GENERAL STRUCTURAL NOTES

GENERAL

THESE DRAWINGS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF LYSAGHT & ASSOCIATES, P.A., FOR USE SOLELY WITH THIS PROJECT AND SHALL NOT BE REPRODUCED FOR OTHER PURPOSES.

THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE PROJECT STRUCTURAL ENGINEER-OF-RECORD (SER) WHO BEARS LEGAL RESPONSIBILITY FOR THE PERFORMANCE OF THE STRUCTURAL FRAMING RELATING TO PUBLIC HEALTH, SAFETY AND WELFARE. NO OTHER PARTY, WHETHER OR NOT A PROFESSIONAL ENGINEER, MAY COMPLETE, CORRECT, REVISE, DELETE OR ADD TO THESE CONSTRUCTION DOCUMENTS OR PERFORM INSPECTIONS OF THE WORK WITHOUT THE WRITTEN PERMISSION OF THE SER.

IN GENERAL, THE FOUNDATION AND FRAMING DETAILS FOR THIS PROJECT CAN BE CATEGORIZED AS "STANDARD WOOD FRAMED CONSTRUCTION" AND ARE TO BE WORKED OUT BY THE CONTRACTOR, IN THE FIELD. SPECIAL DETAILS ARE SHOWN ON THE DRAWINGS. IF ANY SPECIAL CONDITIONS ARISE THAT ARE NOT DETAILED ON THE DRAWINGS, CONTACT THE STRUCTURAL ENGINEER.

CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "NORTH CAROLINA BUILDING CODE", 2018 EDITION.

ALL MEMBERS SHALL BE FRAMED, ANCHORED, TIED AND BRACED IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICE AND THE BUILDING CODE.

THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING TO STABILIZE THE BUILDING DURING CONSTRUCTION.

FLAT ROOF DRAINAGE

FLAT ROOFS SHALL HAVE CONTROLLED DRAINAGE PROVISIONS AND SHALL BE EQUIPPED WITH A SECONDARY DRAINAGE SYSTEM AT A HIGHER ELEVATION WHICH PREVENTS PONDING ON THE ROOF ABOVE THAT ELEVATION. THE SECONDARY DRAINAGE SHALL BE SET SO THAT THE OVERFLOW SCUPPER IS 2" ABOVE THE ROOF AND A 6" MAXIMUM DEPTH OF WATER WILL POND ON THE ROOF, AT THE OVERFLOW SCUPPER, DURING THE DESIGN RAINSTORM. THE DESIGN OF THE ROOF DRAINAGE, SECONDARY DRAINAGE AND/OR OVERFLOW SCUPPERS IS BEYOND THE SCOPE OF THE STRUCTURAL ENGINEER'S SERVICES.

SHOP DRAWINGS

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR EACH STRUCTURAL COMPONENT. THESE SHOP DRAWINGS SHALL HAVE BEEN CHECKED BY, AND STAMPED WITH THE APPROVAL OF, THE CONTRACTOR. DETAILS SHOWN ON THE SHOP DRAWINGS SHALL BE COMPLETE WITH RESPECT TO DIMENSIONS, DESIGN CRITERIA AND SIGNED AND SEALED BY A PROFESSIONAL ENGINEER (WHERE APPLICABLE) REGISTERED IN THE STATE THAT THE PROJECT IS LOCATED.

REVIEW OF SHOP DRAWINGS BY THE ENGINEER IS LIMITED TO COMPLIANCE OF THE COMPLETED STRUCTURE WITH THE DESIGN CONCEPT AND INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, QUANTITIES, PERFORMANCE, SAFETY, COORDINATION WITH OTHER WORKS, AND ALL OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS. REVIEW DOES NOT AUTHORIZE CHANGES TO THE CONTRACT.

SCOPE OF STRUCTURAL ENGINEERING SERVICES

THE STRUCTURAL ENGINEER HAS PERFORMED THE STRUCTURAL DESIGN AND REVIEWED THE ARCHITECTURAL PLANS FOR THIS PROJECT. IF SITE VISITS ARE NEEDED DURING CONSTRUCTION, THE ARCITECT, CONTRACTOR OR OWNER SHALL CONTACT THE STRUCTURAL ENGINEER AT THE FOLLOWING STAGES OF CONSTRUCTION FOR A FIELD REVIEW OF THE WORK:

1. AFTER FOOTING EXCAVATION AND REBAR PLACEMENT, BEFORE CONCRETE IS POURED.
2. AFTER COMPLETION OF STEEL FRAMING SYSTEM, BEFORE INTERIOR FINISHES ARE INSTALLED.
3. AFTER COMPLETION OF THE WOOD FRAMING SYSTEM, BEFORE INTERIOR FINISHES ARE INSTALLED.
4. AT ANY STAGE OF CONSTRUCTION WHEN DESIGN OR CONSTRUCTION PROBLEMS ARE ENCOUNTERED.

A "CONSTRUCTION REVIEW REPORT" WILL BE SENT TO THE CONTRACTOR AND THE ARCHITECT FOLLOWING EACH FIELD TRIP.

THE STRUCTURAL ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM, EXCEPT FOR THE COMPONENTS NOTED ABOVE. RESPONSIBILITY FOR ANY SECONDARY STRUCTURAL AND NON-STRUCTURAL SYSTEMS NOT SHOWN ON THE STRUCTURAL PLANS RESTS WITH THE CONTRACTOR.

THE STRUCTURAL ENGINEER HAS NOT DONE A SUBSURFACE INVESTIGATION (HE IS NOT A SOILS SPECIALIST). THE FOUNDATION DESIGN IS BASED UPON AN ASSUMED ALLOWABLE BEARING PRESSURE AS SHOWN IN THE "FOUNDATION" STRUCTURAL NOTES. THIS ALLOWABLE BEARING PRESSURE SHALL BE VERIFIED BY THE CONTRACTOR OR OWNER. IF PROBLEMS ARE ENCOUNTERED, A SOILS ENGINEER SHOULD BE RETAINED TO EVALUATE THE CONDITIONS AND RECOMMEND THE APPROPRIATE FOUNDATION SYSTEM.

THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK; NOR WILL HE BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

FIELD MEASUREMENTS AND THE VERIFICATION OF DIMENSIONS SHOWN ON THE ARCHITECTURAL PLANS ARE NOT THE STRUCTURAL ENGINEER'S RESPONSIBILITY.

ABBREVIATIONS

@	AT
ASD	ALLOWABLE STRESS DESIGN
B/U	BUILT-UP
CJ	CONTROL JOINT IN SLAB
CLNG	CEILING
COL	COLUMN
DJ	DOUBLE JOIST
DR	DOUBLE RAFTER
FMH	FACE MOUNTED HANGER
LBW	LOAD BEARING WALL
LVL	LAMINATED VENEER LUMBER
NTS	NOT TO SCALE
OC	ON CENTER
RyL	LARGER OF TWO REACTIONS ON A BEAM, KIPS
RyS	SMALLER OF TWO REACTIONS ON A BEAM, KIPS
SER	STRUCTURAL ENGINEER-OF-RECORD
S-P-F	SPRUCE-PINE-FIR
STD	STANDARD
STL	STEEL
SYP	SOUTHERN YELLOW PINE
TJ	TRIPLE JOIST
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

DESIGN LOADS

ROOF DEAD LOAD	15 PSF
ROOF LIVE LOAD	20 PSF
MEZZANINE FLOOR DEAD LOAD	15 PSF
MEZZANINE FLOOR LIVE LOAD	50 PSF
1ST FLOOR LIVE LOAD (SLAB ON GRADE)	100 PSF
ULTIMATE WIND SPEED (3 SECOND GUST)	115 MPH
EXPOSURE	B

FOUNDATIONS

ALL FOOTINGS SHALL REST ON SOIL CAPABLE OF SAFELY SUPPORTING 2000 PSF. THE CONTRACTOR SHALL CONTACT THE STRUCTURAL ENGINEER IF UNSATISFACTORY SUBSURFACE CONDITIONS ARE ENCOUNTERED.

FOOTINGS SHALL BE CARRIED TO A LOWER ELEVATION THAN THOSE INDICATED ON THESE DRAWINGS IF NECESSARY TO REACH FIRM UNDISTURBED SOIL.

FOUNDATIONS SHALL EXTEND NOT LESS THAN 16" BELOW THE FINISHED NATURAL GRADE OR ENGINEERED FILL IN NO CASE LESS THAN THE FROST LINE DEPTH.

CONCRETE

MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 3000 PSI FOR FOOTINGS AND 4000 PSI FOR SLAB ON GRADE. DO NOT CAST CONCRETE IN WATER OR ON FROZEN GROUND.

REINFORCING STEEL

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315.

REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. CLEAR CONCRETE COVER OVER BARS SHALL BE 3" FOR FOOTINGS.

STRUCTURAL STEEL

INTERIOR STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF RUST INHIBITIVE PAINT. EXTERIOR STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED OR EPOXY PAINTED. STEEL BELOW GRADE SHALL BE BOTH GALVANIZED AND EPOXY PAINTED.

THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:

STRUCTURAL PIPE COLUMNS	35 KSI
MISCELLANEOUS SHAPES	36 KSI

SUBMIT STEEL SHOP DRAWINGS FOR REVIEW.

WOOD FRAMING

WALLS STUDS, FLOOR AND ROOF JOISTS SHALL BE #2 GRADE S-P-F UNLESS NOTED OTHERWISE ON THE DRAWINGS.

NONBEARING INTERIOR STUDS MAY BE UTILITY GRADE LUMBER.

SUBFLOOR SHALL BE 3/4" T&G PLYWOOD WITH A 48/24 APA RATING. USE SOUTHERN PINE, CDX OR STRUCTURAL EQUIVALENT.

LVL BEAMS AND HEADERS THAT ARE DOUBLED SHALL BE NAILED TOGETHER WITH 2 ROWS OF 16d NAILS @ 12" O.C. STAGGERED. PROVIDE CONTINUOUS LATERAL SUPPORT FOR TOP OF HEADER. STRENGTH OF LVL BEAMS AND HEADERS SHALL BE EQUAL TO THAT PROVIDED BY TRUS JOIST: Fv = 285 PSI, Fb = 2600 PSI, E = 1900 KSI.

ANY WOOD EXPOSED TO THE ELEMENTS, OR IN CONTACT WITH MASONRY, SHALL BE PRESERVATIVE TREATED TO THE RETENTIONS SHOWN IN THE BUILDING CODE.

BUILDING CODE REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 403 ALTERATIONS

403.3 EXISTING STRUCTURAL ELEMENTS CARRYING GRAVITY LOAD.
ANY EXISTING GRAVITY LOAD CARRYING STRUCTURAL ELEMENT FOR WHICH AN ALTERATION CAUSES AN INCREASE IN DESIGN GRAVITY LOAD OF MORE THAN 10% SHALL BE STRENGTHENED, SUPPLEMENTED, REPLACED OR OTHERWISE ALTERED AS NEEDED TO CARRY THE INCREASED GRAVITY LOAD REQUIRED BY THE INTERNATIONAL BUILDING CODE FOR NEW STRUCTURES…. WHERE THE ALTERATION DOES NOT RESULT IN INCREASED DESIGN LIVE LOAD, EXISTING GRAVITY LOAD CARRYING STRUCTURAL ELEMENTS SHALL BE PERMITTED TO BE EVALUATED AND DESIGNED FOR LIVE LOADS APPROVED PRIOR TO THE OPERATION.

403.4 EXISTING STRUCTURAL ELEMENTS CARRYING LATERAL LOAD.
WHERE THE ALTERATION INCREASES DESIGN LATERAL LOADS IN ACCORDANCE WITH SECTION 1609 OR 1613 OF THE INTERNATIONAL BUILDING CODE, OR WHERE THE ALTERATION RESULTS IN A PROHIBITED STRUCTURAL IRREGULARITY AS DEFINED IN ASCE7, OR WHERE THE ALTERATION DECREASES THE CAPACITY OF ANY EXISTING LATERAL LOAD CARRYING STRUCTURAL ELEMENT, THE STRUCTURE OF THE ALTERED BUILDING OR STRUCTURE SHALL BE SHOWN TO MEET THE REQUIREMENTS OF SECTIONS 1609 AND 1613 OF THE INTERNATIONAL BUILDING CODE….
ANY EXISTING LATERAL LOAD BEARING STRUCTURAL ELEMENT WHOSE DEMAND CAPACITY RATIO WITH THE OPERATION CONSIDERED IS NO MORE THAN 10% GREATER THAN ITS DEMAND CAPACITY RATIO WITH THE ALTERATION IGNORED SHALL BE PERMITTED TO REMAIN UNALTERED.

THESE CODE PROVISIONS HAVE BEEN INTERPRETED AS FOLLOWS:

1. THE EXISTING BUILDING IS EXEMPT FROM A WIND OR SEISMIC ANALYSIS BECAUSE THE MAIN WIND (SEISMIC) FORCE RESISTING SYSTEM WILL NOT BE ALTERED DURING THIS RENOVATION.

2. ALL EXISTING GRAVITY ELEMENTS THAT ARE AFFECTED BY RENOVATION MUST BE CHECKED FOR DESIGN LOADS SHOWN ABOVE AND REINFORCED AS NECESSARY.

3. ALL DEFECTIVE STRUCTURAL ELEMENTS MUST BE REPAIRED OR REPLACED. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER IF ANY DEFECTIVE FRAMING IS UNCOVERED DURING THE RENOVATION AND ADDITION.

L&A LYSAGHT & ASSOCIATES
structural engineers
120 St Mary's Street
Raleigh, NC 27605
919.833.0495
LysaghtAssociates.com
Firm No. C-0621

Charles A. Lysaght
Digitally signed by Charles A. Lysaght
DN: E=chuck@lysaghtassociates.com, CN=Charles A. Lysaght, O="Lysaght & Associates, PA", L=Raleigh, S=North Carolina, C=US
Reason: I attest to the accuracy and integrity of this document
Date: 2024.10.07 12:07:38-04'00'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 7929 10/07/24 ENGINEER CHARLES A. LYSAGHT
L&A FIRM # C-0621

mon[arc] studio
701 W Trinity Ave #117
Durham, NC 27701

CONSTRUCTION DRAWINGS 10/07/24

Hutchins
a restaraunt upfit at:
408 W Geer St
Durham, NC 27701

GENERAL STRUCTURAL NOTES

S100

LA-14779

FOUNDATION NOTES

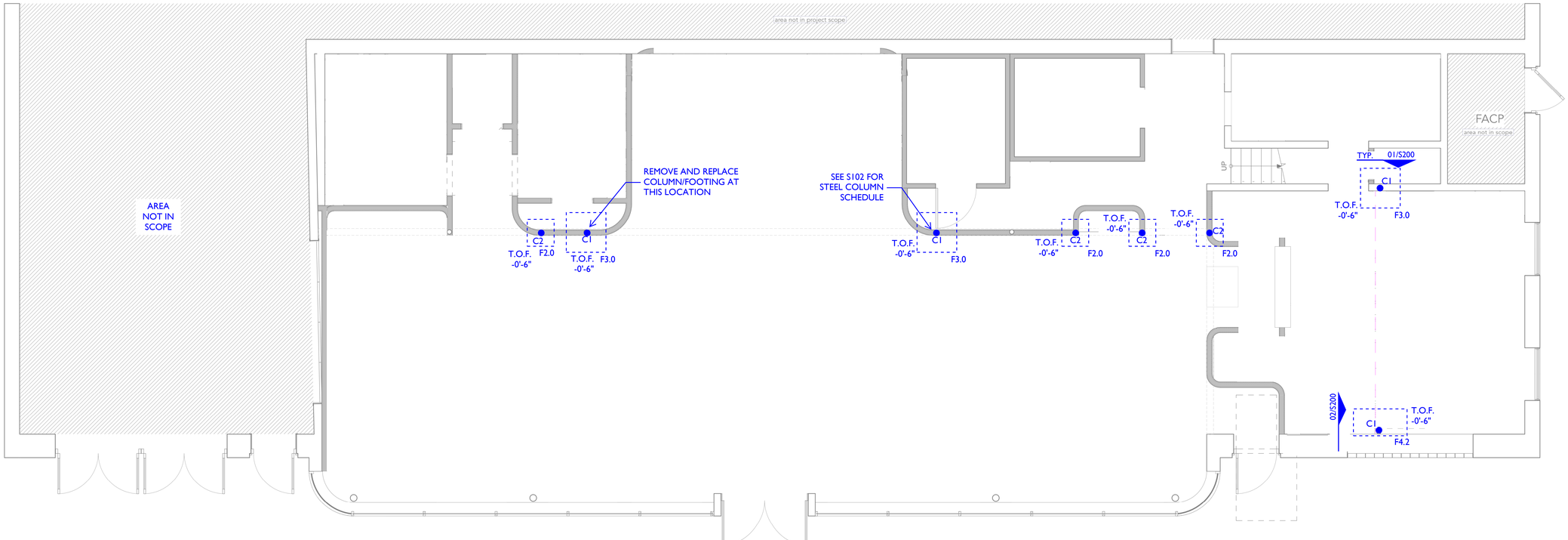
1. ALL ELEVATIONS ARE MEASURED FROM A REFERENCE FINISHED TOP OF SLAB FLOOR ELEVATION OF 0'-0". REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.

2. REFER TO ARCHITECTURAL PLANS FOR ALL DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.

FOOTING SCHEDULE			
MK#	SIZE	REINFORCING	NOTES
F2.0	2'-0" X 2'-0" X 10"	(3) #4'S EACH WAY	SPREAD FOOTING
F3.0	3'-0" X 3'-0" X 10"	(4) #4'S EACH WAY	SPREAD FOOTING
F4.2	4'-0" X 2'-0" X 10"	#4'S @ 8" O.C. EACH WAY	SPREAD FOOTING

NOTES

1. REINFORCING TO BE LOCATED 3" CLEAR FROM BOTTOM OF FOOTING.



PARTIAL FOUNDATION PLAN
1/4" SCALE

LYSAGHT & ASSOCIATES
structural engineers
120 St Mary's Street
Raleigh, NC 27605
919.833.0495
LysaghtAssociates.com
Firm No. C-0621

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 7929 10/07/24 CHARLES A. LYSAGHT
L&A FIRM # C-0621

mon[arc] studio
701 W Trinity Ave #117
Durham, NC 27701

CONSTRUCTION DRAWINGS 10/07/24

Hutchins Showroom

a restaraunt upfit at:

408 W Geer St
Durham, NC 27701

FOUNDATION PLAN

S101

LA-14779

FLOOR FRAMING NOTES

1. REFER TO ARCHITECTURAL PLANS FOR ALL DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.

2. SEE BEAM SCHEDULE FOR SIZES OF MEMBERS DENOTED ON FRAMING PLAN AS B1, B2, B3, ETC.

3. THE MEZZANINE FRAMING SHOWN ON THIS DRAWING HAS BEEN DESIGNED FOR A MAXIMUM LIVE LOAD OF 50 PSF. IF THE REQUIRED LIVE LOAD IS TO BE GREATER THAN 50 PSF, FRAMING AND FOUNDATIONS SHALL BE RE-DESIGNED.

STEEL COLUMN SCHEDULE

MK#	COLUMN SIZE	BASE PLATE			A.B.'S	A.B. PATTERN	NOTES
		WIDTH	LENGTH	THICK.			
C1	4" DIA. PIPE COL.	10	10	0.5	(4) 3/4"	7" X 7"	1, 2, 3,4
C2	3" DIA. PIPE COL.	8	8	0.5	(4) 3/4"	5" x 5"	1, 2, 3

NOTES

1. PIPE COLUMNS ARE ASTM A53 Gr. B (Fy = 35 KSI)
2. USE F1554 (GRADE 36) A.B.'S WITH WASHERS AND HEAVY HEX NUTS BOTH ENDS.
3. A.B.'S SHALL HAVE 8" MIN. PROJECTION IN FOOTING.
4. SEE DETAIL 02/S200 WHERE COLUMN IS LOCATED ADJACENT TO EXISTING MASONRY WALL

MEZZANINE FLOOR FRAMING SCHEDULE

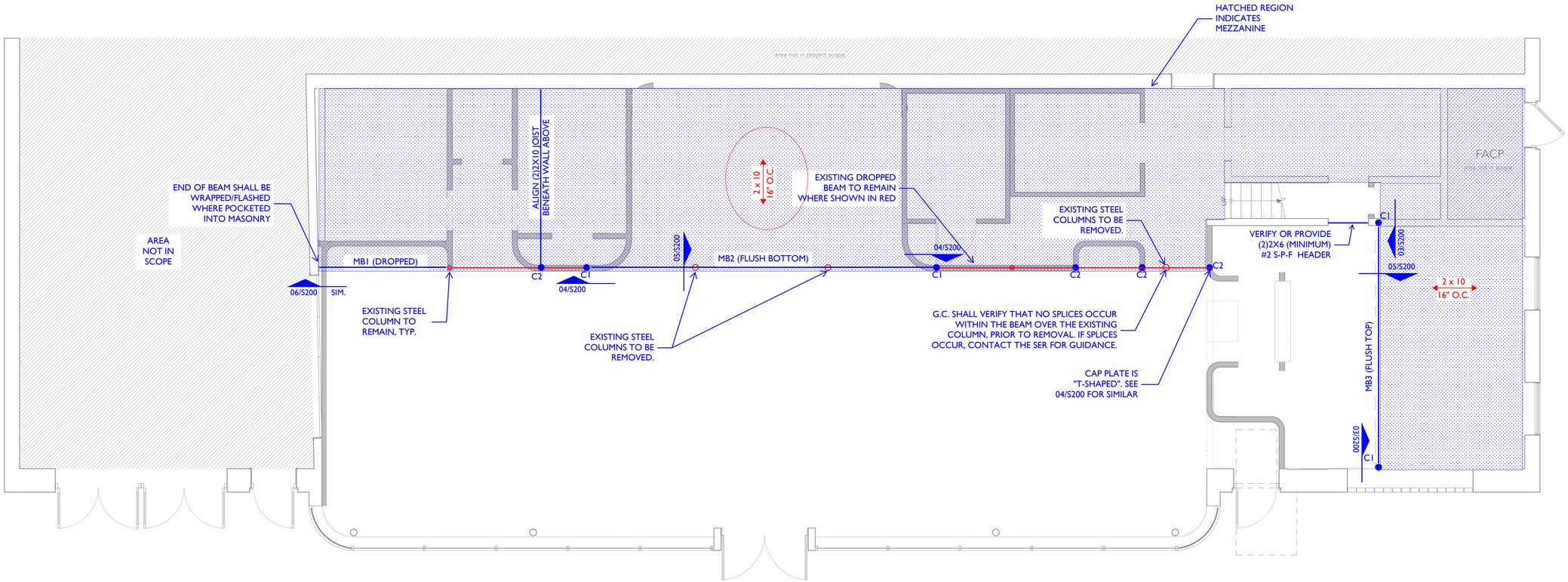
MK#	SIZE	MATERIAL	GRADE	NOTE
MB1	(3) 1.75 X 7.25	LVL	F2600	1
MB2	W14 X 26	STEEL	A992	2, 3
MB3	W8 X 21	STEEL	A992	2, 3

END REACTIONS

RyL	RyS
2.4	2.4
6.4	6.4
4.5	4.5

NOTES

1. SIZE SHOWN IS ACTUAL.
2. SHOP PUNCH/DRILL 11/16" HOLES AT 32" O.C. STAGGERED IN THE WEB OF THE BEAM LOCATED 3" AND 6" FROM TOP OF BEAM FOR ATTACHMENT OF WEB BLOCKING
3. SHOP PUNCH/DRILL (2) ROWS OF 9/16" HOLES IN TOP FLANGE OF BEAM AT 32" O.C. FOR ATTACHMENT OF BLOCKING OVER BEAM WHERE REQUIRED.



MEZZANINE FRAMING PLAN
1/4" SCALE

L&A LYSAGHT & ASSOCIATES
structural engineers
120 St Mary's Street
Raleigh, NC 27605
919.833.0495
LysaghtAssociates.com
Firm No. C-0621

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 7929 10/07/24 ENGINEER CHARLES A. LYSAGHT
L&A FIRM # C-0621

mon[arc] studio
701 W Trinity Ave #117
Durham, NC 27701

CONSTRUCTION DRAWINGS 10/07/24

Hutchins Showroom
a restaraunt upfit at:
408 W Geer St
Durham, NC 27701

MEZZANINE FRAMING PLAN

S102

LA-14779

L&A LYSAGHT & ASSOCIATES
structural engineers
120 St Mary's Street
Raleigh, NC 27605
919.833.0495
LysaghtAssociates.com
Firm No. C-0621

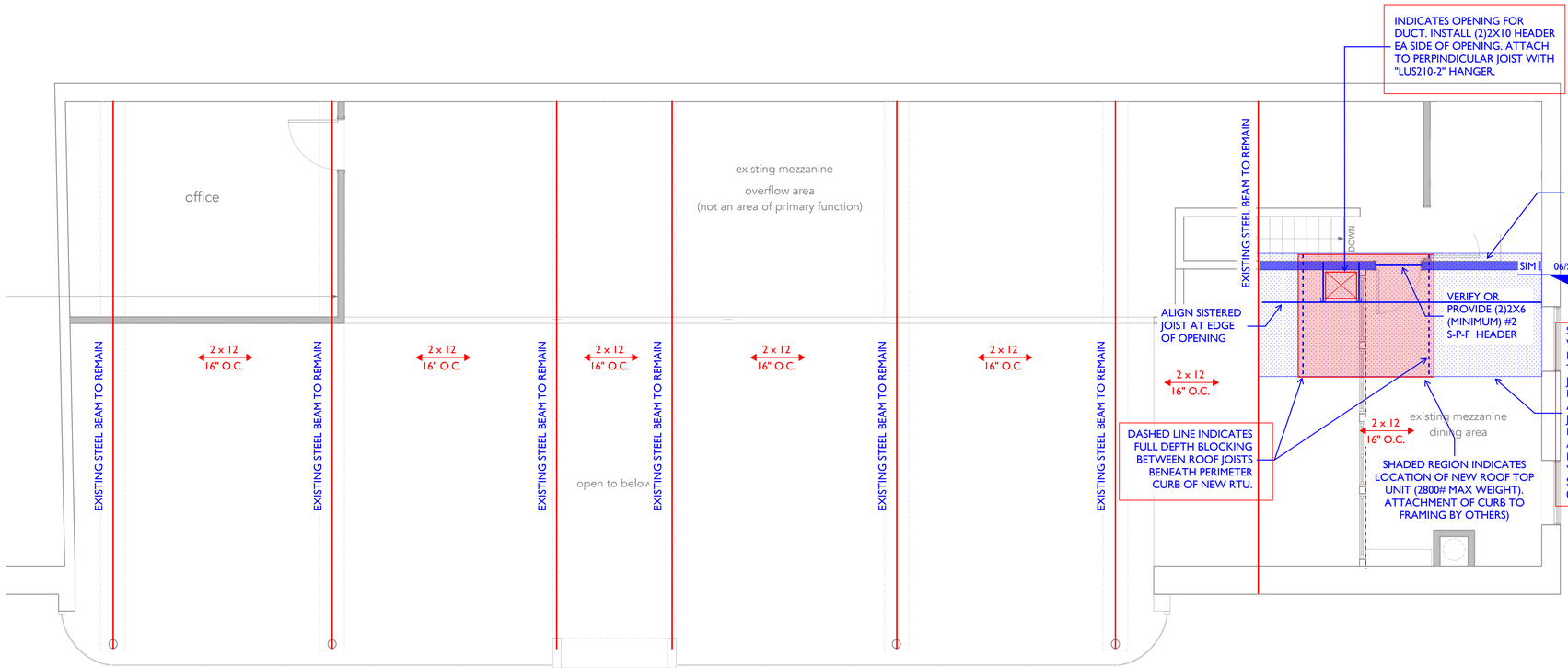
ROOF FRAMING NOTES

1. SEE ARCHITECTURAL PLANS FOR ROOF SLOPE. REFER TO ARCHITECTURAL PLANS FOR ALL DIMENSIONS.

2. COORDINATE OPENINGS IN THE ROOF FRAMING WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS. OPENINGS LARGER THAN 6" BUT LESS THAN 14" SHALL BE FRAMED ON ALL SIDES WITH 2 X 4 HEADERS. CONTACT STRUCTURAL ENGINEER FOR OPENINGS GREATER THAN 14" WIDE.

3. ALL ROOF JOISTS SHALL BE FULL LENGTH; DO NOT SPLICE.

4. WE HAVE NOT REVIEWED MECHANICAL DRAWINGS FOR THIS PROJECT AND HAVE ONLY BEEN NOTIFIED OF THE PRESENCE OF ONE HVAC UNIT, AS SHOWN ON THE ROOF FRAMING PLAN. IF ADDITIONAL UNITS OR OPENINGS ARE TO BE INSTALLED, THE E.O.R. SHALL BE NOTIFIED PRIOR TO INSTALLATION.



ROOF FRAMING PLAN
1/4" SCALE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 7929 10/07/24 CHARLES A. LYSAGHT
L&A FIRM # C-0621

mon[arc] studio
701 W Trinity Ave #117
Durham, NC 27701

CONSTRUCTION DRAWINGS 10/07/24

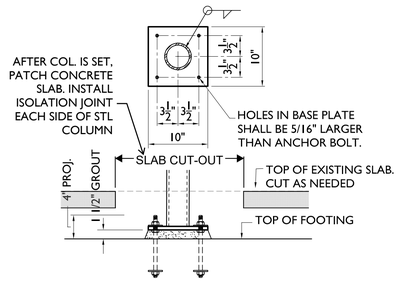
Hutchins Showroom

a restaraunt upfit at:
408 W Geer St
Durham, NC 27701

ROOF FRAMING PLAN

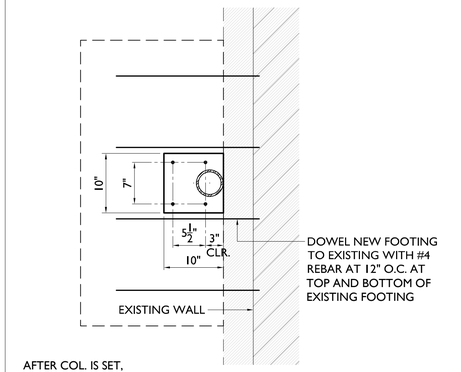
S103

LA-14779



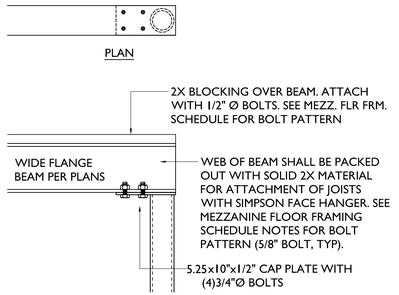
01 COLUMN SETTING DETAIL

NOT TO SCALE



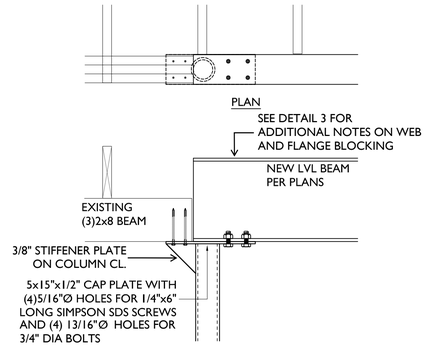
02 COLUMN SETTING DETAIL AT EDGE CONDITION

NOT TO SCALE



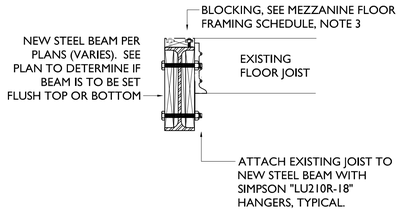
03 W-FLANGE BEAM TO STEEL HSS COLUMN

NOT TO SCALE



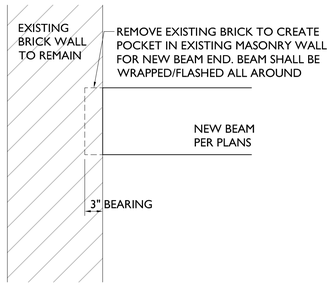
04 EXISTING BEAM AND NEW W-FLANGE BEAM TO HSS COLUMN

NOT TO SCALE



05 EXISTING JOIST TO NEW W-FLANGE BEAM

NOT TO SCALE



06 NEW BEAM TO EXISTING BRICK WALL

NOT TO SCALE

L&A LYSAGHT & ASSOCIATES
structural engineers
120 St. Mary's Street
Raleigh, NC 27605
919.833.0495
LysaghtAssociates.com
Firm No. C-0621

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 7929 10/07/24 ENGINEER CHARLES A. LYSAGHT

L&A FIRM # C-0621

mon(arc) studio
701 W Trinity Ave #117
Durham, NC 27701

CONSTRUCTION DRAWINGS 10/07/24

Hutchins Showroom

a restaraunt upfit at:

408 W Geer St
Durham, NC 27701

STRUCTURAL DETAILS

S200

LA-14779