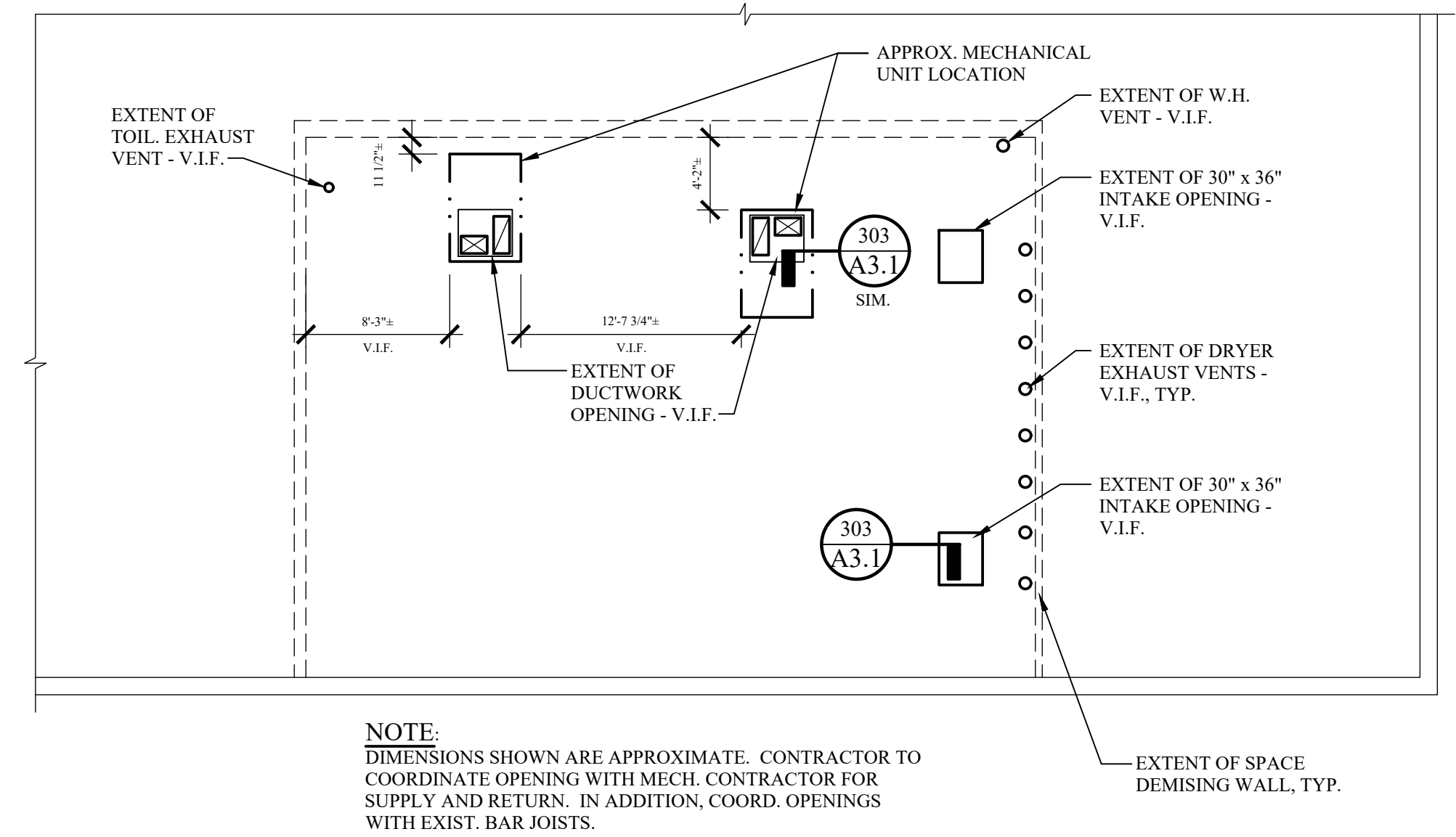
Design No. U305
Bearing Wall Rating - 1 HR.
Finish Rating - See Items 3A, 3D and 3E
STC Rating - 56 (See Item 9)
Load Restricted for Canadian Applications - See Guide BAUV7



- Wood Studs - Nom 2 by 4 in. spaced 16 in. OC max, effectively fire-protected.
- Joints and Nail-heads - Exposed or covered with specific edge configuration. For tapered, rounded-edge gypsum board, joints covered with joint compound or fiber tape and joint compound. As an alternate, non 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Nailheads exposed or covered with joint compound.
- Gypsum Board - 5/8 in. thick paper or vinyl surfaced, with beveled, square or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with fire type nails 1 1/4 in. long. 0.015 in. shank diam and 15/64 in. diam heads. When used in vertical applications, gypsum panels are to be installed horizontally. For an alternate method of attachment of gypsum panels, refer to Item 6 or AMERICAN GYPSUM CO - Types AG-C (finish rating 25 min.) or AG-C (finish rating 25 min.).

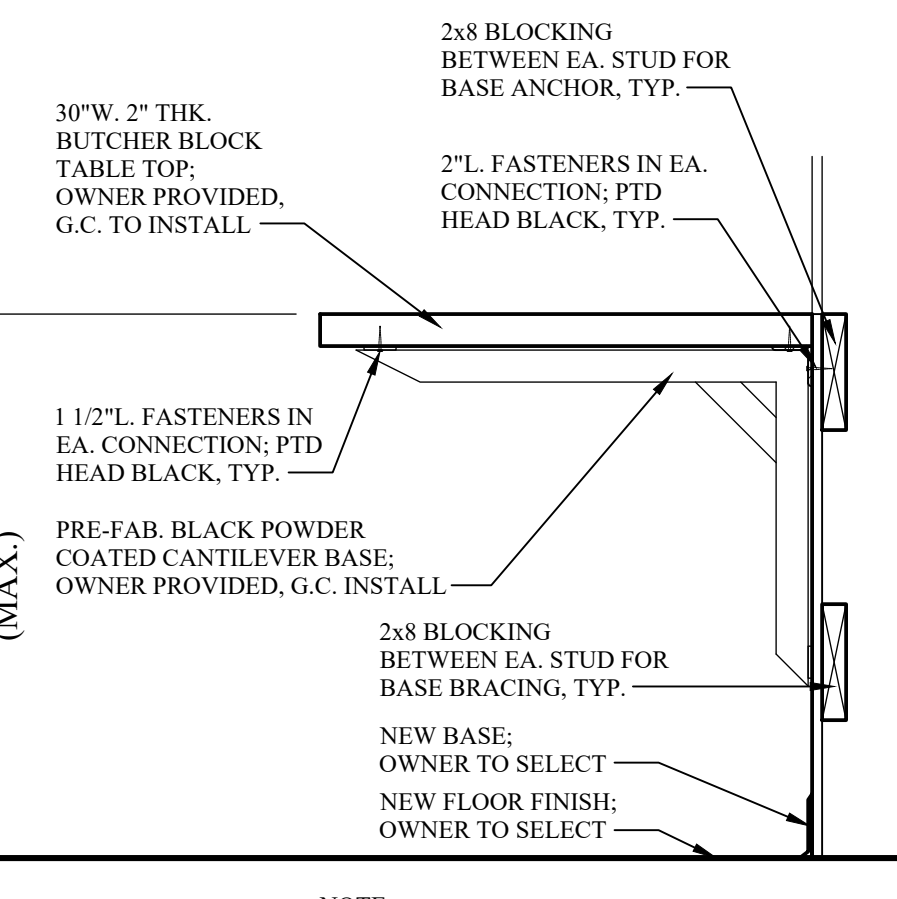


304 TYP. WALL SECTION
SCALE: 3/8" = 1'-0"

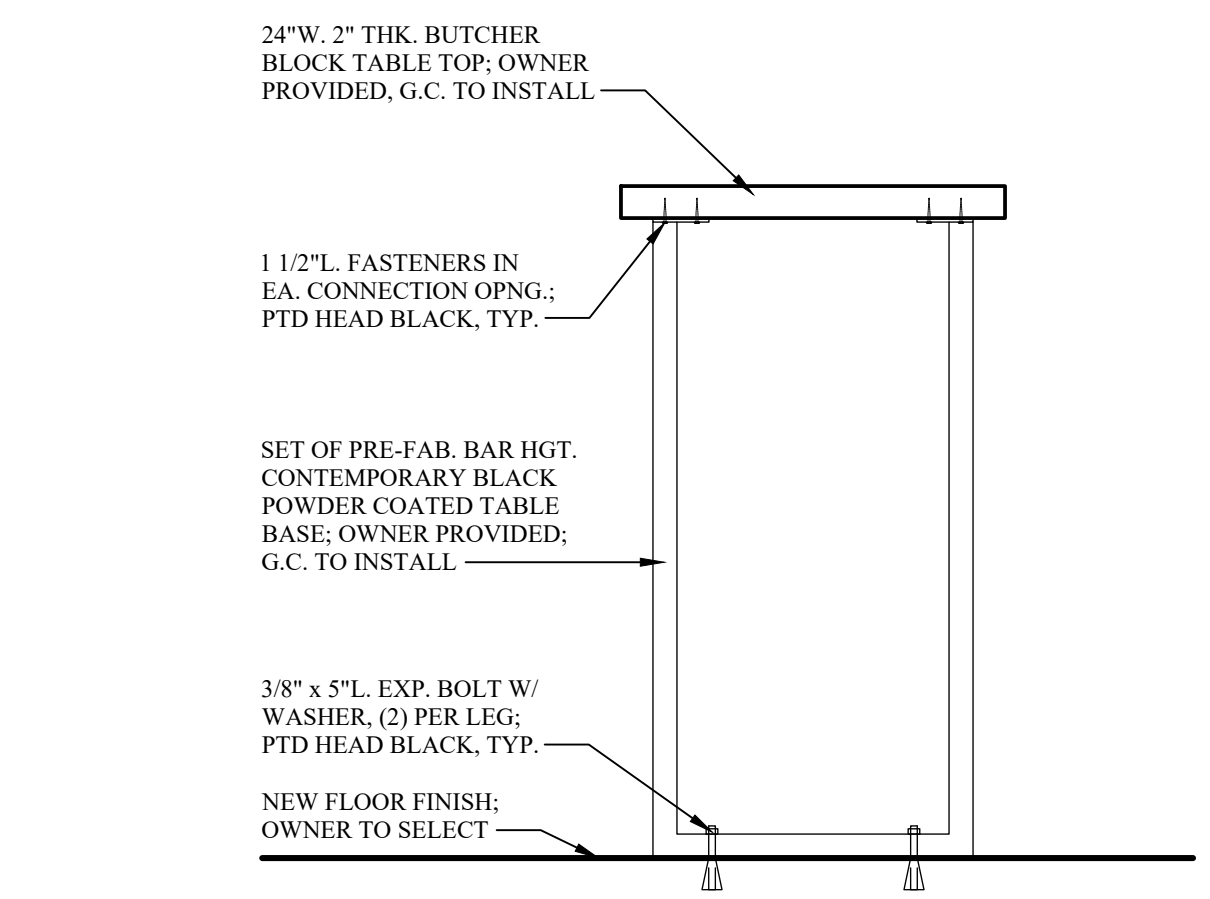


ROOF PLAN

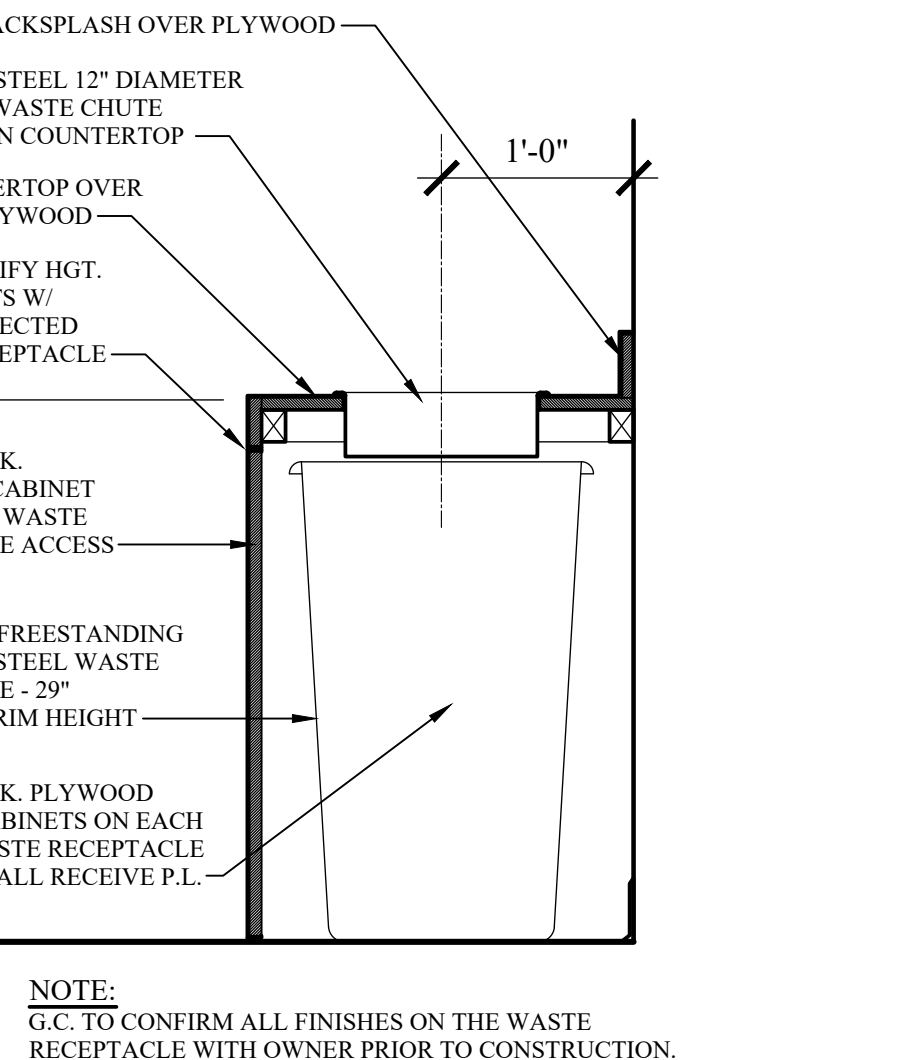
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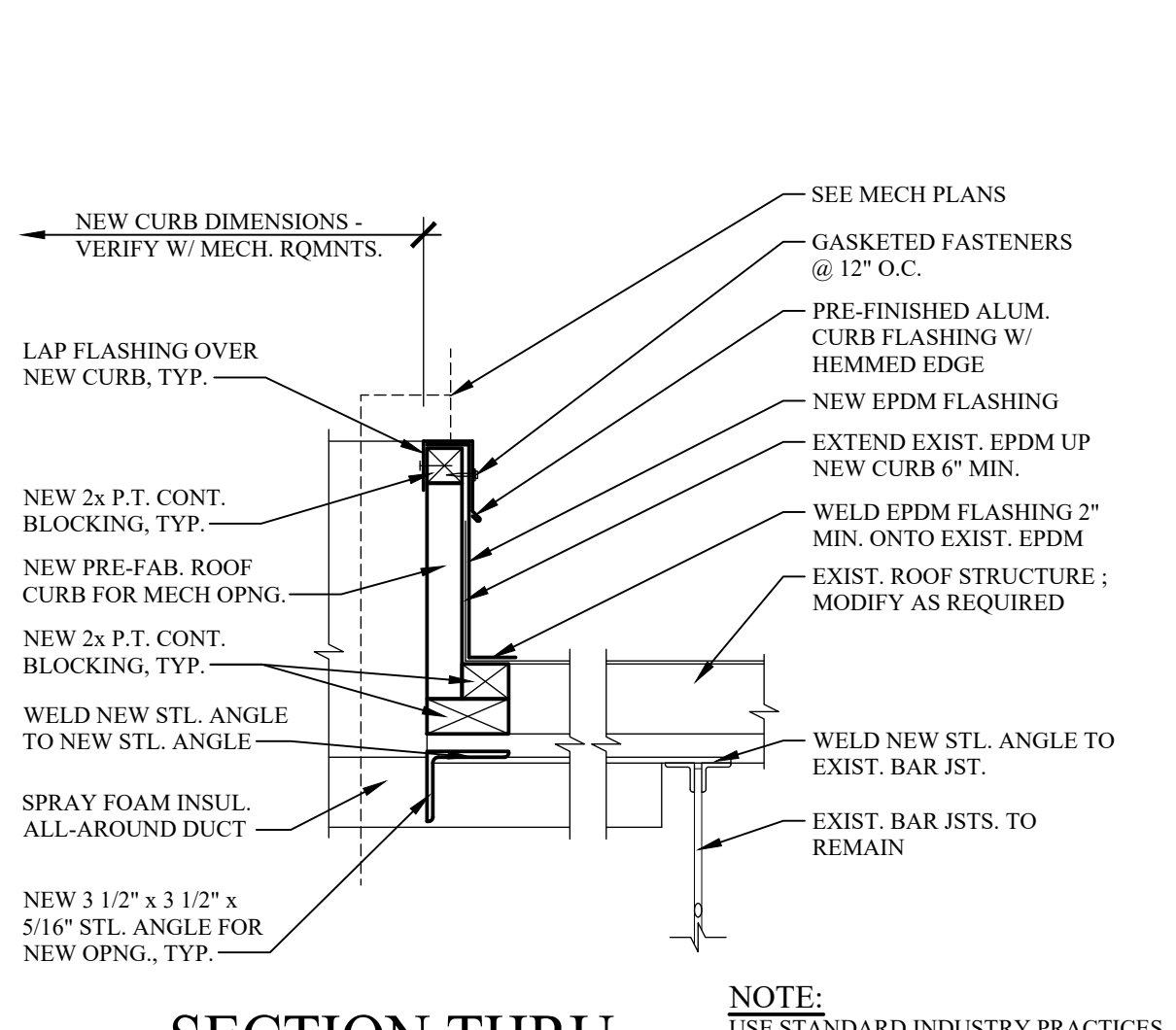
300 COUNTER SECTION
SCALE: 1" = 1'-0"



301 BAR SECTION
SCALE: 1" = 1'-0"



302 WASTE RECEPTABLE SECTION
SCALE: 1" = 1'-0"



303 SECTION THRU ROOF CURB
SCALE: 1 1/2" = 1'-0"

304 TYP. WALL SECTION
SCALE: 3/8" = 1'-0"

UL DESIGN #305

SCALE: NOT TO SCALE

GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

- 1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR, ... 2. 'PROVIDE' MEANS TO FURNISH AND INSTALL THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR. 3. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS. 4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER. 5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD PARTY AGENCY, WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED. 6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA PLUMBING CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS. 7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT. 8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS. 9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC. TO ACCOMMODATE PLANNED AND UNPLANNED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL DETAILS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING. 10. TRENCHING, CONNECTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 316 OF THE NC PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED AT DEPTHS THAT DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS. 11. THE PC SHALL PROVIDE FREESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT. 12. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH NORTH CAROLINA PLUMBING CODE, SECTIONS 312.2, 312.3, AND 312.4. 13. PC SHALL DISCONNECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS. 14. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FITTINGS, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT. 15. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

MATERIALS:

- 1. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRASS JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4F. DO NOT INSTALL PEK OR CPVC PIPING IN RETURN AIR PLUMBING. 2. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-40, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 82, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLD-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS. PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY INCO, WATTS, OR STODOLAN. 3. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED ON SYSTEMS OPERATING ABOVE AMBIENT. THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FREESTOP OR FIRESTOPPING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOL AND REINFORCED WITH GLASS FIBERS, CONFORMING TO ASTM C 1135 TYPE 1. VAPOR RETARDER WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE

- APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING. 4. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRIAL STANDARDS. POLYURETHANE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. HANGERS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERSERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT HAND SIDE OF THE FIXTURE FITTING. 5. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE NC PLUMBING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR ANMA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASSE 112.1.1.1. AND AIR GAP FITTINGS WITH ASSE A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR ANMA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER. 6. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74) USE MINIMUM 2 INCH SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2685) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTE WATER TEMPERATURE EQUALS OR EXCEEDS 140F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET. 7. ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (OSPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2685) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE. EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT, DO NOT INSTALL PVC IN RETURN AIR FLEUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE. 8. PC SHALL PROVIDE ALL WATER HEATERS (WATER/ELECTRIC) AND CAPACITY AS NOTED IN SCHEDULE. ALL WATER HEATERS SHALL BE THROU PARRY CERTIFIED, PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE NC PLUMBING CODE. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED. 9. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

METHODS:

- 1. EXTEND DOMESTIC WATER PIPE FROM FIVE (5) FEET OUTSIDE THE BUILDING INTO THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE. 2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE JOINTS. CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRAVITY. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION. 3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALY ACCEPTED PIPING HANGERS AND SUSPENSION EQUIPMENT. ALL FITTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT TO SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL. DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT FOR PIPING. HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRANNEL, MASON, OR B-LINE. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE. MACHINE OUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION. BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER. 4. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE

- LOCATED ON THE HEATED SIDE OF THE WALL. INSULATION WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R-6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177. 6. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAUNDRIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3. 7. INSULATE ALL EXPOSED WATER AND SUPPLY PIPING UNDER LAUNDRIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HAND-LAY GUARD INSULATION KIT BY TRUBROU OR EQUAL. 8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPIRUPROOF VACUUM BREAKERS SHALL CONFORM TO ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022. 9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010. 10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED. 11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW. 12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM FINISHES, AND VERIFY FINISH CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION. 13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPES ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES. 14. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM. 15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSERS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN. 16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE EQUIPMENT MANUFACTURER SHALL BE UTILIZED. 17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING. 18. HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINOSEIL OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR UNDOING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THEREOF. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING. 19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG. 20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DOW TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE NC PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051. 21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOR LEVEL RM OF THE WASTE RECEIVER SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE. 22. THE PC SHALL PROVIDE UNIONS FOR DISSIMILAR AND SERVICE OF ALL FITTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS. 23. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANGERS SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAUNDRIES AND SINKS (METEORUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE FLOORER'S PUTTY OR APRULE LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL Ooze OUT. 24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES. SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	FITTING			HW	CW	WASTE
PHH	TWO PIECE TANK TYPE ADA WATER CLOSET	TOTO CST344E1L OR EQUAL BY AMERICAN STANDARD OR KOHLER	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC354 OPEN FRONT SEAT LESS COVER. ASME 112.19.2 COMPLIANCE. TOP OF SEAT SHALL BE 17-1/8 INCHES HFT FOR ADA. LEVER MOUNTED ON WIDE SIDE FOR ADA.			-	1/2"	3"
P2	WALL MOUNT LAVATORY	TOTO L202.4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREOUS CHINA LAVATORY WITH BACKPLASH COMPLYING WITH ASME 112.19.2. TOP OF RIM SHALL BE 34 INCHES HFT FOR ADA. PROVIDE WITH LAG-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE 3/8 SMITH 0700 (CONCEALED ARMS) WITH 19" ARMS 0900 (WALL SUPPORT PLATE). USE A METERING TYPE FAUCET SIMILAR TO CHICAGO 3300-CP.			1/2"	1/2"	2"
P3	THERMOSTATIC MIXING VALVE	WATTS L111 OR EQUAL BY LAMLER DR LEDNARD VALVE	ASSE STANDARD 1099 OR 1070 APPROVED WITH 1/2 INCH FEMALE NPT INLET AND OUTLET CONNECTIONS. BRASS BODY, AND INTEGRAL MOUNTING HOLES. TAMPER RESISTANT THERMOPLASTIC ENCLOSURE. SINGLE REPLACEABLE CARTRIDGE DESIGN.			1/2"	1/2"	-
P4	WASHER DRAIN TROUGH	SUPPLIED BY ADVANTAGE LAUNDRY SYSTEMS				-	-	4"
P5	SINK LARGE SINGLE BOWL	JUST MFG SL-ADM-2133-A-GR OR EQUAL BY FRANK, ELKAY OR MOEN	TOP MOUNTED 18 GA STAINLESS STEEL. MAX BOWL DEPTH 6 INCHES FOR WHEEL CHAIR ACCESSIBILITY-USE JUST MFG FAUCET SET JPD-1550 OR EQUAL BY MOEN, BELTA OR KOHLER.			1/2"	1/2"	2"
P6	1 1/4" DOUBLE CHECK VALVE	WATTS 007M07 OR EQUAL BY ANMOL OR WILKINS	ASSEMBLY SHALL CONSIST OF TWO POSITIVE SEATING CHECK MODULES WITH CAPTURED SPRINGS AND RUBBER SEAT DISCS. THE CHECK MODULE SEATS AND SEAT DISCS SHALL BE REPLACEABLE. SERVICE OF ALL INTERNAL COMPONENTS SHALL BE THROUGH A SINGLE ACCESS COVER SECURED WITH STAINLESS STEEL BOLTS. THE ASSEMBLY SHALL ALSO INCLUDE TWO RESILIENT SEATED ISOLATION VALVES; FLOOR TOP MOUNTED, RESILIENT SEATED TEST COCKS. ASSEMBLY SHALL MEET THE REQUIREMENTS OF ASSE 1015 AND ANMA C510			-	1 1/4"	-
P7	EXPANSION TANK	ANTRIL ST-5 OR EQUAL BY WATTS DR BELL & GOSSETT	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ			-	3/4"	-
P8	WATER HAMMER ARRESTOR	ZURN Z1700 SERIES DR EQUAL BY WATTS DR SIDOX CHIEF	INSTALL ON BRANCH LINES PER MFG'S INSTRUCTIONS. PROVIDE ACCESS PANEL WHERE NECESSARY WHERE LOCATED ABOVE HARD CEILINGS OR WITHIN WALLS.			-	VARIES	-
FCD	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.			-	-	4"
WD	WALL CLEANOUT	ZURN, WATTS, DR JR SMITH	CAST IRON CLEANOUT FERROULE WITH THREADED BRASS COUNTERSINK CLEANOUT PLUG, STAINLESS STEEL ACCESS COVER, AND VANDAL PROOF STAINLESS STEEL SCREW.			-	-	4"
AV	AIR ADMITTANCE VALVE	STUDDIOR RELINDOR OR APPROVED EQUAL	ANSI/ASSE 1051 LISTED. NSF STANDARD 14. PROVIDE PVC DR ABS CONNECTOR AS NECESSARY CONNECT VALVE TO PIPING PER MANUFACTURER. INSTALL IN THE VERTICAL, UPRIGHT POSITION AFTER ROUGH-IN AND PRESSURE TESTING OF THE SYSTEM PROVIDE WALL BOX IF NOT ABOVE CEILING OR OTHERWISE CONCEALED.			-	-	2"

NOTE: COORDINATE ALL FIXTURE SELECTIONS WITH OWNER AND ARCHITECT PRIOR TO PURCHASE AND INSTALLATION.

PLUMBING LINES SIZING TABLE

FIXTURE TYPE	OCCUPANCY	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
			EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET (FLUSH TANK)	PUBLIC	1	4.00	4.00	5.00	0.00	5.00	0.00	5.00
LAVATORY	PUBLIC	1	1.00	1.00	1.50	1.50	2.00	1.50	2.00
W.P. SINK	PUBLIC	1	2.00	2.00	1.50	1.50	2.00	1.50	2.00

DEMAND FIXTURE	GPM	QTY	TOTAL GPM	TOTAL IFU	TOTAL IFU	
WM-1, WM-2, WM-3, & WM-4	12	4	48.00	TOTAL WFSUB	3.0	9.0
WM-5, WM-6, WM-7, WM-8, WM-9 & WM-10	9	6	54.00	GPM	6.50	13.70
WM-11, WM-12, WM-13, WM-14, WM-15 & WM-16	9	6	54.00			
	0	0	0.00			
			156	OTHER FIXTURES' GPM	156.00	156.00
				TOTAL GPM	162.50	169.70

MINIMUM BUILDING DRAIN SIZE 4"

MINIMUM WATER LINE SIZE 1-1/4"

NOTE: MINIMUM BUILDING LINE SIZE DETERMINED FROM LAUNDRY EQUIPMENT MANUFACTURER.

GAS WATER HEATER SCHEDULE

MARK	MFG	MODEL	TANK VOL.		INPUT	RECOVERY	SET POINT	EFFICIENCY	POWER	CONNECTIONS		OPTIONS
			GAL	MBH						GPH @ 100°F ΔT	°F	
GWH-1	PHOENIX	PH199-119	119	199.0	230	140	95	120	1	1-1/2"	1-1/2"	1-7

- 1. PROVIDE GALVANIZED STEEL SAFETY PAN
- 2. SEALED COMBUSTION
- 3. UL LISTED
- 4. PROVIDE CONCENTRIC VENT KIT FOR ROOF OR SIDEWALL WAS REQUIRED
- 5. PROVIDE ASME LISTED TEMPERATURE AND PRESSURE RELIEF VALVE
- 6. MEET OR MINIMUM EFFICIENCY AND STANDBY LOSS REQUIREMENTS OF ASHRAE 90.1-2007
- 7. OR EQUAL BY A.O. SMITH, BROADFORD WHITE, OR SIAE

WASHING MACHINE SCHEDULE

MARK	QTY.	MFG	MODEL	GPH AT FILL	CONNECTIONS		
					COLD	HOT	DRAIN
WM-1, WM-2	2	DEXTER	T-1200	12	3/4" (2)	3/4" (2)	3"
WM-3, & WM-4	2	DEXTER	T-950EX	12	3/4" (2)	3/4" (2)	3"
WM-5, WM-6, WM-7, WM-8, WM-9 & WM-10	6	DEXTER	T-650EX	9	3/4"	3/4"	3"
WM-11, WM-12, WM-13, WM-14, WM-15 & WM-16	6	DEXTER	T-350EX	9	3/4"	3/4"	2-1/4"

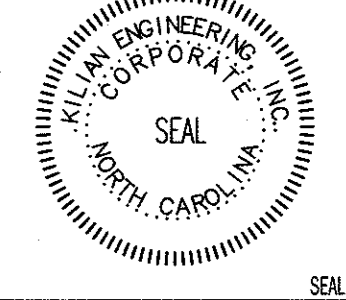
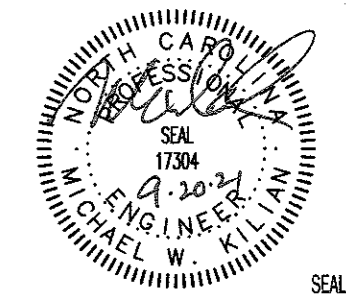
LINE TYPE LEGEND

COLD WATER SUPPLY	---
HOT WATER SUPPLY	---
SANITARY SEWER LINE	---
VENT LINE	---

DO NOT TAP WATER LINE AHEAD OF DCV.

PLUMBING NOTES | 1

PLUMBING FIXTURE SCHEDULE | 2



WASHLAND LAUNDROMAT (ANGIER)

REVISION:

NO.	DESCRIPTION

ISSUED:

NO.	DATE	DESCRIPTION

DRAWN BY: RSB
CHECKED BY: MHW, MDC

PLUMBING NOTES & SCHEDULES

SHEET NO.
P1

PROJECT NO: 21379

GENERAL MECHANICAL NOTES:

ABBREVIATIONS:

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR,
FAC - FIRE ALARM SYSTEM CONTRACTOR, AU - AUTHORITY HAVING JURISDICTION.
- "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
- THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
- ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES, WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
- THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER, WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
- THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC. TO ACCOMMODATE PLANNED AND UNPLANNED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
- IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
- MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
- MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
- MC SHALL FURNISH A BIDDING OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
- CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
- ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
- IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
- ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN FLEEWAY AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
- MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

MATERIALS:

- THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED AIR-COOLED ROOFTOP PACKAGE HEAT PUMPS, GAS-ELECTRIC UNITS, AND AIR-CONDITIONERS SHALL BE BY RHEEM, TRANE, CARRIER, OR YORK. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
- THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY.
- DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
- EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LESLIE PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDICES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED R-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL

- OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
- ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM D638. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181-05 OR UL 181B-06. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAN THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
- ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED TO OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
- FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-06. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
- THE MC SHALL PROVIDE ALL DIFFUSERS, GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION DEVICES AND INLETS, LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILING, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION DEVICES AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-AIRE, WALKER, OR CARNES.
- AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE 2018 NC MECHANICAL CODE.

METHODS:

- INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP. INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACTORY OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECES OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KANUF INSULATION, CHECKS CORNING CORP. OR CERTAINTEED CORPORATION. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE RATED.
- WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
- PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
- CONSTRUCT TEES, BENDS, AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
- INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE, MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
- IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
- DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
- CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
- PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2" DUCT NOTIFS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
- MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE 2018 NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS

- SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSON, WALOR, OR LLOYD INDUSTRIES.
- MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A) IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR RECOGNITION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISION SHALL COMPLY WITH 608.4.1 OF THE 2018 NC MECHANICAL CODE. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A/V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DUCT DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
- MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION C403.2.4 OF THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
- FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
- UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH POWERED EXHAUST AND COMPARATIVE ENTHALPY CONTROLS.
- MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN. P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE W COPPER.
- INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE C402.5.5

MARK		MFG / MODEL #		NOMINAL CAPACITY		AIR FLOW		COMPRESSORS		FAN MOTORS		HEATING CAPACITY			COOLING CAPACITY			ELECTRICAL			WEIGHT	REMARKS					
				TONS		CFM		NL		in wg		MBH			EER			V/PH			LBS						
												INPUT			TOTAL												
												STAGES			SENSIBLE												
												AFUE			*F												
GP-1		YORK ZY6GE1A1A1A		5		2000		SEE TABLE		1		.5		112.0			90.0			12.0			240V1	41.2	60	646	1-9
HP-2		YORK XE0DGE2B1A1A1A		5		2000		SEE TABLE		1		.5		-			55.1			1			240V1	39	60	637	1-9

- PROVIDE COMPATIBLE ROOF CURB
- PROVIDE DUCT DETECTOR IN RETURN DUCT. PROVIDE RELAY FOR KILLING POWER TO UNIT'S FAN
- PROVIDE HALL GUARDS FOR CEILING
- REPLACE ALL FILTERS AT PROJECT'S COMPLETION
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHT-TIME SET BACK
- PROVIDE HARD START KIT
- DR EQUAL BY PRICE, METAL-AIRE, CARNES, OR WALKER
- ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER AIR)
- MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES

REGISTER, GRILLE, & LOUVER SCHEDULE						
MARK	MFG	MODEL #	SIZE	MOUNTING	DESCRIPTION	NOTES
A	HART & COOLEY	ARE	24X24	LAY-IN	4-WAY DIFFUSER, BRIGHT WHITE	1,2
B	HART & COOLEY	90HVD	12X6	SURFACE	STEEL DOUBLE REFLECTION GRILLE, NO DAMPER	1
R1	HART & COOLEY	RHMT	24X24	LAY-IN	ALUMINUM LAY IN RETURN GRILLE	1,2
R2	HART & COOLEY	94AT	12X6	SURFACE	STEEL RETURN AIR GRILLE, 35°FIXED BLADE	1

- DR EQUAL BY PRICE, METAL-AIRE, CARNES, OR WALKER
- PROVIDE WITH FOIL LINED, MOLDED INSULATION BLANKET.

EXHAUST FAN SCHEDULE								
MARK	MFG / MODEL #	TYPE	ESP (in WD)	CFM	VOLT/PH	FLA	SDMS	NOTES
EF-1	GREENHECK SP-A125	CEILING	0.25	104	120V1	1	1.8	1-3

- PROVIDE WITH PITCHED ROOF CAP OR HOODED WALL WITH BACKDRAFT DAMPER CAP AS APPLICABLE.
- PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
- DR EQUAL BY LOREN COOK OR PENNBARRY

REGISTER, GRILLE, & LOUVER SCHEDULE						
MARK	MFG	MODEL #	SIZE	MOUNTING	DESCRIPTION	NOTES
A	HART & COOLEY	HVS	24X24	LAY-IN	4-WAY DIFFUSER, BRIGHT WHITE	1
R	HART & COOLEY	RHMT	24X24	LAY-IN	ALUMINUM LAY IN RETURN GRILLE	1,2
L	HART & COOLEY	154S	48X48	SURFACE	ALUMINUM FRESH AIR LOUVER	1,2

- DR EQUAL BY PRICE, METAL-AIRE, CARNES, OR WALKER
- PROVIDE REMOVABLE AND CLEANABLE SCREEN

- ① THERMOSTAT LOCATION MOUNT AT 48" AFF.
- ② AUDIO VISUAL ANNUNCIATOR WITH RESET FOR DUCT DETECTOR, WALL MOUNT.
- ③ --- DUCT DETECTOR
- ④ CO2 SENSOR LOCATION. INSTALL NEXT TO THERMOSTAT

Ventilation Calculation (For Laundry)										
Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)		
	Laundry (Coin)	1112	7.5	0.06	20	22.24	0.8	2000		
	Office Space	28	5	0.06	5	0.14	0.8	100		
	N/A	72	0	0	0	0.00	0.8	50		
	Storage	205	0	0.12	0	0.00	0.8	250		
	N/A	0	0	0	0	0.00	0.8	0		
									Maximum Zp:	0.14595
K-12 School?	No								Ev:	1
									Actual System Population:	25
Uncorrected Intake		280 cfm								
Outdoor Air Intake		280 cfm								
Percent of Unit Air		12%								

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT	
METHOD OF COMPLIANCE	PRESCRIPTIVE
THERMAL ZONE	ZONE 4A
EXTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	23.1°F
COOLING DESIGN DRY BULB	91.7°F
CEILING DESIGN WET BULB	75.6°F
INTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	70°F
COOLING DESIGN DRY BULB	75°F
COOLING RELATIVE HUMIDITY	50%
HEATING LOAD	30,182 BTU/H
SENSIBLE COOLING LOAD	114,043 BTU/H
LATENT COOLING LOAD	12,047 BTU/H
MECHANICAL SPACING CONDITIONING SYSTEM	
UNITARY	AIR COOLED DX
DESCRIPTION OF UNIT(S)	5-TON GAS PACK, & 5-TON HEATPUMP
BOILER	N/A
TOTAL BOILER OUTPUT	N/A
CHILLER	N/A
TOTAL CHILLER CAPACITY	N/A
EQUIPMENT EFFICIENCIES	SEE SCHEDULES
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS)	SEE SCHEDULES

DESIGNER STATEMENT:
TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH CAROLINA STATE BUILDING CODE AND 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.

Kilian Engineering, Inc.
PO Box 3301, Henderson, NC 27536 | www.kilianengineering.com
TEL: 919.292.4388 | FAX: 919.292.4388
CORPORATE LICENSE C2217

WASHLAND LAUNDROMAT (ANGLIER)
AN UPSET FOR:
553 N. RALEIGH STREET, ANGLIER, NC

REVISION:

ISSUED:

12/18/2021
02/02/2022
03/02/2022

UPDATES FOR ALL EXISTING GRIDS AND LIMITS TO REMAIN
AS SHOWN FOR PERMITTING

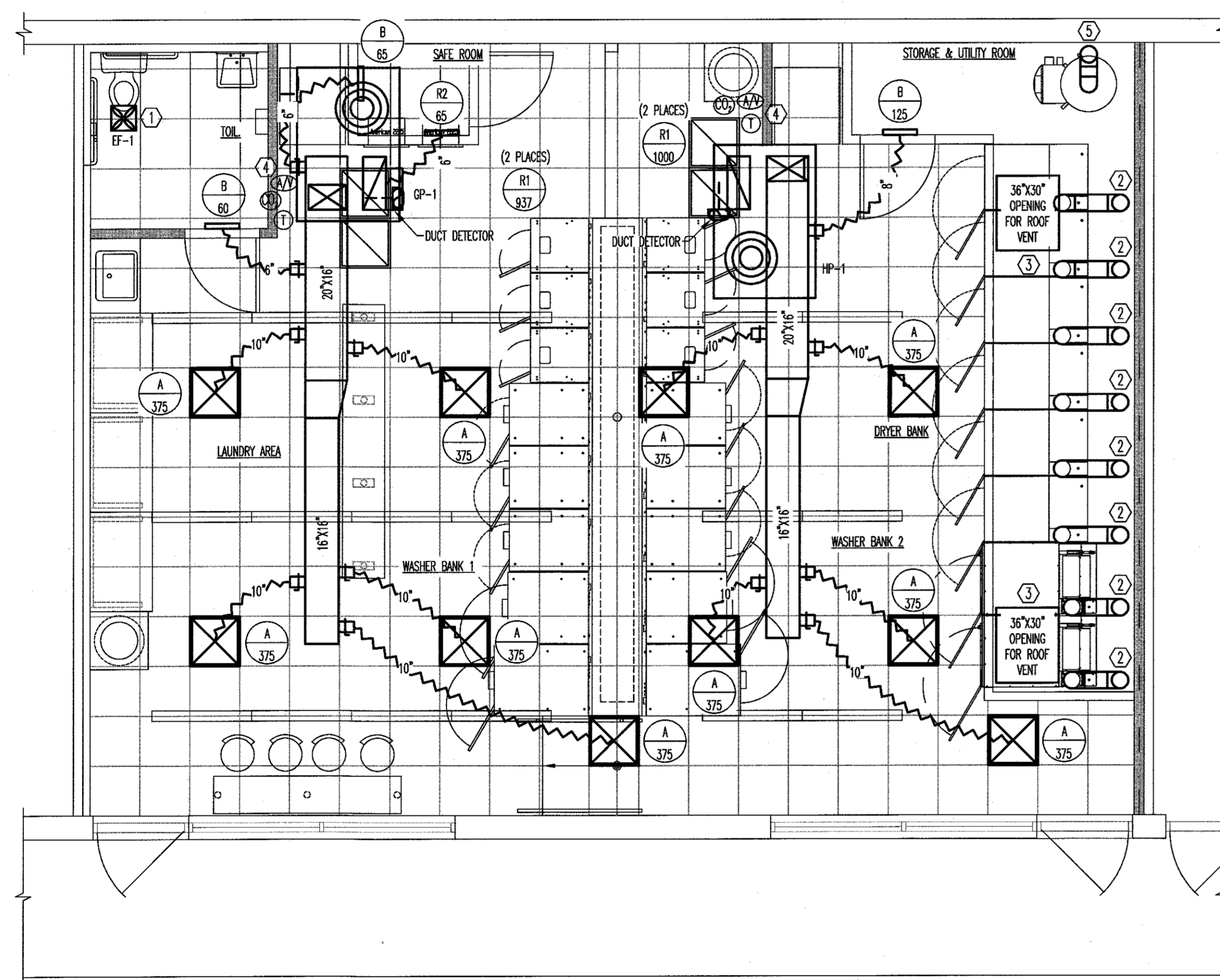
DRAWN BY: SSB
CHECKED BY: MARK/ADC

MECHANICAL NOTES & SCHEDULES

SHEET NO.

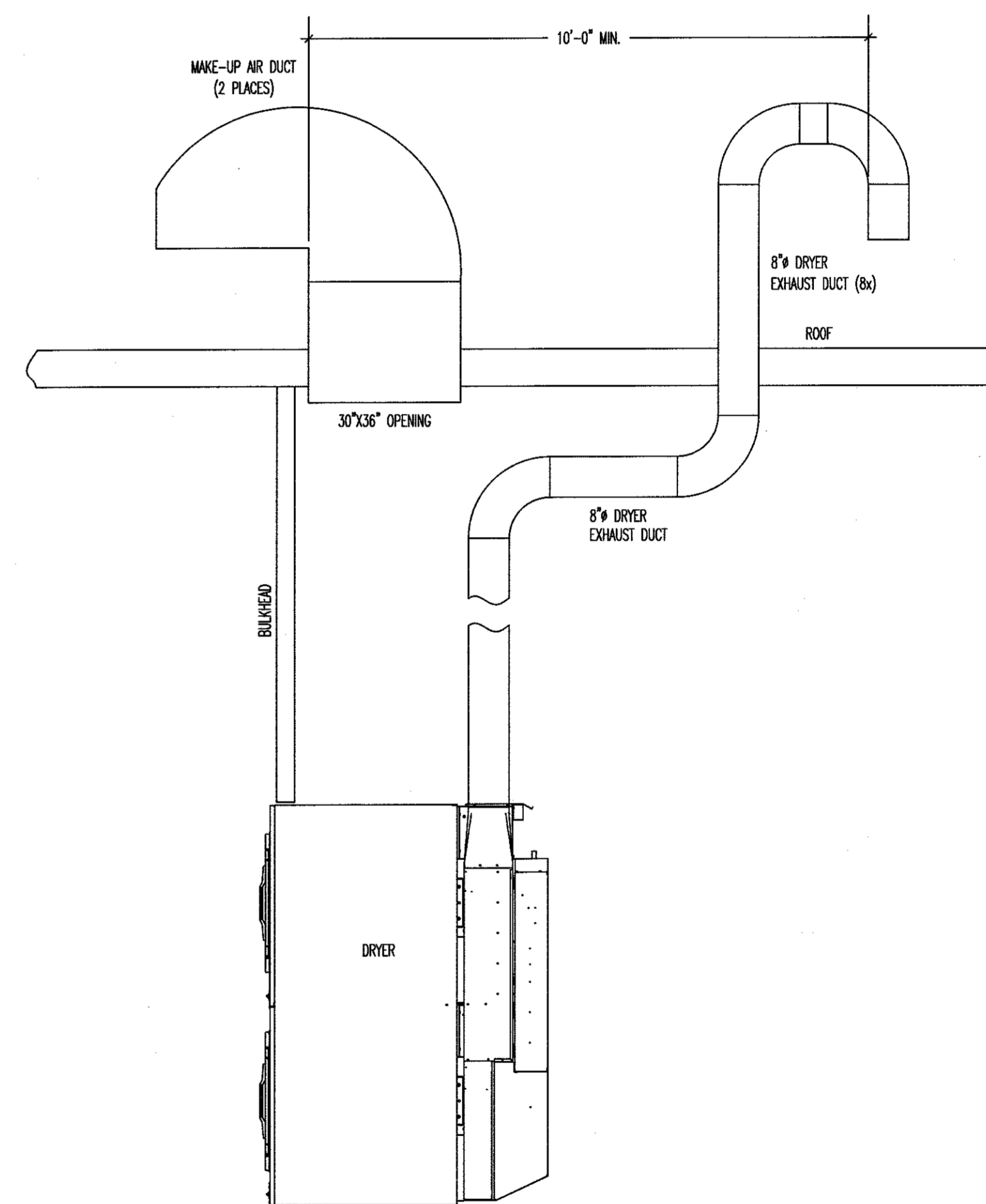
M1

PROJECT NO: 21379



HEX PLAN NOTES

1. PROVIDE 6" EXHAUST TO ROOF FOR EF-1.
2. PROVIDE 8" EXHAUST DUCT TO ROOF. EXHAUST DUCT TO BE A MINIMUM OF 10' AWAY FROM FRESH AIR INTAKES.
3. ROOF DUCTS TO BE 36" X 30" GOOSENECK VENTS. TWO VENTS PROVIDE APPROX. 15.0 SQ. FT. OPEN AREA. 12.0 SQ. FT. MINIMUM IS REQUIRED FOR DRYER BANK. PROVIDE WITH INSECT SCREEN.
4. THERMOSTAT, AV & CO2 SENSOR MOUNT AT 48" AFF.
5. ROUTE WATER HEATER CONCENTRIC VENT TO ROOF PER MANUFACTURERS RECOMMENDATIONS. MUST BE 10' AWAY FROM FRESH AIR INTAKE.



REVISION:

ISSUED:

DRAWN BY: RSB
 CHECKED BY: MMK/PDC
 MECHANICAL PLAN

SHEET NO.
M2

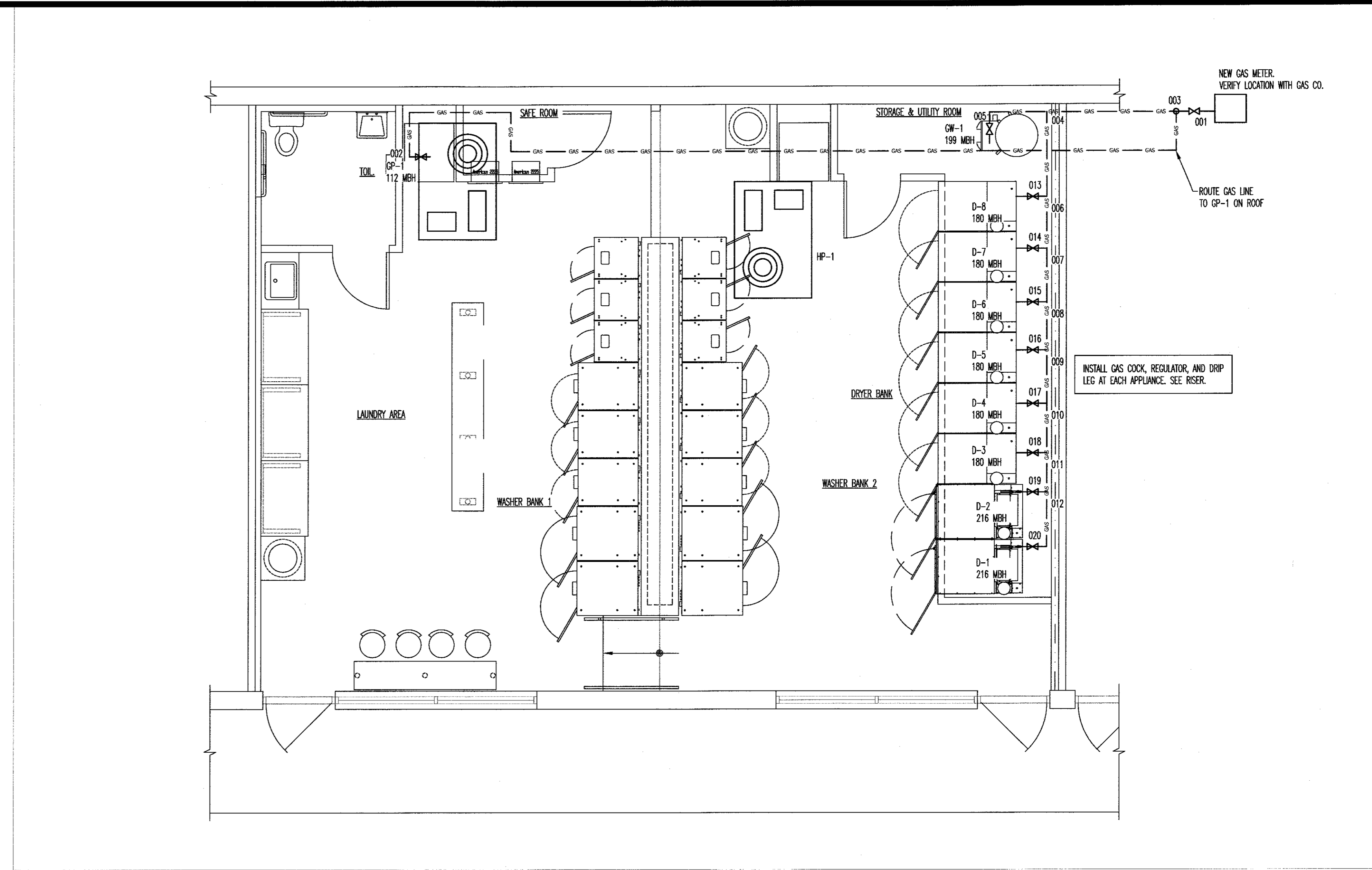
GENERAL GAS LINE PIPING NOTES

- THE GAS PIPING CONTRACTOR (GPC) SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
- THE GPC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA FUEL GAS CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
- THE GPC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- DO NOT SCALE THESE DRAWINGS—REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS.
- THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL INSTALL HIGH PRESSURE REGULATORS AT EACH PIECE OF EQUIPMENT AS NECESSARY.
- INSTALL A DRIP LEG IN GAS LINE AT EACH POINT WHERE CONDENSATE COULD COLLECT. ALL DRIP LEGS SHALL BE READILY ACCESSIBLE FOR CLEANING OR EMPTYING.
- PIPING SHALL BE SCHEDULE 40 STEEL OR WROUGHT IRON AND COMPLY WITH ANSI/ASME B36.10, ASTM A 53, OR ASTM A 106.
- ALL PIPES AND FITTINGS SHALL BE NEW, FREE OF DEFECTS, AND RATED FOR THE APPLICATION.
- ALL PIPING SHALL BE INSTALLED SO AS NOT TO BE SUBJECT TO PHYSICAL DAMAGE.
- PVC VENT PIPING SHALL NOT BE INSTALLED INDOORS.
- THE TYPE OF PIPING JOINT USED SHALL BE SUITABLE FOR THE PRESSURE-TEMPERATURE CONDITIONS AND SHALL BE SELECTED CONSIDERING JOINT TIGHTNESS AND MECHANICAL STRENGTH UNDER THE SERVICE CONDITIONS.
- PIPE JOINTS SHALL BE THREADED, FLANGED, BRAZED, OR WELDED.
- FLEXIBILITY SHALL BE PROVIDED BY THE USE OF BENDS, LOOPS, OFFSETS, OR COUPLINGS OF THE SLIP TYPE. PROVISIONS SHALL BE MADE TO ABSORB THERMAL CHANGES BY THE USE OF EXPANSION JOINTS OF THE BELLOWS TYPE OR BY THE USE OF "BALL" OR "SWIVEL" JOINTS. DO NOT USE EXPANSION JOINTS OF THE SLIP TYPE INSIDE THE BUILDING. PIPE ALIGNMENT GUIDES SHALL BE USED WITH EXPANSION JOINTS PER THE MFG.
- ALL GAS PIPING SHALL BE LABELED TO INDICATE THE PRESSURE.
- PIPE HANGERS AND SUPPORTS SHALL CONFORM TO ANSI/ASME SP-58.
- BENDS SHALL BE MADE ONLY WITH BENDING TOOLS AND PROCEDURES INTENDED FOR THAT PURPOSE. DO NOT BEND PIPE THROUGH AN ARC OF MORE THAN 90°. ALL BENDS SHALL BE SMOOTH AND FREE OF CRACKS, BUCKLING, OR OTHER EVIDENCE OF DAMAGE.
- INSTALL GAS SHUTOFF VALVES UPSTREAM OF EACH GAS REGULATOR. VALVES SHALL BE READILY ACCESSIBLE AND NOT SUBJECT TO PHYSICAL DAMAGE.
- WHERE A SEDIMENT TRAP IS NOT INCORPORATED AS PART OF THE APPLIANCE, A SEDIMENT TRAP SHALL BE INSTALLED DOWNSTREAM OF THE APPLIANCE SHUTOFF VALVE AS CLOSE TO THE INLET OF THE APPLIANCE AS PRACTICAL.
- PRIOR TO ACCEPTANCE BY THE OWNER, ALL GAS PIPING INSTALLATIONS SHALL BE INSPECTED AND PRESSURE TESTED IN ACCORDANCE WITH SECTION 406 OF THE NC FUEL GAS CODE.

GAS LINE SIZING VERIFICATION TABLE				
PER NFPA TABLE 402.4(2)				
SECTION	GAS LOAD MBTU/H	LINE SIZE INCHES	CAPACITY CFH	PRESSURE PSI
001	1823	2"	10100	2
002	112	3/4"	934	2
003	1711	2"	10100	2
004	1512	2"	10100	2
005	199	3/4"	934	2
006	1332	2"	10100	2
007	1152	2"	10100	2
008	972	2"	10100	2
009	792	2"	10100	2
010	612	2"	10100	2
011	432	2"	10100	2
012	216	2"	10100	2
TOTAL EQUIVALENT LENGTH <100 FT				

GAS LINE SIZING VERIFICATION TABLE				
PER NFPA TABLE 402.4(2)				
SECTION	GAS LOAD MBTU/H	LINE SIZE INCHES	CAPACITY CFH	PRESSURE PSI
013	180	3/4"	360	7 IN WC
014	180	3/4"	360	7 IN WC
015	180	3/4"	360	7 IN WC
016	180	3/4"	360	7 IN WC
017	180	3/4"	360	7 IN WC
018	180	3/4"	360	7 IN WC
019	216	3/4"	360	7 IN WC
020	216	3/4"	360	7 IN WC
TOTAL EQUIVALENT LENGTH <10 FT				

GAS NOTES AND SCHEDULES | 1



GAS PLAN - SCALE: 1/4" = 1'-0" | 3

MIRO INDUSTRIES, INC. ROOFTOP SUPPORT PRODUCTS

NOTE:
PIPE MUST SIT 3.5" ABOVE ROOF PER
NCGFC 404.7

TOP VIEW
SIDE VIEW
ISOMETRIC VIEW
3-R SPACER END VIEW

3" SCH. 40 PIPE ILLUSTRATION ONLY
3-R-2 PIPE STRAP *ACCESSORY ITEM*
3-R SPACER *ACCESSORY ITEM*

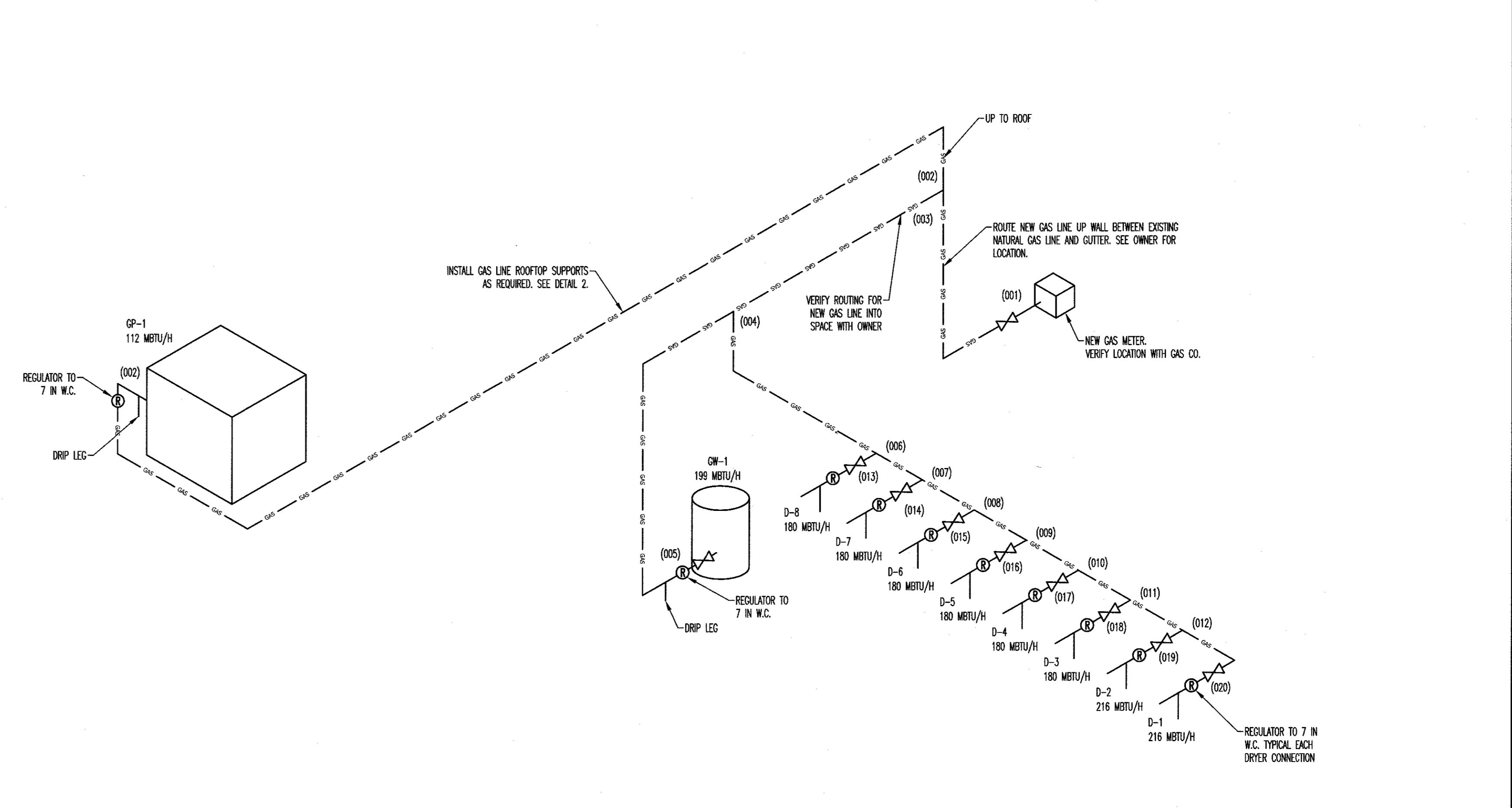
ACCESSORIES
- 3-R-2 pipe strap
- 3-R spacer
- Support pad or deck plate
- Eternabond® 2-sided tape

PRODUCT DESCRIPTION
A "roller-bearing" pipe support used to support roof-mounted gas pipes, electrical conduit, solar piping and other mechanical piping. 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 situated in a polycarbonate resin seat.

KEY INFORMATION
- 3" ID maximum pipe capacity 3-3/4" OD maximum.
- Pipe clearance is 2-1/8", even load required, maximum load is 79 lbs.
- 24 per case, 26 lbs. per case
- Recommended spacing is not to exceed 7 feet centers depending upon the load.
- Make certain each pipestand is properly elevated to even load weight at all pipestands.
- Base Material: MIRON TPC
- Axle and Roller Material: Polycarbonate

PROPRIETARY AND CONFIDENTIAL		NAME		DATE		PRODUCT NAME	
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MIRO INDUSTRIES, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MIRO INDUSTRIES, INC. IS STRICTLY PROHIBITED.		DRAWN	RND	1/23/2013	3-R-2		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ± MATERIAL: Q.A. COMMENTS:		NEXT ASSY		USED ON		SIZE PRODUCT QUANTITY: A	
APPLICATION DO NOT SCALE DRAWING		SCALE: N.T.S.		WEIGHT: N/A		SHEET: 2 of 38	

GAS PIPE ROOFTOP SUPPORT | 2



GAS RISER - NO SCALE | 4

Kilian Engineering, Inc.
Professional Engineer
No. 17304
Michael W. Kilian
North Carolina
Professional Seal

AN APPLICABLE PERMITTING REQUIREMENT
ISSUED FOR PERMITS
08/11/2021
DRAWN BY: RSB
CHECKED BY: MMH/ADC
GAS NOTES, SCHEDULES & PLAN
SHEET NO.
M3
PROJECT NO: 21379

GENERAL ELECTRICAL NOTES

ADMINISTRATIVE:

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR,
ME - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR,
FAC - FIRE ALARM SYSTEM CONTRACTOR, AHJ - AUTHORITY HAVING JURISDICTION.
- "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
- EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY EXPEDITIOUS TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERRABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
- ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE COMPLIED PER 250.56 AS NECESSARY.
- ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
- CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUIT, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BALLASTS AND TRANSFORMERS, WIRES AND ELECTRICAL EQUIPMENT, AND INSULATION WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
- ALL WORK SHALL CONFORM TO 2017 NATIONAL ELECTRICAL CODE, 2018 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

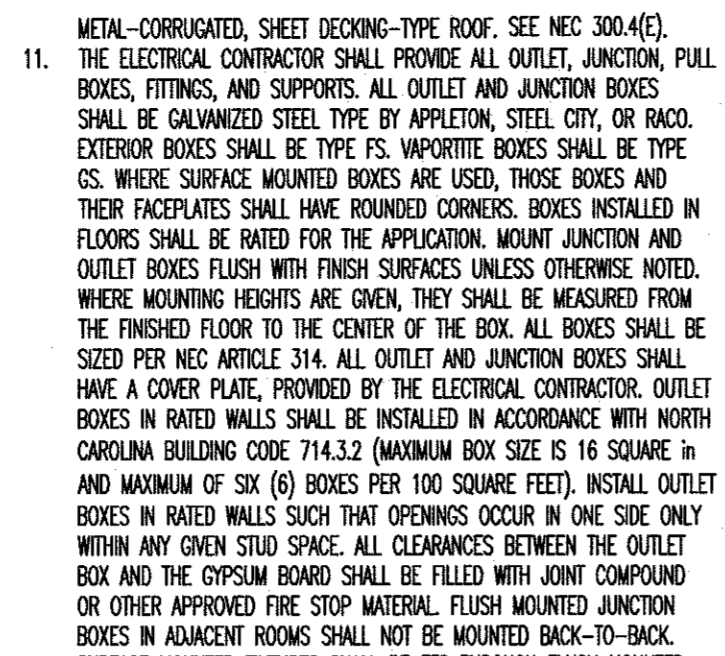
MATERIALS:

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC. UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. PRIOR TO ORDERING EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIMONS, OR GE. BOXES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BUSES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. ELECTRICAL CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. ELECTRICIAN SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
- ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH MANUFACTURE DATA WITH QUAL ELEMENT TYPE FUSES BY BUSSMAN, LITLITEFUSE, OR MERSEN.
- OCCUPANCY SENSORS SHALL BE BY WATTSOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL OR APPROVED EQUAL.
- CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-BREAK, QUICK-BREAK MECHANISM, COMMON TRIP OR MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
- ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
- THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THIN/TWIN OR XHHW. ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THIN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC., INDUSTRIAL WIRE & CABLE, INC., ENCORE WIRE CORPORATION, OR

- WESTINGHOUSE COMPANY.
- JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR TAB "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICING AND TAPS, PROVIDED WITH UL APPROVED INSULATED BOOTS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, JOINTS AND CONNECTIONS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUSERS, OR GUTTERS. WHERE CONCENTRIC, ENDORING, OR OVERSIZED MOKROGROSS ARE ENCOUNTERED, A GROUNDING TIE INSULATED BOOTS SHALL BE PROVIDED.
- ALL LUMINAIRES SHALL BE LISTED LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRICALLY BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
- ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLON, RACO, OR 0-2/GEDNET. COUPLINGS SHALL BE THERMAD, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRAMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED.
- EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METAL PLATING (ENR), ANSI C80.3 AND 80.1. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.8 AND UL 1242.
- METAL CONDUIT SHALL BE BY ALLEN TURNING & CONDUIT, BECK MANUFACTURING, INC. OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC., ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

METHODS:

- EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
- ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HVAC BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4" IN CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
- COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #8 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLenums.
- ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
- MOUNT LIGHT SWITCHES AT 48" AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH #8 POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, HEAVY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX WEDGE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(E).
- ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS THROUGH FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
- ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHIP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
- CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL BUILDING EXTERIOR RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TYPED 6-8 IN BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT SUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL BE AT LEAST 2 IN ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(G), 300.7(A), AND 300.5(E) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILING PARALLEL AND PERPENDICULAR TO WALLS, CORNERS AND THROUGHOUT SHIM ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
- CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 IN MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN



METAL-CORRUGATED SHEET ROOF DECKING-TYPE ROOF. SEE NEC 300.4(E). THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACILITIES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE 714.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE INCH AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.

ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURE. ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 IN EMT CONDUIT MAXIMUM AND 4 IN JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.

ABANDONED CONDUIT AND BOXES SHALL HAVE ALL ELECTRICAL WIRING REMOVED COMPLETELY AND NOT JUST MADE SAFE. CONDUIT AND BOXES SHALL BE REMOVED WHERE PRACTICAL WITHOUT CREATING ADDITIONAL DEMOLITION/RESTITUTION WORK FOR OTHER TRADES.

WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.

ISOLATED-GROUND TYPE RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH 250.146(O). ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR.

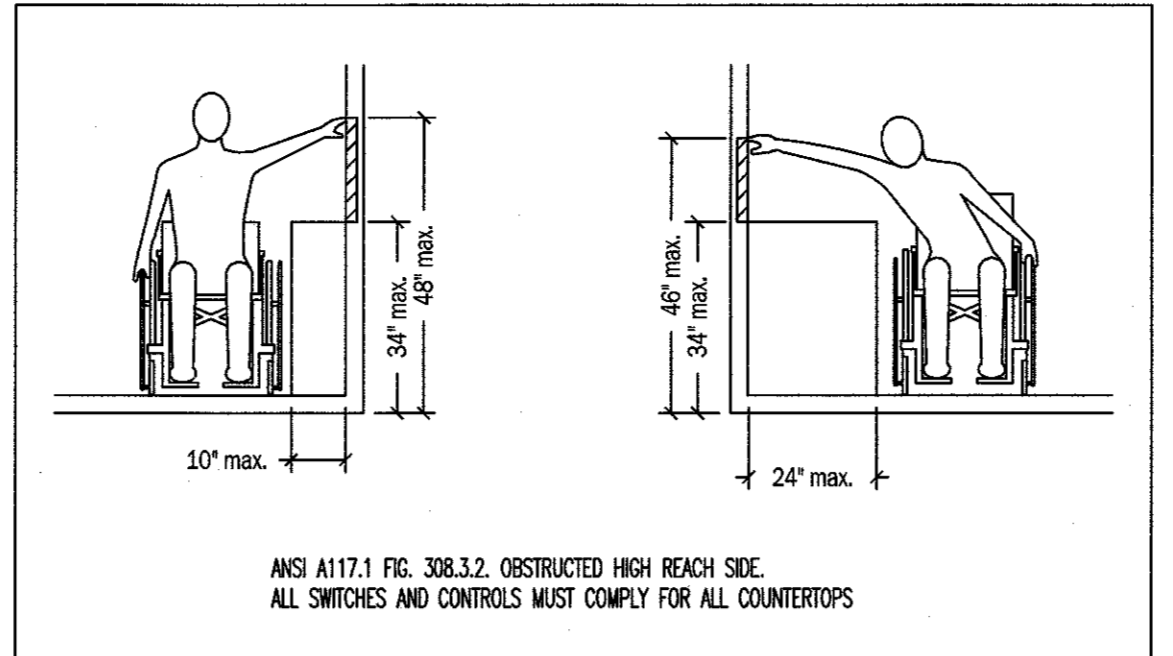
INSTALL ONE (1) 3/4" IN FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.

ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROOM-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE 4 IN SQUARE BY 2-1/8 IN DEEP BOX WITH 3/4 IN KNOCK-OUTS AND A 3/4 IN CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.

ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARMORED EQUIPMENT AND APPLIANCE OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCE, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC. IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.

ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.

ELECTRICAL CONTRACTOR SHALL PROVIDE MANIPULATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE MANIPULATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE. WHITE ENGRAVED LETTERS (1/4" IN MINIMUM) ETCHED INTO THE WHITE CORE. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.



NOTES FOR EMERGENCY FIXTURES

- FOR INTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE FIXTURE BALLAST AHEAD OF ALL SWITCHES, SENSORS, ETC.
- FOR EXTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE NORMAL EXTERIOR LIGHTS OR AS SHOWN IN PLANS AHEAD OF ALL CONTRACTORS, PHOTOCELLS, ETC.
- IN BOTH CASES, EMERGENCY POWER SHOULD INITIATE ONLY IN THE EVENT OF THE LOSS OF NORMAL POWER. ALL BATTERIES SHALL BE RATED TO POWER EMERGENCY ILLUMINATION FOR 90 MINUTES MINIMUM.

1. FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION, OR EQUAL BY GE, LUTRON, COOPER, PHILIPS OR DAY-BRITE LIGHTING.

2. CONFIRM SELECTION WITH OWNER PRIOR TO PURCHASE. INCLUDE ALL ACCESSORIES REQUIRED SUCH AS PLUGS, TERMINATIONS, SUSPENSION CABLE, ETC. FOR A COMPLETE INSTALLATION. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

POWER DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
▶	DATA AND TELEPHONE JACK	PHONE/DATA OUTLET. EC TO INSTALL 3/4" WITH PULL-STRING FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. JACKS AND COMMUNICATION CARLING BY OTHERS.
⊕	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED 'TEMPERPROOF' IF NOTED. MEET FEDERAL SPECIFICATION V-C-596.
⊕	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE.
⊕	DUPLEX CLG RECEPTACLE	DUPLEX RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH COVER. MOUNT IN CLG. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
⊕	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS. FUSE ACCORDING TO MANUFACTURE DATA.
⊕	DISCONNECT SWITCH	HEAVY DUTY TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.
⊕	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.4 OF THE NEC.

ELECTRICAL DESIGNER'S STATEMENT

ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE
 PRESCRIPTIVE "X" PERFORMANCE _____ ENERGY COST BUDGET _____

LIGHTING SCHEDULE:

LAMP TYPE REQUIRED IN FIXTURE:	SEE LIGHTING LEGEND
NUMBER OF LAMPS PER FIXTURE:	SEE LIGHTING LEGEND
BALLAST TYPE USED IN FIXTURE:	SEE LIGHTING LEGEND
NUMBER OF BALLASTS IN FIXTURE:	SEE LIGHTING LEGEND
TOTAL WATTAGE PER FIXTURE:	SEE LIGHTING LEGEND

TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:	WATTS SPECIFIED	WATTS ALLOWED
	682.0	849.00

OCCUPANCY	AREA (sqf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
	1415	0.60	849.00
TOTAL	1415		849.00

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)

MOTOR HORSEPOWER: N/A
 NUMBER OF PHASES: N/A
 MINIMUM EFFICIENCY: N/A
 MOTOR TYPE: N/A
 NUMBER OF POLES: N/A

DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.

FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.

682 W SPECIFIED <= 764 W (849 W ALLOWED X 90%)

OCCUPANCY SENSORS SEQUENCE OF OPERATIONS WITH LINE-VOLTAGE SWITCH

- LINE VOLTAGE SWITCH MUST BE TURNED ON OR IN ON POSITION.
- OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
- THE LOAD CAN BE TURNED OFF USING THE MANUAL LINE VOLTAGE SWITCH AND IT STAYS OFF UNTIL THE SWITCH IS TURNED TO ON POSITION AND THE OCCUPANCY SENSOR DETECTS OCCUPANCY.

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	LOUVER/LENS	LAMPS		VOLTAGE	MOUNTING	REMARKS	MFG	MODEL
			TYPE	CCT					
A	4" SURFACE MOUNT WRAP AROUND, PROVIDE WITH SUSPENSION CABLE	0.125" ACRYLIC	LED	30 4000K	120	SURFACE	2,3	LITHONIA	LBL4 4000LM 80CRI 4000K MVOLT
B	2X2 RECESSED TROFFER DIMMING	0.125" ACRYLIC	LED	26 3500K	120	LAY-IN	2,3	CURRENT BY GE	LLT 22 A 0.36 MM 835 VV LT WHITE
DE	EXTERIOR DUAL LED EMERGENCY LIGHT	POLYCARBONATE	LED	3 -	120	SURFACE	1-3	EELP	DEH-LED-BR-ACH
EXH	LED EXIT/COMBO W/ BATTERY BACKUP	ACRYLIC	LED	N/A -	120	VARIABLE	1-3	LITHONIA	LHXM-LED-R-SD
EM	LED EXIT SIGN W/ BATTERY BACKUP	ACRYLIC	LED	N/A -	120	VARIABLE	1-3	LITHONIA	LH-X-S-V-1-R-120/277-EL-N-S-D
EX	DUAL HEAD EMERGENCY FIXTURE	ACRYLIC	LED	10 -	120	VARIABLE	1-3	LITHONIA	ELEK2-LED-SD

NOTE: WHERE THE CONDITIONS ARE AS FOLLOWS:
 CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.
 CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDING PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDING.
 CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

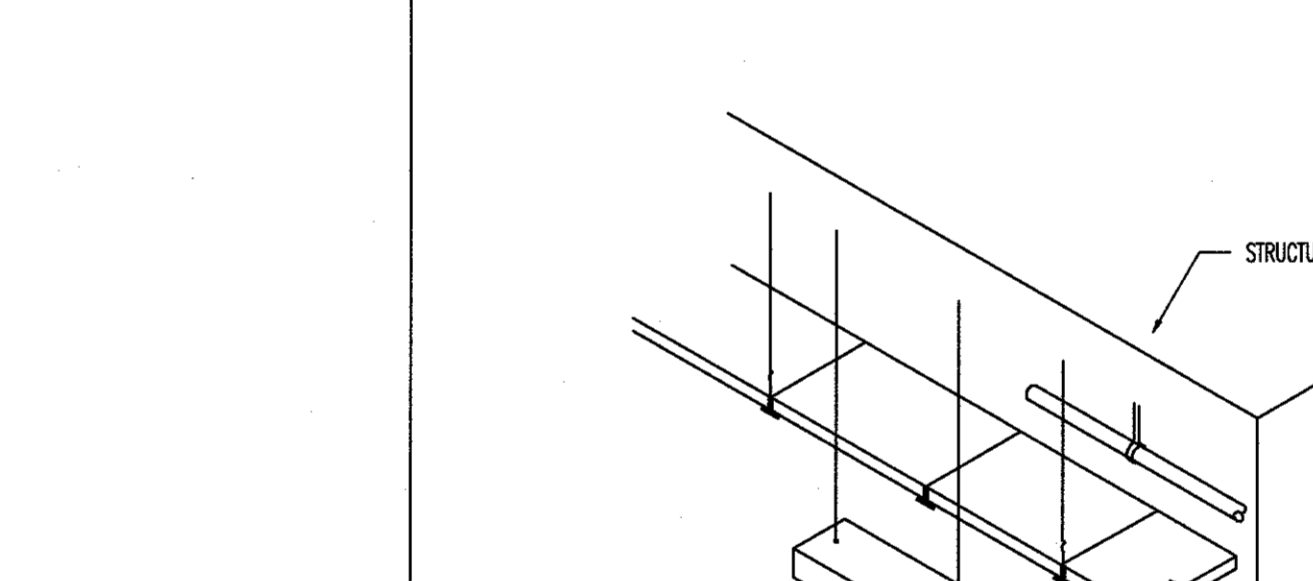
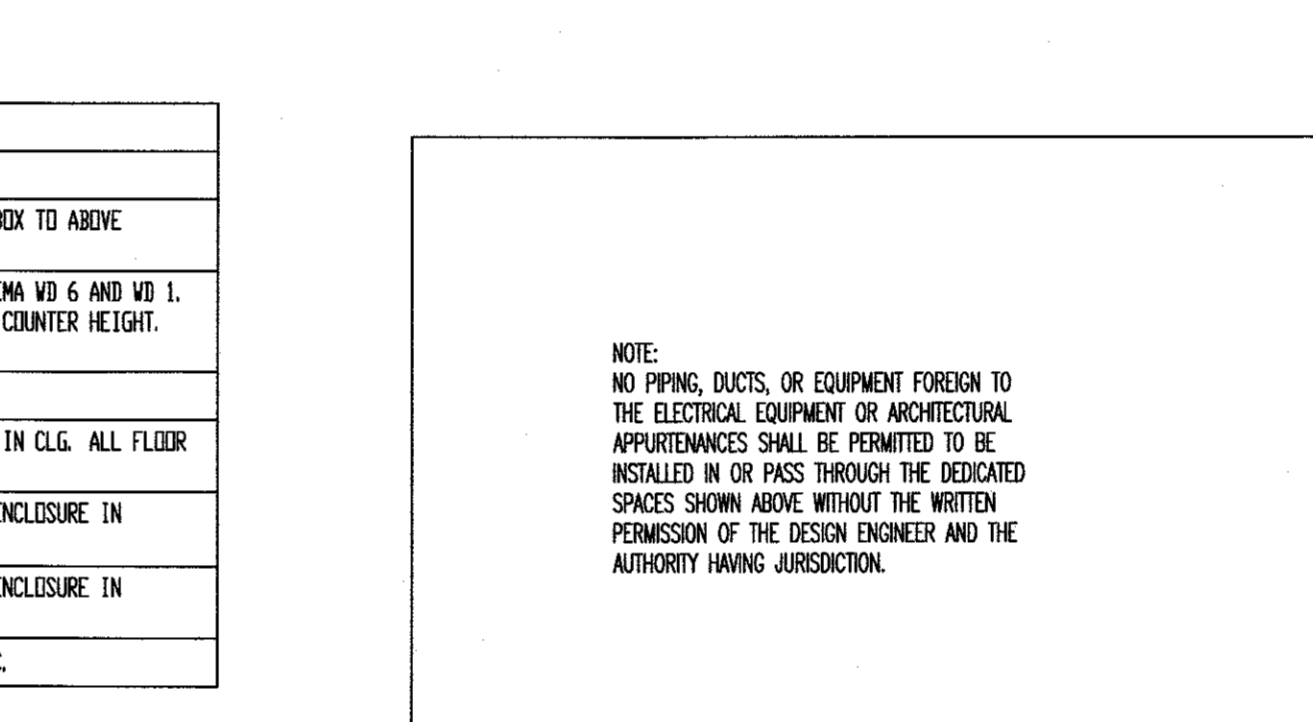


TABLE 110.26(A)(1) WORKING SPACE

VOLTAGE TO GROUND, NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
	CONDITION 1	2	3
0-150	3	3	3
151-600	3	3-1/2	4

REQUIRED CLEARANCES-NO SCALE

Kilian Engineering, Inc.

17304 W. HILLYARD ST., SUITE 100, DENVER, CO 80242
 (303) 440-8383 • WWW.KILIANENGINEERING.COM

WASHLAND LAUNDROMAT (ANGIER)

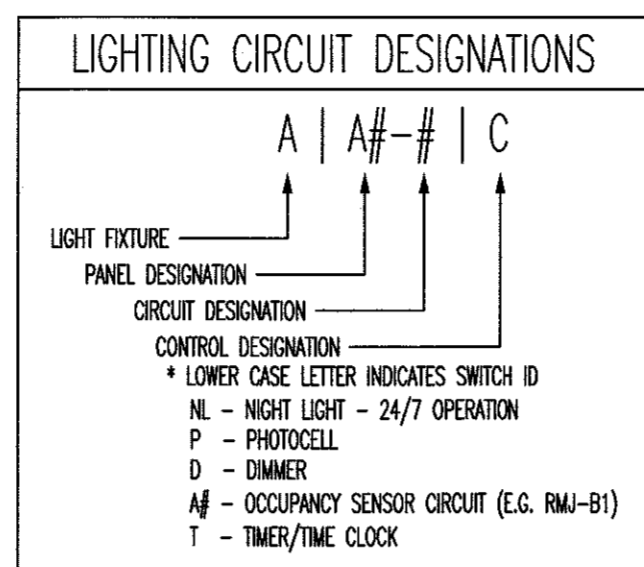
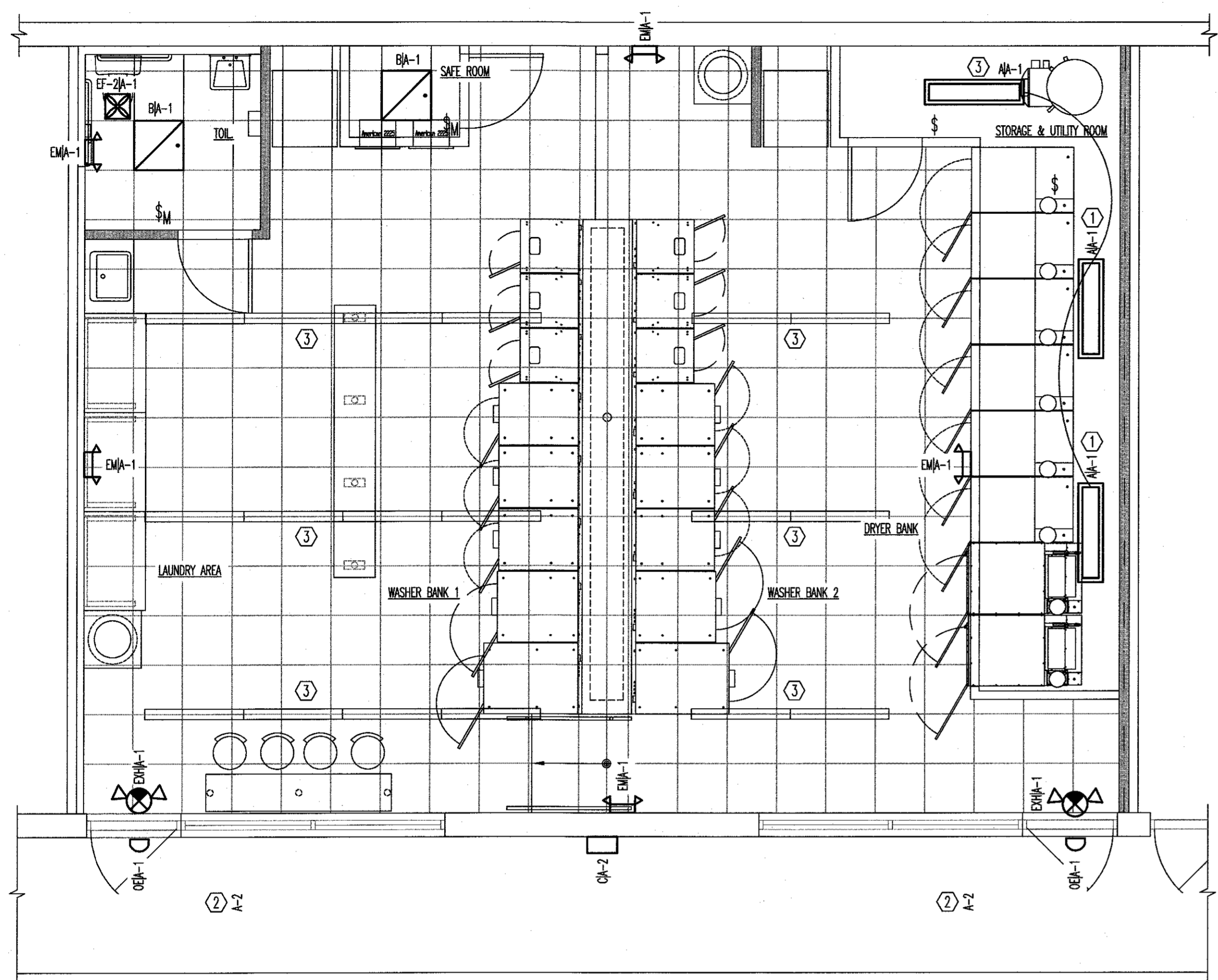
AN OFFICE FOR: 5630 N. VAUGHN STREET, ANGIER, NC 27501

REVISION: _____

ISSUED: _____

E1

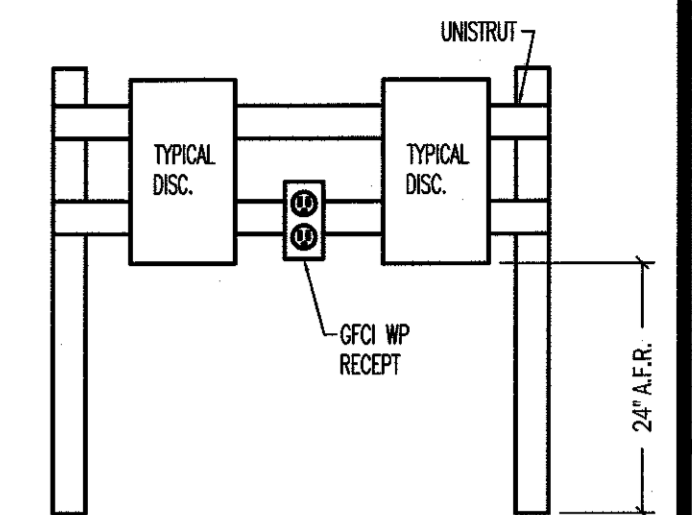
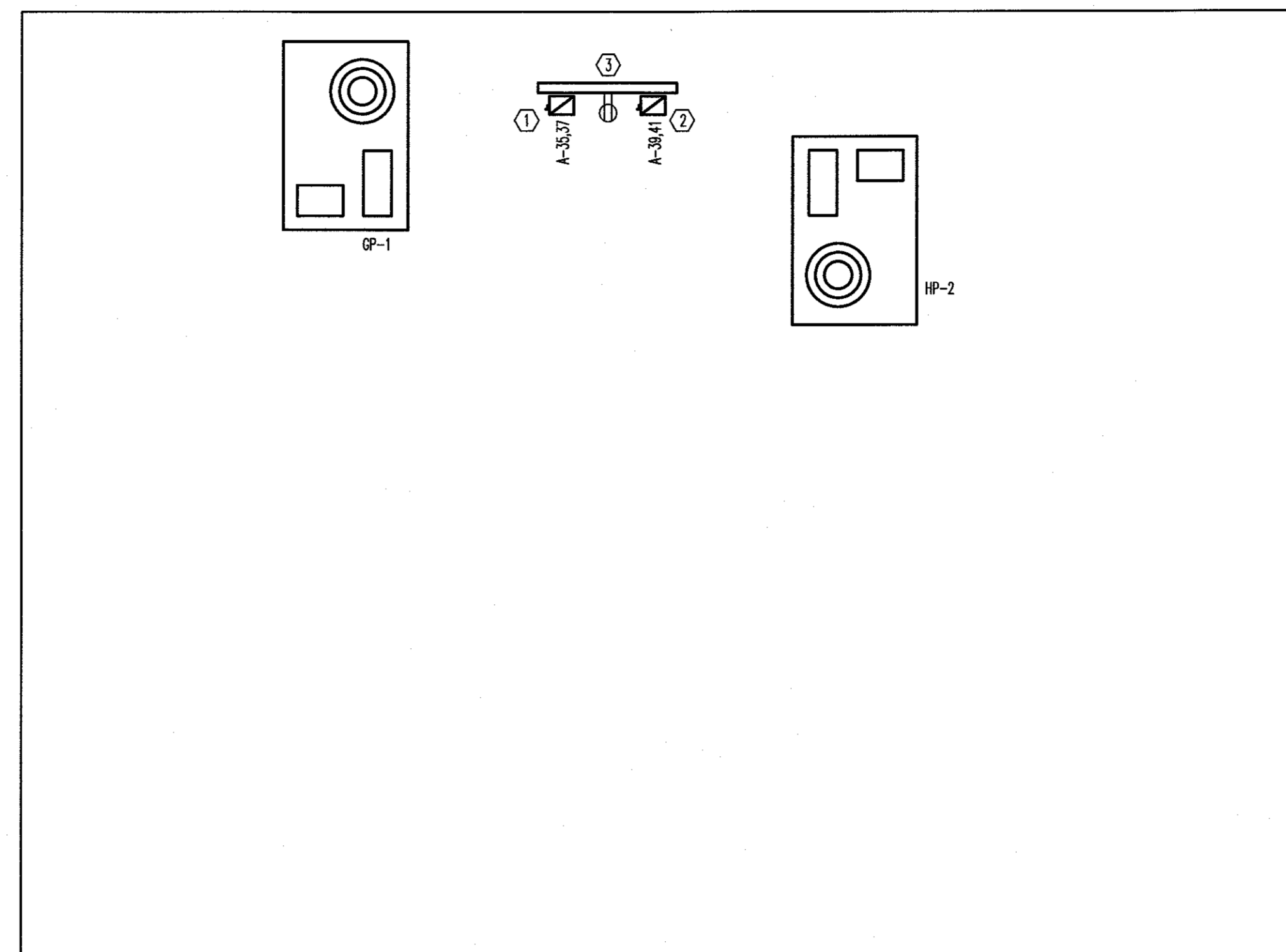
DRAWN BY: BRS
 CHECKED BY: MAW/KDC
 PROJECT NO.: 21379
 SHEET NO.



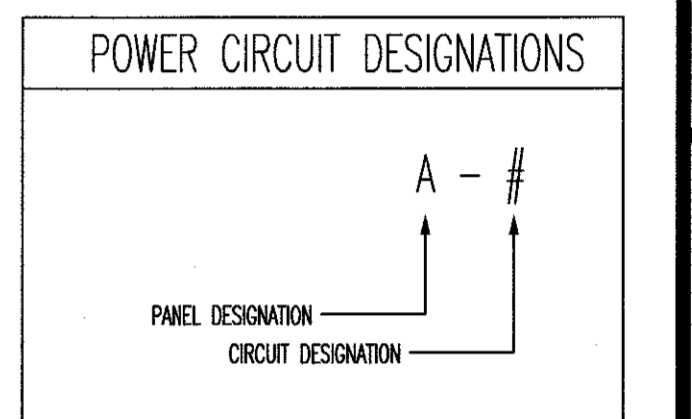
- ### LIGHTING PLAN HEX NOTES
- ADJUST LOCATION OF LIGHTS IN THIS AREA TO AVOID CONFLICT WITH DRYER VENTS AND OTHER EQUIPMENT. PROVIDE WITH SUSPENSION KIT.
 - EC TO VERIFY EXISTING CANOPY LIGHTING IS IN GOOD WORKING ORDER. REPLACE IF REQUIRED.
 - TEMPORARY REMOVAL OF LIGHTING REQUIRED TO INSTALL NEW 2X2 GRID. REINSTALL IN SAME LOCATION AND INSTALL NEW LIGHTING TUBE. RECONNECT LIGHTS TO CIRCUIT A-1.

- ### GENERAL NOTES:
- EXTERIOR LIGHTS CONTROLLED BY TIMECLOCK OR PHOTOCELL.
 - INTERIOR LIGHTS IN LAUNDRY AREA CONTROLLED BY TIMECLOCK.

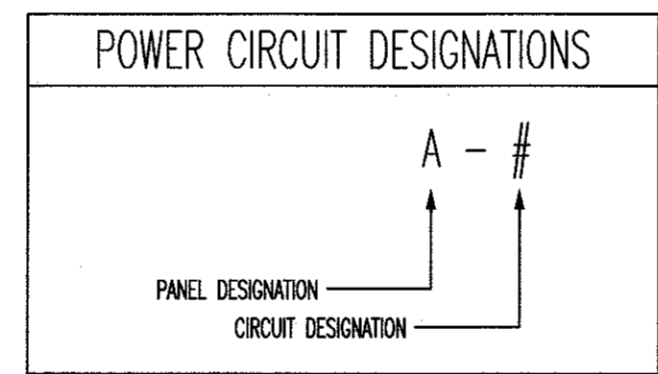
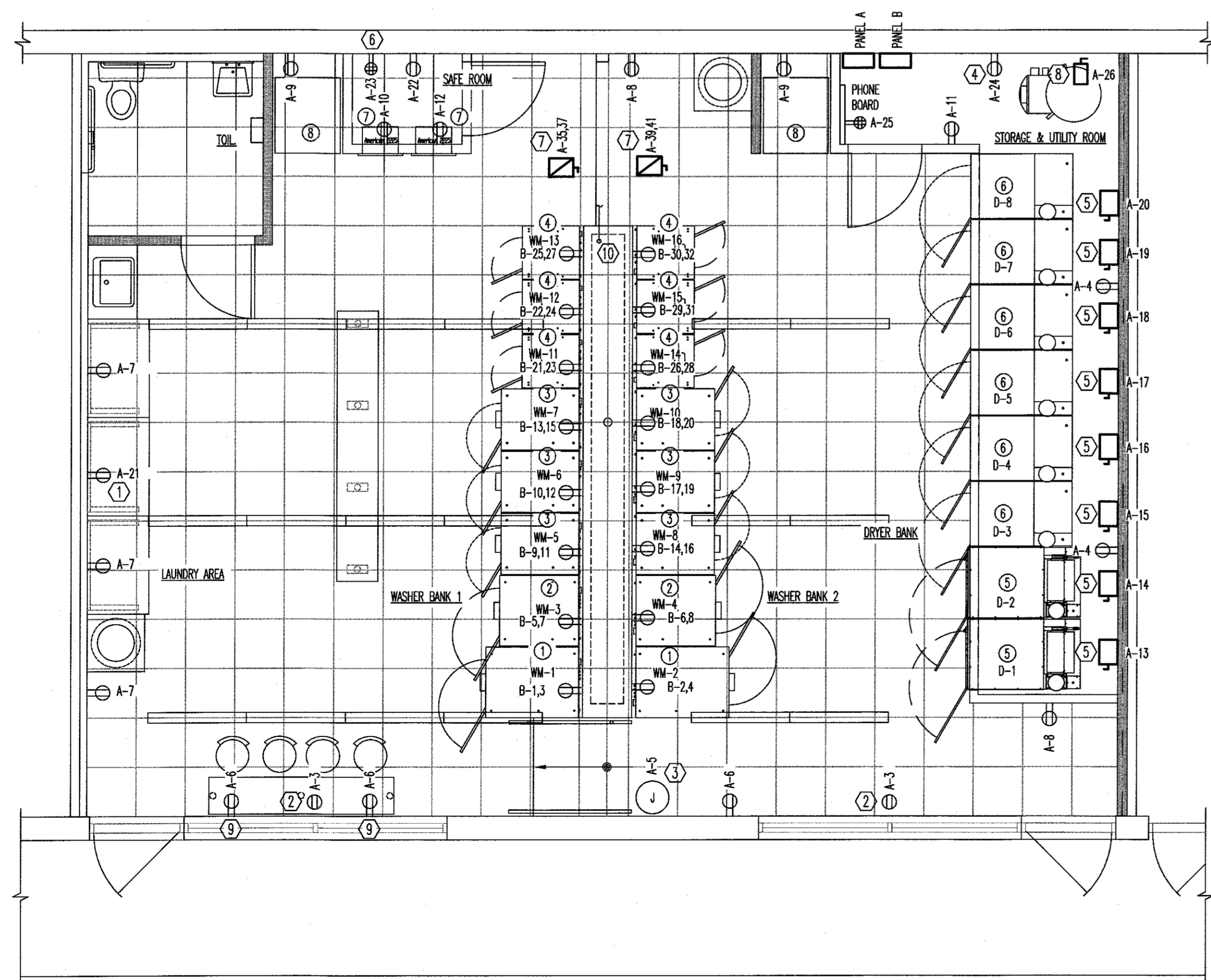
LIGHTING PLAN - SCALE: 1/4" = 1'-0" 1



- ### HEX PLAN NOTES
- 60A NEMA 3R FUSEBLE DISCONNECT FOR GP-1 FUSED AT 60A.
 - 60A NEMA 3R FUSEBLE DISCONNECT FOR HP-2 FUSED AT 60A.
 - MOUNT ON UNISTRUT, MOUNT DISCONNECT AND GFCI-WP RECEPT AT 24" ABOVE FINISHED ROOF.



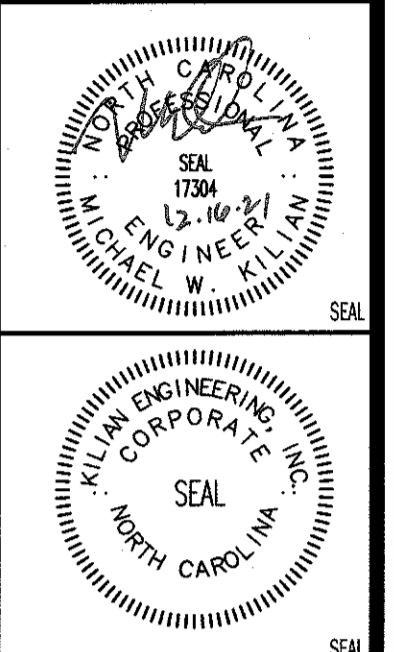
ROOF ELECTRICAL PLAN - SCALE: 1/4" = 1'-0" 2



- ### POWER PLAN HEX NOTES
- MOUNT TV OUTLET AT 84" AFF. VERIFY RECEPTACLE LOCATION WITH OWNER.
 - SHOW WINDOW RECEPTACLES MOUNTED IN CEILING OR ABOVE WINDOW. VERIFY LOCATION WITH OWNER PRIOR TO ROUGH-IN.
 - JUNCTION BOX FOR SIGN. VERIFY LOCATION AND POWER REQUIREMENTS WITH OWNER.
 - SERVICE RECEPTACLE MOUNT @ 24" AFF.
 - LOCKOUT DEVICE IN PANEL TO SERVE AS MEANS OF DISCONNECT FOR DRYERS PER 422.31 (C). THE LOCKOUT DEVICE MUST MEET THE REQUIREMENTS OF 110.25.
 - QUAD OUTLET FOR SECURITY EQUIPMENT. VERIFY LOCATION WITH OWNER.
 - NEMA 3R 60A DISCONNECT FUSED AT 60A FOR GP-1 & HP-2. SEE ELECTRICAL ROOF PLAN.
 - NEMA 1 30A DISCONNECT FOR WATER HEATER, MOUNT IN ACCESSIBLE LOCATION NEAR DEVICE.
 - MOUNT RECEPTACLE UNDER WINDOW BELOW BAR. VERIFY LOCATION AND HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
 - ELECTRICAL CONDUIT ROUTES TO PRE-FAB WASHER RACK IN SAME TRENCH AS WATER LINES. INSTALL ELECTRICAL CONDUIT ABOVE AND MAINTAIN MIN. 12" SEPARATION.

EQUIPMENT LIST									
ITEM	TAG	DESCRIPTION	QTY.	MFG	MODEL	VOLTS	PHASE	MCA	MCOP
1	WM-1, WM-2	FRONTLOAD WASHER	2	DEXTER	T-1200	208	1	8.4	20
2	WM-3 & WM-4	FRONTLOAD WASHER	2	DEXTER	T-950EX	208	1	12	20
3	WM-5, WM-6, WM-7, WM-8, WM-9 & WM-10	FRONTLOAD WASHER	6	DEXTER	T-650EX	208	1	6.2	15
4	WM-11, WM-12, WM-13, WM-14, WM-15 & WM-16	FRONTLOAD WASHER	6	DEXTER	T-350EX	208	1	6.2	15
5	D-1 & D-2	STACKED DRYER	2	DEXTER	T-50X2	120	1	20	30
6	D-3, D-4, D-5, D-6, D-7 & D-8	STACKED DRYER	6	DEXTER	T-30X2	120	1	8	20
7		BILL CHANGER	2			120	1		
8		SOAP VENDING	2			120	1		

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



REVISION:
 ISSUED:
 DRAWN BY: RSB
 CHECKED BY: MMH/KCC
 ELECTRICAL LIGHTING, POWER & ROOF PLAN
 SHEET NO. **E2**
 PROJECT NO: 21379

