



CITY OF BUNKER HILL VILLAGE

THE ZONING BOARD OF ADJUSTMENT OF THE CITY OF BUNKER HILL VILLAGE, TEXAS, WILL MEET ON WEDNESDAY, AUGUST 5, 2026, AT 5:00 P.M. IN THE CITY HALL COUNCIL CHAMBERS AT 11977 MEMORIAL DRIVE FOR THE PURPOSE OF DISCUSSION AND POSSIBLE ACTION ON THE FOLLOWING:

This meeting agenda, and the agenda packet, are posted online at www.bunkerhilltx.gov

NOTICE OF MEETING BY TELEPHONE AND VIDEO CONFERENCE:

In accordance with Texas Government Code, Sec. 551.127, on a regular, non-emergency basis, Board members may attend and participate in a meeting remotely by video conference. Should such attendance transpire, a quorum of the Zoning Board of Adjustment will be physically present at the location noted above on this agenda.

Zoom Meeting:

<https://us06web.zoom.us/j/89101749080?pwd=X6BkUa6zakgabBkUsD2a3jKqqdEKHU.1>

Meeting ID: 891 0174 9080

Passcode: 257374

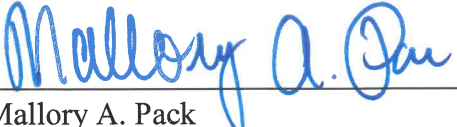
Dial by your location: +1 346 248 7799 US (Houston)

The public will be permitted to offer public comments by video conference as provided by the agenda and as permitted by the presiding officer during the meeting. A recording of the meeting will be made and will be available to the public in accordance with the Open Meetings Act upon written request.

- I. CALL TO ORDER**
- II. OATH OF OFFICE**
- III. ELECTION OF A CHAIR AND VICE-CHAIR TO SERVE FOR A TWO-YEAR TERM**
- IV. PUBLIC COMMENT**
- V. CONSIDERATION AND POSSIBLE ACTION REGARDING APPROVAL OF THE APRIL 30, 2025, MEETING MINUTES**
- VI. CONSIDERATION AND POSSIBLE ACTION REGARDING APPROVAL OF THE OCTOBER 1, 2025, MEETING MINUTES**
- VII. PUBLIC HEARING, CONSIDERATION, AND POSSIBLE ACTION REGARDING A REQUEST FROM SAMTA AND DHEERAJ MAKHIJA FOR A VARIANCE FROM THE CITY'S DRAINAGE CRITERIA MANUAL, AS ADOPTED PURSUANT TO CHAPTER 4 OF THE CITY'S CODE OF ORDINANCES, FOR THE PROPERTY LOCATED AT 635 KNIPP ROAD**
- VIII. ADJOURN**

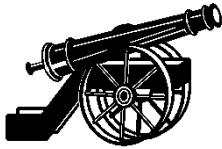
I, Mallory Pack, City Secretary for the City of Bunker Hill Village, certify that the above notice of meeting was posted in a place convenient to the general public in compliance with Chapter 551, Texas Government Code, on July 20, 2026, by 5:00 p.m.

(SEAL)



Mallory A. Pack
City Secretary

This facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodation or interpretive services must be made 48 hours prior to public meetings. Please contact the office of the City Secretary at 713-467-9762 for further information.



**City of Bunker Hill Village
Zoning Board of Adjustment
Agenda Request**

Agenda Date: August 5, 2026

Agenda Item: II

Subject: Oath of Office

Exhibits: N/A

Presenter(s): Gerardo Barrera, City Administrator
Loren Smith, City Attorney

Executive Summary

Following the election of Mayor held in May of each odd-numbered year, City Council formally appoints members to the City's Boards and Commissions. At the June 17, 2025, City Council meeting, Council appointed the following members to the Zoning Board of Adjustment for a two-year term (2025-2027):

Zoning Board of Adjustment 2025-2027 5 Members, 4 Alternates
Appointed Members
Michelle Belco
Scott Lamoreaux*
David Light
David Marshall
Laurie Rosenbaum**
Louis Crappito (alternate)
Ryan West (alternate)

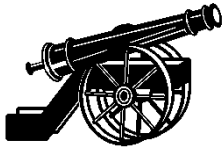
**Appointed by Council on August 19, 2025*

***Appointed by Council on September 16, 2025*

City Attorney Smith administered the Statement of Appointed Officer and Oath of Office to all members present at the October 1, 2025, meeting. Members who were absent from the October meeting will receive the Statement of Appointed Officer and Oath of Office.

Recommended Action

No action is required from the Zoning Board of Adjustment.



**City of Bunker Hill Village
Zoning Board of Adjustment
Agenda Request**

Agenda Date: August 5, 2026
Agenda Item: III
Subject: Election of Chair and Vice-Chair
Exhibits: N/A
Presenter(s): Gerardo Barrera, City Administrator

Executive Summary

The Zoning Board of Adjustment is established in accordance with Chapter 211 of the Local Government Code and as outlined by Appendix A, Article XI of the City's Code of Ordinances. Staff recommends that the Board elect a Chair and Vice-Chair to conduct the business of the Board.

City Council has appointed the following members to the Zoning Board of Adjustment for a two-year term (2025-2027):

Zoning Board of Adjustment 2025-2027 5 Members, 4 Alternates	
Appointed Members	
Michelle Belco	
Scott Lamoreaux	
David Light (current Chair)	
David Marshall	
Laurie Rosenbaum	
Louis Crappito (alternate)	
Ryan West (alternate)	

This item was presented for consideration at the October 1, 2025, meeting. At the meeting, two (2) regular members and one (1) alternate member were present. Although the new members had been sworn in, City Attorney Smith advised that they could not be counted toward a quorum because their oaths had not yet been formally notarized. Subsequently, no action was taken.

Recommended Action

Staff recommends the Zoning Board of Adjustment elect a Chair and Vice-Chair for the 2025-2027 term.



**City of Bunker Hill Village
Zoning Board of Adjustment
Agenda Request**

Agenda Date: August 5, 2026
Agenda Item: V-VI
Subject: Meeting Minutes
Exhibits: April 30, 2025, Meeting Minutes
October 1, 2025, Meeting Minutes
Presenter(s): Gerardo Barrera, City Administrator

Executive Summary

April 30, 2025, Meeting Minutes – This item was presented for consideration at the October 1, 2025, meeting. No action was taken due to a lack of quorum at the meeting.

October 1, 2025, Meeting Minutes – The minutes of the October 1, 2025, meeting, are provided for Board review and consideration.

Recommended Action

Staff recommends the Zoning Board of Adjustment take the following actions:

1. Approve the Meeting Minutes of the April 30, 2025, ZBOA Meeting.
2. Approve the Meeting Minutes of the October 1, 2025, ZBOA Meeting.

**MINUTES OF A PUBLIC MEETING
OF THE CITY OF BUNKER HILL VILLAGE
ZONING BOARD OF ADJUSTMENT
APRIL 30, 2025**

I. CALL TO ORDER

Chair David Light called the Zoning Board of Adjustment Meeting to order at 5:07 p.m. based on a quorum of members present:

Present

David Light, Chair
Josh Pratt, Member
Michelle Belco, Member
Louis Crappito, Alternate Member (voting member)
Ryan West, Alternate Member (voting member)

Staff in Attendance

Gerardo Barrera, City Administrator
Elvin Hernandez, Public Works Director
Loren Smith, City Attorney
Mallory Pack, Management Analyst

Absent

Patricia Shuford, Vice-Chair
David Marshall, Member

II. PUBLIC COMMENT

There were no public comments.

**III. CONSIDERATION AND POSSIBLE ACTION REGARDING APPROVAL OF THE
MARCH 26, 2025, MEETING MINUTES**

A motion was made by Member Pratt and seconded by Member Crappito to approve the March 26, 2025, meeting minutes.

The motion carried 5-0

IV. PUBLIC HEARING, CONSIDERATION AND POSSIBLE ACTION REGARDING A REQUEST FROM KEITH WILLIAMS FOR A VARIANCE TO SECTION 4-75(6)(G) OF THE CITY’S CODE OF ORDINANCES REQUIRING A GENERATOR NOT TO BE LOCATED WITHIN THE REQUIRED FRONT YARD OF A LOT FOR THE PROPERTY LOCATED AT 11651 GREENBAY STREET

The application was initially submitted for consideration at the March 26, 2025, meeting. Although a quorum was present, only four (4) members attended the meeting. City Attorney Smith informed the applicant that in such events, the board must vote unanimously for or against. The applicant rescinded the application prior to the start of the meeting until a later meeting date when more members could be present for a decision.

Chair Light opened the public hearing at 5:08 p.m.

Applicant’s Request

Keith Williams, applicant and property owner, presented a request for a variance to install a generator in the required front yard of his property located at 11651 Greenbay St.

Mr. Williams has lived at the property for 32 years. He stated City codes and ordinances serve an important purpose; however, they cannot be applied in a “one size fits all” manner, such as in this case.

The lot is 1.5 acres in size, 153 feet in width and 415 feet in depth, and is considered non-conforming. The property is located within a subdivision that is subject to deed restrictions but currently no homeowner’s association exists. He explained that the home was built in the 1950s and is set back 275 feet from the street in accordance with the subdivision’s deed restrictions at the time, which required a minimum 200 foot setback to preserve the wooded character of the area. Due to the deep setback, the home is heavily screened by trees and situated near the rear of the lot, with all utility connections at the front. The options of where to install the generator on the lot are limited due to the small size of the backyard, and a driveway along one side of the home and a wine cellar on the other. He stated that relocating utilities and installing the generator at the rear of the property is not economically feasible.

Mr. Williams stated there have been no complaints from neighbors regarding the previous generator site, nor any complaints made to the City. Neighbors are aware of the new proposed placement and have no objections. Former Mayor Robert Lord and current Councilmember and Mayor-Elect Keith Brown support the variance.

Public Comment

There were no public comments.

Chair Light closed the public hearing at 5:17 p.m.

The Board inquired about the dimensions and visibility of the generator. Mr. Williams explained the generator would be located 160 feet from the roadway and screened by existing vegetation, making it not visible from the street. He stated the generator is custom painted green to match the surrounding landscape. Public Works Director Hernandez confirmed that

generators and related equipment are required to be screened and must not be visible from the right-of-way.

Member Belco inquired whether granting a variance to allow the generator in the front yard could set a precedent for similar future cases. City Attorney Smith clarified that decisions made by ZBOA do not set precedent and each case is evaluated individually.

A motion was made by Member Pratt and seconded by Member Crappito to grant a variance to Section 4-75(6)(g) of the City’s Code of Ordinances requiring a generator not to be located within the required front yard of a lot for the property located at 11651 Greenbay Street.

Roll Call Vote

David Light.....YES

Michelle Belco.....YES

Louis Crappito..... YES

Ryan West.....YES

Josh Pratt..... YES

The motion carried 5-0

V. ADJOURN

Chair Light adjourned the meeting at 5:30 p.m.

Approved and accepted on August 5, 2026.

David Light
Chair

ATTEST:

Gerardo Barrera
City Administrator/ Acting City Secretary

**MINUTES OF A PUBLIC MEETING
OF THE CITY OF BUNKER HILL VILLAGE
ZONING BOARD OF ADJUSTMENT
OCTOBER 1, 2025**

I. CALL TO ORDER

Chair David Light called the Zoning Board of Adjustment Meeting to order at 5:05 p.m. based on a quorum of members present:

Present

David Light, Chair
Michelle Belco, Member
Scott Lamoreaux, Member
Laurie Rosenbaum, Member
Louis Crappito, Alternate Member

Staff in Attendance

Gerardo Barrera, City Administrator
Elvin Hernandez, Public Works Director
Loren Smith, City Attorney
Mallory Pack, Management Analyst
Susan Schwartz, City Council Liaison

Absent

David Marshall, Member
Ryan West, Alternate Member

II. OATH OF OFFICE

Following the election of Mayor held in May of each odd-numbered year, City Council formally appoints members to the City's Board and Commissions. At the June 17, 2025, meeting, City Council appointed the following members to the Zoning Board of Adjustment for a two-year term (2025-2027):

Zoning Board of Adjustment 2025-2027 5 Members, 4 Alternates	
Appointed Members	
Michelle Belco	
Scott Lamoreaux*	
David Light	
David Marshall	
Laurie Rosenbaum**	
Louis Crappito (alternate)	
Ryan West (alternate)	

**Appointed August 19, 2025*

***Appointed September 16, 2025*

City Attorney Smith administered the Statement of Officer and Oath of Office to the members present.

No action was required for this item.

III. ELECTION OF CHAIR AND VICE-CHAIR TO SERVE FOR A TWO-YEAR TERM

The Zoning Board of Adjustment is established in accordance with Chapter 211 of the Local Government Code and as outlined by Appendix A, Article XI of the City's Code of Ordinances.

City Attorney Smith explained that although new members had been sworn in, they could not be counted toward a quorum because their oaths had not yet been formally notarized. It was recommended to elect a Chair and Vice-Chair when more members were in attendance. No action was taken.

Staff noted that this item would be brought back at a later meeting date.

No action was taken on this item.

IV. PUBLIC COMMENT

There were no public comments.

V. ORIENTATION – ROLES AND RESPONSIBILITIES OF THE ZONING BOARD OF ADJUSTMENT

City Attorney Smith presented a comprehensive review of the Zoning Board of Adjustment's functions, rules, and procedures to both new and returning board members.

No action was required for this item.

VI. CONSIDERATION AND POSSIBLE ACTION REGARDING APPROVAL OF THE APRIL 30, 2025, MEETING MINUTES

Staff stated that this item would be brought back at a later meeting date when a quorum was present.

No action was taken on this item.

VII. DISCUSSION, FEEDBACK, AND DIRECTION REGARDING MEETING DATE AND TIME

City Administrator Barrera addressed the board that the Zoning Board of Adjustment (ZBOA) meets on an as-needed basis. When new business arises that requires a meeting to be held – such as a request for a variance or an appeal – City staff coordinates with board members to schedule a meeting date and confirm quorum.

Meetings of the ZBOA must be coordinated not only with members' availability but also with all other City meetings (e.g., City Council, Planning and Zoning Commission, and various committees), state law posting requirements under the Texas Open Meetings Act, and the availability of the contracted City Attorney.

To streamline scheduling and ensure quorum, staff recommended that the Board establish a standing monthly meeting date. If there is no new business to consider in a given month, the meeting will be canceled.

The Board discussed possible meeting dates and times. City Administrator Barrera recommended scheduling the meetings on the fourth Wednesday of the month at 5:00 p.m.

No action was required for this item.

VIII. ADJOURN

Chair Light adjourned the meeting at 5:50 p.m.

Approved and accepted on August 5, 2026.

David Light
Chair

ATTEST:

Gerardo Barrera
City Administrator/Acting City Secretary



**City of Bunker Hill Village
Zoning Board of Adjustment
Agenda Request**

Agenda Date: August 5, 2026
Agenda Item: VII
Subject: Variance Request
Exhibits: Application
Drainage Criteria Manual
Presenter(s): Elvin Hernandez, Public Works Director

Executive Summary

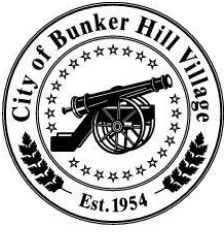
The applicants request a variance from the City's Drainage Criteria Manual, as adopted pursuant to Chapter 4 of the City's Code of Ordinances.

The request will be presented by the applicants. City staff will be available to address any questions or comments from the Board regarding the City's Code of Ordinances.

Recommended Action

Staff recommends the Zoning Board of Adjustment take the following actions:

1. Hold a public hearing.
2. Discuss the request and take any desired action.



**CITY OF BUNKER HILL VILLAGE
APPLICATION FOR
BOARD OF ADJUSTMENT REQUEST**

Owner's Name: Samta Makhija and Dheeraj Makhija Phone: 832-203-9341

Mailing Address: 901 Pizer St, Houston, TX Zip: 77009

Property Address (If Different): 635 Knipp Road, Bunker Hill Village, TX 77024

Action Requested: Variance x Appeal Special Exceptions Zoning District (A) B

Project Description and Request: New single-family residence at 635 Knipp Rd (Lot 2, Randle Addition; 25,907 sq ft).

Proposed non-permeable coverage: 7,677 sq ft (29.6%), below the City's 45% max. All driveway/flatwork: permeable pavers per Exhibit 4.

Building Official requires 40,000-gal detention using a 0% baseline (vacant lot). Applicants request variance to calculate detention

from the historically documented impervious baseline in the 2015 RPLS-certified survey (Terrance Mish, No. 4981; Job No. 15-06563).

Section of Code at Issue: Bunker Hill Village Drainage Criteria Manual, Section 3 - On-Site Detention Baseline Requirements, adopted by City Council

Resolution No. 05-16-2023B (May 16, 2023). Specifically, the requirement that the non-permeable baseline be established by a current

certified topographical survey, which cannot be obtained for a previously improved lot where the prior structure has been demolished.

Attachments as applicable:

- Site Plan
- Letter of Permit Denial
- Any Additional Information

A fee of \$300.00 is required for processing

Signature of Applicant:  Date: 6/10/2026

June 10, 2026

Zoning Board of Adjustment

City of Bunker Hill Village

11977 Memorial Drive

Bunker Hill Village, TX 77024

Re: Variance Application — On-Site Stormwater Detention Requirement

Property: 635 Knipp Road, Bunker Hill Village, TX 77024 (Lot 2, Randle Addition)

Dear Members of the Zoning Board of Adjustment,

We, Samta and Dheeraj Makhija, are the owners of 635 Knipp Road, Bunker Hill Village, TX 77024 since October 2025 (Lot 2, Randle Addition; 25,907 sq ft). We are excited to bring a beautiful new home to this long-vacant lot and are deeply committed to being thoughtful, responsible members of the Bunker Hill Village community.

We are grateful for the time and guidance already extended to us by Building Official Elvin Hernandez, who has been genuinely helpful in explaining the City's process and the requirements of the Drainage Criteria Manual. We fully understand and respect that the Building Official is bound to apply the Manual's written standards as adopted by City Council in Resolution No. 05-16-2023B, and we have no objection to that process.

We come before the Board with a specific and narrow request: that the detention calculation for our project reflect the historically documented prior residential use of this lot, rather than a zero baseline derived solely from its current vacant condition. We believe the unique documented history of this property — supported by a certified professional survey — presents exactly the kind of special circumstance the Board's variance authority is designed to address.

I. Project Overview

Our proposed home has been carefully designed with stormwater management as a priority:

- Lot area: 25,907 sq ft (Lot 2, Randle Addition)
- Proposed building area: 7,425 sq ft slab
- Pool concrete apron: 252 sq ft
- Total non-permeable coverage: 7,677 sq ft — only 29.6% of lot area
- City's maximum allowable non-permeable coverage: 45%
- All driveway and flatwork: permeable pavers throughout (per site plan note: "ALL FLATWORK IS PERMEABLE PAVER U.N.O."), to be designed in compliance with Exhibit 4 sub-base standards (10 in/hr minimum infiltration over uncompacted natural soil)

We are genuinely proud that our proposed impervious footprint is 34% below the City's maximum allowance, and that we have chosen to invest in permeable pavers across all driveway and hardscape areas. These choices reflect our personal commitment to responsible stewardship of our property and the surrounding neighborhood.

II. The Prior Residential Structure: Documented Historical Impervious Cover

We would respectfully ask the Board to consider one important fact about this property: it has not always been vacant. A certified survey prepared by Terrance Mish, Registered Professional Land Surveyor No. 4981 (Precision Surveyors, Job No. 15-06563, dated July 10, 2015) clearly documents a prior 1-story brick and frame residence on this lot, including:

- **A concrete circular driveway** fronting Knipp Road, labeled “CONC. DRIVE” on the RPLS-certified survey
- **Substantial concrete flatwork in the rear yard** also documented on the certified survey
- **A full residential structure** with covered concrete areas, air conditioning equipment, and measured improvements shown in detail on the survey

This 2015 survey was prepared to professional standards by a licensed surveyor and bears the State of Texas RPLS seal. It is submitted as Exhibit B and we believe it offers the Board a sound evidentiary foundation for considering a historically informed detention baseline.

We understand and appreciate the Building Official’s explanation that he is unable to grant baseline credit without a current certified survey of existing conditions. We do not dispute that interpretation — we simply note that the circumstance creating this gap (the demolition of the prior structure before our acquisition) was not of our making, and that the 2015 RPLS survey represents the best available documentation of the prior condition.

III. Variance Criteria — How We Believe Our Request Qualifies

(a) The variance will not be contrary to the public interest

We believe our project will have a positive effect on stormwater conditions relative to the prior state of this property. The prior structure featured solid concrete driveways and rear flatwork — fully impervious surfaces that directed runoff off the lot. Our design replaces all such areas with engineered permeable pavers that actively return water to the subgrade. Our non-permeable building footprint (29.6%) is modest, and the overall drainage impact of our completed project should be meaningfully better than the prior residential condition. We are confident the neighborhood and the City’s stormwater system will benefit from our approach.

(b) Special conditions peculiar to this property

We respectfully submit that this property has several characteristics that distinguish it from a standard vacant lot and that, together, create a genuine hardship under the current rule:

- **Documented prior improvements:** The 2015 RPLS survey establishes that this lot previously carried substantial impervious cover as part of a functioning residential property. The current vacancy is a temporary gap between two residential uses, not an indication that the lot is undeveloped land.
- **A gap in the rules for infill lots:** The Criteria Manual’s baseline rule requires a current certified survey to document existing impervious cover. Because the prior structure no longer stands, that survey cannot be obtained. We are not in a position to satisfy this requirement through any reasonable effort — not because we failed to act, but because the prior condition has been physically removed. We respectfully suggest this is a circumstance the Manual’s drafters may not have anticipated for historically improved infill lots.
- **Financial hardship:** A 39,068-gallon below-ground detention system on a lot with only 29.6% impervious coverage places our project over budget and, if not addressed, may make it impractical to build on this lot at all. We would very much prefer to see this property become the welcoming new home that Building Official Hernandez noted the City is glad to receive.

We want to be clear that we are not seeking to avoid our responsibilities. We fully expect to build and maintain on-site detention as part of this project. We are simply asking that the volume be calculated in a way that reflects the actual change in conditions from the prior state of this lot.

(c) The spirit of the Ordinance will be observed and substantial justice will be done

The Drainage Criteria Manual exists to ensure that new development does not worsen stormwater conditions beyond what existed before. A detention calculation grounded in the prior residential baseline for this lot serves that purpose faithfully. Under the variance we are requesting:

- On-site detention will still be designed, built, and maintained
- The calculation will reflect the genuine change in impervious cover from prior conditions to proposed conditions
- Permeable paver credits will further reduce our net stormwater impact
- No additional burden will be placed on neighborhood drainage beyond what this lot historically produced

We believe this outcome honors both the letter and the spirit of the City’s stormwater goals, and we hope the Board agrees.

IV. Comparable Recent Projects for the Board’s Reference

We share the following information not to suggest any impropriety in prior permitting decisions, but simply to give the Board helpful context about detention volumes recently associated with comparable new construction in Bunker Hill Village:

Property	Lot Size (sq ft)	Impervious Cover	% Impervious	Detention Required
635 Knipp Rd (Subject)	25,907	7,677 sq ft	29.6%	39,068 gal (Required)
310 Rainer	23,750	10,515 sq ft	41%	18,000 gal
11918 Steppingstone	22,080	7,799 sq ft	38%	2,500 gal

Our project has the lowest impervious coverage ratio of the three (29.6%), yet faces a detention requirement that is 2.2 times higher than 310 Rainer (41% impervious) and sixteen times higher than 11918 Steppingstone (38% impervious). While we recognize that each project’s detention volume depends on multiple engineering variables, this disparity is so extreme as to be irreconcilable on technical grounds alone. It suggests that the vacant-lot baseline rule, as applied here, is producing an outcome far outside the range of what the Criteria Manual produces for comparable properties built on lots with documented prior development.

We offer this context in the hope that it may be useful as the Board considers what a proportionate outcome might look like for our property.

V. Documents Submitted with This Application

- Exhibit A: Proposed Site Plan, Makhija Residence, 635 Knipp Road — showing 7,677 sq ft non-permeable coverage (29.6%) and permeable paver driveway and all flatwork; prepared by Partners in Building, dated June 10, 2026
- Exhibit B: 2015 RPLS-Certified Survey (Terrance Mish, No. 4981; Precision Surveyors; Job No. 15-06563, July 10, 2015) — documenting prior 1-story brick and frame residence with concrete circular driveway and rear concrete flatwork at 635 Knipp Road
- Exhibit C: 2025 Latest Certified Survey

- Exhibit D: Letter of Determination / Denial from Building Official Elvin Hernandez, dated June 4, 2026
- Exhibit E: Proposed floor plan and elevations
-

VI. Relief Requested

We respectfully request that the Board of Adjustment consider the following:

- **Primary request:** Grant a variance directing that the stormwater detention requirement for 635 Knipp Road be calculated using the historically documented impervious cover shown in the 2015 RPLS-certified survey as the pre-development baseline, rather than the 0% baseline applied to the current vacant condition
- **Alternative request:** Grant a variance reducing the detention requirement to a volume proportionate with our 29.6% non-permeable coverage and reasonably consistent with detention volumes approved for comparable recently permitted properties in Bunker Hill Village
- **Hearing:** Schedule a Board of Adjustment hearing at the earliest convenient date so that we may present our case and respond to any questions the Board may have

We are fully prepared to work cooperatively with the City's civil engineer to arrive at a detention volume that fairly reflects our project's actual net stormwater impact. We welcome any conditions the Board sees fit to impose and will gladly provide any additional technical documentation that would be helpful.

Most of all, we look forward to the opportunity to build a home we are proud of in a community we are proud to join. We are grateful for the Board's time and thoughtful consideration of our application.

Respectfully submitted,



Samta Makhija & Dheeraj Makhija

Applicants — 635 Knipp Road, Bunker Hill Village, TX 77024

samtakain@gmail.com | dheeraj824@gmail.com

EXHIBIT A

NON-PERMEABLE CALCULATIONS:
(MAX. NON-PERMEABLE % TO BE 45%)

LOT AREA = 25,907 S.F.
BUILDING AREA = 7,425 S.F.
POOL CONC. APRON = 252 S.F.
NON-PERMEABLE % = 29.6 %

LOT COVERAGE CALCULATIONS:
(MAX. LOT COVERAGE TO BE 55%)

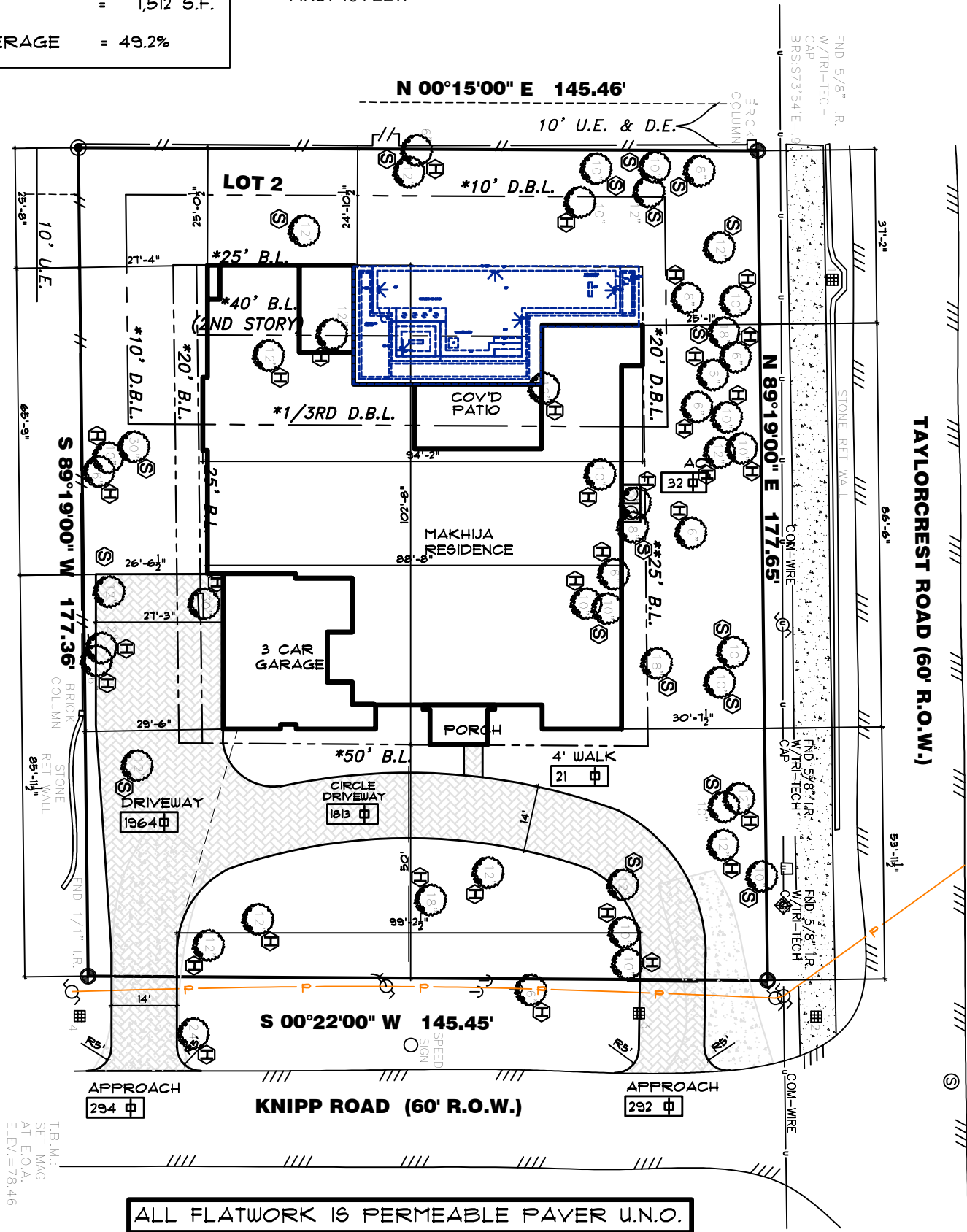
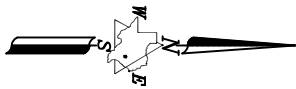
LOT AREA = 25,907 S.F.
BUILDING AREA = 7,425 S.F.
DRIVEWAY AREA
(INC. PERMEABLE AREA) = 3,798 S.F.
POOL & PAVERS = 1,512 S.F.
TOTAL LOT COVERAGE = 49.2%

NOTE: FINISHED
FLOOR ELEVATION
TO BE A MINIMUM
OF 12" ABOVE THE
NEAREST
SANITARY SEWER
MANHOLE RIM.

NOTE: GRADE TO
FALL A MINIMUM
OF 6 INCHES
WITHIN THE FIRST
10 FEET AWAY
FROM THE
FOUNDATION OR
PROVIDE A SWALE
WHERE A
PHYSICAL
BARRIER DOES
NOT ALLOW A 6
INCH DROP IN THE
FIRST 10 FEET.

NOTE: ALL NEW FENCING WILL
BE 8' TALL CEDAR.

NOTE: ALL ELECTRICAL
SERVICE(S) WILL BE
UNDERGROUND.



ALL DIMENSIONS AND CALCULATIONS DEPICTED INSIDE
AND OUTSIDE OF PROPERTY LINES ARE APPROXIMATE

• VERIFY ALL DIMENSIONS AND CALCULATIONS •

10701 CLAY ROAD
HOUSTON, TX. 77041
(713)-937-1121 FAX (713)-937-1445



Subdivision: RANDLE ADDITION

Address: 635 KNIPP ROAD

Lot: 2 Block: X Section: X

Buyer: MAKHIJA RESIDENCE

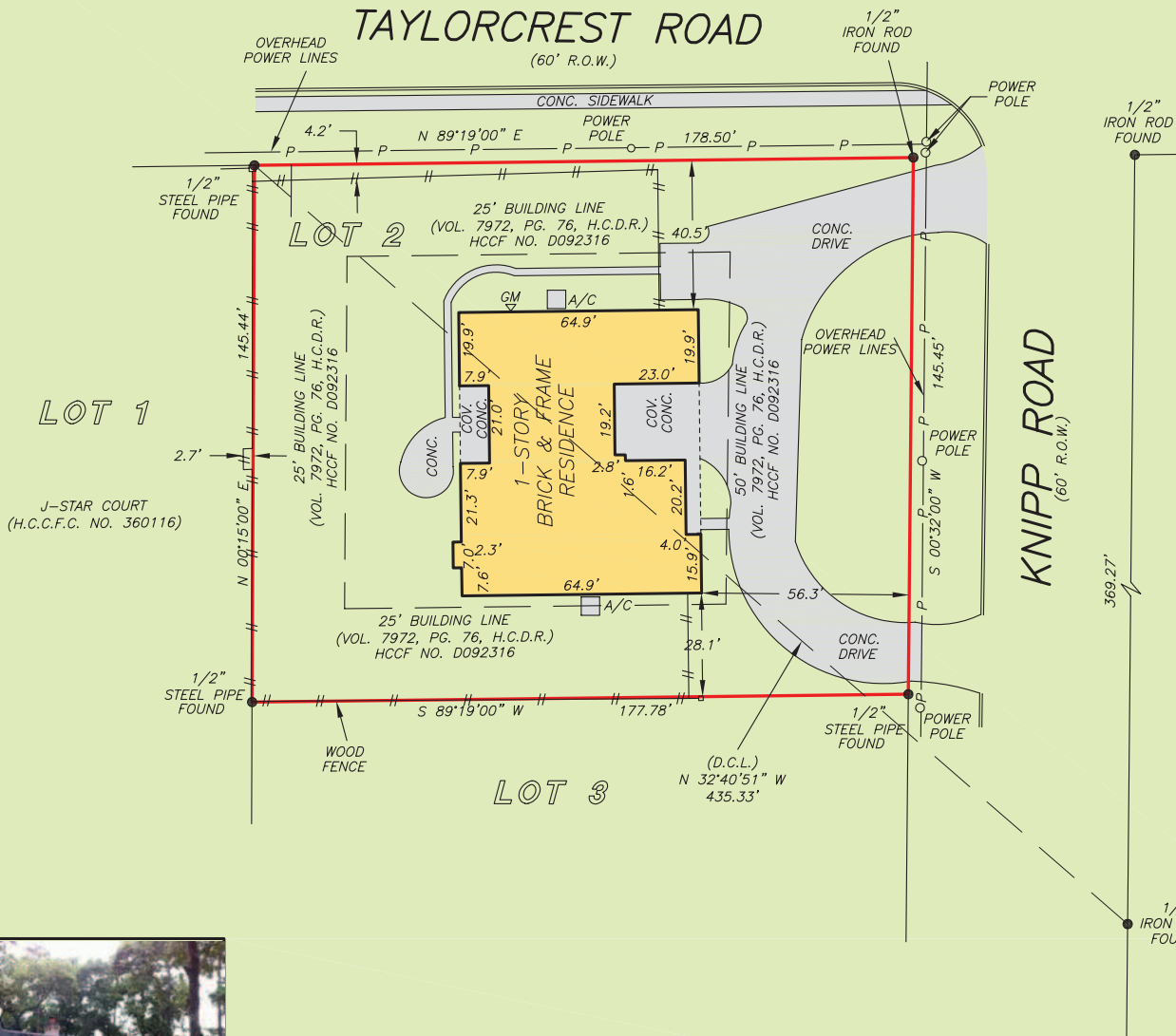
Scale: 1"=30' Date: 6-10-26

EXHIBIT B

GF NO. 1015006210 CHARTER TITLE
ADDRESS: 635 KNIPP ROAD
HOUSTON, TEXAS 77024
BORROWER: TEXWIS INC.

LOT 2
RANDLE ADDITION

A SUBDIVISION IN HARRIS COUNTY, TEXAS
ACCORDING TO THE MAP OR PLAT THEREOF RECORDED
IN VOLUME 86, PAGE 70, OF THE MAP RECORDS
OF HARRIS COUNTY, TEXAS



THIS PROPERTY DOES NOT LIE WITHIN THE
100 YEAR FLOOD PLAIN AS PER FIRM
PANEL NO. 48201C 0645 L
MAP REVISION: 6/18/2007
ZONE X
BASED ONLY ON VISUAL EXAMINATION OF MAPS.
INACCURACIES OF FEMA MAPS PREVENT EXACT
DETERMINATION WITHOUT DETAILED FIELD STUDY

A SUBSURFACE INVESTIGATION
WAS BEYOND THE SCOPE OF THIS SURVEY

D.C.L. = DIRECTIONAL CONTROL LINE
RECORD BEARING: VOL. 86, PG. 70, H.C.M.R.

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE
ON THE GROUND, THAT THIS PLAT CORRECTLY
REPRESENTS THE FACTS FOUND AT THE
TIME OF SURVEY AND THAT THERE ARE NO
ENCROACHMENTS APPARENT ON THE GROUND,
EXCEPT AS SHOWN HEREON. THIS SURVEY IS
CERTIFIED FOR THIS TRANSACTION ONLY AND
ABSTRACTING PROVIDED IN THE ABOVE
REFERENCED TITLE COMMITMENT WAS RELIED
UPON IN PREPARATION OF THIS SURVEY.

TERRANCE MISH
PROFESSIONAL LAND SURVEYOR
NO. 4981
JOB NO. 15-06563
JULY 10, 2015



DRAWN BY: MV



JOHN FREUND
281-687-2270

Charter Title Company

ANN GALBRAITH
713-871-9700



PRECISION
surveyors

1-800-LANDSURVEY
www.precisionsurveyors.com
281-496-1586 FAX 281-496-1867 210-829-4941 FAX 210-829-1555
950 THREADNEEDLE STREET SUITE 150 HOUSTON, TEXAS 77079 1777 NE LOOP 410 SUITE 600 SAN ANTONIO, TEXAS 78217
FIRM NO. 10063700

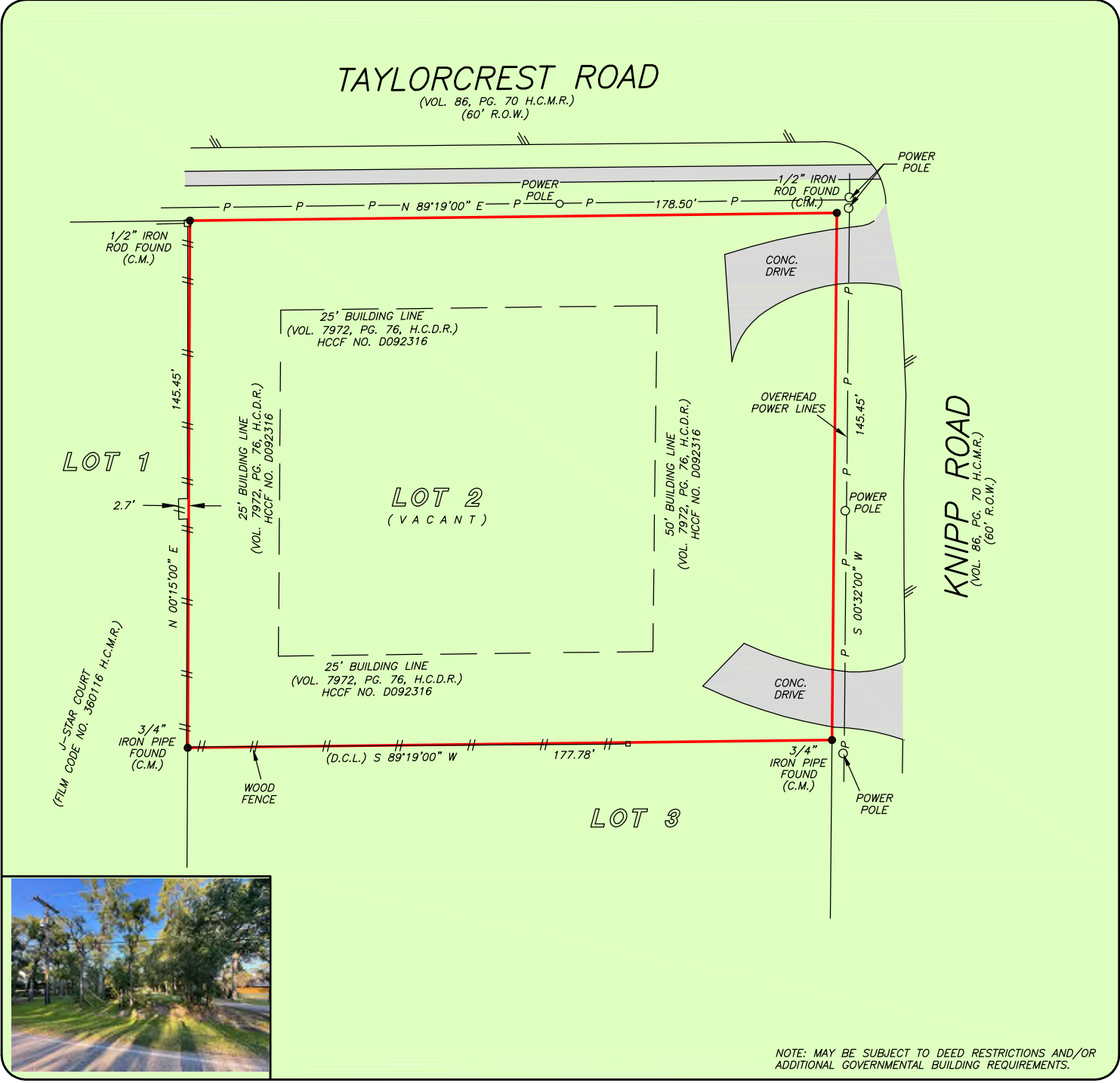
FORM 03/2105

EXHIBIT C

GF NO. TH25203550-P TITLE HOUSTON HOLDINGS
ADDRESS: 635 KNIPP ROAD
HOUSTON, TEXAS 77024
BORROWER: DHEERAJ MAKHIJA AND
SANTA MAKHIJA

SCALE: 1" = 40'

LOT 2
RANDLE ADDITION
A SUBDIVISION IN HARRIS COUNTY, TEXAS
ACCORDING TO THE MAP OR PLAT THEREOF RECORDED
IN VOLUME 86, PAGE 70, OF THE MAP RECORDS
OF HARRIS COUNTY, TEXAS



THIS PROPERTY DOES NOT LIE WITHIN THE
100 YEAR FLOOD PLAIN AS PER FIRM
PANEL NO. 48201C 0645 L
MAP REVISION: 6/18/2007
ZONE X
BASED ONLY ON VISUAL EXAMINATION OF MAPS.
INACCURACIES OF FEMA MAPS PREVENT EXACT
DETERMINATION WITHOUT DETAILED FIELD STUDY

A SUBSURFACE INVESTIGATION
WAS BEYOND THE SCOPE OF THIS SURVEY

D.C.L. = DIRECTIONAL CONTROL LINE
RECORD BEARING: VOL. 86, PG. 70, H.C.M.R.

DRAWN BY: PR

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE
ON THE GROUND, THAT THIS PLAT CORRECTLY
REPRESENTS THE FACTS FOUND AT THE
TIME OF SURVEY AND THAT THERE ARE NO
ENCROACHMENTS APPARENT ON THE GROUND,
EXCEPT AS SHOWN HEREON. THIS SURVEY IS
CERTIFIED FOR THIS TRANSACTION ONLY AND
ABSTRACTING PROVIDED IN THE ABOVE
REFERENCED TITLE COMMITMENT WAS RELIED
UPON IN PREPARATION OF THIS SURVEY.

JAMES P. WALKOVIAK
PROFESSIONAL LAND SURVEYOR
NO. 5971
JOB NO. 2025-08012
SEPTEMBER 19, 2025



MACARI POTTER
713-523-9009



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950 THREADNEEDLE STREET SUITE 150 HOUSTON, TEXAS 77079 1777 NE LOOP 410 SUITE 600 SAN ANTONIO, TEXAS 78217
FIRM NO. 10063700

FORM 032103

EXHIBIT D



Samta Kain <samtakain@gmail.com>

Follow-Up on our Meeting Regarding Drainage Requirement for 635 Knipp Rd

Elvin Hernandez <ehernandez@bunkerhilltx.gov>

Thu, Jun 4, 2026 at 3:00 PM

To: Samta Kain <samtakain@gmail.com>

Cc: Dheeraj Makhija <dheeraj824@gmail.com>

Hello,

It was a pleasure meeting with you to review the preliminary plans and lot calculations for your upcoming home construction project. The City is always glad to see new homes come to our vacant properties, and our staff is committed to helping you navigate the standard permitting process.

To ensure your team has the exact administrative parameters as you prepare your submittal, I want to clarify a few items regarding the municipal drainage calculations and standard procedures:

- 1. Adherence to Adopted Resolution & Ordinances:** While the City fully appreciates your intent to build a home that minimizes stormwater runoff, administrative staff does not operate on intent. On May 16, 2023, the City Council passed **Resolution No. 05-16-2023B**, officially adopting the **Bunker Hill Village Drainage Criteria Manual**. As the regulatory authority, I am legally bound to strictly adhere to this adopted resolution and the proper city ordinances when processing permit applications. There are times where I have no administrative flexibility to deviate from these text standards.
- 2. On-Site Detention Baseline & Survey Requirements:** Under Section 3 of the Criteria Manual, all drainage plans must be accompanied by a topographical survey certified by a Registered Professional Land Surveyor (RPLS) or a Registered Professional Engineer. This certified survey must accurately document the *existing* physical features and contours of the lot at the time of application. Because the lot is currently vacant, the baseline non-permeable footprint on the **Detention Summary Worksheet** is legally 0%. I cannot grant credit for historical impervious cover when there is no certified survey showing proper, existing credit to give. Doing so would constitute an improper and unauthorized action on my part.
- 3. Pervious Paver Integration:** The use of pervious pavers for the driveway and backyard areas is certainly one avenue to explore with your team as we discussed. To receive permeability credit on your final Detention Worksheet and lower your total vault volume, your engineer must ensure the system is designed to the explicit sub-base standards shown in **Exhibit 4** of the Criteria Manual (including a minimum infiltration rate of 10-in/hr overlaying uncompacted natural soil).
- 4. Variance Procedures:** Per your request, I have attached the formal application for the Zoning Board of Adjustment (ZBOA). Please be advised that standard administrative code interpretations and variances are reviewed and decided by the ZBOA.

The criteria in the **Bunker Hill Village Drainage Criteria Manual** are established by resolution to ensure uniform stormwater safety across the community. Because staff must apply these rules exactly as written to all properties based on current certified field data, the current administrative determination requires the full calculated below-ground detention volume based on the lot's current vacant condition. Should you choose to seek a variance from this requirement, the attached ZBOA application will allow you to formally present your case.

Thank you again for your partnership and proactive approach to managing stormwater safety for your property and your neighbors.

V/r,

Elvin Hernandez, MBA, PMP

Director of Public Works & Community Development

Code Enforcement Officer

City of Bunker Hill Village

11977 Memorial Drive

Houston, Texas 77024

713-467-9762

www.bunkerhilltx.gov



*Be advised that emails are subject to the **Texas Public Information Act**.*

City emails should not be considered confidential.

ELECTED OFFICIALS, BOARD AND COMMITTEE MEMBERS:

*Be advised that email communications could lead to violations of the **Texas Open Meetings Act**.*

From: Elvin Hernandez <ehernandez@bunkerhilltx.gov>

Sent: Friday, May 29, 2026 7:53 AM

To: Samta Kain <samtakain@gmail.com>

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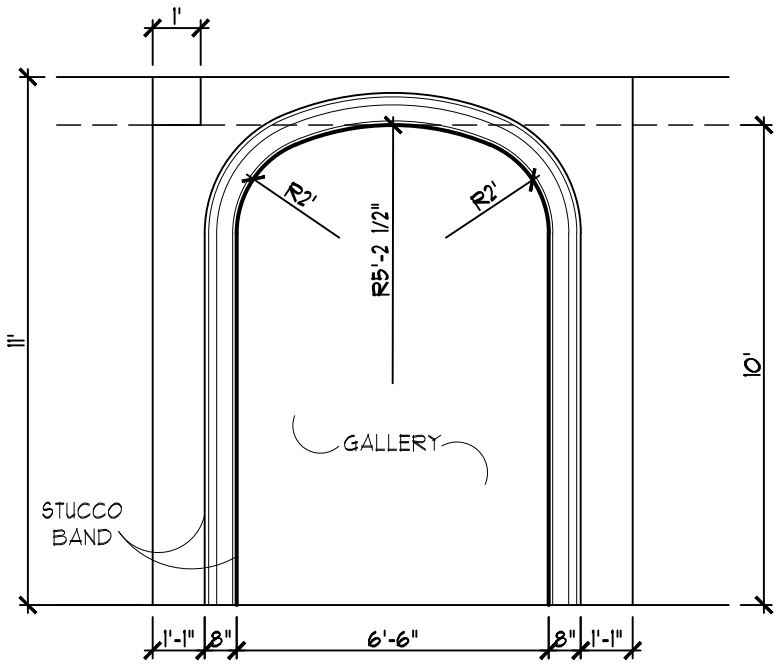
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ZBOA application.pdf

259K

EXHIBIT E



ENTRANCE TO THE GALLERY
(ARC REFERENCE
FRONT VIEW)

PLAN AREAS	(SQ FT)	VERIFICATION
FIRST FLOOR (LIVING AREA)	5830	§
SECOND FLOOR (LIVING AREA)	2280	§
TOTAL LIVING	8110	§ EBF 9.2.136
FUTURE LIVING* (NOT SLAB)	2505	§
COVERED BALCONY (NOT SLAB)	424	§
COVERED PATIO	316	§
COVERED PATIO 2	25	§
COVERED PORCH/ ENTRY	108	§
3 CAR GARAGE	876	§
STORAGE	20	§
TOTAL SLAB	1425	§ EBF 9.2.136
TOTAL COVERED AREA	2634	§ EBF 9.2.136

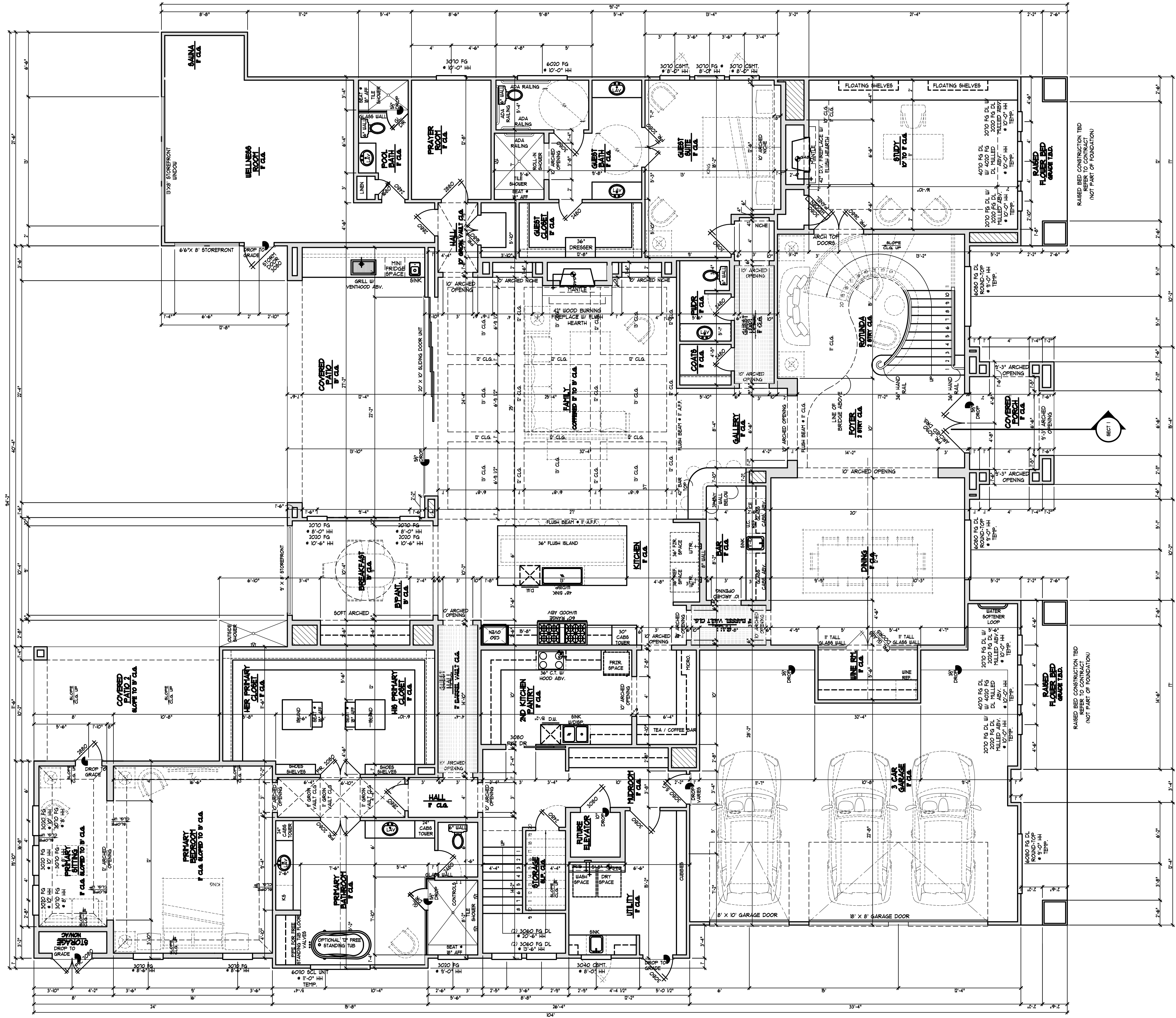
FIRST FLOOR PLAN

SCALE: 3/16"=1'-0"

GENERAL NOTES:

IN COMPLIANCE WITH 2021 IRC

- HVAC UNITS & GAS W/H/S IN ATTIC. PROVIDE LIGHT FIXTURE NEAR EACH UNIT SWITCHED AT ATTIC ENTRANCE. PROVIDE METAL DRIP PANS WITH OUTSIDE DRAIN LINES. PROVIDE SUB-FLOOR WALKWAY TO & AROUND EACH UNIT CONFORMING TO APPLICABLE CODE.
- ALL VENTS, FLUES & ROOF JACKS SHALL NOT BE VISIBLE FROM FRONT OF HOUSE.
- HVAC CONTRACTOR TO DETERMINE TONNAGE & LOCATION'S OF RETURN AIRS.
- HVAC CHASE LOCATIONS ARE APPROXIMATE AND MAY VARY. PLACEMENT OF HVAC CONDENSING UNITS DETERMINED AT ROUGH-IN BY HVAC CONTRACTOR.
- WINDOW PLACEMENT, ROOF LINE AND PORCHES MAY VARY BY ELEVATION.
- SQUARE FOOTAGE AND ROOM DIMENSIONS ARE APPROXIMATE. VARIANCES IN SQUARE FOOTAGE MAY OCCUR IN DIFFERENT ELEVATIONS OR WHEN DIFFERENT EXTERIOR MATERIALS ARE USED. PLANS, SPECIFICATIONS AND SPECIAL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE.
- ALL DOORS ARE TO BE 8'-0" TALL WHERE CEILINGS ARE 10' AND HIGHER. TALL, UNLESS NOTED OTHERWISE EXCLUDING FRONT ENTRY DOORS.
- ALL DOORS ARE TO BE 6'-8" TALL WHERE CEILINGS ARE 9' AND LOWER. TALL, UNLESS NOTED OTHERWISE.
- GUARDRAILS AND HANDRAILS TO COMPLY WITH 2021 IRC 36" HIGH RAILS W/ BALUSTERS @ 4" O.C. MAX. MUST WITHSTAND MIN. UNIFORMLY DIST. 200 LBS. PER SQ.FT. LIVE LOADS APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP OF THE GUARDRAIL OR HANDRAIL.
- BALUSTERS SHALL NOT BE SPACED WHERE A SPHERE OF 4" CANNOT PASS THROUGH. REQUIRED GUARDRAILS SHALL NOT BE CONSTRUCTED WITH HORIZONTAL RAILS THAT RESULT IN A LADDER EFFECT PER (R316.2).
- ALL SECOND FLOOR ESCAPE OR RESCUE WINDOWS FROM SLEEPING ROOMS SHALL HAVE A MIN. NET CLEAR OPENING OF 5.7 SQ.FT. THE MIN. NET CLEAR WIDTH OPENING SHALL NOT BE LESS THAN 20" AND THE MIN. NET CLEAR HEIGHT OPENING SHALL NOT BE LESS THAN 24". GRADE FLOOR OPENINGS SHALL HAVE A MIN. NET CLEAR OPENING OF 5.6 SQ.FT. (EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE OPERATIONAL FROM THE INSIDE OF THE ROOF WITHOUT THE USE OF KEYS OR TOOLS).
- ALL INTERIOR "ARCHED OPENINGS" ARE ASSUMED DRYWALL FINISH UNLESS NOTED OTHERWISE. ARCH HEIGHTS ON FIRST FLOOR APPLICATIONS ARE ASSUMED 8'-0" (7' SPRINGLINE/7' RISE) AFF. SECOND FLOOR ARCH HEIGHTS ARE ASSUMED 7'-6" (6'-8" SPRINGLINE/10' RISE) AFF. UNLESS NOTED OTHERWISE.
- 1ST FLOOR TOTAL RISE 1' OR LESS, NO INTERMEDIATE LANDING REQUIRED (2021 IRC R315.4). 12" 1ST FLOOR PLATE AND 14" WALKWAY FLOOR 8'9"11" (see detail).
- ALL EXHAUSTS SHALL BE VENTED TO EXTERIOR.
- ALL FRAMING LUMBER SHALL BE NO. 2 D.Y.P. K.D. OR BETTER.
- FIREPLACES SHALL BE INSTALLED PER IRC 2021 AND MANUFACTURER'S SPECIFICATIONS.
- SAFETY GLASS SHALL BE PROVIDED IN ALL FRENCH DOORS, WINDOWS ADJACENT TUBS AND SHOWER ENCLOSURES, AND WITHIN 24" OF EXTERIOR DOOR PER IRC 2021.
- PROVIDE ACCESS PANELS PER PLUMBING CODE.
- PULL DOWN STAIR SPEC: 30" X 34" ATTIC ACCESS 350 LB. MAX.
20. PULL DOWN STAIR SPEC: 30" X 34" ATTIC ACCESS 350 LB. MAX.

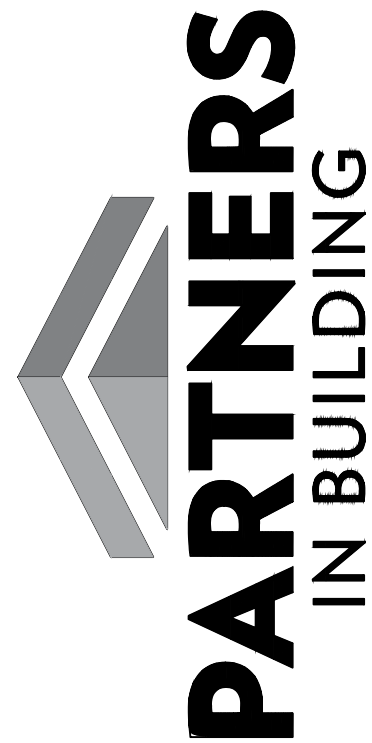


OUTSIDE CONDENSING UNIT (OR UNITS)
TO BE LOCATED HERE. CONTACT HVAC
CONTRACTOR FOR SPECIFICATIONS.

WINDOW PLACEMENT, ROOF LINE AND PORCHES MAY VARY BY ELEVATION. SQUARE FOOTAGE AND ROOM DIMENSIONS ARE APPROXIMATE. VARIANCES IN SQUARE FOOTAGE MAY OCCUR IN DIFFERENT ELEVATIONS OR WHEN DIFFERENT EXTERIOR MATERIALS ARE USED. PLANS, SPECIFICATIONS AND SPECIAL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE.
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THESE PLANS AND SPECIFICATIONS ARE COPYRIGHTED AND MAY NOT BE USED WITHOUT THE EXPRESSED WRITTEN CONSENT OF PARTNERS IN BUILDING, L.P.

MAKHIYA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

2901 WEST SAM HOUSTON PKWY. N.
SUITE C-250
HOUSTON, TEXAS 77043
OFFICE (713) 937-1121



ORIGINALLY DRAWN BY:
DESIGNER

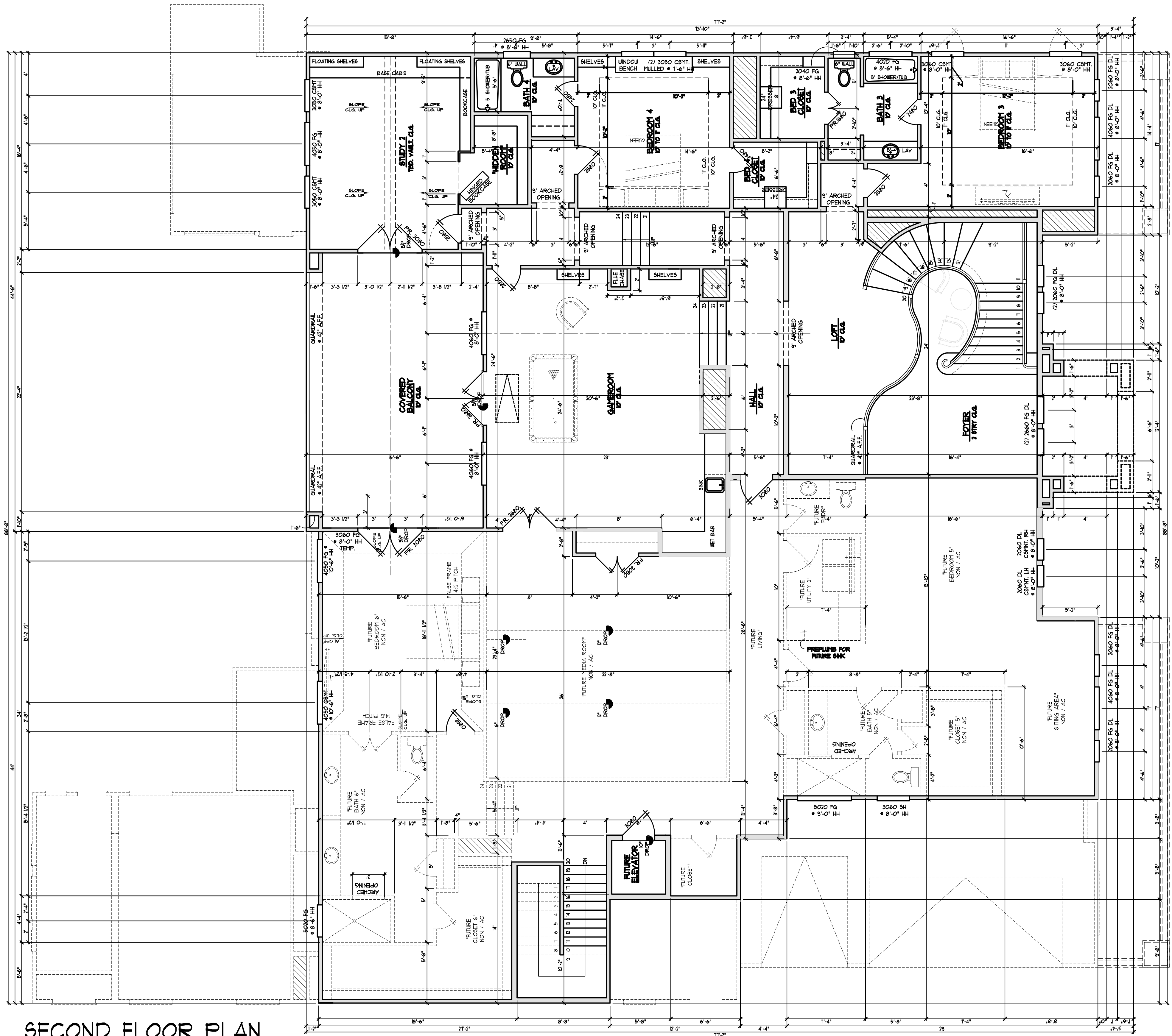
P.I.B. PLAN NO.
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2	3.23.2026	MG
3	04.08.2026	EML
4	4.16.2026	MG
5	5.6.2026	EBF
6	5.11.2026	EBF
7	5.27.26	EBF
8	DATE 08	NAME 08
9	DATE 09	NAME 09
10	DATE 10	NAME 10
11	DATE 11	NAME 11
12	DATE 12	NAME 12

SHEET NO.

FLOOR1

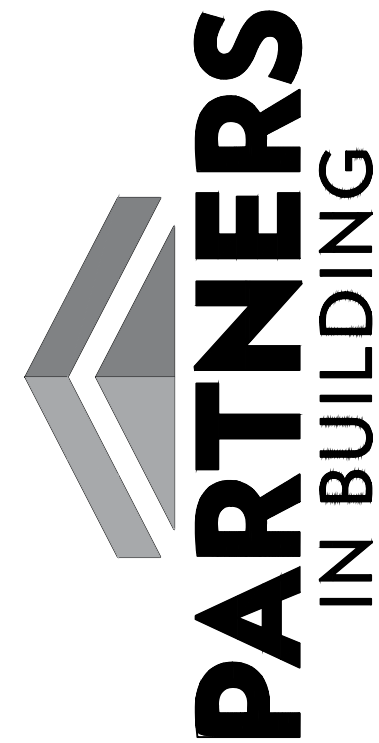
SCALE: 3/16"=1'-0"



SECOND FLOOR PLAN
SCALE: 3/16"=1'-0"

WINDOW PLACEMENT, ROOF LINE AND PORCHES MAY VARY BY ELEVATION.
SQUARE FOOTAGE AND ROOM DIMENSIONS ARE APPROXIMATE. VARIANCES
IN SQUARE FOOTAGE MAY OCCUR IN DIFFERENT ELEVATIONS OR WHEN
DIFFERENT EXTERIOR MATERIALS ARE USED. PLANS, SPECIFICATIONS AND
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SUITE C-250
HOUSTON, TEXAS 77043
OFFICE (713) 937-1121



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DESIGNER
P.I.B. PLAN NO.
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REV.	REV. DATE	REV. BY
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7	5.27.26	EBF
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11	DATE 11	NAME 11
12	DATE 12	NAME 12

SHEET NO.

FLOOR 2

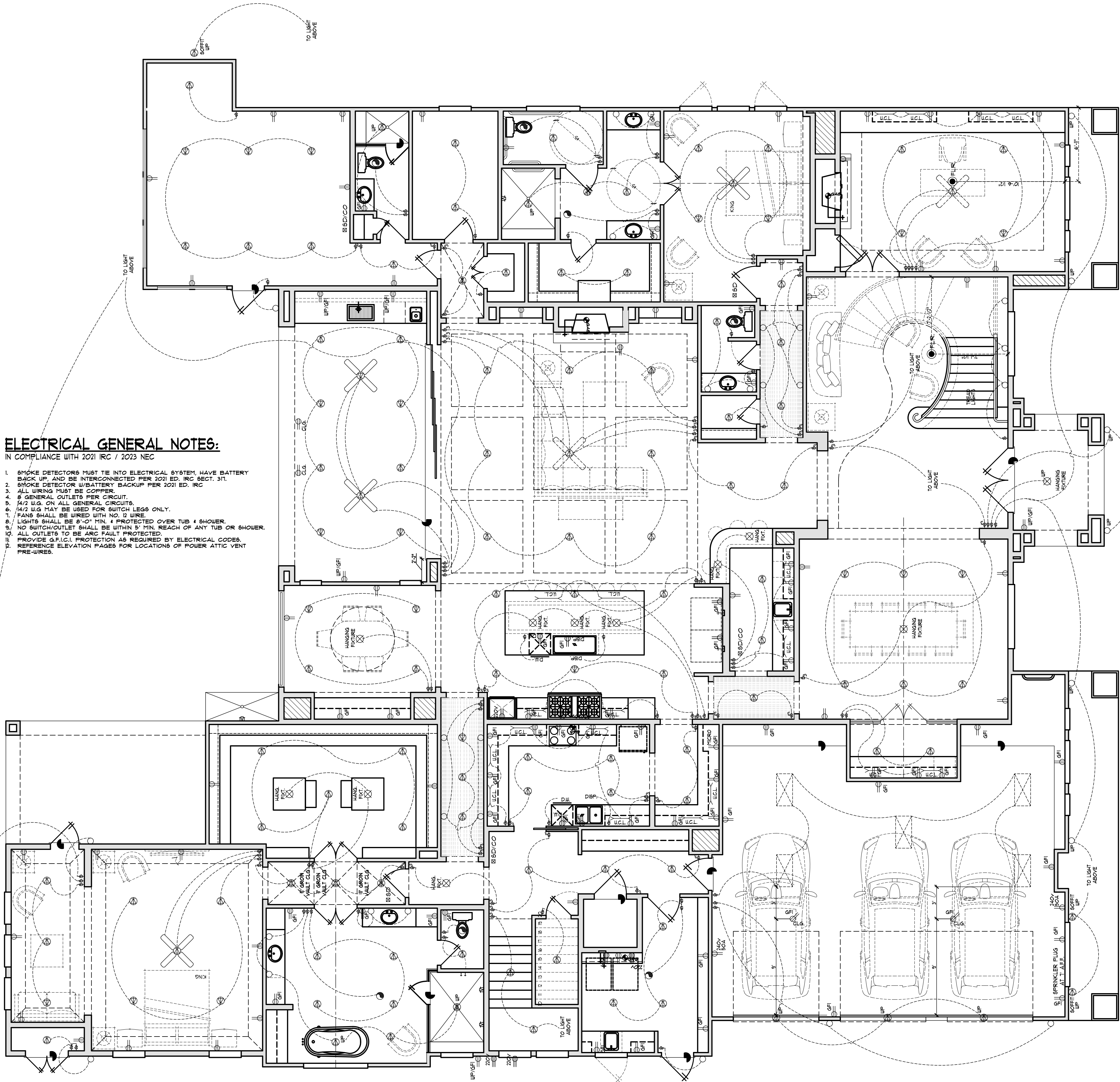
MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

SCALE: 3/16"

ELECTRICAL LEGEND	
(ALL RECEPTACLES TO BE TAMPER-RESISTANT) PER 2021 IRC : (R 4002.14)	
	110 VOLT RECEPTACLE
	WATERPROOF RECEPTACLE
	110 VOLT IN CLG.
	110 VOLT W/ GROUND FAULT INTERRUPTER
	110 VOLT IN FLOOR
	220 VOLT RECEPTACLE
	TELEVISION ANTENNA
	GAS OUTLET
	HOSE BIB
	TELEPHONE OUTLET
	SINGLE POLE SWITCH
	THREE WAY SWITCH
	FOUR WAY SWITCH
	DIMMER SWITCH
	PUSH BUTTON
	SMOKE DETECTOR
	SMOKE DETECTOR/CARBON MONOXIDE
	THERMOSTAT
	DOORBELL CHIMES
	CEILING MOUNTED LIGHT FIXTURE
	HANGING LIGHT
	RECESSED CAN LIGHT
	WATERPROOF RECESSED CAN LIGHT
	RECESSED EYEBALL SPOT LIGHT

ELECTRICAL GENERAL NOTES:
IN COMPLIANCE WITH 2021 IRC / 2023 NEC

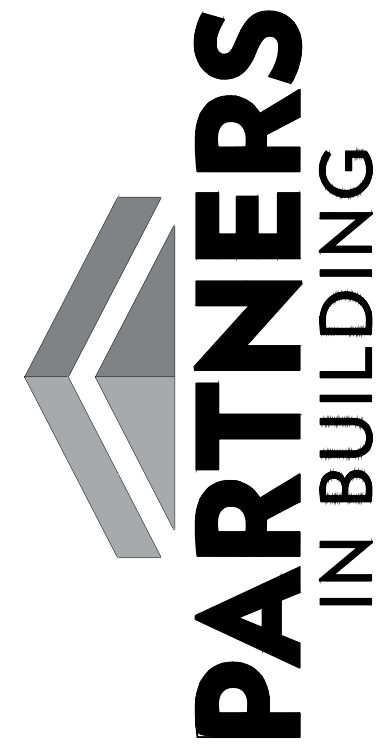
1. SMOKE DETECTORS MUST TIE INTO ELECTRICAL SYSTEM, HAVE BATTERY BACKUP, AND BE INTERCONNECTED PER 2021 ED, IRC SECT. 317.
2. SMOKE DETECTOR W/BATTERY BACKUP PER 2021 ED, IRC SECT. 317.
3. ALL WIRING MUST BE COPPER.
4. 8 GENERAL OUTLETS PER CIRCUIT.
5. 14/2 U.G. ON ALL GENERAL CIRCUITS.
6. 14/2 U.G. MAY BE USED FOR SWITCH LEGS ONLY.
7. FANS SHALL BE WIRED WITH NO. 12 WIRE.
8. LIGHTS SHALL BE 9'-0\"/>



FIRST FLOOR ELECTRICAL PLAN
SCALE: 3/16\"/>

OUTSIDE CONDENSING UNIT (OR UNITS):
TO BE LOCATED HERE, CONTACT HVAC
CONTRACTOR FOR SPECIFICATIONS.

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SUITE C-250
HOUSTON, TEXAS 77043
OFFICE (713) 937-1121



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DESIGNER

P.I.B. PLAN NO.
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REV.	REV. DATE	REV. BY
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2	3.23.2026	MG
3	04.08.2026	EML
4	4.16.2026	MG
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6	5.11.2026	EBF
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12	DATE 12	NAME 12

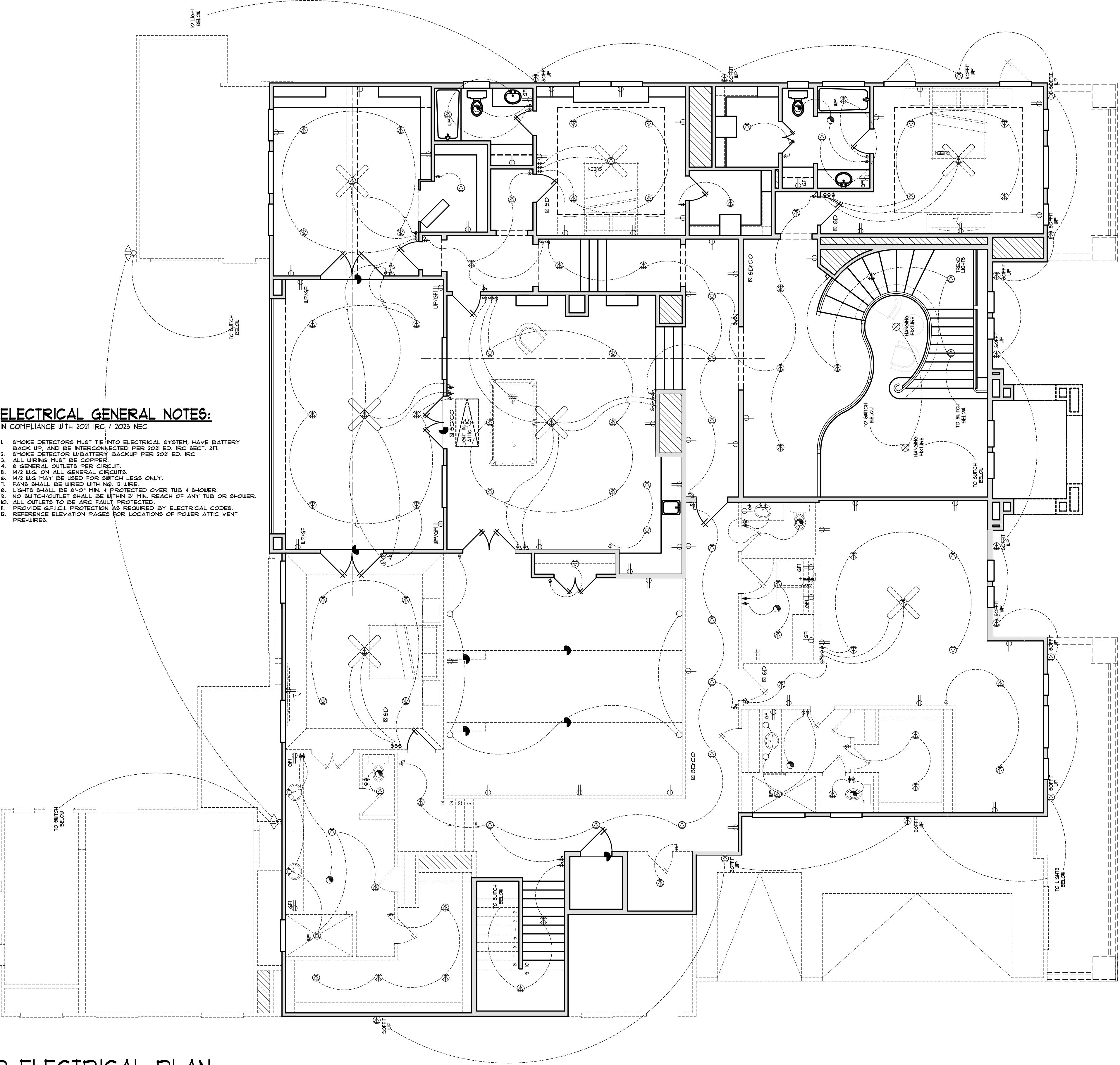
SHEET NO.

ELEC 1

MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

SCALE: 3/16\"/>

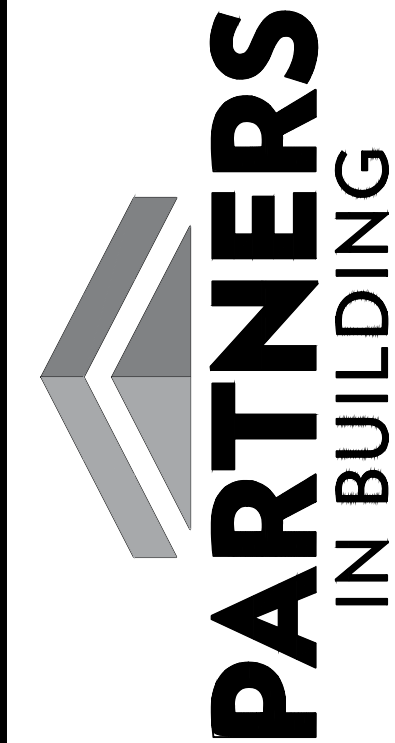
ELECTRICAL LEGEND	
(ALL RECEPTACLES TO BE TAMPER-RESISTANT) PER 2021 IRC / (R 4002.14)	
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	WATERPROOF RECEPTACLE
	10 VOLT IN CLG.
	10 VOLT W/ GROUND FAULT INTERRUPTER
	10 VOLT IN FLOOR
	220 VOLT RECEPTACLE
	TELEVISION ANTENNA
	GAS OUTLET
	HOSE BIB
	TELEPHONE OUTLET
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	THREE WAY SWITCH
	FOUR WAY SWITCH
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	PUSH BUTTON
	SMOKE DETECTOR
	SMOKE DETECTOR/CARBON MONOXIDE
	THERMOSTAT
	DOORBELL CHIMES
	CEILING MOUNTED LIGHT FIXTURE
	HANGING LIGHT
	RECESSED CAN LIGHT
	WATERPROOF RECESSED CAN LIGHT
	RECESSED EYEBALL SPOT LIGHT



SECOND FLOOR ELECTRICAL PLAN
SCALE: 3/16"=1'-0"

WINDOW PLACEMENT, ROOF LINE AND PORCHES MAY VARY BY ELEVATION. SQUARE FOOTAGE AND ROOM DIMENSIONS ARE APPROXIMATE. VARIANCES IN SQUARE FOOTAGE MAY OCCUR IN DIFFERENT ELEVATIONS OR WHEN DIFFERENT EXTERIOR MATERIALS ARE USED. PLANS, SPECIFICATIONS AND SPECIAL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE.
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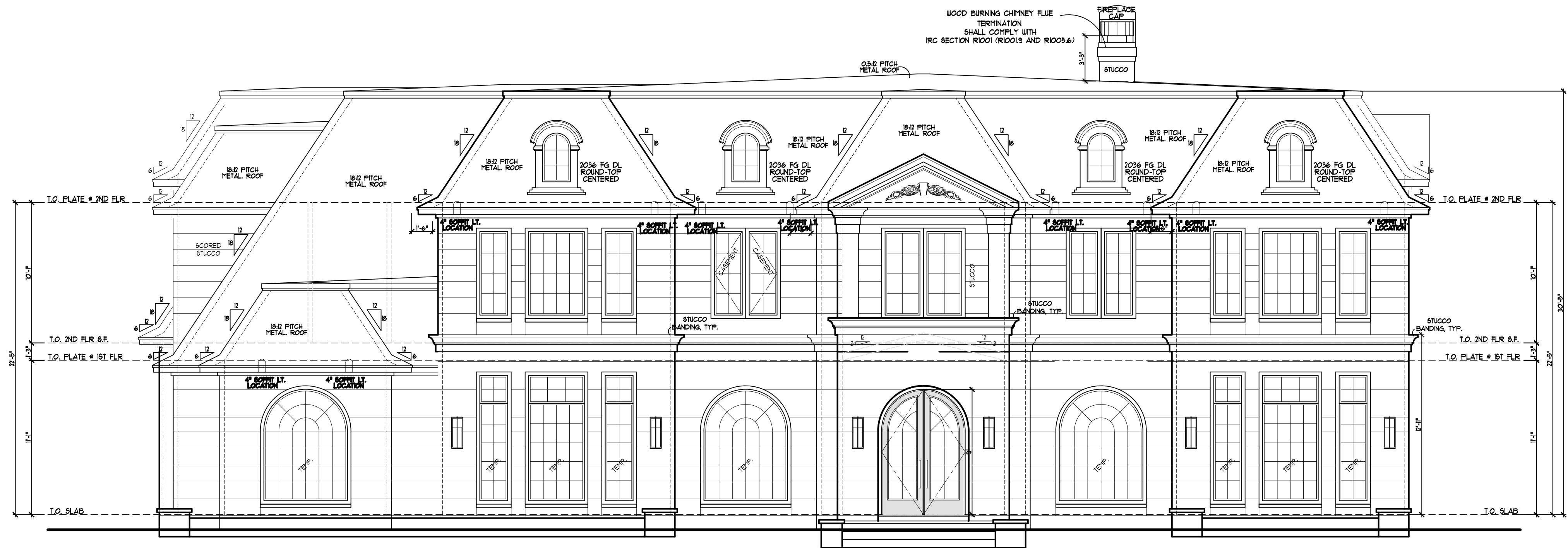


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P.I.B. PLAN NO. 00000			
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6	5.11.2026	EBF	
7	5.27.26	EBF	
8	DATE 08	NAME 08	
9	DATE 09	NAME 09	
10	DATE 10	NAME 10	
11	DATE 11	NAME 11	
12	DATE 12	NAME 12	

SHEET NO.
ELEC 2

MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

SCALE: 3/16"



FRONT ELEVATION

SCALE: 3/16"=1'-0"

ELEVATION GENERAL NOTES

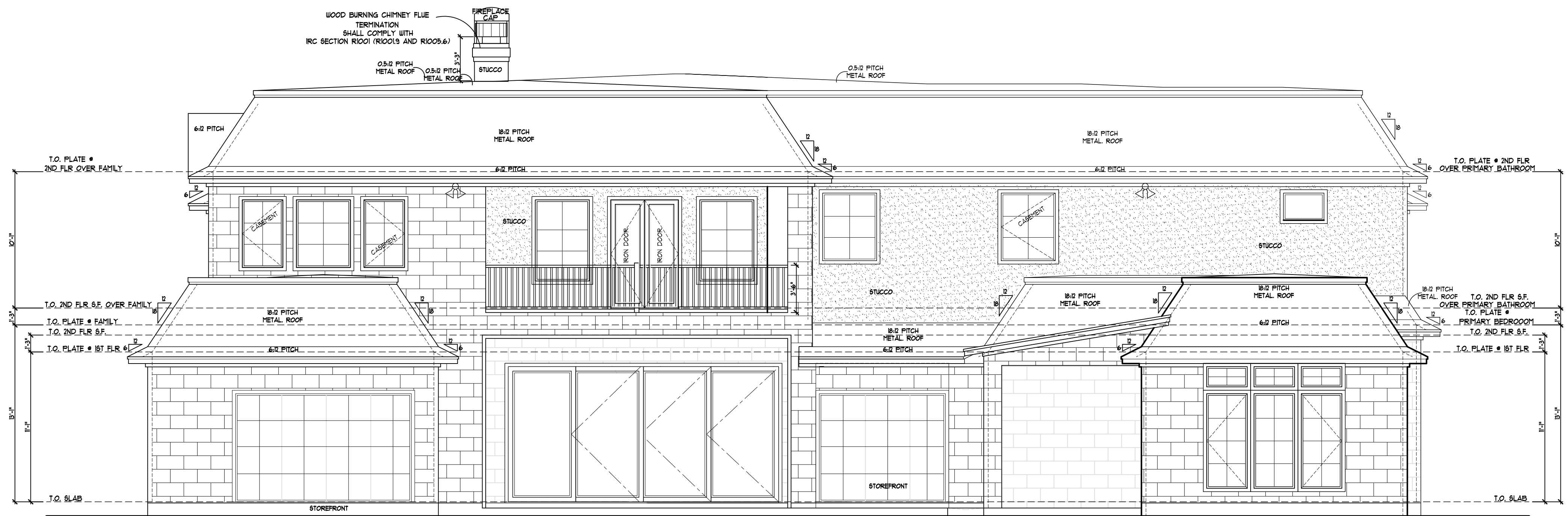
- FOR ALL 48 PITCH OR LESS, PROVIDE ICE AND WATER SHIELD TYP.
- ALL CORBELS ARE TO BE STUCCO IN FINISH UNLESS NOTED OTHERWISE.
- ALL WINDOWS AND DOORS, WHERE STUCCO FINISHES ARE APPLIED, ARE TO RECEIVE 3" STUCCO TRIM (SHAD) UNLESS NOTED OTHERWISE. DOORS + BRICK LOCATIONS TO RECEIVE STANDARD BRICK MOULD TRIM.

MASONRY CHART	STUCCO (SQ FT)	STONE (SQ FT)	STONE %
FRONT ELEVATION (W/O DRB + UDUS)	0	1318	100 %
RIGHT ELEVATION (W/O DRB + UDUS)	0	1870	100 %
LEFT ELEVATION (W/O DRB + UDUS)	0	893	100 %
REAR ELEVATION (W/O DRB + UDUS)	0	914	100 %
TOTAL AREA	0	5095	100 %

OPTION "A"

MASONRY CHART	STUCCO (SQ FT)	STONE (SQ FT)	STONE %
FRONT ELEVATION (W/O DRB + UDUS)	0	1318	100 %
RIGHT ELEVATION (W/O DRB + UDUS)	0	1870	100 %
LEFT ELEVATION (W/O DRB + UDUS)	123	764	86 %
REAR ELEVATION (W/O DRB + UDUS)	330	644	66 %
TOTAL AREA	453	4896	91 %

OPTION "B"

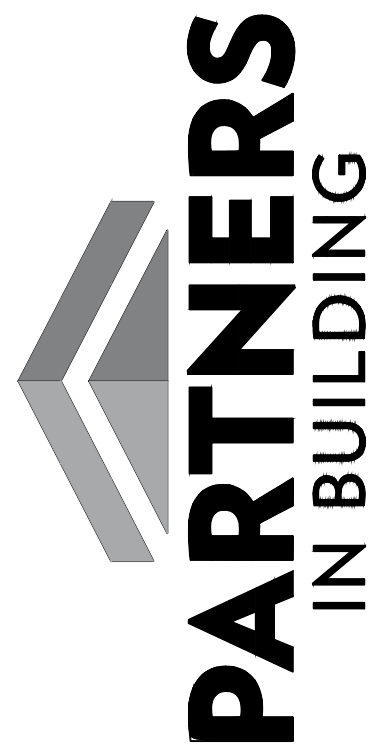


REAR ELEVATION

SCALE: 3/16"=1'-0"

MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

2901 WEST SAM HOUSTON PKWY N.
SUITE C-250
HOUSTON, TEXAS 77043
OFFICE (713) 937-1121



ORIGINALLY DRAWN BY:
DESIGNER

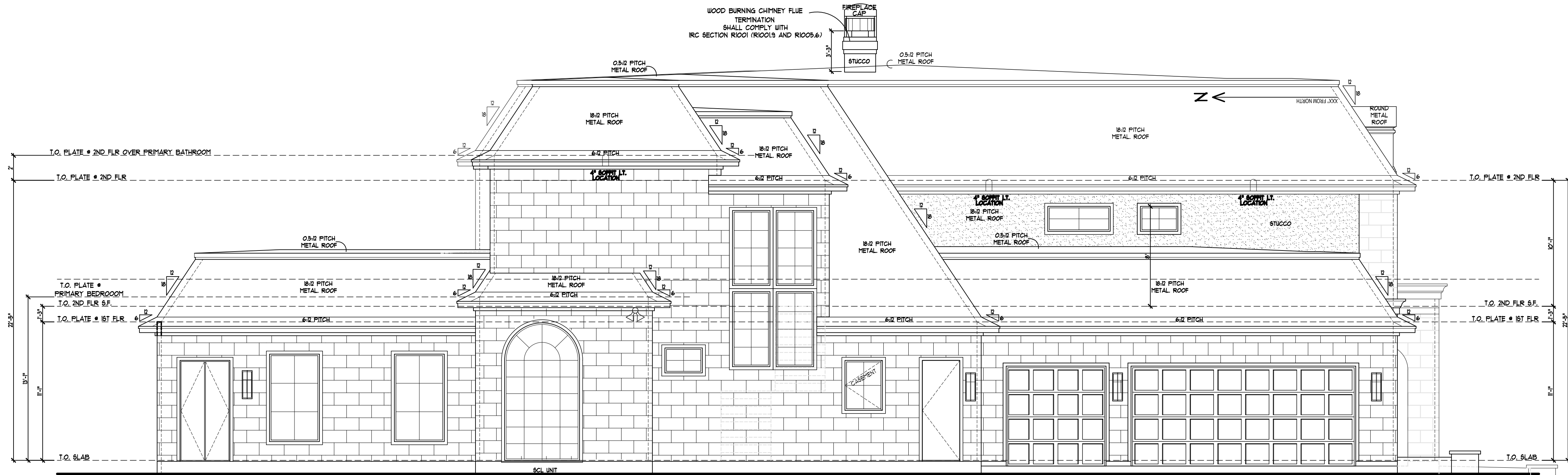
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9	DATE 09	NAME 09
10	DATE 10	NAME 10
11	DATE 11	NAME 11
12	DATE 12	NAME 12

SHEET NO.

ELEV 1

SCALE: 3/16"

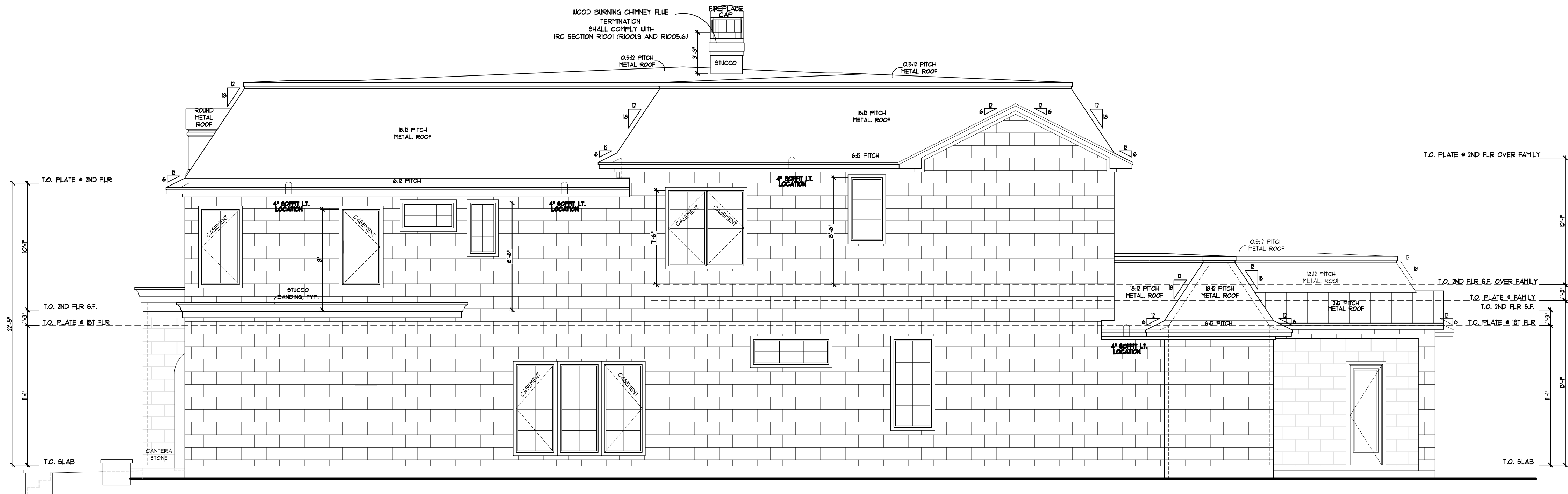


LEFT ELEVATION

SCALE: 3/16"=1'-0"

ELEVATION GENERAL NOTES

1. FOR ALL 12/12 PITCH OR LESS PROVIDE ICE AND WATER SHIELD TYP.
2. ALL CORBELLS ARE TO BE STUCCO IN FINISH UNLESS NOTED OTHERWISE.
3. ALL WINDOWS AND DOORS WHERE STUCCO FINISHES ARE APPLIED, ARE TO RECEIVE 1/2" STUCCO TRIM (ISAND) UNLESS NOTED OTHERWISE. DOORS & BRICK LOCATIONS TO RECEIVE STANDARD BRICK MOULD TRIM.



RIGHT ELEVATION

SCALE: 3/16"=1'-0"

MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

2901 WEST SAM HOUSTON PKWY N.
SUITE C-250
HOUSTON, TEXAS 77043
OFFICE (713) 937-1121

PARTNERS
IN BUILDING

ORIGINALLY DRAWN BY:
DESIGNER

P.I.B. PLAN NO.

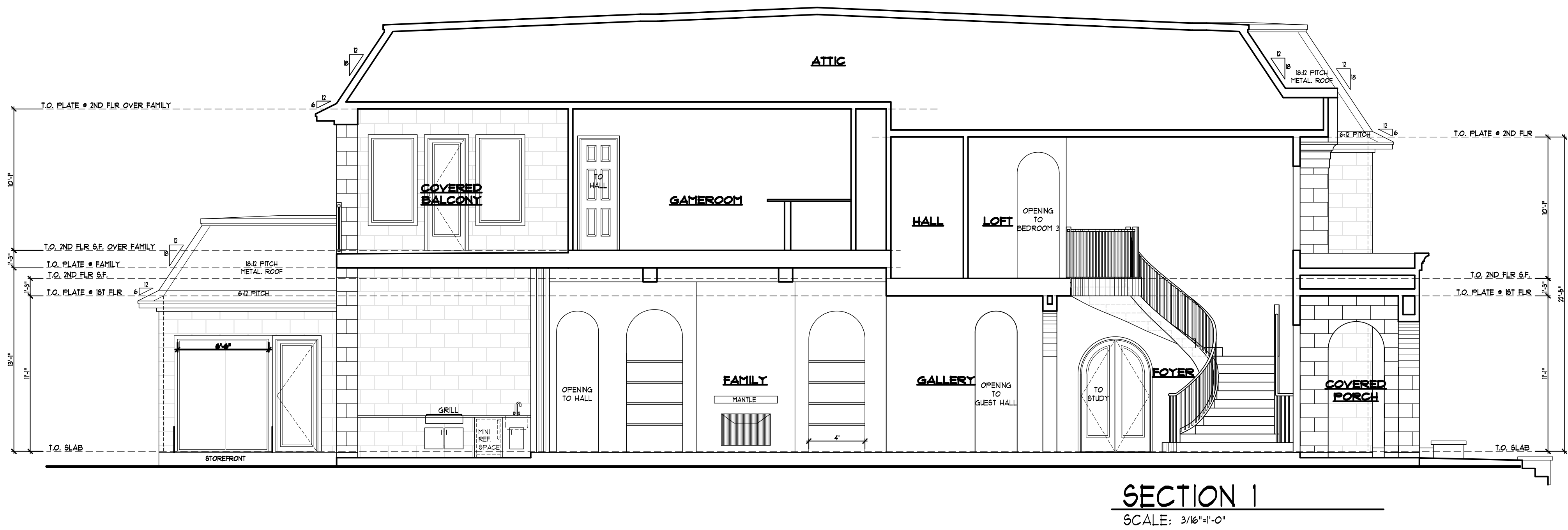
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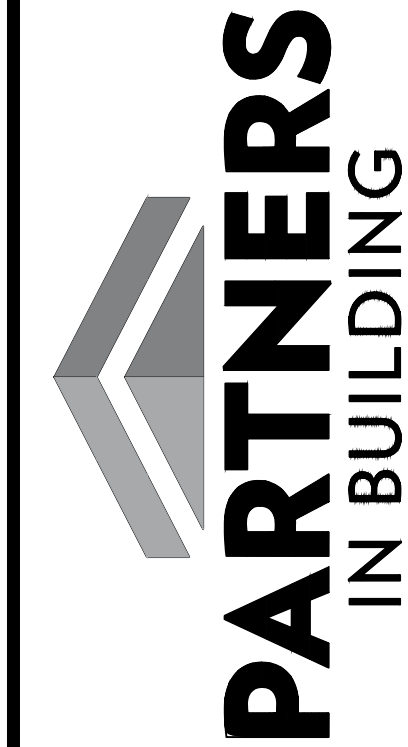
ELEV 2

SCALE: 3/16"



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MAKHIJA RESIDENCE
635 KNIPP
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BOYL IN TOWN

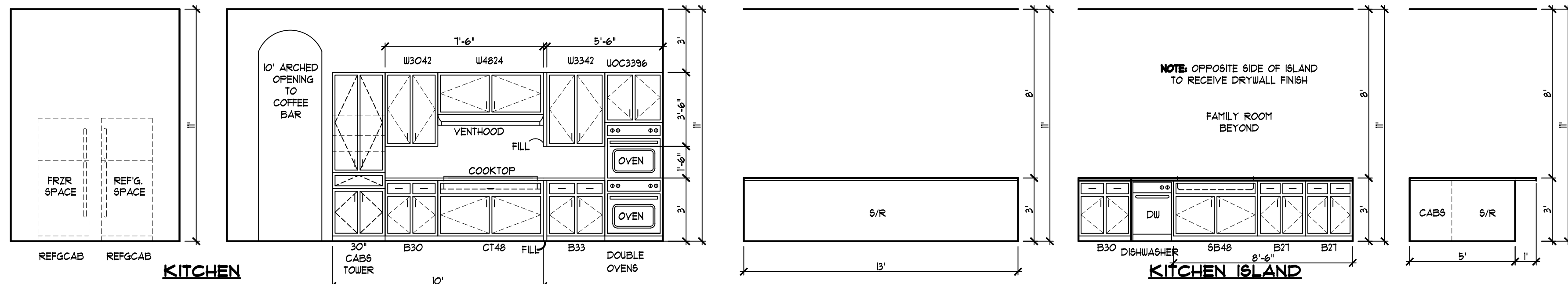
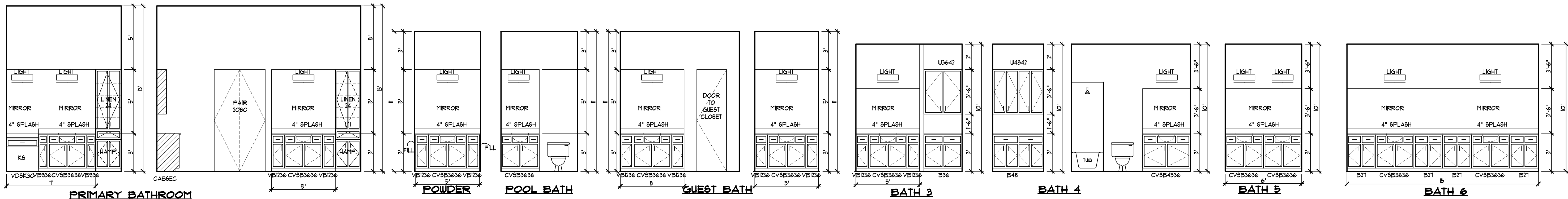


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8	DATE 08	NAME 08
9	DATE 09	NAME 09
10	DATE 10	NAME 10
11	DATE 11	NAME 11
12	DATE 12	NAME 12

SHEET NO.
ELEV 2

SCALE: 3/16"



LEGEND:

B BASE CAB
CT COOK TOP
DB DRAWER BASE CAB
F FILLER
VB VANITY BASE
VDB VANITY DRAWER BASE
W WALL CABINET

NOTES:

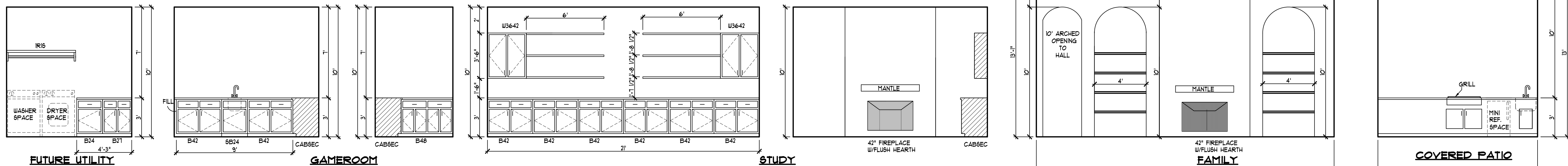
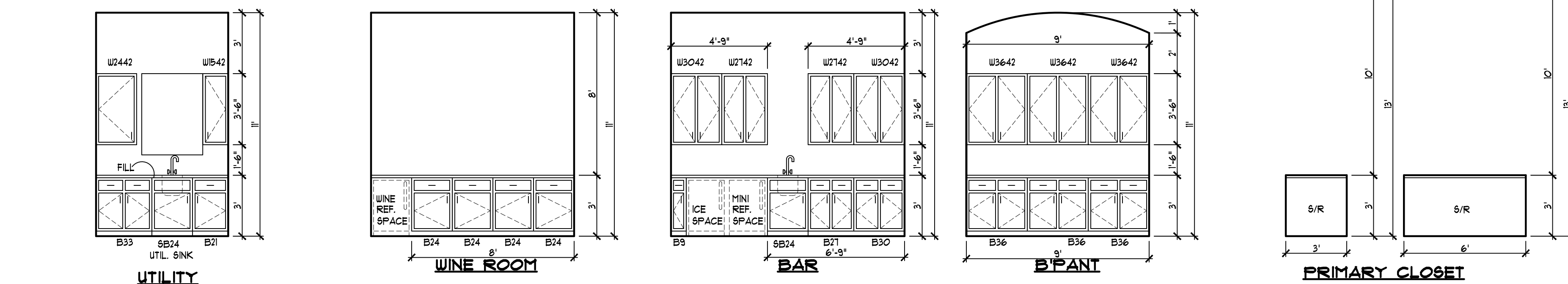
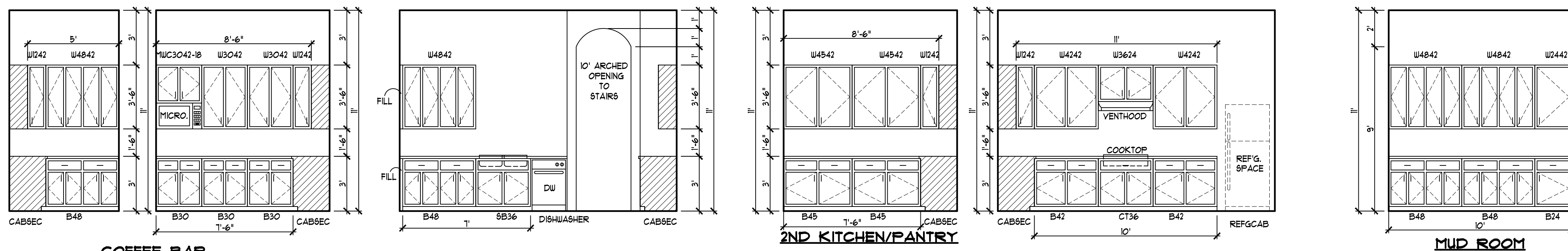
ALL CABINET DOOR STYLES, DRAWER STYLES, HARDWARE AND FINISHES ARE TO BE DETERMINED WITH HOME OWNER. TYPICAL FOR ALL.

PROVIDE FALSE DRAWER FRONTS WHERE APPLICABLE.
PROVIDE WOOD SKINS ON ALL CABINETS WITH EXPOSED END PANELS BASE CABINETS AT THE ISLAND

SUPER TO CHECK VANITY CAB. DEPTH W/ GRANITE AND CASING PLACEMENT

CABINET ELEVATIONS

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



WINDOW PLACEMENT, ROOF LINE AND PORCHES MAY VARY BY ELEVATION.
SQUARE FOOTAGE AND ROOM DIMENSIONS ARE APPROXIMATE. VARIANCES
IN SQUARE FOOTAGE MAY OCCUR IN DIFFERENT ELEVATIONS OR WHEN
DIFFERENT EXTERIOR MATERIALS ARE USED. PLANS, SPECIFICATIONS AND
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REV. DATE REV. BY

1 2-24-26 AAM

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7 5.27.26 EBF

8 DATE 08 NAME 08

9 DATE 09 NAME 09

10 DATE 10 NAME 10

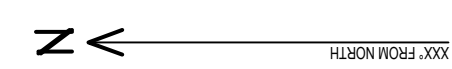
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12 DATE 12 NAME 12

SHEET NO.

INT

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



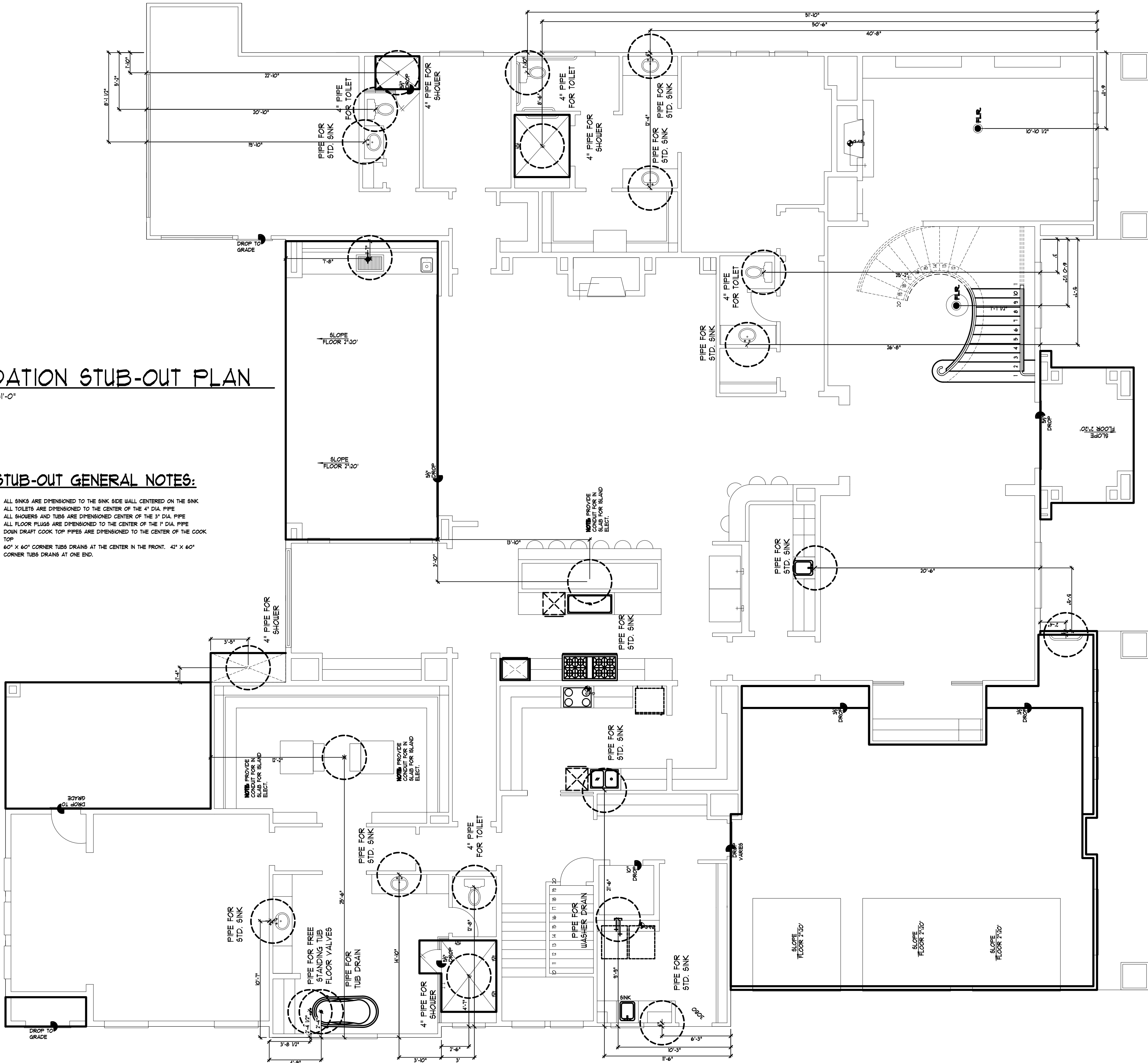
SCALE: 3/16"

FOUNDATION STUB-OUT PLAN

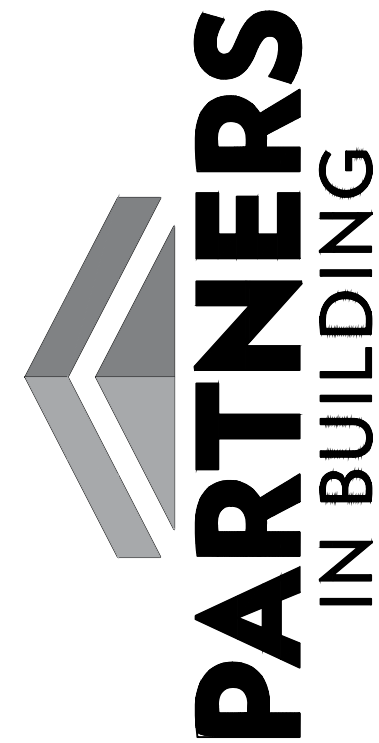
SCALE: 3/16"=1'-0"

STUB-OUT GENERAL NOTES:

1. ALL SINKS ARE DIMENSIONED TO THE SINK SIDE WALL CENTERED ON THE SINK
2. ALL TOILETS ARE DIMENSIONED TO THE CENTER OF THE 4" DIA. PIPE
3. ALL SHOWERS AND TUBS ARE DIMENSIONED CENTER OF THE 3" DIA. PIPE
4. ALL FLOOR PLUGS ARE DIMENSIONED TO THE CENTER OF THE 1" DIA. PIPE
5. DOWN DRAFT COOK TOP PIPES ARE DIMENSIONED TO THE CENTER OF THE COOK TOP
6. 60" X 60" CORNER TUBS DRAINS AT THE CENTER IN THE FRONT. 42" X 60" CORNER TUBS DRAINS AT ONE END.



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7	5.27.26	EBF
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9	DATE 09	NAME 09
10	DATE 10	NAME 10
11	DATE 11	NAME 11
12	DATE 12	NAME 12

SHEET NO.

STUB

MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

SCALE: 3/16"

SCALE: 3/16"=1'-0"



WINDOW PLACEMENT, ROOF LINE AND PORCHES MAY VARY BY ELEVATION. SQUARE FOOTAGE AND ROOM DIMENSIONS ARE APPROXIMATE. VARIANCES IN SQUARE FOOTAGE MAY OCCUR IN DIFFERENT ELEVATIONS OR WHEN DIFFERENT FINISH MATERIALS ARE USED. THESE SPECIFICATIONS AND SPECIAL FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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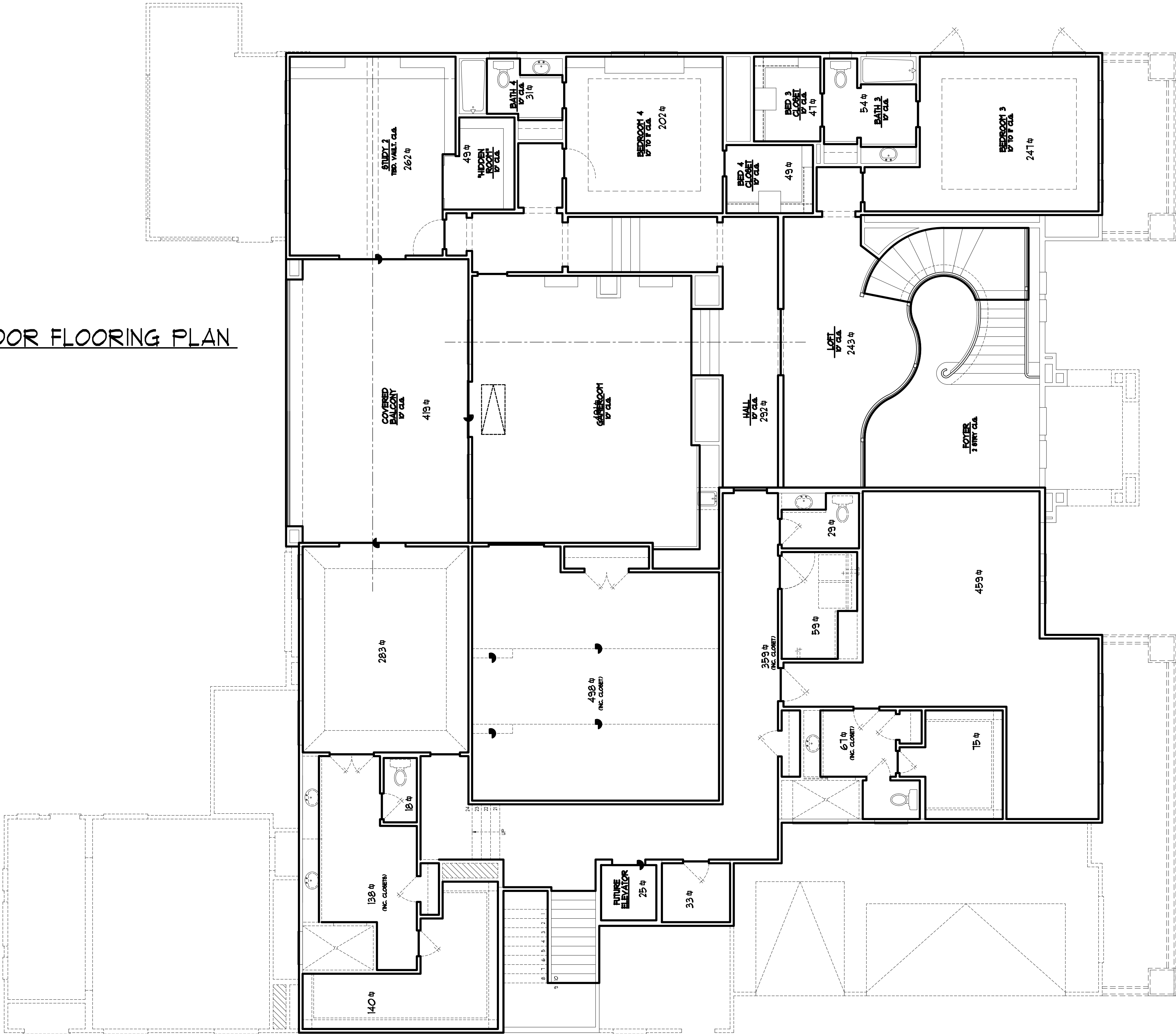
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SCALE: 3/16"

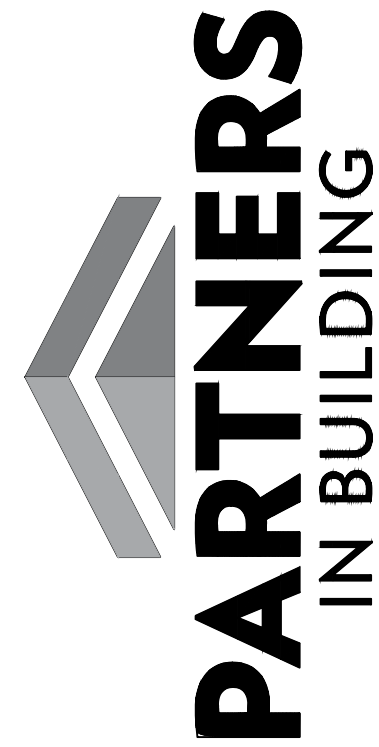
MAKHHA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

SECOND FLOOR FLOORING PLAN

SCALE: 3/16"=1'-0"



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MAKHIJA RESIDENCE
635 KNIPP
HOUSTON, TX 77024
BOYL IN TOWN

SCALE: 3/16"

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12	DATE 12	NAME 12

SHEET NO.

FLOORING2

2021 IRC HOUSTON AMENDMENTS (ADOPTED APRIL 1, 2022)
2023 NATIONAL ELECTRICAL CODE (NEC)
2021 UMC HOUSTON AMENDMENTS
2021 UPC HOUSTON AMENDMENTS
2021 IECC AMENDMENTS - RESIDENTIAL PROVISIONS (ADOPTED OCT. 24, 2016)

GENERAL NOTES

- 1) PROVIDE G.F.I.C.I. PROTECTION AS REQUIRED BY ELECTRICAL CODES
- 2) ALL EXHAUSTS SHALL BE VENTED TO EXTERIOR
- 3) ALL FRAMING LUMBER SHALL BE NO. 2 S.Y.P. K.D. OR BETTER
- 4) FIREPLACES SHALL BE INSTALLED PER 2021 IRC AND MANUFACTURER'S SPECIFICATIONS.
- 5) SAFETY GLASS SHALL BE PROVIDED IN ALL FRENCH DOORS, WINDOWS ADJACENT TUBS AND SHOWER ENCLOSURES, AND W/IN 24" OF EXTERIOR DOOR PER IRC 2021
- 6) PROVIDE ACCESS PANELS PER PLUMBING CODE
- 7) HVAC UNIT/S & GAS W/H/S IN ATTIC. PROVIDE LIGHT FIXTURE NEAR EACH UNIT SWITCHED AT ATTIC ENTRANCE. PROVIDE METAL DRIP FANS WITH OUTSIDE DRAIN LINES. PROVIDE SUB-FLOOR WALKWAY TO & AROUND EACH UNIT CONFORMING TO APPLICABLE CODE.
- 8) ALL VENTS, FLUES & ROOF JACKS SHALL NOT BE VISIBLE FROM FRONT OF HOUSE.
- 9) HVAC CONTRACTOR TO CONFIRM TONNAGE & LOCATIONS OF RETURN AIR/S AND MECHANICAL AREAS IN ATTICS, PROVIDE 3/4" PLYWOOD DECKING AND 20 LB. LL MIN. JOIST UNDER REFER TO PLANS FOR PRE ENGINEERED LOCATIONS
- 10) PULL DOWN STAIR SPECS: 30" x 54" ATTIC ACCESS 350 LB. MAX.

ATTIC ACCESS

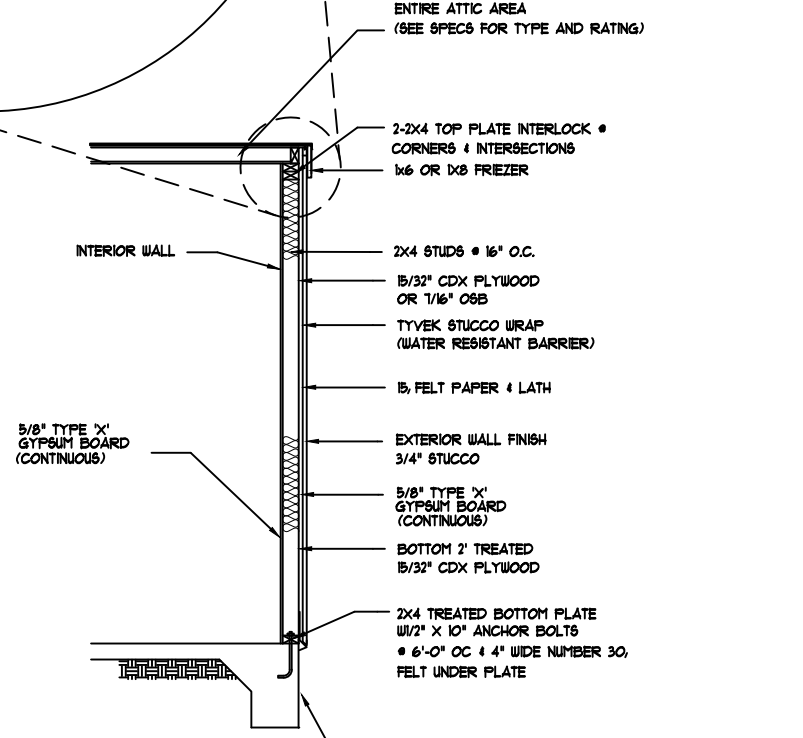
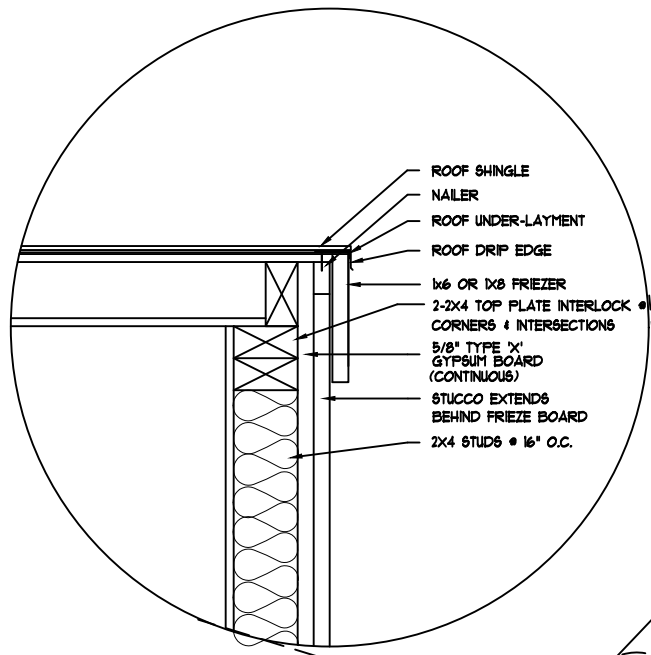
2021 IRC

ATTICS CONTAINING APPLIANCES REQUIRING ACCESS SHALL BE PROVIDED WITH A PULL DOWN STAIRWAY WITH A CLEAR OPENING (BETWEEN THE HARDWARE) NOT LESS THAN 22" IN WIDTH AND A LOAD CAPACITY OF NOT LESS THAN 350 LBS. AND CLEAR AND UNOBSTRUCTED PASSAGEWAY LARGE ENOUGH TO ALLOW REMOVAL OF THE LARGEST APPLIANCE, BUT NOT LESS THAN 30" HIGH AND 22" WIDE AND NOT MORE THAN 20 FEET IN LENGTH WHEN MEASURED ALONG THE CENTERLINE OF THE PASSAGEWAY FROM THE OPENING TO THE APPLIANCE. THE PASSAGEWAY SHALL HAVE CONTINUOUS SOLID FLOORING IN ACCORDANCE WITH CHAPTER 5 OF THE IRC AND NOT LESS THE 24" WIDE. A LEVEL SERVICE SPACE AT LEAST 30" DEEP AND 30" WIDE SHALL BE PRESENT ALONG ALL SIDES OF THE APPLIANCE WHERE ACCESS IS REQUIRED. THE CLEAR ACCESS OPENING DIMENSIONS SHALL BE A MINIMUM OF 20" BY 30", WHERE SUCH DIMENSIONS ARE LARGE ENOUGH TO ALLOW REMOVAL OF THE LARGEST APPLIANCE.

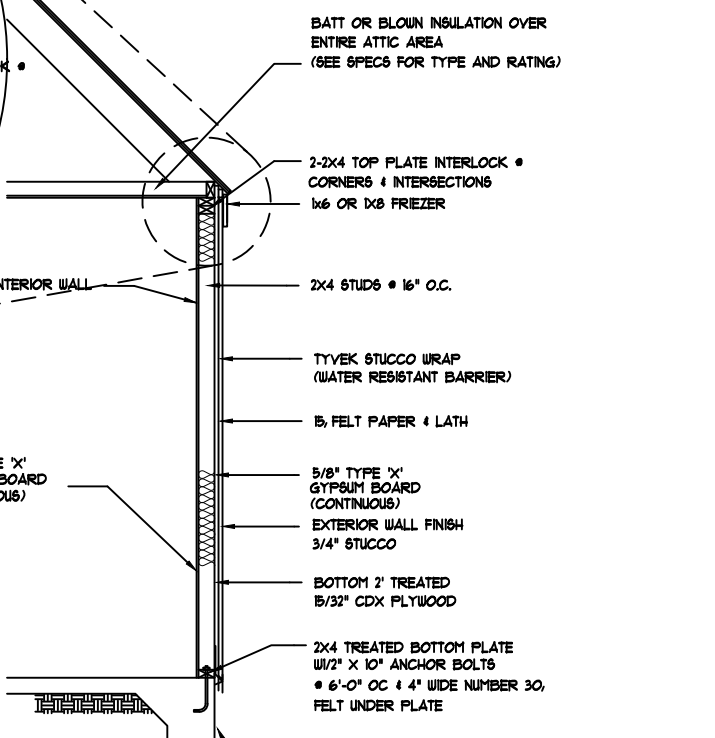
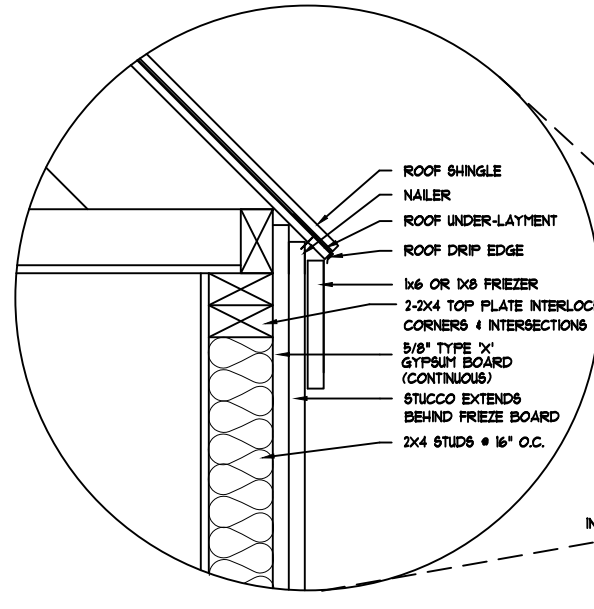
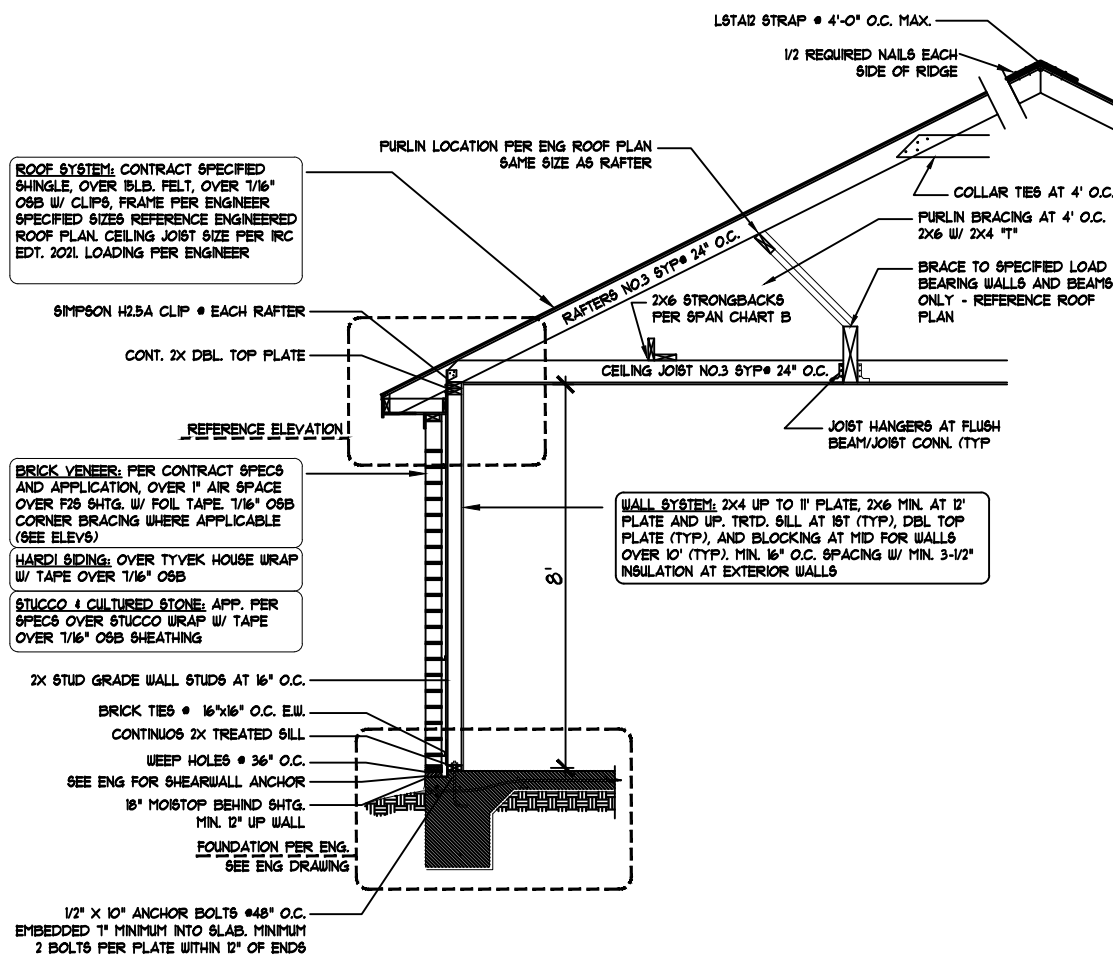
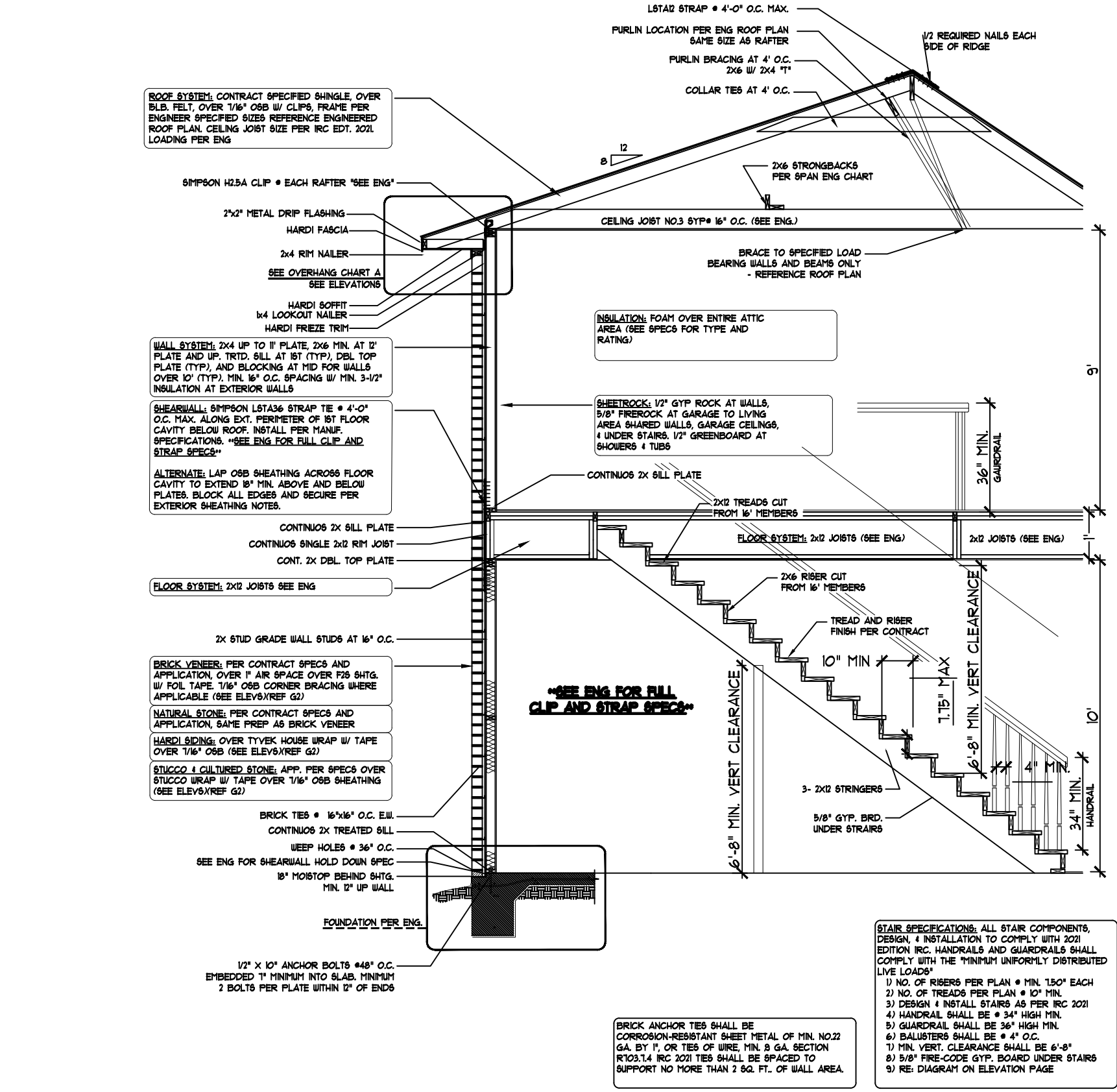
GARAGE ATTIC ACCESS

IRC 2021

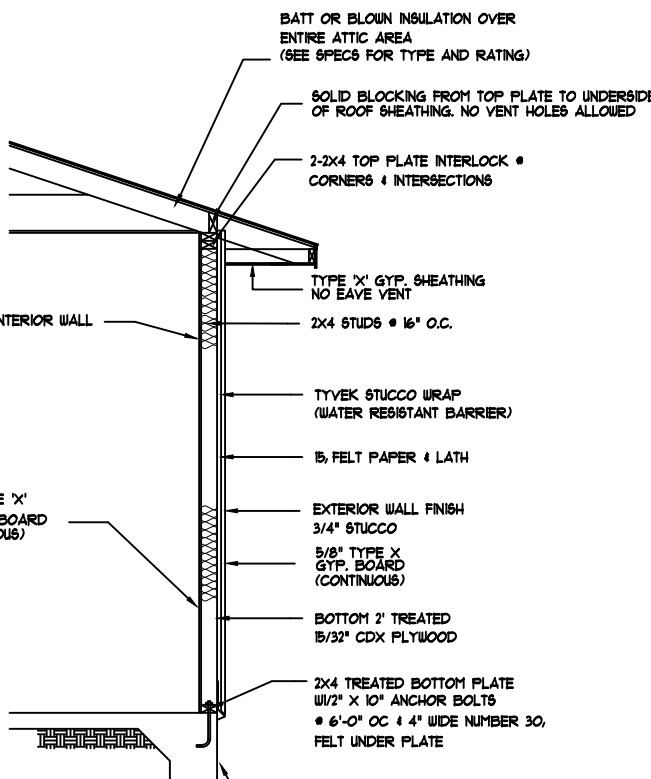
FOR ATTIC DISAPPEARING STAIRS IN THE GARAGE CEILING THE EXPOSED PANEL SHALL BE AT LEAST 3/8" THICK FIRE RETARDENT-TREATED-PLYWOOD OR COVERED WITH A MINIMUM 16 GAUGE SHEET METAL. IN ADDITION TO THESE TWO METHODS, THE FOLLOWING METHODS ARE ALSO ACCEPTABLE FOR PROTECTING THE ATTIC DISAPPEARING STAIRS AND OTHER ACCESS OPENINGS: 1) UNTREATED PLYWOOD PROTECTED WITH 1/2 INCH THICK GYPSUM BOARD, 2) UNTREATED PLYWOOD PROTECTED WITH AN INTUMESCE PAINT. IN ALL CASES THE OPENING PROTECTION MATERIAL IS APPLIED TO THE GARAGE SIDE OF THE PLYWOOD.



NOTE:
1 HOUR-TESTED IN ACCORDANCE
WITH ASTM E 119 OR UL 263 WITH
EXPOSURE FORM BOTH SIDES
REF. UL DESIGN NO. U305



NOTE:
1 HOUR-TESTED IN ACCORDANCE
WITH ASTM E 119 OR UL 263 WITH
EXPOSURE FORM BOTH SIDES
REF. UL DESIGN NO. U305

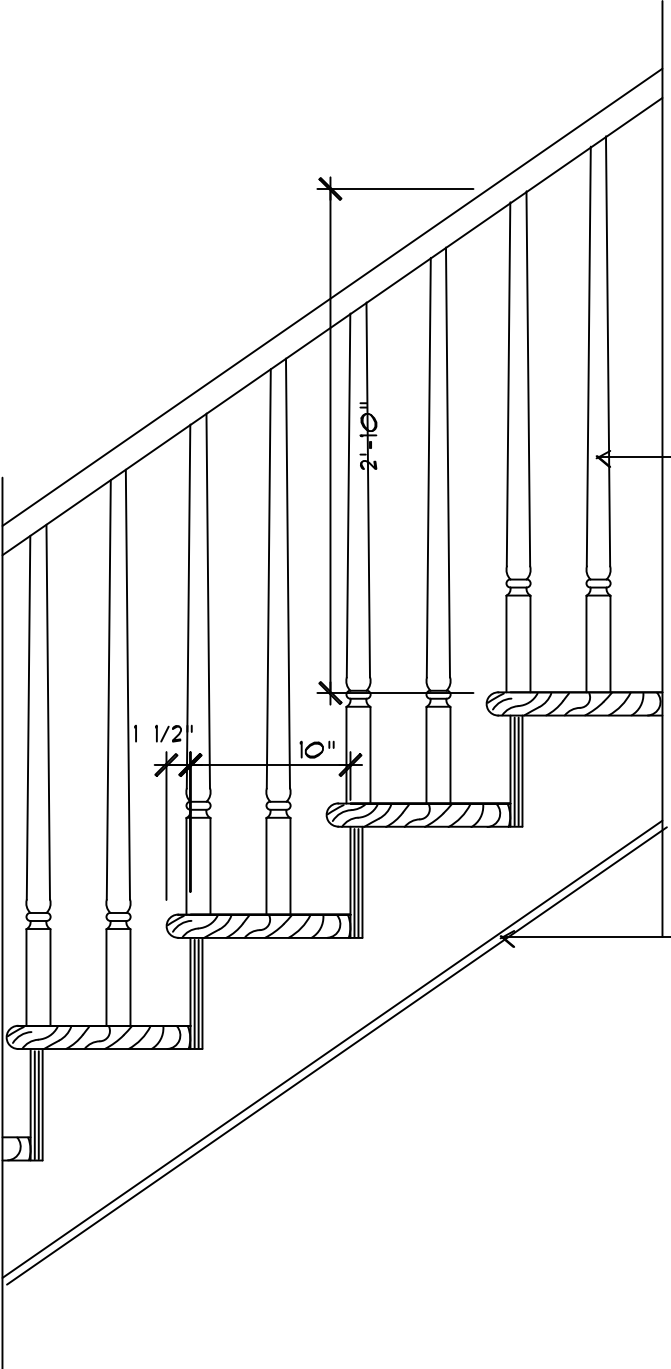
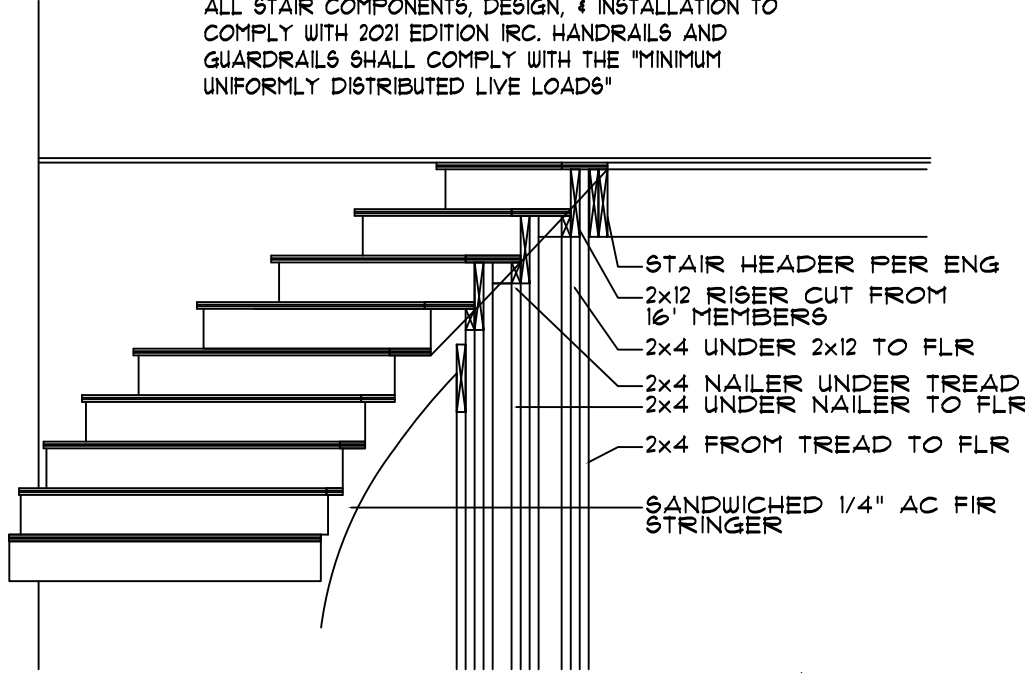


NOTE:
1 HOUR-TESTED IN ACCORDANCE
WITH ASTM E 119 OR UL 263 WITH
EXPOSURE FORM BOTH SIDES
REF. UL DESIGN NO. U305

STAIR SPECIFICATIONS: ALL STAIR COMPONENTS, DESIGN, & INSTALLATION TO COMPLY WITH 2021 EDITION IRC, HANDRAILS AND GUARDRAILS SHALL COMPLY WITH THE "MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS" AS PER TABLE R301.4

- 1) NO. OF RISERS PER PLAN # MIN. 150" EACH
- 2) NO. OF TREADS PER PLAN # 10" MIN.
- 3) DESIGN & INSTALL STAIRS AS PER IRC 2021 R310.5.3
- 4) HANDRAIL SHALL BE # 3/4" HIGH MIN.
- 5) GUARDRAIL SHALL BE 36" HIGH MIN.
- 6) BALUSTERS SHALL BE # 4" O.C.
- 7) MIN. VERT. CLEARANCE SHALL BE 6'-8"
- 8) 5/8" FIRE-CODE GYP. BOARD UNDER
- 9) RE. DIAGRAM ON ELEVATION PAGE
- 10) MINIMUM TREAD DEPTH OF 10" # 12" FROM INSIDE OF STAIRS

AT NO POINT SHOULD THE STAIRS HAVE A DEPTH SMALLER THEN 6"



NOTE:
HANDRAILS AND GUARDRAILS
SHALL COMPLY WITH THE
" MINIMUM UNIFORMLY DISTRIBUTED
LIVE LOADS"
200 LBS. PER SQ. FT. LIVE LOAD
APPLIED IN ANY DIRECTION AT ANY
POINT ALONG THE TOP OF HANDRAIL

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PARTNERS
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DESIGNER

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9	DATE 09	NAME 09
10	DATE 10	NAME 10
11	DATE 11	NAME 11
12	DATE 12	NAME 12

SHEET NO.

DETAILS

SCALE: 3/16"

RESOLUTION NO. 05-16-2023B

A RESOLUTION OF THE CITY COUNCIL OF BUNKER HILL VILLAGE, TEXAS, ADOPTING THE CITY OF BUNKER HILL VILLAGE DRAINAGE CRITERIA MANUAL, AS AMENDED. TO BE USED IN COORDINATION WITH CHAPTER 4, DEVELOPMENT, BUILDING AND CONSTRUCTION OF THE CODE OF ORDINANCES FOR THE DESIGN AND CONSTRUCTION OF DRAINAGE FACILITIES WITHIN THE CITY.

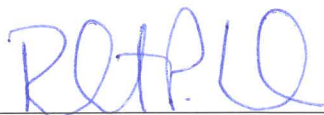
* * * * *

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BUNKER HILL VILLAGE, TEXAS:

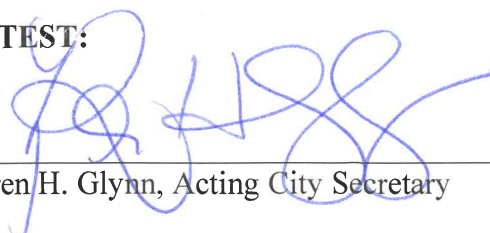
Section 1. That the City desires to preserve and enhance the desirability of our City by careful planning of our City's redevelopment which includes the management of our drainage facilities and stormwater drainage while ensuring the owners' rights to utilize and develop their property.

Section 2. That the City of Bunker Hill Village hereby resolves to adopt the City's Drainage Criteria Manual, as amended, a true and correct copy of which is attached hereto as Exhibit "A," to ensure that all future drainage plans and construction, as singular components or as part of a combined system, shall meet or exceed these desires and requirements of the City of Bunker Hill Village and all other entities having jurisdiction.

PASSED, APPROVED, AND RESOLVED this 16th day of May, 2023.


Robert P. Lord, Mayor

ATTEST:


Karen H. Glynn, Acting City Secretary

City of Bunker Hill Village

Drainage Criteria Manual (*Amended 05/16/2023*)

Section 1. Purpose and Applicability

It is the purpose of this Criteria Manual to preserve and enhance the desirability of our City by requiring careful planning of our City's redevelopment which includes the management of our drainage facilities and storm water while ensuring the owners' rights to utilize and develop their property. In accordance with the City's drainage ordinance, the runoff shall be limited to existing conditions for the 10 and 100 year frequency storm events as defined through the City's adopted Atlas 14 Ordinance (Ordinance 21-548).

All drainage plans and construction shall meet or exceed the requirements of the City of Bunker Hill Village (hereinafter simply "Bunker Hill") and all other entities having jurisdiction. The goal of this criteria is to provide storm sewer capacity for the 10 year storm event and for the 100 year sheet flow event without increasing the existing condition discharges and not creating adverse impacts to others.

The intent of these drainage standards is to reduce or prevent structural flooding as a result of storm events up to the 100 year Atlas 14 storm through the implementation of this criterion in design of storm sewers, roadside ditches, detention facilities, open channels and management of overland (sheet) flow, as well as the individual lot, as singular components or as part of a combined system.

PROPERTY OWNER'S RESPONSIBILITY: It shall be the responsibility of each property owner or developer of property whether an individual lot, multiple lots, block or development to design and maintain the drainage of such property without adversely affecting the existing drainage patterns of adjacent property owners or developers, and the City's drainage system. The purpose is to prevent damage by overflow of water onto adjacent landowners caused either by direct diversion of water on the adjoining land or by the failure to adequately accommodate existing drainage patterns.

The attached ***Drainage / Detention Analysis Flow Chart*** provides the outline of the level of drainage and/or detention evaluations necessary for all construction activity within the City. All development with an increase in impervious cover will require preparation of a ***Detention Summary Worksheet*** to determine the need for onsite detention volume, and all development that includes re-grading of the existing natural ground within 20-feet of the property lot line shall require preparation of an ***Impact Analysis***.

This Criteria Manual supplements the City's Drainage Ordinance and applies to all development, both Residential and Non- Residential, as defined in the ordinance. The definitions provided in the City's drainage ordinance shall be the controlling definitions for this Criteria Manual.

The City has also adopted a minimum finished floor elevation standard in the City's Drainage Ordinance. One of the components to reference is based on the hydraulic grade line models developed in the update to the City's Master Drainage Plan (January 2017) and as included as Exhibits 5 - 9 of this manual.

Section 2. Drainage Calculations

Runoff Calculations

The rate of storm water runoff (peak discharge) shall be determined for each inlet, pipe, roadside ditch, culvert, outfall, or other designated design point by using the following standards:

- 1. Application of Runoff Calculation Models Acceptable Methodology for drainage areas within Bunker Hill** For areas within Bunker Hill, acres served by storm sewer or roadside ditch, peak discharges are based on the Rational Method described below. The on-site drainage storm sewer system shall be sized to convey the 10 year storm event and provide for 100 year sheet flow conveyance.
- 2. Application of the Rational Method** - Use of the Rational Method for calculating the peak runoff for a storm drainage system involves applying the following formula to runoff (See Attached *Exhibit 1 - Detention Summary Worksheet* as an exemplar):

$$Q = C * I * A$$

Where:

Q = peak discharge (cfs)

C = watershed coefficient

I = rainfall intensity (inches per hour)

A = drainage area (acres)

* NOTE: Rainfall Intensity based on ~~Chapter 9~~ of the City of Houston Infrastructure Design Manual updated July 1, 2022.

Calculation of Runoff Coefficient - The runoff coefficient "C" values in the Rational Method formula varies based on the land use. Acceptable land use types and "C" values are provided as follows:

Land Use Type Runoff Coefficient

Paved Areas and/or Roofs - 0.95

Residential Permeable areas:

Lots more than ½ acre - 0.35

Lots ¼ - ½ acre - 0.45

Undeveloped Grass Areas - 0.20

Composite "C" values for mixed-use drainage areas are allowed for use in the Rational Formula. These values are obtained by calculating a weighted average of all the different "C" values of the sub-areas contributing to each mixed-use drainage area. Any calculations of these Composite "C" values are to be provided as part of the drainage calculations. ***The maximum percent impervious is 45%, with a maximum total lot coverage of 55%.***

General Design Requirements

A licensed engineer shall provide calculations and designs for all of the components of the storm drainage and detention systems, the peak runoff rate and required storage volume in accordance with these standards for any proposed construction activity. The intent of storm water detention

is to mitigate the effect of increased impervious cover, caused by the new construction or reconstruction on an existing structure and/or drainage system (if any). Storm water detention and/or mitigation associated with any proposed construction activity is required as outlined under the following sections and requirements.

As many as three (3) analyses may be required as part of the drainage and detention review for the proposed construction activity:

- A. ***Detention Summary Worksheet*** – to document existing and proposed conditions and identify the delta (i.e. change in) impervious cover to define the detention volume and allowable release rate (10-year event) from the subject property associated with the proposed construction activity.
- B. ***Impact Analysis*** – preliminary initial evaluation of adjacent offsite properties to determine if existing sheet flow patterns will be impacted from the proposed construction activity. Should drainage patterns be confirmed to flow onto the property being developed, the City may require that additional topographical information be provided to allow a complete analysis of the area flow patterns. Drainage water from outside of the property being developed should not be accommodated into the proposed private drainage system. Public drainage system improvements may be required in the event of regional drainage flow impacts.
- C. ***Drainage Study*** – detailed drainage evaluation of onsite improvements and offsite impacts from the proposed construction activity sufficient to develop a mitigation plan to maintain or improve the existing drainage. Coordination with the City and adjacent property owners will be critical to define flow paths, allowable flow rates, and maximum HGL / ponding elevations.

Minimum Pipe sizes

The minimum pipe size for residential on-site conditions (private) shall be 6 inches and for use in any public rights of way shall be 24 inches or as approved by the City's Engineer.

Storm Water Detention Requirements

The design storms for hydrologic routing of detention basins shall be the 10 and 100 year storm events. The required detention shall be as determined for each project based on the 100 year storm event with a 10 year allowable release rate.

For all projects with an increase in impervious cover, the *Detention Summary Worksheet* shall be prepared along with the following information provided:

- 1. On-site detention shall be required and provided in accordance with the accepted engineers calculations, depending on the specifics of the site.
- 2. The required detention volume shall be based on the delta of the increased impervious cover. For lots 25,000 sf or less, the proposed impervious cover shall be 45% of the total lot area.
- 3. The design discharge from the property into the public storm collection system shall not exceed the existing condition flow rates (Q) for the 10-year design storm as determined in this Standard.

4. The use of runoff hydrographs or routing is not required.
5. No surface detention will be allowed. All required detention will be below ground by use of pipe, vault, or other approved constructed vessels.
6. A single discharge point or connection point to the city's system is required with the calculated release rate applied to the connection piping. Should a single discharge point not be possible, a second discharge point must be approved by the city and the calculated release rate must be applied the cumulative flow of all release points.
7. Adequate inspection ports will be provided to allow for the inspection of the detention facilities for operation and maintenance purposes. Inspection points should be constructed so that entry into the system is not necessary as part of the inspection.

Pumped Facilities

If any pumps are planned for as part of the project early coordination and written agreement by the City shall be required.

Pumped detention systems shall be required to detain 150% of the calculated volume of a gravity system and be required to provide a gravity outfall for ½ the required volume. Full volume shall be required to be drained from an approved vault system within 48 hours of storm event.

Permeable Surfaces

The area of permeable surfaces is required, in square feet, for the calculation of lot coverages and drainage design. In order for an area to qualify as PERMEABLE, the area must be either:

- a) The water surface area of a permanently installed swimming pool, ground level fountain, pond or other water containing ground level or below ground level basin which is open to receive rain from directly above the basin, or
- b) A permeable system which has been constructed to the standards shown in the attached EXHIBIT 4.
- c) Artificial turf which has been constructed to the City's or manufacturer's specifications (with a minimum infiltration rate of 10-in/hr).

Neither item a, ~~b~~-nor ~~cb~~ may be included as part of any required detention. Any other materials placed on the lot which do not meet the Permeable Surfaces definitions must be included as NON-PERMEABLE surfaces. Grassed and vegetated areas should NOT be included on the lot coverage and drainage calculation details.

Section 3. Requirements for Submittal of Plans, Drawings and Calculations

PRE-DEVELOPMENT MEETING

A pre-development meeting shall be required for any project with increased impervious cover and/or increased building footprint. This meeting shall include a discussion of the drainage

analysis requirements of the proposed construction activity and identify the process / path as outlined in the attached *Drainage / Detention Analysis Flow Chart*.

PROCEDURE FOR SUBMISSION OF PLANS - RESIDENTIAL LOT DEVELOPMENT

All plans submitted shall be in the form, and contain fully all information and/or language required, pursuant to this section, including:

1. All engineering and surveying data shall be shown on the plans sufficient to locate all of the features of the plan on the ground. This data shall include, but not be limited to, full dimensions along all boundaries of the plan, street and alley rights-of-way, easements and drainage-ways, gullies, creeks and bayous, together with the location of the high bank of such drainage ways and water courses, storm drainage pipes or systems, lots, blocks, reserves, out tracts or any other tracts designated separately within the plan boundaries, fee strips or any other physical or topographical features necessary to be accurately located by surveying methods. Such information shall include line dimensions, bearings of deflecting angles, radii, central angles and degree of curvature, length of curves and tangent distances, all of which are to be shown in feet and decimal fractions thereof;
2. The location and approximate width of existing and proposed watercourses, ravines and drainage easements, topographical elevations and the boundaries of designated flood zones, as provided in the then latest edition of the federal insurance rate map. All such information required by this subsection shall be certified by a registered professional land surveyor and/or a registered professional engineer;
3. Contours referred to sea level (U.S. Coast and Geodetic Survey) datum and tied to the latest Federal Emergency Management Agency (FEMA) vertical datum and datum adjustment, as required to show at least two contours within and adjacent to the new construction or reconstruction. If the change in elevation throughout the property to be subdivided is less than one foot, then the plan is to clearly show the outfall drainage plan. Identify the basis of control and temporary benchmark utilized as part of this plan; and
4. All required topographic survey information (see below) collected within 20-foot buffer on all adjacent property, if required to complete an *Impact Analysis*.

Construction Plan Requirements

1. Existing Contours with 0.5 foot intervals
 - a. Tie elevations to latest FEMA vertical datum and datum adjustments
2. Existing Site Plan (including all structures, paved surfaces, walls, fences, drainage features including ditches, swales, pipes, inlets, detention, flow line elevations, FEMA flood plains, etc.)
3. Existing trees
4. Existing drainage (all drainage ditches and pipes {depth, width, diameter, flowline elevations, and material}, inlets, junctions, detention, drainage areas, etc.)
5. Proposed Plans (including all structures, paved surfaces, walls, etc.)
6. Proposed Contours (includes fill) 0.5 foot intervals
 - a. Tie elevations to latest FEMA vertical datum and datum adjustments
7. Proposed Trees - identify location of all existing trees to be removed and proposed trees to be planted
8. Adjacent Property within 20 feet
9. Proposed drainage plan, including all structures, surface and underground drainage, inlets, detention, pump system, low impact development information and any other features that could impact drainage.
 - a. Clearly define outfall point of connection to existing public stormwater collection system.
10. Stormwater drainage calculations for proposed conditions, including detention worksheet (increased impervious cover, required volume, and allowable release rate)

Drainage Area Map

A drainage area map and supporting data sheets shall be included with the construction plans or in a separate drainage study. The drainage area map shall include:

1. Drainage areas, including off-site areas that drain to the project area or are downstream that the project area drains across prior to an outfall point of connection to existing public stormwater collection system.
2. Design storm runoff. The design storm event to use is the 10-year event for storm sewer outfall and conveyance as well as the 100-year for sheet flows. All lot flow should be directed to onsite collection system prior to outfall into a City system, with an outfall sized based on 10-year existing flow rate.
 - a. Route of overland flow including the overflow to a drainage way sized to accommodate the 100-year flow (see Sheet Flow analysis).
3. Elevations for the 10-year and 100-year storms in the receiving system.
4. Design discharge per inlet.
5. Maximum 10-year and 100-year ponding elevation at each inlet.

Other Requirements

Detailed drainage calculations shall be submitted with the construction plans. The 10 and 100 year Hydraulic Grade Line (HGL) will be provided by the City upon request.

The 10- and 100-year ~~Hydraulic Grade Line (HGL)~~HGL for the design storm shall be shown on the construction drawings. ~~Calculations for the elevation of the HGL shall be provided with the design storm drainage calculations.~~ The 10-year HGL shall be at or below natural ground.

The finished floor elevation must meet the requirements as defined in the drainage ordinance.

PROCEDURE FOR SUBMISSION OF PLANS - SUBDIVISION DEVELOPMENT

See the City's Drainage Ordinance and Subdivision Ordinance for additional drainage requirements for replatting or new subdivisions development.

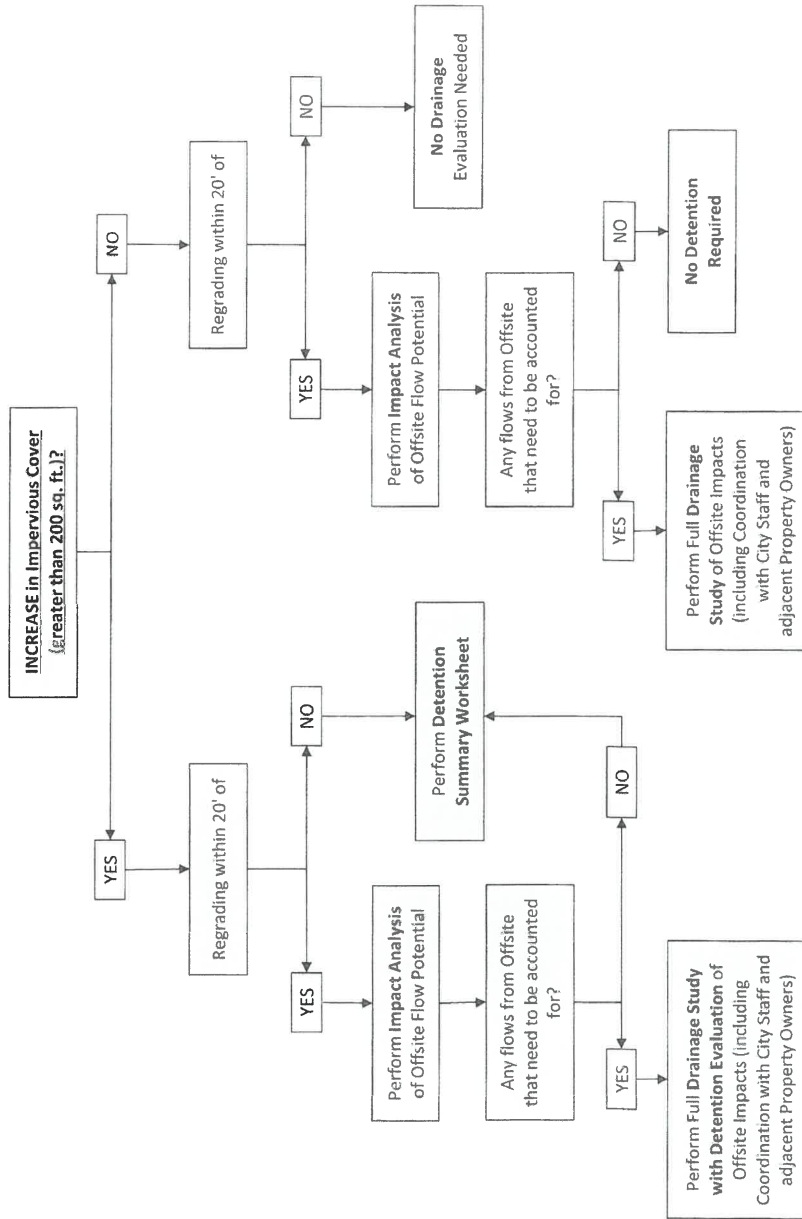
Property owner(s) shall be responsible for preparing and submitting an *Impact Analysis* and *Drainage Study* for the overall system and shall be required to provide detention volume to fully detain 100% of the stormwater runoff from the development, including any proposed public street.

Detailed evaluation of all offsite property within a 60-foot radius of proposed development shall be required along with individual drainage plans for each lot to be submitted to the City for review and approval. Notification of all property owners within a 200-foot radius of proposed development shall be required as will copies of the *Impact Analysis* and *Drainage Study* to be provided to adjacent property owners.

PROCEDURE FOR SUBMISSION OF PLANS - COMMERCIAL DEVELOPMENT (Non-Residential)

See the City's Drainage Ordinance and Special Use Permit process for additional drainage requirements for commercial / non-residential development.

EXHIBIT 1 **Drainage / Detention Analysis Flow Chart**



NOTE: "Perform" includes preparation of said analysis, submittal to City's Director of Public Works, incorporation of review comments, and resubmittal as final report for approval / concurrence. Completion of said analysis is required prior to permitting.

10/16/14

EXHIBIT 2

Detention Volume Worksheet

ADDRESS: Example Street

Sq Ft Acres
Lot Size: **25,000** **0.574**

	ENTER EXISTING CONDITIONS IN RED AREAS			ENTER PROPOSED CONDITIONS IN BLUE AREAS			
	Existing (Pre-Construction)			Proposed (Post-Construction)			
Non-Permeable Lot Coverage (SF) ⁽¹⁾	2,500	10%	0.057	2,500	10%	0.057	
Non-Permeable to be REMOVED (SF)	-	0%	-	2,500	10%	0.057	Removed
Non-Permeable to be ADDED (SF)	-	0%	-	11,250	45%	0.258	Added
Net Non-Permeable Lot Coverage (SF)	2,500	10%	0.057	11,250	45%	0.258	
Permeable Lot Coverage (SF) ⁽²⁾	500	2%	0.011	500	2%	0.011	
Permeable to be REMOVED (SF)	-	0%	-	-	0%	-	Removed
Permeable to be ADDED (SF)	-	0%	-	2,000	8%	0.046	Added
Net Permeable Lot Coverage (SF)	500	2%	0.011	2,500	10%	0.057	
Total Non-Permeable & Permeable Lot Coverage (SF)	3,000	12%	0.069	13,750	55%	0.316	

	TC	C (Non-Perm)	C (Perm)	C (Grass)	Non-Perm Increase	Non-Perm Coverage	Total Lot Coverage
Time of Concentration = $10A^{0.1761}+15$	24.07	0.9	0.35	0.20	35%	45%	55%

$I=b/(d+TC)^e$

10-Year Rain Event
100-Year Rain Event

b	d	e	I
93.53	18.90	0.7742	5.09
125.40	21.80	0.7500	7.11

	EXISTING (PRE-CONSTRUCTION)			PROPOSED (POST-CONSTRUCTION)		
	Comp "C"	Total CFS	GPM	Comp "C"	Total CFS	GPM
10-Year Rain Event	0.27	0.80	358	0.53	1.55	695
100-Year Rain Event		1.11	500		2.16	971

Lot Size:	0.574 Acres
Non-Perm Coverage:	45%
Non-Perm Increase:	35%
Total Vol Required:	0.139 Ac-Ft
Total Vol Required:	45,314 gallons
Max Release Rate ⁽³⁾ :	0.80 cfs

NOTES:

- *1. Non-Permeable Coverage includes Foundations and/or Roofs, Walkways, Driveways, Pool Decking and Coping, Gravel Areas, Decks
- *2. Permeable Coverage includes Pool Water Surface Area, Permeable Driveways, Permeable Walkways. DO NOT INCLUDE GRASSED AND BED AREAS.
- *3. Max allowable release is based on Existing (Pre-Construction) 10-yr flow.
- *4. See City specifications for permeable surfaces to determine if an area may be included as permeable.
- *5 All detention must be below ground level.

10/16/14

**Exhibit 3 - CITY OF BUNKER HILL VILLAGE -
Detention Rate Summary (Ac-Ft / Ac)**

% Incr - Non-Perm	Under 1/2 Acre
0%	-
5%	0.0300
10%	0.0590
15%	0.0890
20%	0.1185
25%	0.1480
30%	0.1775
35%	0.2070
40%	0.2365
45%	0.2660

% Incr - Non-Perm	Over 1/2 Acre
0%	-
5%	0.0345
10%	0.0690
15%	0.1040
20%	0.1385
25%	0.1730
30%	0.2075
35%	0.2425
40%	0.2770
45%	0.3115

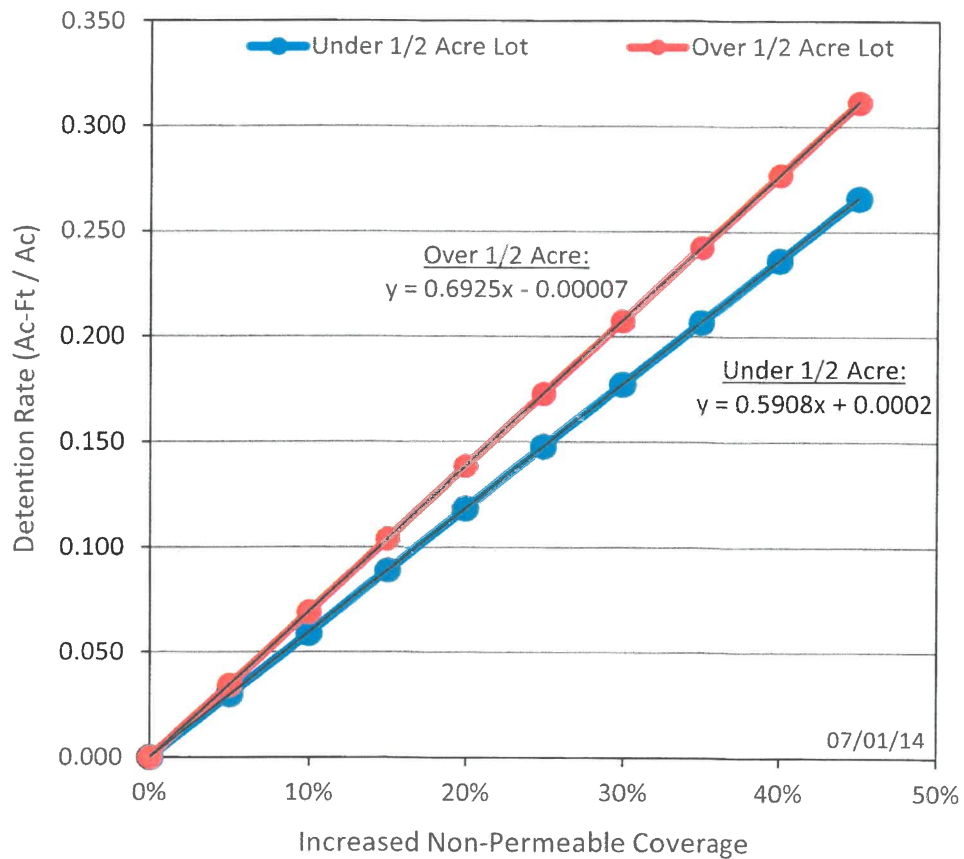
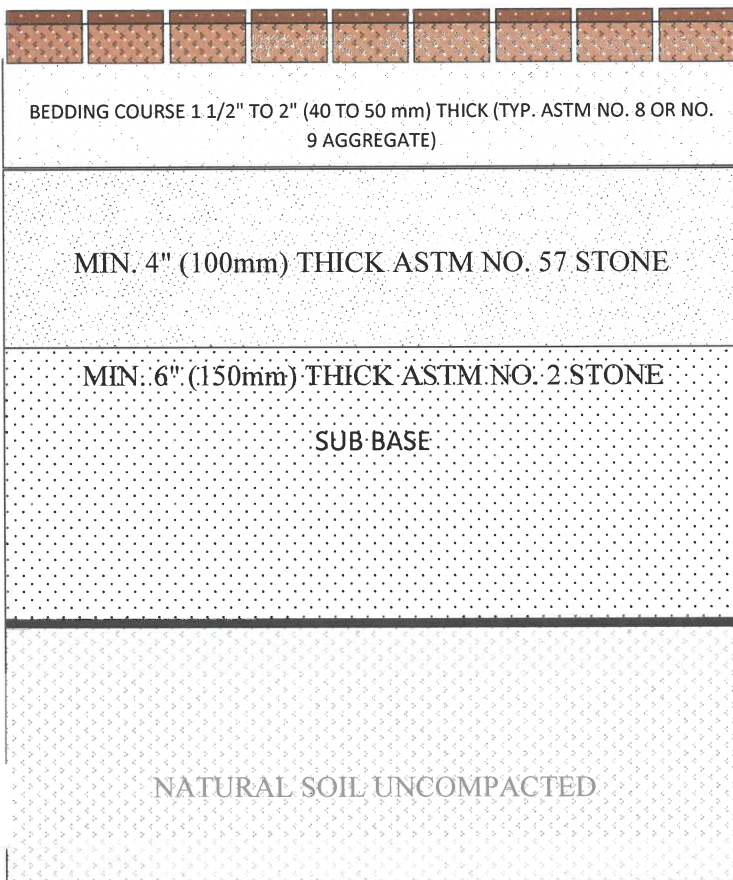


EXHIBIT 4

PERMEABLE SYSTEMS



PERMEABLE PAVERS MIN. 3 1/8" (80 mm) THICK



Permeable pavers and other permeable surfaces such as pavers - are allowed ~~as hardscapes~~ but still count towards the maximum total lot coverage.

Any system which requires compacting or results in the subsoil becoming compacted will not be approved. Gravel and other aggregates spread on the ground surface will result in soil compaction over time and therefore do not qualify as permeable materials.

Pavers-Permeable surfaces must be engineered as a permeable product and installed as to allow all of the underlying soil to absorb water at the same rate as surrounding native soil. Flagstone and other large coverage materials do not meet this requirement.

Permeable ~~pavement~~ areas must meet the same setbacks and location restrictions as non-permeable surfaces.

Please see driveway design standards for required roadway connection requirements.

Permeable concrete may be used in the same configuration as a paver, but similar bedding, base and sub-base materials will be required to allow adequate soil absorption.

Sand materials are not allowed in any stage of a permeable system.

The drawing shown represents minimum design specifications. Please see your specific manufacturer for additional requirements.