# UNIVERSITY OF COLORADO 1135 BROADWAY

RENOVATION

BOULDER, COLORADO | 6.12.2020 | DESIGN REVIEW BOARD | DESIGN DEVELOPMENT REVIEW



# **INTRODUCTION**

PROJECT INTENT PROJECT GOALS	PROJECT SCH	EDULE	PROJECT BUDGET	PROJECT BUDGET		
TO PROVIDE SPACES THAT PROMOTE     OCCUPANT HEALTH AND WELLNESS	BIDDING	August 2020	PROFESSIONAL FEES	\$901,844		
AND SUPPORT THE VISION OF THE RCWI  TO REDISCOVER THE ORIGINAL	CONSTRUCTION START	October 2020	CONSTRUCTION	\$4,018,980		
<ul> <li>ARCHITECTURE AND BUILDING QUALITY</li> <li>TO IMPROVE SITE-LANDSCAPE FUNCTION, SAFETY AND QUALITY</li> </ul>	CONSTRUCTION COMPLETION	September 2021	EQUIP, FURNISHINGS MISC	\$528,318		
SUSTAINABILITY GOALS  • LEED V4 GOLD	FIT UP	October 2021	CONTINGENCY 10%	\$541,614		
<ul> <li>40% INDOOR WATER USE REDUCTION</li> <li>BUILDING ENVELOPE IMPROVEMENTS</li> <li>38% ENERGY COST REDUCTION</li> <li>TARGET EUI CAMPUS GOAL OF</li> <li>35 KBTU/SF/YR, AND BELOW LEED</li> <li>BASELINE OF 48 KBTU/SF/YR</li> <li>FUTURE ADDITION OF RENEWABLES</li> </ul>	OCCUPANCY	October 2021	TOTAL PROJECT BUDGET	\$5,991,056		

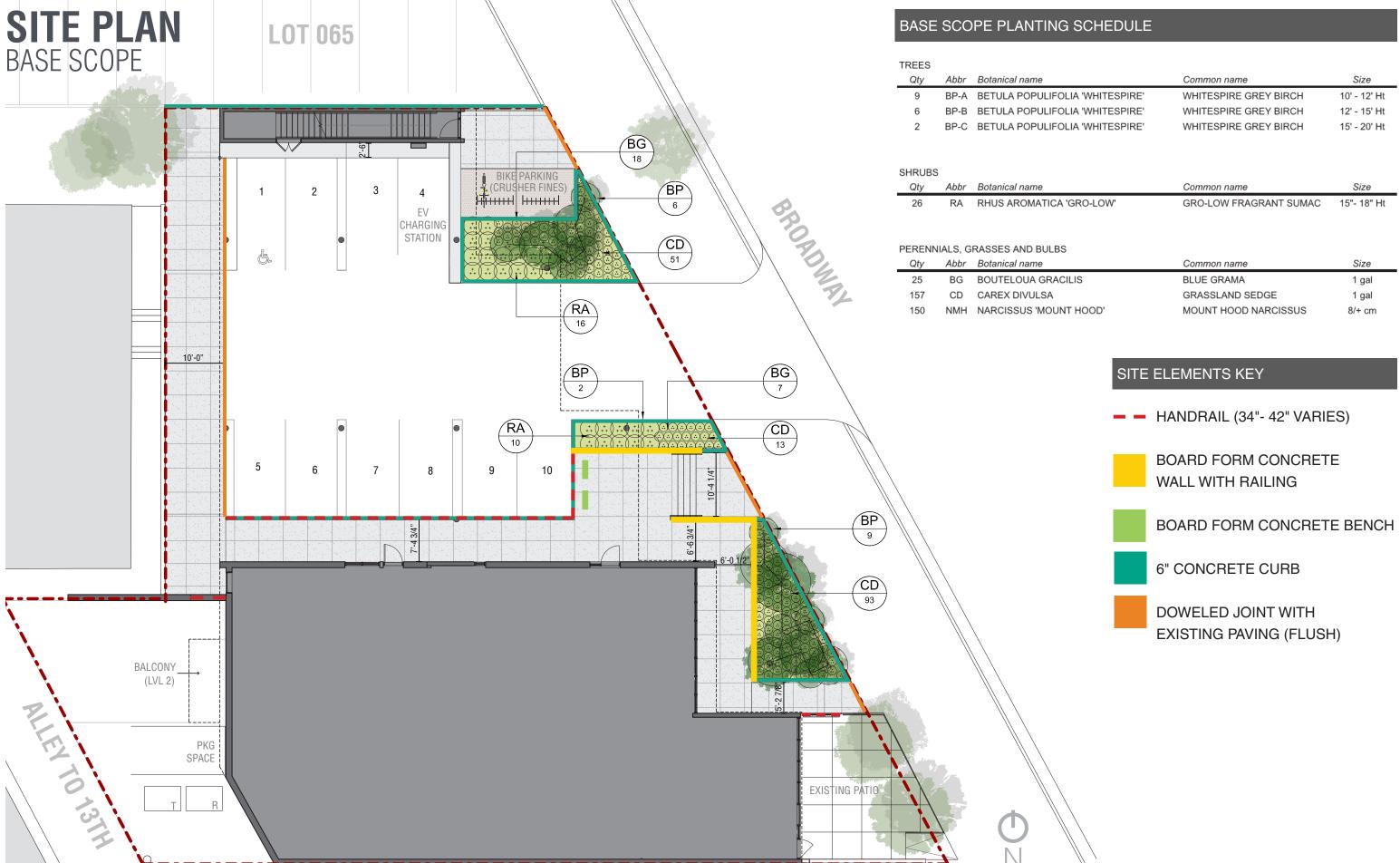
### 1135 BROADWAY BOULDER, CO

# **MICRO-MASTERPLAN**









# SITE AND LANDSCAPE MATERIALS

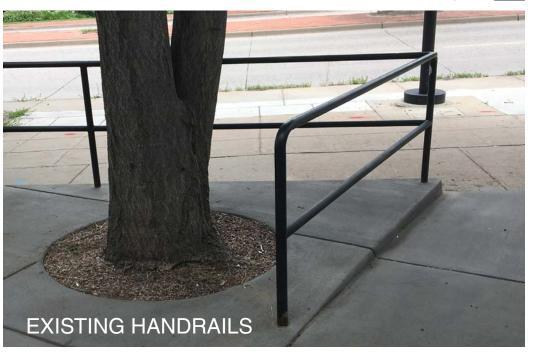
BASE SCOPE

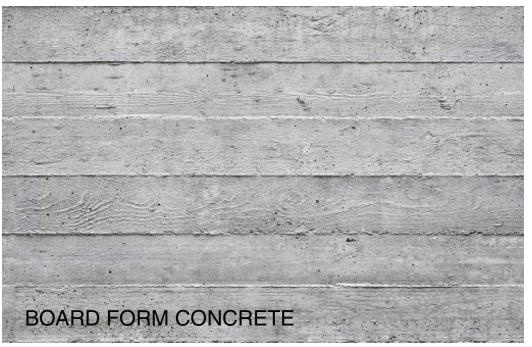






**CONCRETE PAVING** 







#### 1135 BROADWAY BOULDER, CO

# BUILDING EXTERIOR HISTORIC PHOTOS

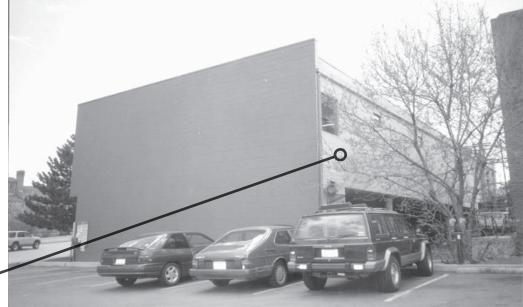
ASSUMED TO BE A WHITE CMU WALL ON WEST FACADE

WHITE PARAPET FLASHING

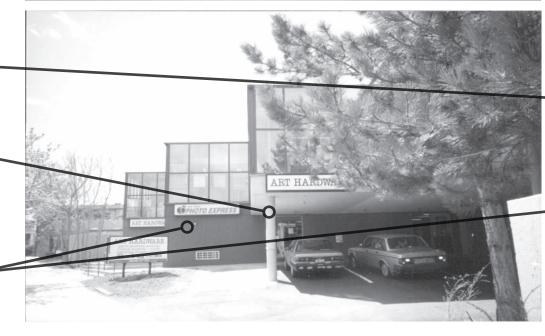
PAINTED WHITE CONCRETE COLUMNS AND WHITE CEILING

ASSUMED GRAY MASONRY WALLS AND STUCCO PLENUM BAND WITH SIGNAGE ON THE BAND

LIGHT COLOR ON SOUTH WALL













# BUILDING EXTERIOR COOL GRAY COLOR STUDIES

1 ALL WHITE



2 ALL DIOR GRAY WITH WHITE CEILING IN COVERED PARKING



**COLORS** 

MOUNTAIN PEAK WHITE

3 ALL DIOR GRAY WITH WHITE CEILING & WHITE ENTRY WALL



4 ALL DAYS END WITH WHITE CEILING & WHITE ENTRY WALL



DIOR GRAY

DAYS END

NOTE: COLOR CHANGE AT ENTRY WALL NOT CONSISTENT WITH HISTORIC DESIGN

#### 1135 BROADWAY BOULDER, CO

# **BUILDING EXTERIOR**

### WARM GRAY COLOR STUDIES





2 TAOS TAUPE



COLORS

SILVER FOX

TAOS TAUPE

3 DRIFTWOOD



KENDALL CHARCOAL



DRIFTWOOD

KENDALL CHARCOAL

#### 1135 BROADWAY BOULDER, CO

# **BUILDING EXTERIOR**

### RECOMMENDED - SILVER FOX



#### **MATERIALS**

SILVER FOX

MOUNTAIN PEAK WHITE



#### **VIEW FROM BROADWAY ^**

SILVER FOX
MOUNTAIN PEAK WHITE PARKING CEILING
EXPOSED CONCRETE COLUMNS AND SITE WALLS



# **BUILDING EXTERIOR**

RECOMMENDED - SILVER FOX



#### **MATERIALS**

SILVER FOX

MOUNTAIN PEAK WHITE



#### MAIN ENTRY ^

SILVER FOX
MOUNTAIN PEAK WHITE PARKING CEILING
EXPOSED CONCRETE COLUMNS AND SITE WALLS



# **BUILDING EXTERIOR**

### RECOMMENDED - SILVER FOX



#### **MATERIALS**

#### SILVER FOX

#### MOUNTAIN PEAK WHITE



#### **BACK ALLEY APPROACH ^**

SILVER FOX
MOUNTAIN PEAK WHITE PARKING CEILING & WEST WALL
EXPOSED CONCRETE COLUMNS AND SITE WALLS
SOUTH WALL TO BE SILVER FOX TO MATCH NORTH WALL



# BUILDING EXTERIOR WEST FACADE OPTIONS

MOUNTAINS PEAK WHITE (SHOWN W/ SILVER FOX)



2 SILVER FOX



COLORS

MOUNTAIN PEAK WHITE

SILVER FOX

KENDALL CHARCOAL





**DIOR GRAY** 

KENDALL CHARCOAL

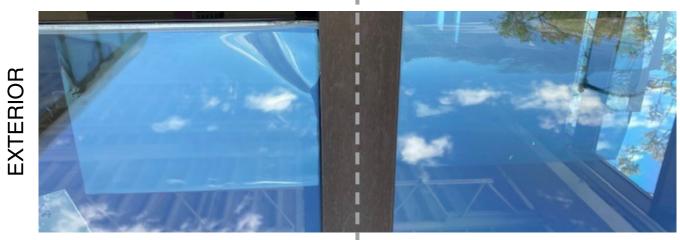
### 1135 BROADWAY BOULDER, CO

# **BUILDING MATERIALS**





**EXISTING STOREFRONT GLASS & FILM** 













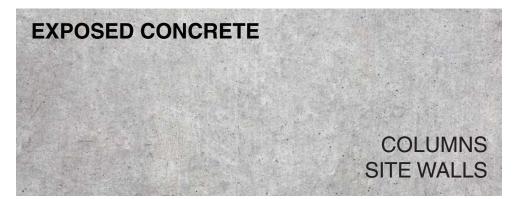
**SILVER FOX** 

INTERIOR

**MOUNTAIN PEAK WHITE** 

CMU STUCCO PLENUM BAND

**BACK ALLEY CMU** PARKING CEILING

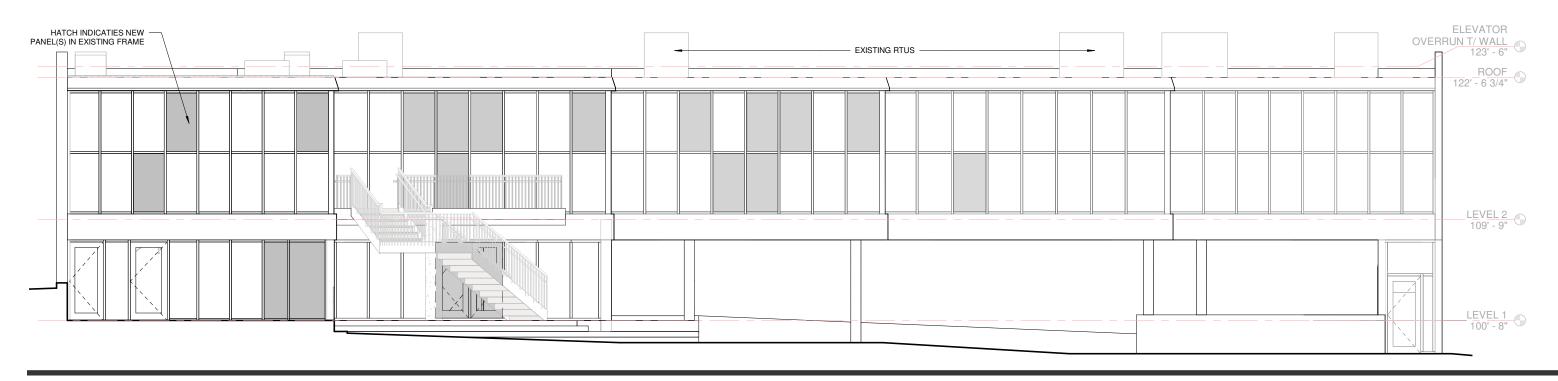


# BUILDING MATERIALS MATERIAL PALETTE PHOTO

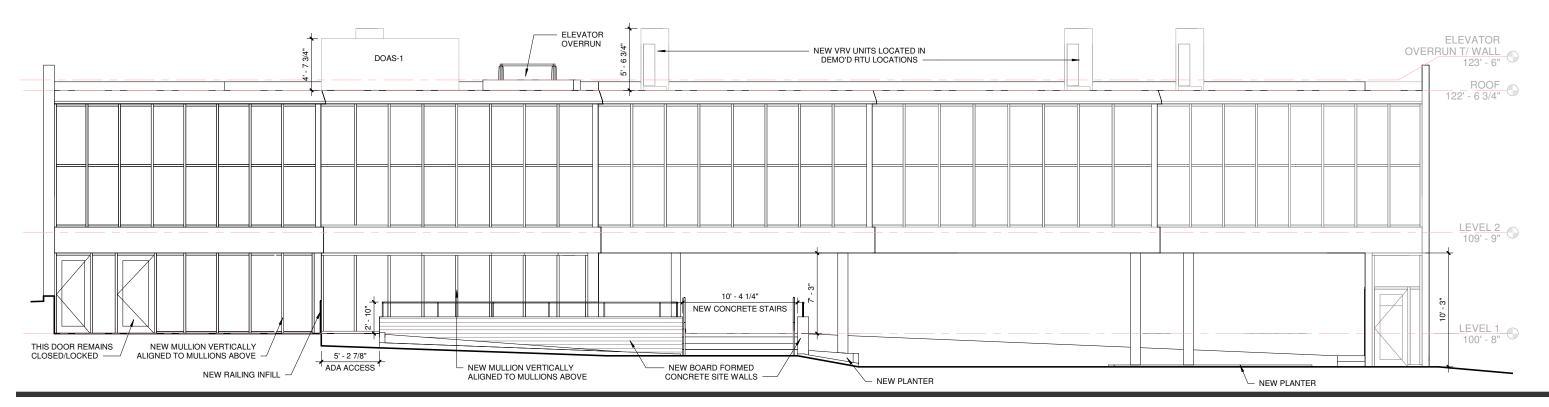


# **BUILDING DESIGN**

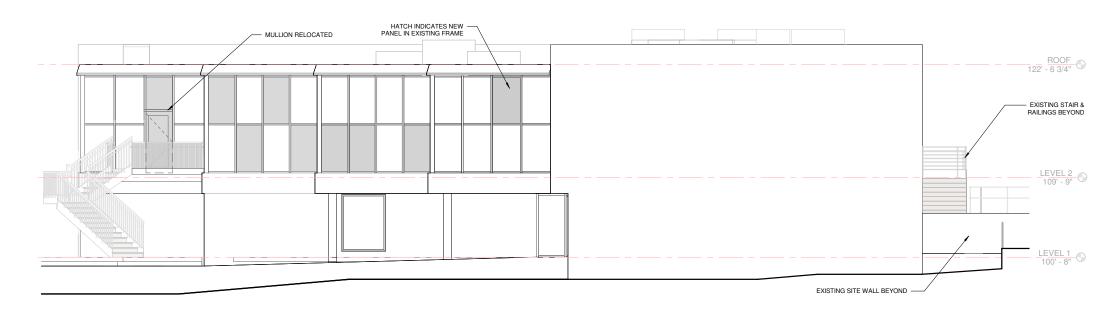
### **ELEVATIONS**



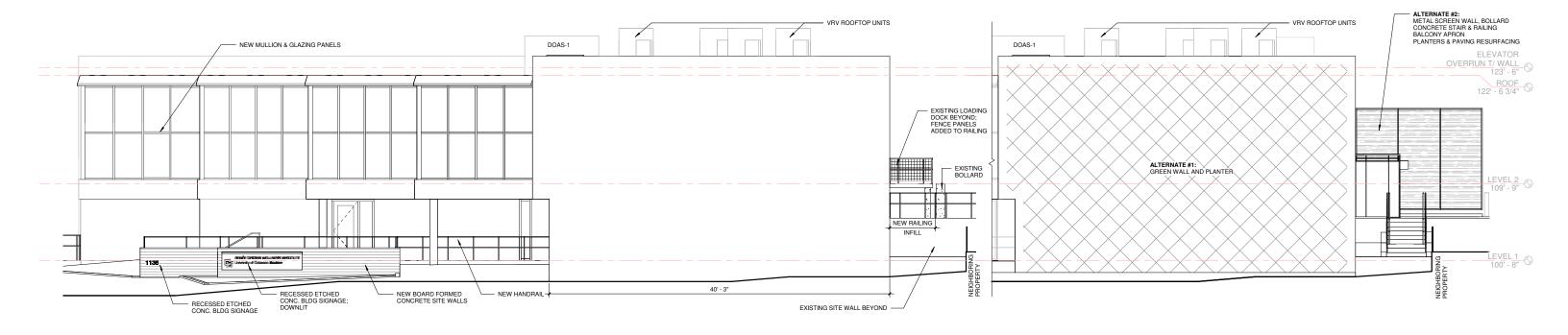
#### EXISTING EAST ELEVATION (BROADWAY)



# BUILDING DESIGN ELEVATIONS

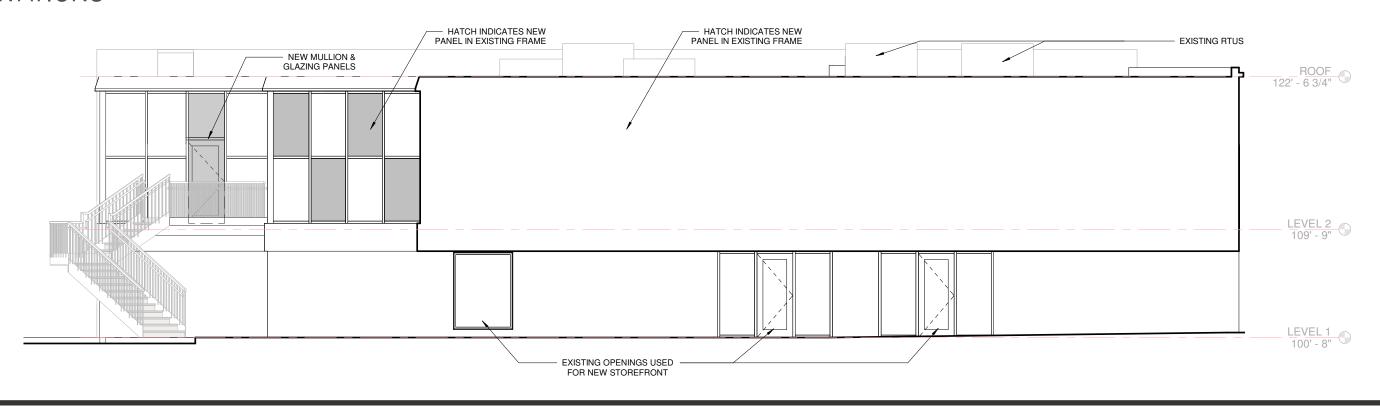


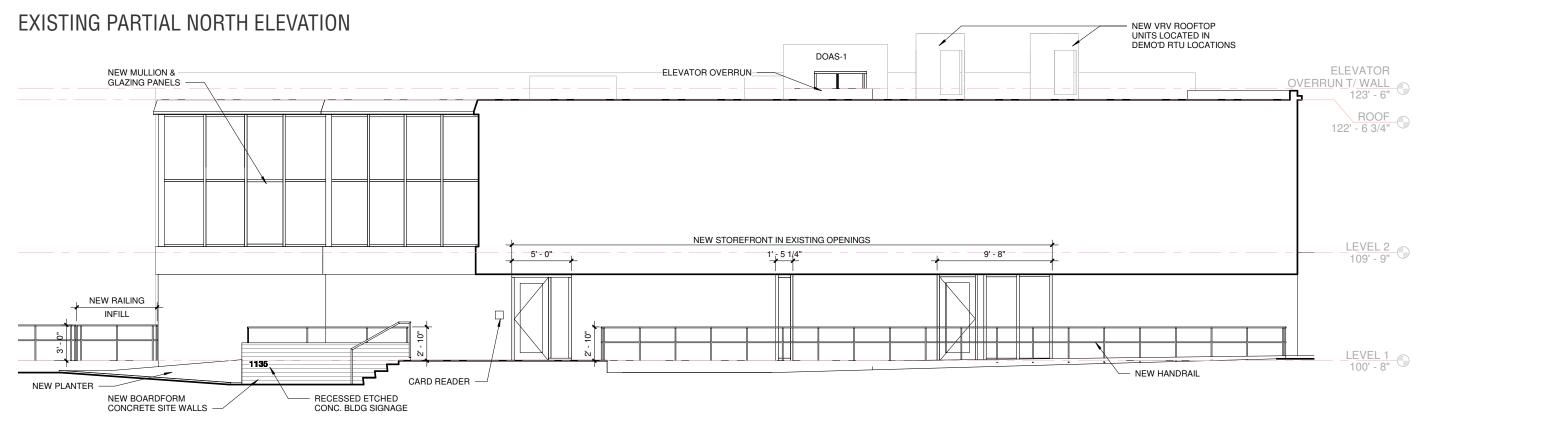
#### **EXISTING NORTH ELEVATION**



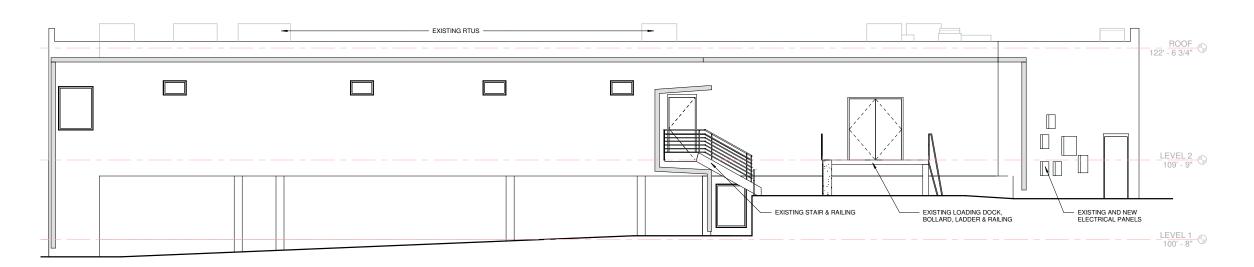


# BUILDING DESIGN ELEVATIONS

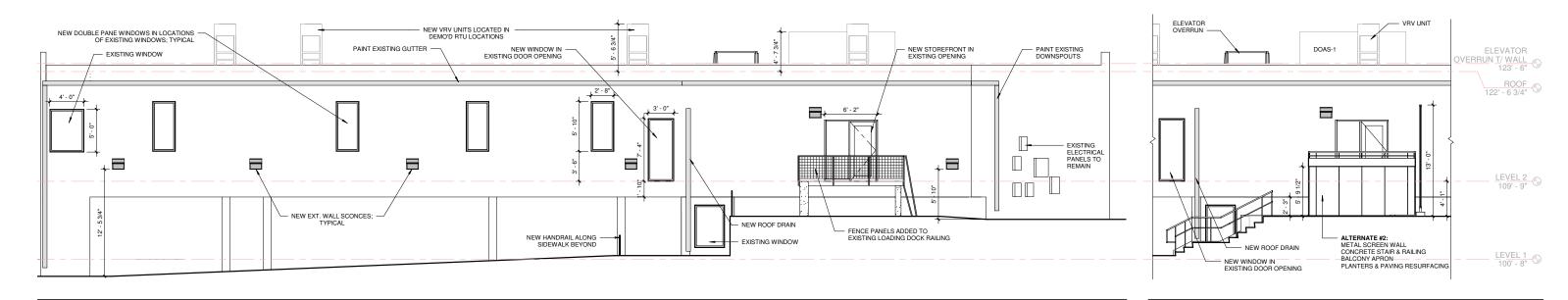




### **BUILDING DESIGN ELEVATIONS**



#### **EXISTING WEST ELEVATION**



# **SUSTAINABILITY**ENERGY CONSERVATION MEASURES

#### **WINDOWS**

REPLACE EAST WINDOWS WITH FAILED SEALS (APPROX 30%) WITH PPG SOLARBAN 70XL GLAZING U=.27, SHGC=.3
ADD 3M NEUTRAL 35 FILM TO ALL WINDOWS ALONG BROADWAY 56% SOLAR ENERGY REJECTION

#### **EXTERIOR CMU WALLS**

SEAL EXTERIOR CRACKS AND ADD PERIMETER WALL FURRING WITH A THERMAL GAP AND 2" HEATLOK CI SPRAY FOAM INSULATION, R20 ASSEMBLY

AIR CHANGES PER HOUR (ACH) IMPROVEMENT OF .05

#### **ENVELOPE INFILTRATION**

SEAL EXTERIOR PENETRATIONS, ELIMINATE VOID AT PLENUM TRANSFER TO SPACE ABOVE PARKING, CAULK WINDOW SYSTEM, INSULATE PERIMETER OF ROOF WELL

AIR CHANGES PER HOUR (ACH) IMPROVEMENT OF .1

#### **MECHANICAL SYSTEM**

VARIABLE REFRIGERANT FLOW SYSTEM

TWO BANKS OF TWO CONDENSING UNITS EACH TO SERVE THE BUILDING SINGLE, ALL-ELECTRIC DEDICATED OUTSIDE AIR SYSTEM WITH HEAT RECOVERY FOR MAKEUP AIR ANNUAL MAINTENANCE BUDGET: APPROX \$10,000

CONDENSING UNIT LIFESPAN: APPROX 15-20 YEAR



### **SUSTAINABILITY**

#### **ENERGY CONSERVATION RESULTS**

#### **ENERGY USE INTENSITY**

CURRENT BUILDING: 60 kBTU/sf/yr LEED BASELINE: 48 kBTU/sf/yr PROPOSED BUILDING: 32 kBTU/sf/yr

ASHRAE BENCHMARK STANDARD: 45 kBTU/sf/yr (FOR TYPICAL OFFICE BUILDING)

US ENERGY INFO ASSOCIATION MEDIAN: 50.9 kBTU/sf/yr (FOR EXISTING OFFICE BUILDING IN US)

CAMPUS EUI GOAL: 35 kBTU/sf/yr (FOR BUILDING OF THIS TYPE)

#### **CARBON EMISSIONS**

CURRENT BUILDING:

LEED BASELINE:

AFTER OFFSET BY ON-SITE PV:

PROPOSED BUILDING:

85 metric tons CO2/yr

114 metric tons CO2/yr

53 metric tons CO2/yr

76 metric tons CO2/yr

#### TOTAL ANNUAL ENERGY USAGE

LEED BASELINE: 204,250 kWh/yr PROPOSED BUILDING: 136,179 kWh/yr CAPACITY OF ON-SITE PV: 105,126 kWh/yr

NOTE: CURRENT BUILDING DATA IS BASED ON THE ACTUAL ENERGY CONSUMPTION OF THE BUILDING IN 2019, WHICH WAS DETERMINED TO BE OPERATIONALLY SIMILAR TO THE PROPOSED USE

#### LIGHTING POWER DENSITY

CURRENT: 1.0 watt/sf (ASSUMING T8 LIGHTING)
TARGETED: .64 watt/sf (ASHRAE 90.1 2019 BASELINE)

MODELED: .49 watt/sf

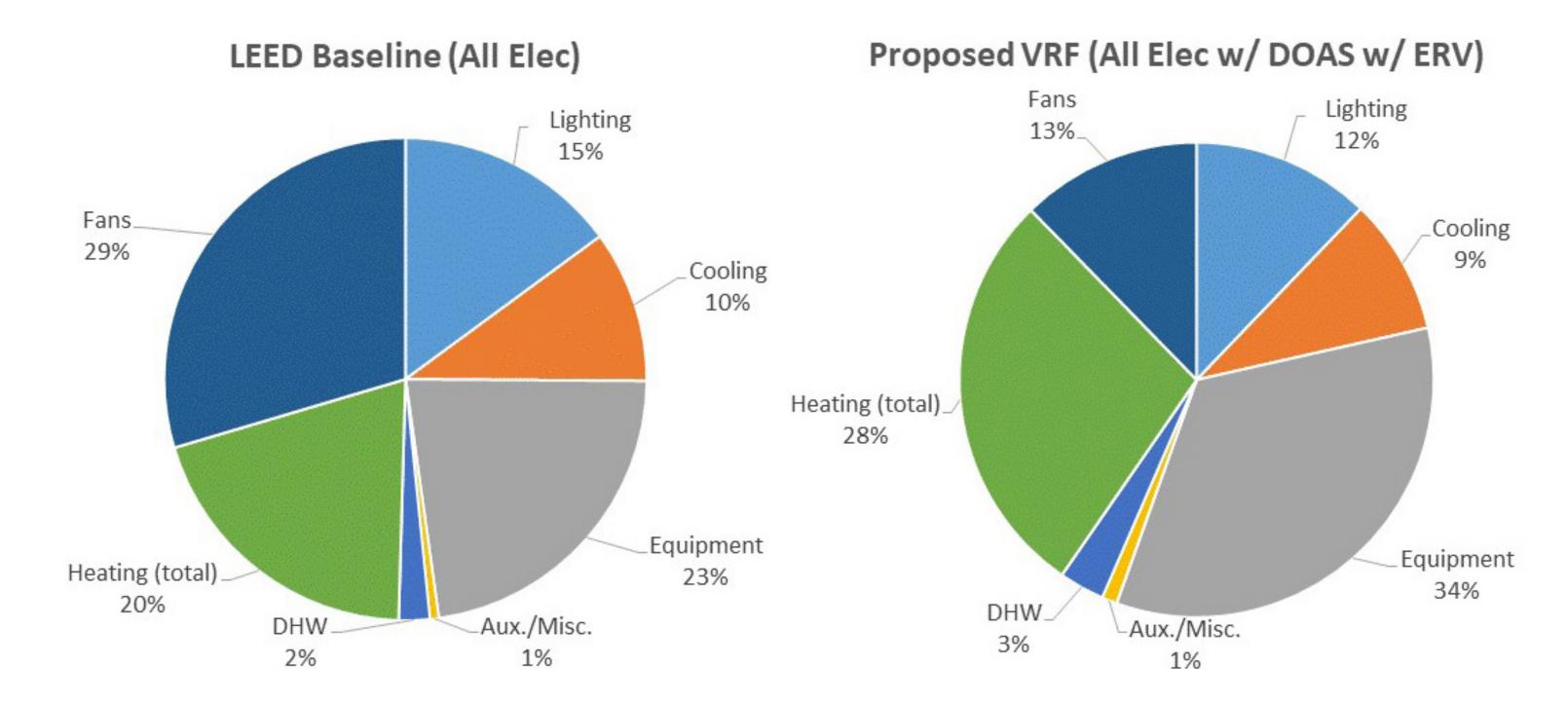
#### TOTAL ANNUAL ENERGY COST

CURRENT BUILDING: \$17,239 LEED BASELINE: \$31,567 PROPOSED BUILDING: \$19,549



## **SUSTAINABILITY**

ELECTRICITY USE (kWh) BY END USE FOR THE LEED AND PROPOSED BUILDING MODELS



### SUSTAINABILITY LEED SCORECARD

THE CURRENT **YES** POINT TOTAL ALONG WITH 7 **STRONG MAYBE** POINTS, SUBSTANTIATE THE GOAL OF LEED CERTIFICATION.

#### LEED v4 for BD+C: New Construction and Major Renovation

**Project Scorecard** 

Υ	М	N	Integra	ative Process	1
1	0	0	Credit	Integrative Process	1

Υ	M	N	Location	n and Transportation	16
0	0	16	Credit	LEED for Neighborhood Development Location	16
1	0	0	Credit	Sensitive Land Protection	1
0	0	2	Credit	High Priority Site	2
5	0	0	Credit	Surrounding Density and Diverse Uses	5
5	0	0	Credit	Access to Quality Transit	5
1	0	0	Credit	Bicycle Facilities	1
1	0	0	Credit	Reduced Parking Footprint	1
1	0	0	Credit	Green Vehicles	1
14	0	2			

Υ	M	N	Sustain	able Sites	10
Υ	0	0	Prereq	Construction Activity Pollution Prevention	Required
1	0	0	Credit	Site Assessment	1
0	0	2	Credit	Site Development - Protect or Restore Habitat	2
0	0	1	Credit	Open Space	1
0	0	3	Credit	Rainwater Management	3
2	0	0	Credit	Heat Island Reduction	2
1	0	0	Credit	Light Pollution Reduction	1
4	0	6			

Υ	M	N	Water E	Efficiency	11
Υ	0	0	Prereq	Outdoor Water Use Reduction (p)	Required
Υ	0	0	Prereq	Indoor Water Use Reduction (p)	Required
Υ	0	0	Prereq	Building-Level Water Metering	Required
1	0	1	Credit	Outdoor Water Use Reduction (c)	2
3	3	0	Credit	Indoor Water Use Reduction (c) - TBD	6
0	0	2	Credit	Cooling Tower Water Use	2
0	1	0	Credit	Water Metering	1
4	4	3			

Υ	M	N	Energy and Atmosphere	33
Υ	0	0	Prereq Fundamental Commissioning & Verification	n Required
Υ	0	0	Prereq Minimum Energy Performance	Required
Υ	0	0	Prereq Building-Level Energy Metering	Required
Υ	0	0	Prereq Fundamental Refrigerant Management	Required
6	0	0	Credit Enhanced Commissioning	6
13	2	3	Credit Optimize Energy Performance - TBD	18
0	0	1	Credit Advanced Energy Metering	1
0	0	2	Credit Demand Response	2
0	3	0	Credit Renewable Energy Production	3
0	1	0	Credit Enhanced Refrigerant Management	1
0	2	0	Credit Green Power and Carbon Offsets	2
19	8	6		

#### **CU Renee Crown Wellness Renovation**

6/2/2020



Υ	M	N	Materials and Resources	13
Υ	0	0	Prereq Storage and Collection of Recyclables	Required
Υ	0	0	Prereq Construction & Demolition Waste Management Planning	Required
0	4	1	Credit Building Life-Cycle Impact Reduction	5
1	1	0	Building Product Disclosure & Optimization - Environmental Declarations	Product 2
1	1	0	Building Product Disclosure & Optimization - Sourcing of Ra Materials	aw 2
1	1	0	Credit Building Product Disclosure & Optimization - Material Ingred	dients 2
2	0	0	Credit Construction & Demolition Waste Management	2
5	7	1		

Υ	M	N	Indoor Environmental Quality	16
Υ	0	0	Prereq Minimum Indoor Air Quality Performance	Required
Υ	0	0	Prereq Environmental Tobacco Smoke Control	Required
2	0	0	Credit Enhanced Indoor Air Quality Strategies	2
3	0	0	Credit Low Emitting Materials	3
1	0	0	Credit Construction Indoor Air Quality Management Plan	1
1	1	0	Credit Indoor Air Quality Assessment	2
0	1	0	Credit Thermal Comfort	1
1	1	0	Credit Interior Lighting	2
0	0	3	Credit Daylight	3
1	0	0	Credit Quality Views	1
0	0	1	Credit Acoustic Performance	1
9	3	Δ		

Υ	M	N	Innovation	6
1	0	0	Credit Innovation in Design, Lamp Purchasing	1
1	0	0	Credit Exemplary Performance, Reduced Parking	1
1	0	0	Credit Exemplary Performance, Low Emitting Materials	1
1	0	0	Credit Innovation in Design, LEED O+M Starter kit	1
1	0	0	Credit Innovation in Design, Pilot	1
1	0	0	Credit LEED Accredited Professional	1
6	0	0		

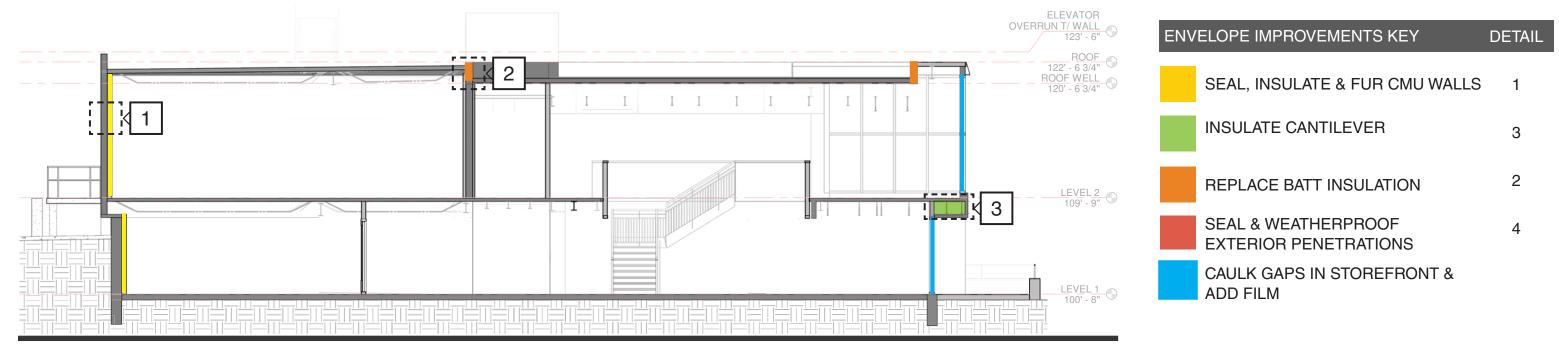
Υ	M	N	Regional Priority	4
0	1	0	Credit Regional Priority Credit 1, Renev	vable Energy [3] 1
1	0	0	Credit Regional Prioity Credit 2, Energy	Performance [10] 1
1	0	0	Credit Regional Priority Credit 3, Densit	ty & Diverse Uses [2] 1
0	1	0	Credit Regional Priority Credit 4, Indoor	Water Use [4] 1
2	2	0		

64 24 22 TOTALS	Possible Points:	110
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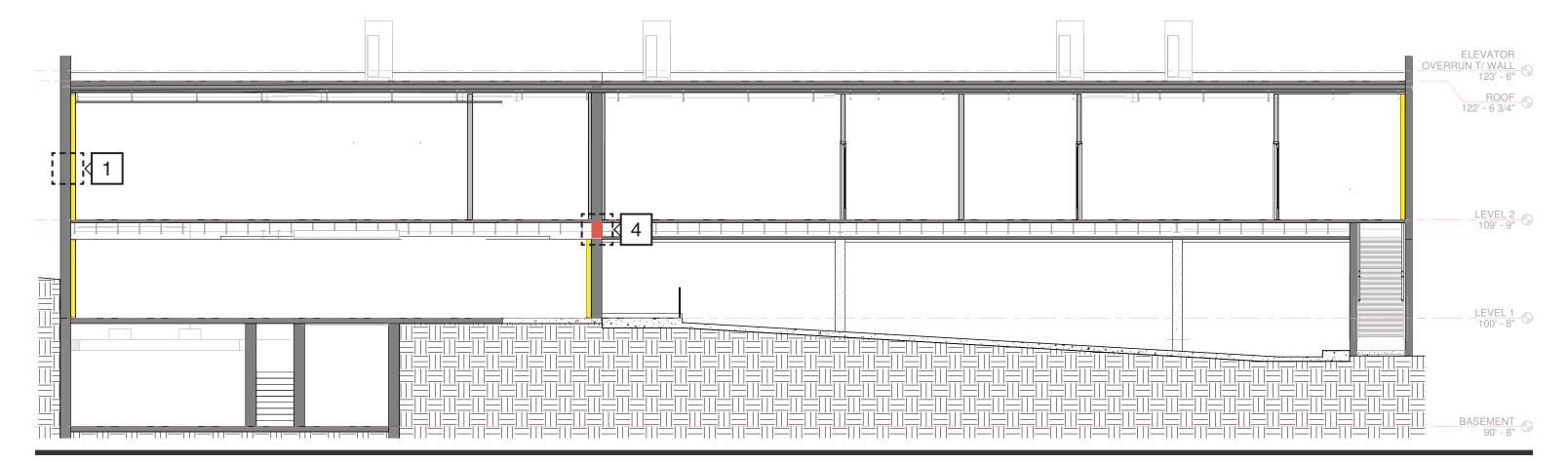
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110



### SUSTAINABILITY ENVELOPE IMPROVEMENTS

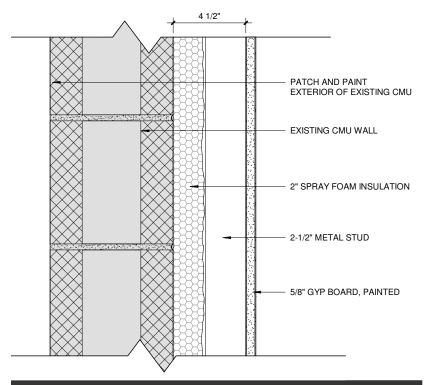


**EAST - WEST BUILDING SECTION** 



### 1135 BROADWAY BOULDER, CO

# SUSTAINABILITY ENVELOPE IMPROVEMENT DETAILS



EXISTING ROOF
STRUCTURE

EXISTING KNEE WALL

EXISTING STRUCTURE

EXISTING STRUCTURE

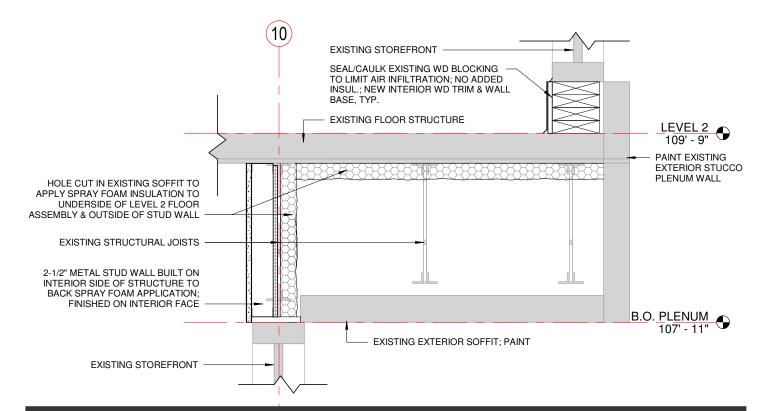
REPLACE EXISTING BATT
INSULATION AT ROOF WELL KNEE
WALL W/ MIN. 2" CONTINUOUS
SPRAY FOAM INSUL.

ROOF WELL
120' - 6 3/4"

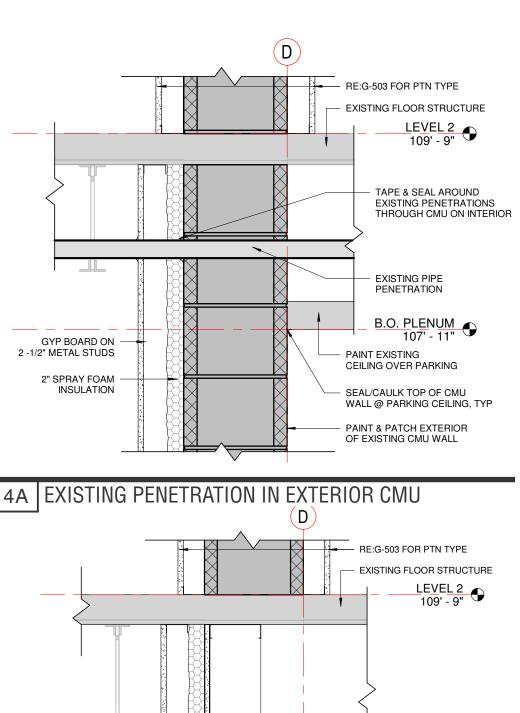
GYP BD ON 3 5/8" METAL STUDS W/
GYP BD EXTENDED UP TO MTL
DECK, WHERE APPLICABLE

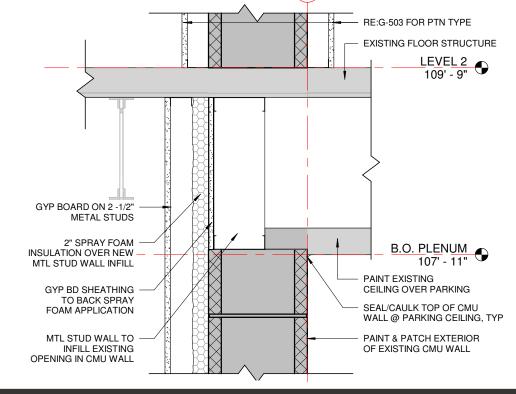
1 FURRING AT EXISTING CMU WALLS

2 ROOF WELL KNEE WALL



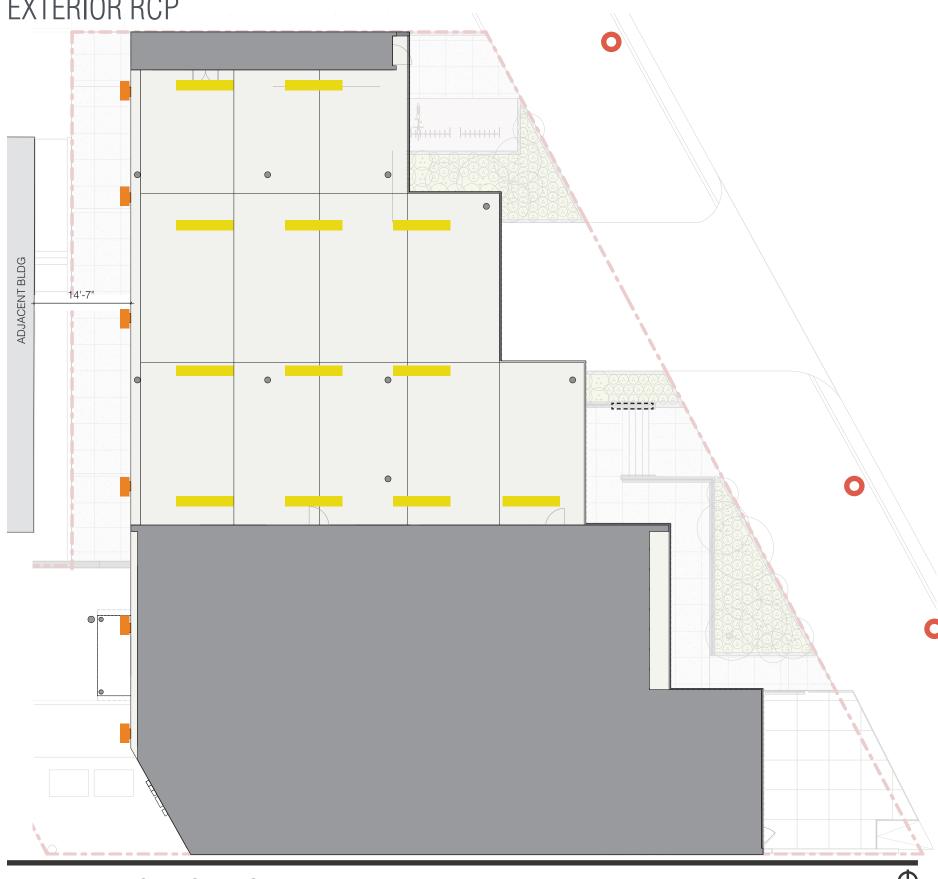
3 EXISTING EXTERIOR SOFFIT





4B EXISTING GAP IN EXTERIOR CMU

# SITE LIGHTING EXTERIOR RCP



#### GOALS

LIGHTING LAYOUT ADJUSTED TO CREATE A MORE EVEN LIGHT DISTRIBUTION AND LOWER FOOTCANDLES OVERALL.

OCCUPANCY SENSORS AND DIMMING INCORPORATED INTO FIXTURES TO SAVE ENERGY.

**ILLUMINATION LEVELS:** 

PARKING: 3-14 FC AVERAGE **ALLEY: 1.6 FC AVERAGE** 

#### EXTERIOR LIGHT FIXTURES



LED EXTERIOR SCONCE





LED EXTERIOR COVE LIGHT (EMBEDDED IN BUILDING NAME SIGNAGE WALL)

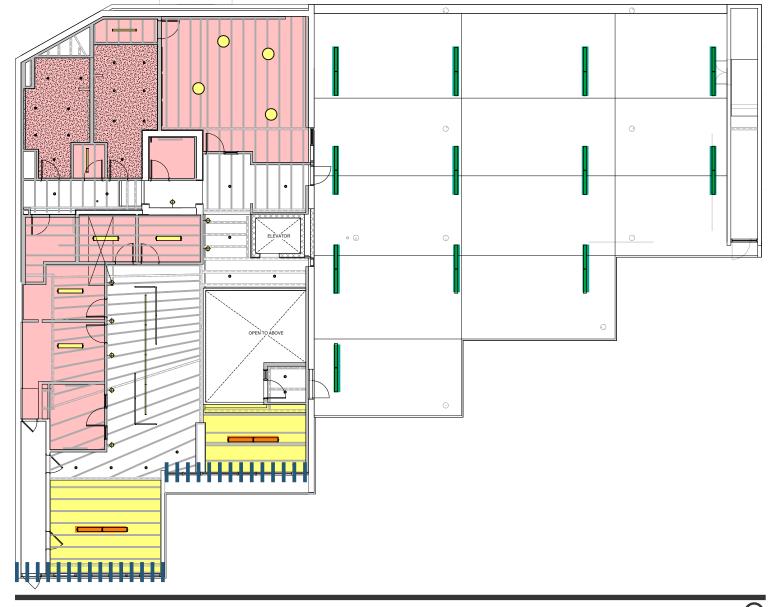


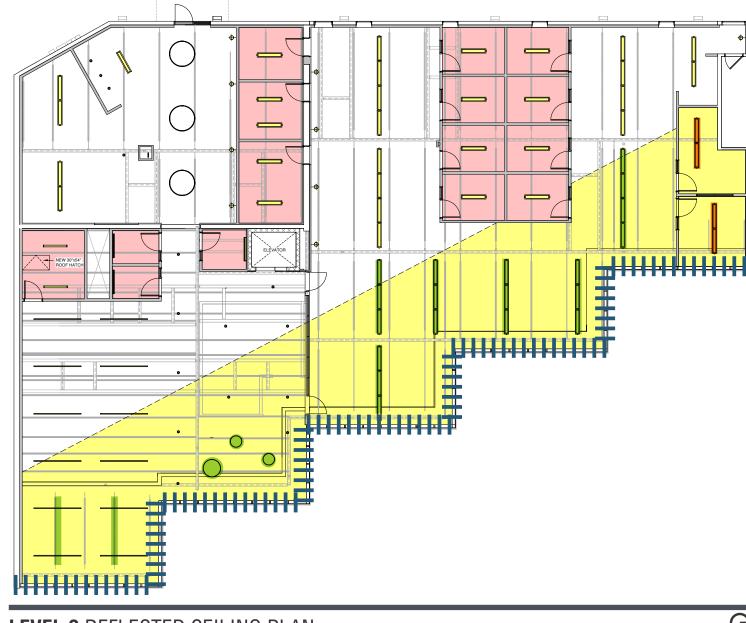
**EXISTING STREET LIGHTS** 

#### 1135 BROADWAY BOULDER, CO

## **SUSTAINABILITY**

LIGHTING STRATEGY





LEVEL 1 REFLECTED CEILING PLAN

 $\overline{\mathsf{Q}}$ 

LEVEL 2 REFLECTED CEILING PLAN

#### **LIGHTING POWER DENSITY:**

1.0 W/SF (ASSUMING MOSTLY T8 LIGHTING) **CURRENT:** 

.64 W/SF (ASHRAE 90.1 2019 BASELINE IS 0.64W/SF) TARGET:

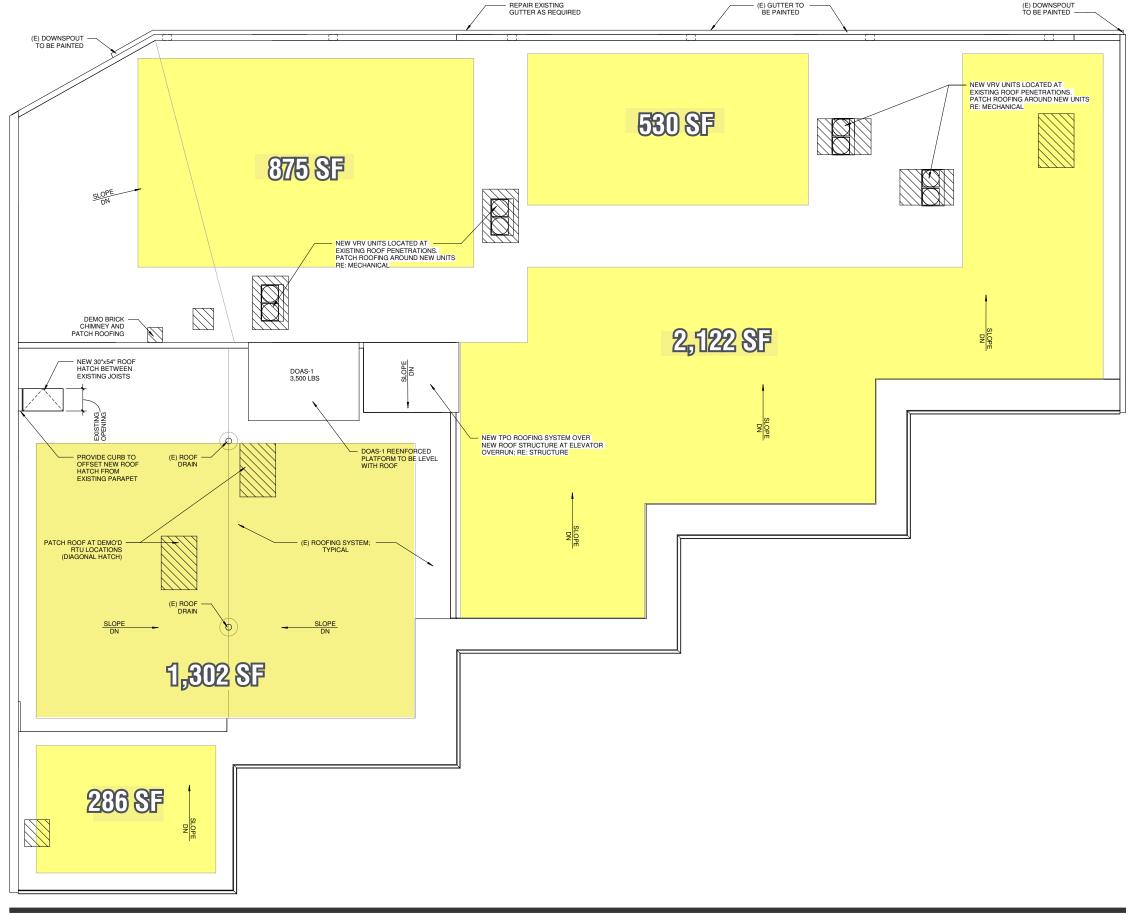
.49 W/SF (BASED ON TOTAL INTERIOR LIGHTING WATTAGE OF 6034 AS DESIGNED) ACTUAL:

#### LIGHTING STRATEGY KEY OCCUPANCY DIMMED SENSOR DAYLIGHT HARVESTING ZONE OCCUPANCY SENSOR CONTROLLED FIXTURES DAYLIGHT SENSOR DIMMED FIXTURES DAYLIGHT + OCCUPANCY SENSOR CONTROLLED **ENCLOSED ROOMS /** OCCUPANCY ZONE FILM APPLIED TO EXISTING WINDOWS

### **SUSTAINABILITY** HIGH PERFORMANCE SYSTEMS

#### **PV POTENTIAL**

- 5,115 SF POTENTIAL PV AREA
- APPROX. **105,126 KWH/YR**
- 77% OF BUILDING LOAD



**ROOF PLAN** 





# APPENDIX

#### 1135 BROADWAY BOULDER, CO

# **BUILDING EXTERIOR**

DARKER OPTION - KENDALL CHARCOAL



#### **MATERIALS**

KENDALL CHARCOAL

MOUNTAIN PEAK WHITE

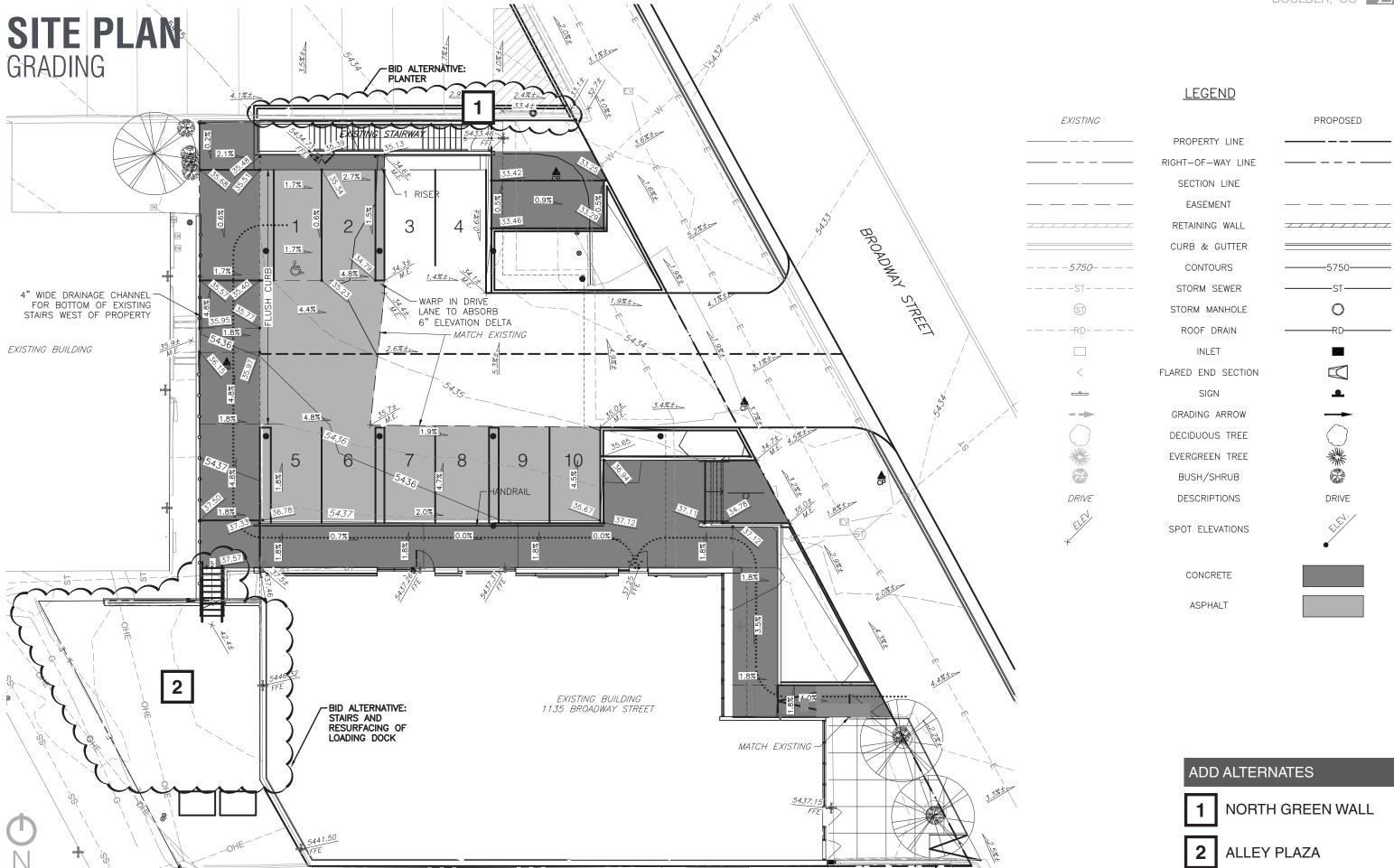


#### **VIEW FROM BROADWAY ^**

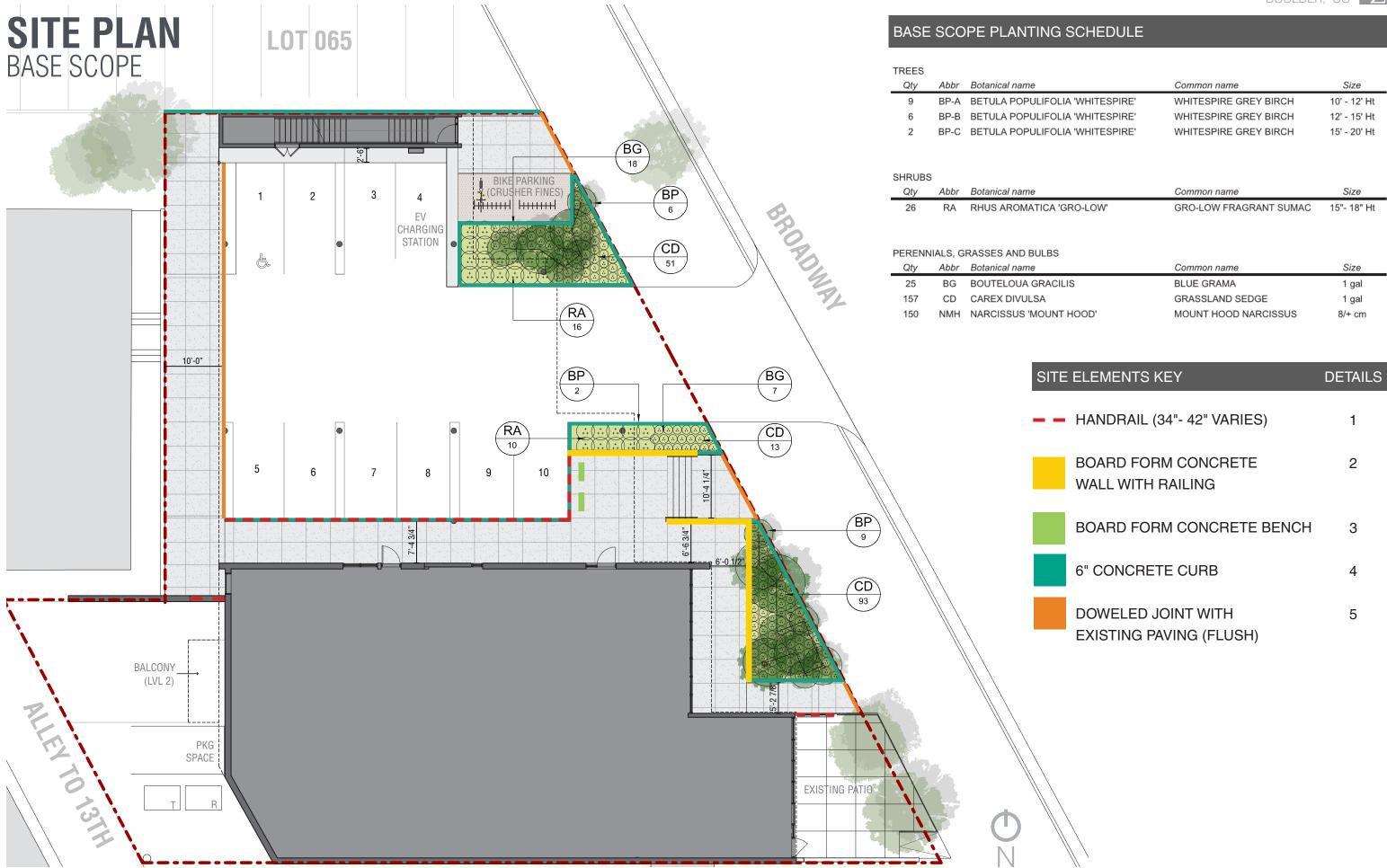
KENDALL CHARCOAL
MOUNTAIN PEAK WHITE PARKING CEILING
EXPOSED CONCRETE COLUMNS AND SITE WALLS





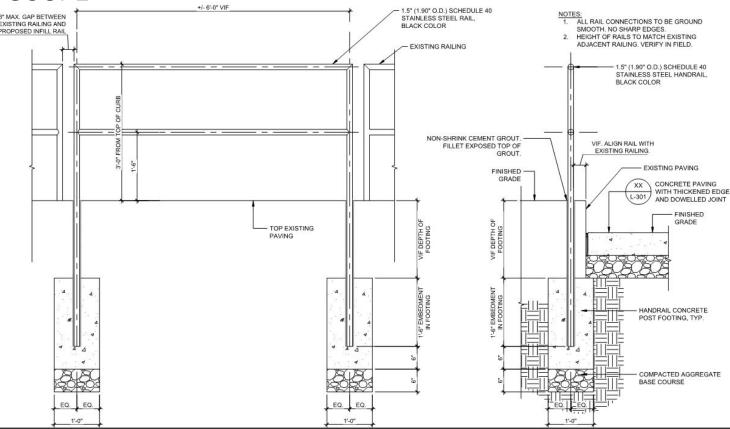




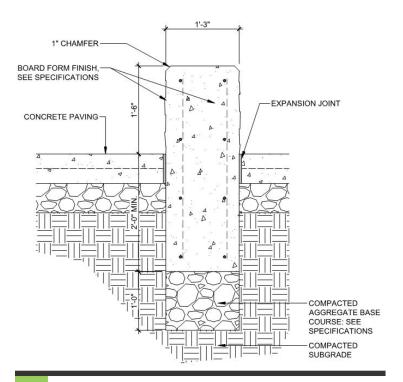


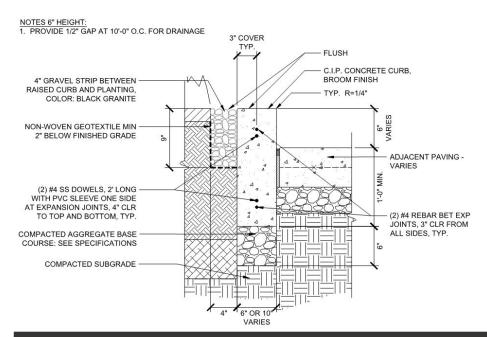
# **SITE DETAILS**

BASE SCOPE



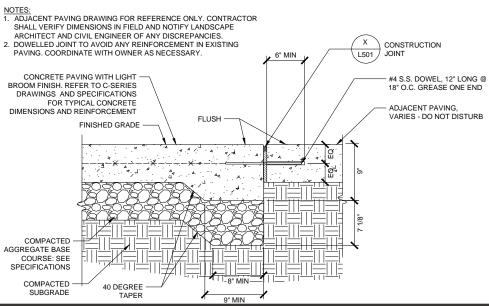
#### RAILING INFILL DETAILS





CONCRETE CURB SECTION

FOOTING DEPTH MUST BE BELOW 42 INCH FROST DEPTH. 1" CHAMFER BOARD FORM FINISH, SEE SPECIFICATIONS EXPANSION JOINT CONCRETE PAVING " DIA. WEEP HOLE @ 10' O.C., TWO HOLES MINIMUM PER WALL FACE. -CONCRETE PAVING -P.I.P. CONCRETE FOOTING - SEE CIVIL DRAWINGS FOR REINFORCING GENERAL FILL - SEE SECTION C-C' COMPACTED AGGREGATE 2'-0" MIN BASE **BOARD FORM WALL SECTION** 



PAVING WITH DOWELED JOINT TO EXISTING

1135 BROADWAY

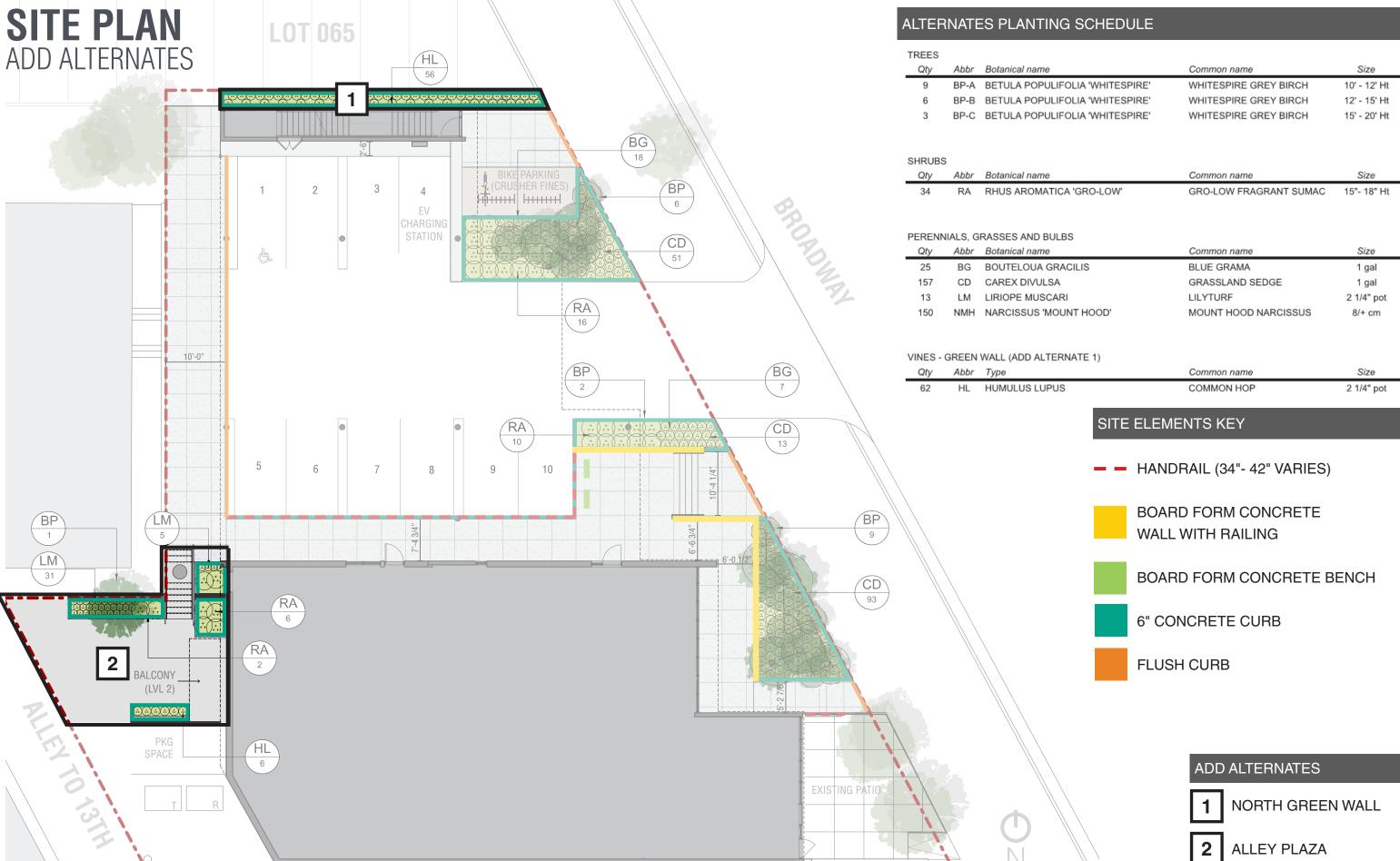
NOTES:

1. REFER TO L-205 FOR TOP OF WALL ELEVATIONS

ON TO DRAWINGS FOR REINFORCING.

REFER TO CIVIL DRAWINGS FOR REINFORCING.





### 1135 BROADWAY BOULDER, CO

# ALTERNATE 1 NORTH GREEN WALL



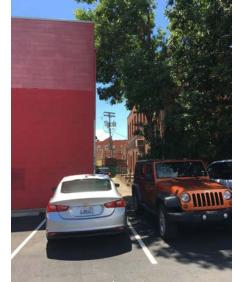






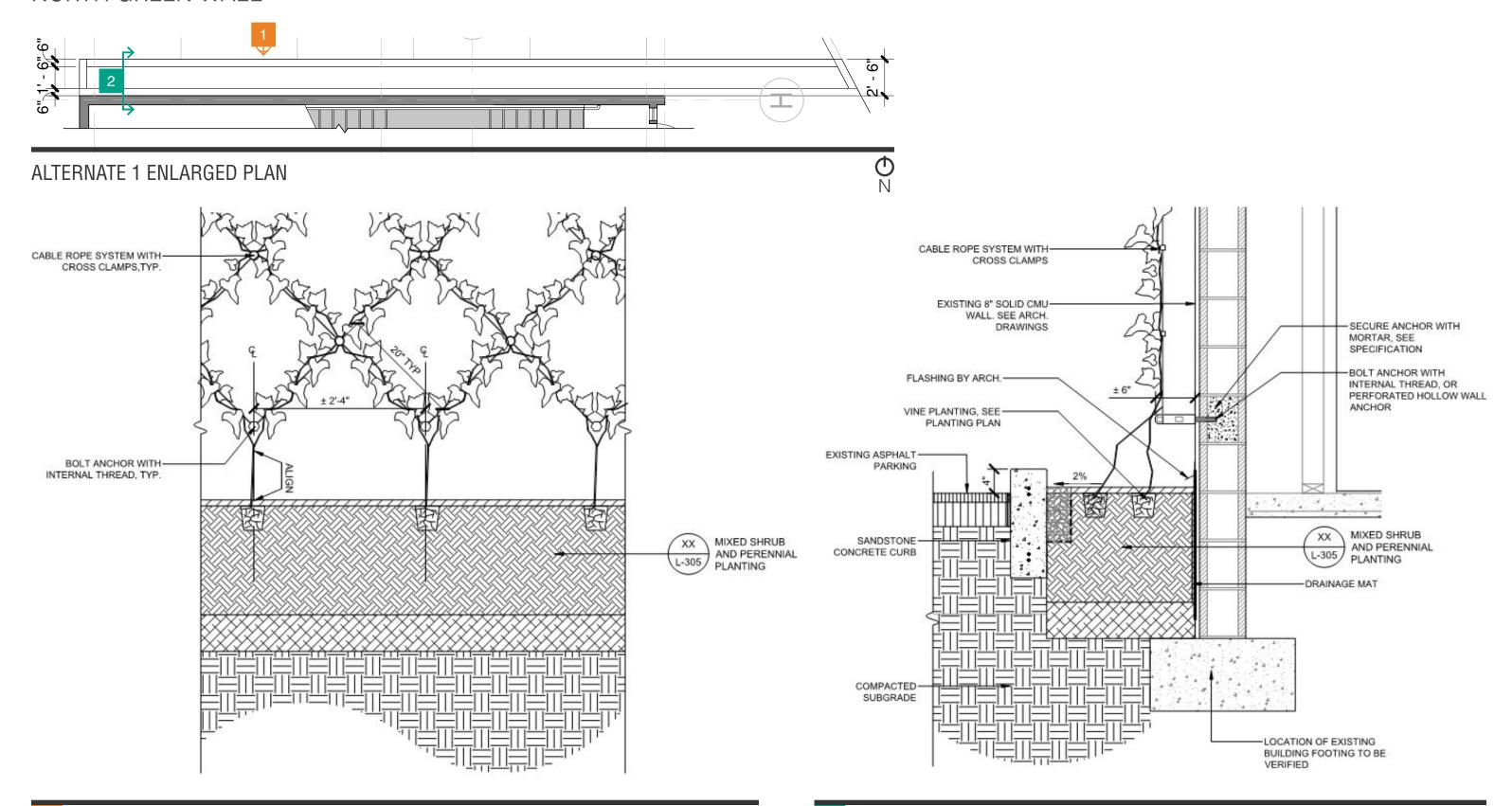






## **ALTERNATE 1 DETAILS**

### NORTH GREEN WALL



# ALTERNATE 2 ALLEY PLAZA

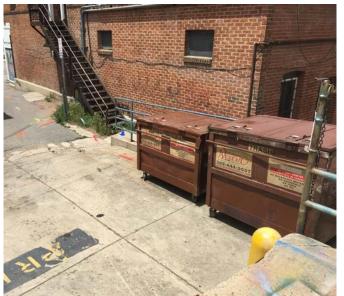






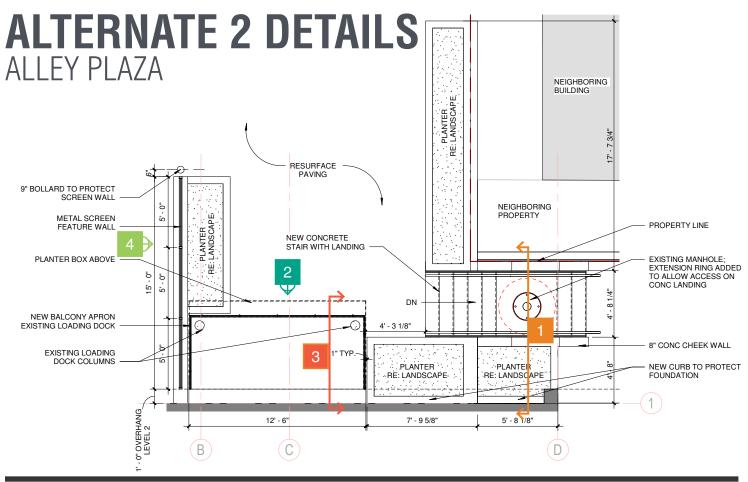


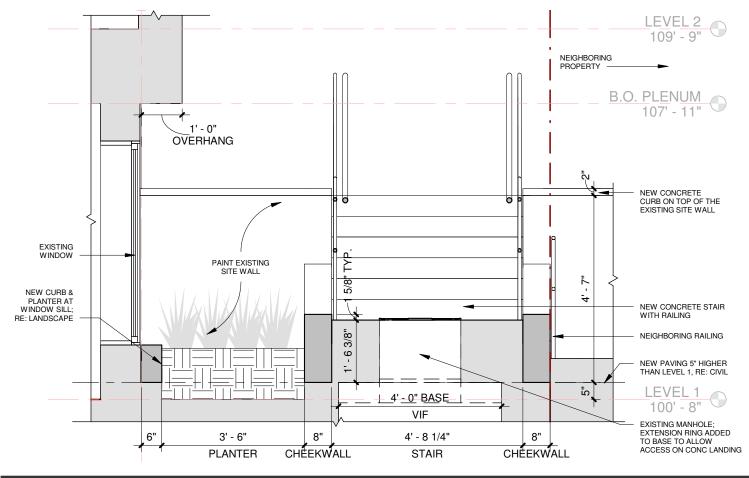






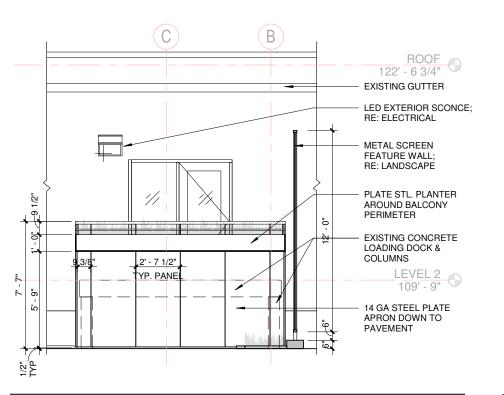


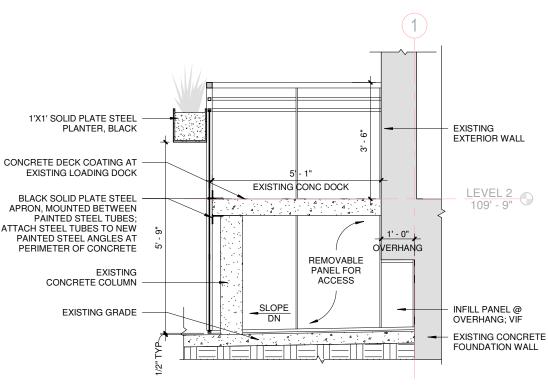


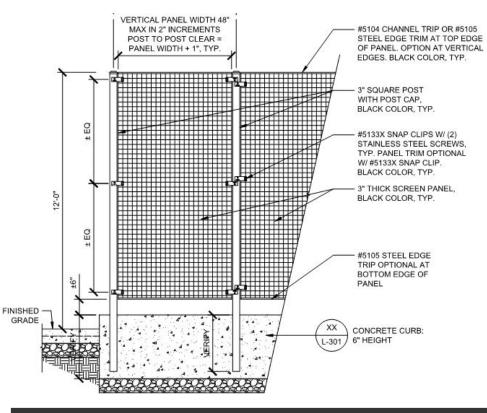


ALTERNATE 2 ENLARGED PLAN

1 E-W STAIR SECTION



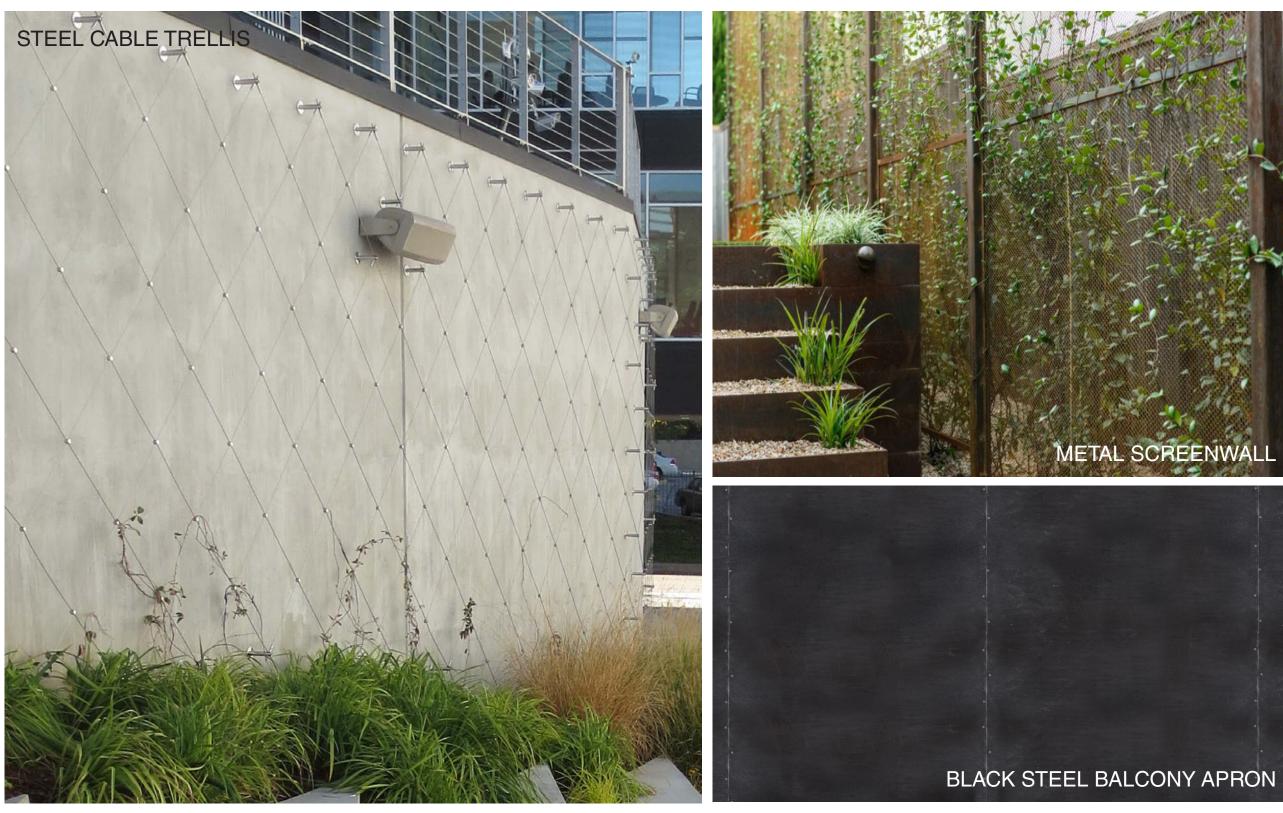




3 BALCONY SECTION

SCREENWALL ELEVATION

# SITE AND LANDSCAPE MATERIALS ADD ALTERNATES



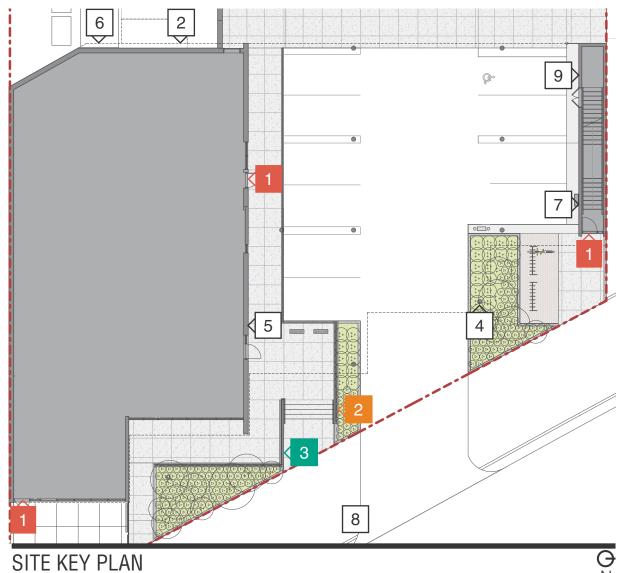
ALTERNATE 1 MATERIALS

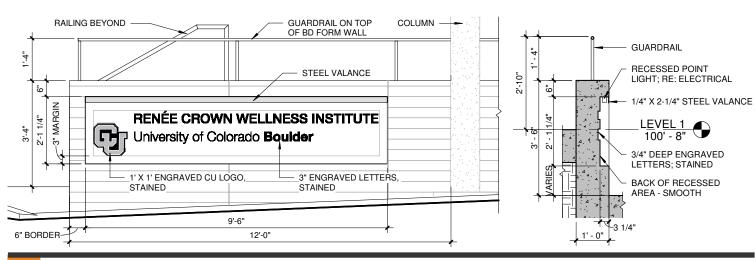
ALTERNATE 2 MATERIALS

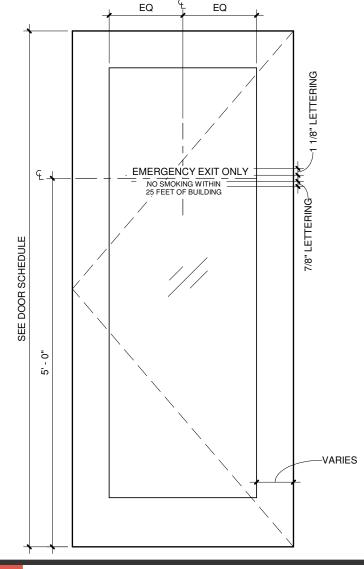


# **EXTERIOR SIGNAGE**

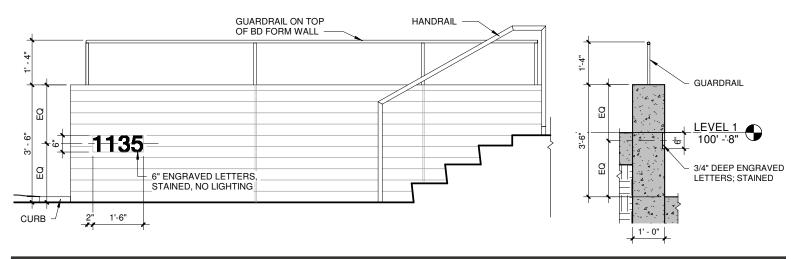
KEY PLAN + DETAILS







1 EMERGENCY EXIT ONLY



3 ENGRAVED BUILDING NUMBER