



Transbay Transit Center

Energy Model Interim Status

October 9, 2012

UNITED
BY OUR
DIFFERENCE

 **WSP** • FLACK+KURTZ

ENERGY MODEL OVERVIEW

1. Model has been refined to match current LEED boundary
2. Model follows ASHRAE 90.1 rules (*)
3. Model based on Phase 2 meeting minimal code compliance
4. Model has been peer reviewed
5. Model does not reflect final RVA - which requires tuning
6. Model is appropriate in further analysis
7. Details have carefully been organized

PARK LEVEL

BUS DECK LEVEL

Model / Project is Unique

GROUND LEVEL

NATOMA STREET

GRAND HALL

MISSION SQUARE

LOWER CONCOURSE LEVEL

RETAIL

PUBLIC CONCOURSE &
WAITING AREA

TRAIN TICKET &
INFORMATION
OFFICES

TRAIN PLATFORM LEVEL

CALTRAIN
PLATFORM

CHSR
PLATFORM

CHSR
PLATFORM

ENERGY MODEL CURRENTLY SHOWS:

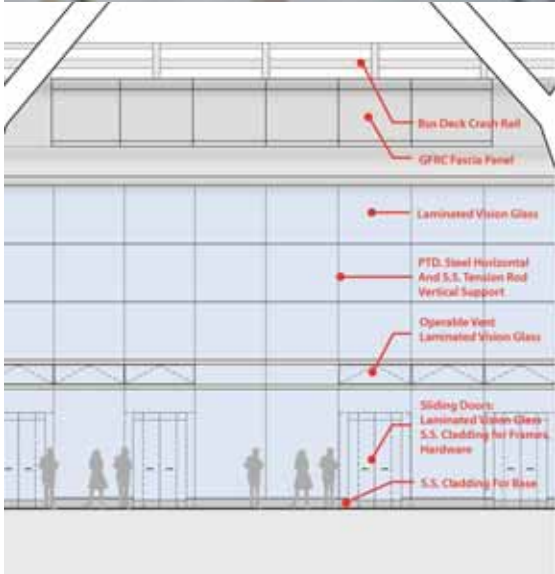
1. Approximately a 30% improvement over ASHRAE base model
2. 10 (+/-) LEED points

AND

3. Significant opportunity to further make reductions – process loads

Energy Model Input Includes

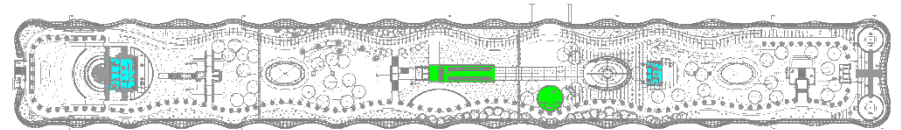
- 1. Architectural Space Plans
- 2. Assumed Occupancy Schedules
- 3. Ridership per Mature Planning
- 4. Proposed Lighting
- 5. Assumed Process Loads



Energy Model Inputs - HVAC Systems

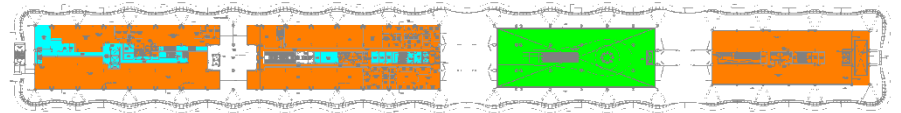
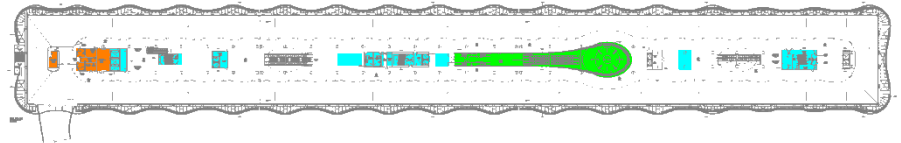
1. Naturally Ventilated Spaces

- a) Grand Hall
- b) Bus Deck
- c) Muni Bus Plaza (unconditioned)



2. Mechanically Ventilated Spaces

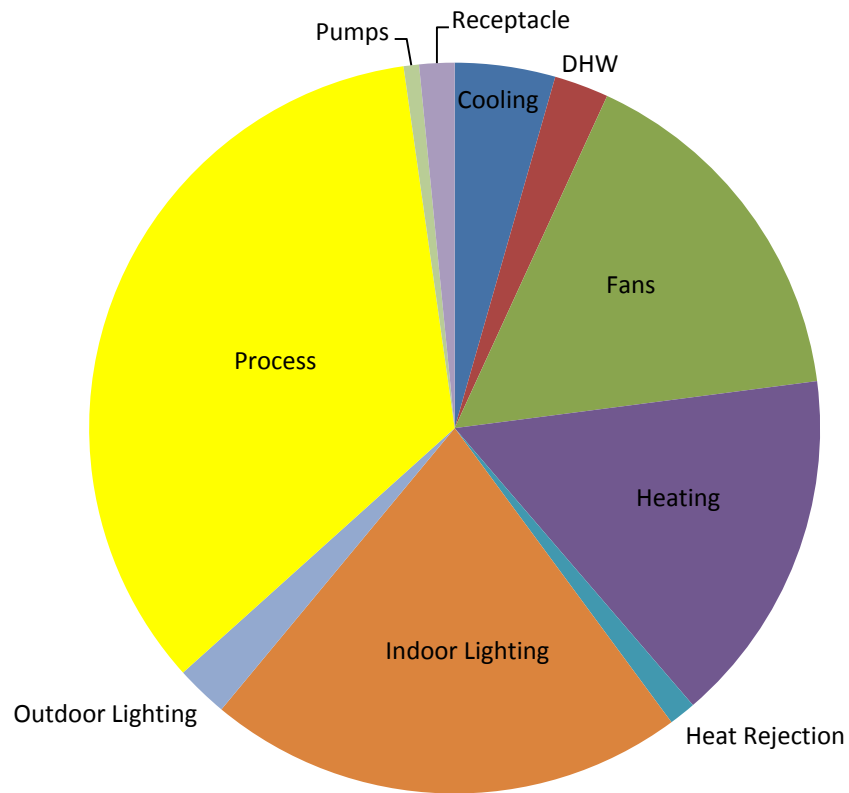
- a) Train Platform Level
- b) Loading Docks
- c) Taxi Staging Area
- d) Restrooms



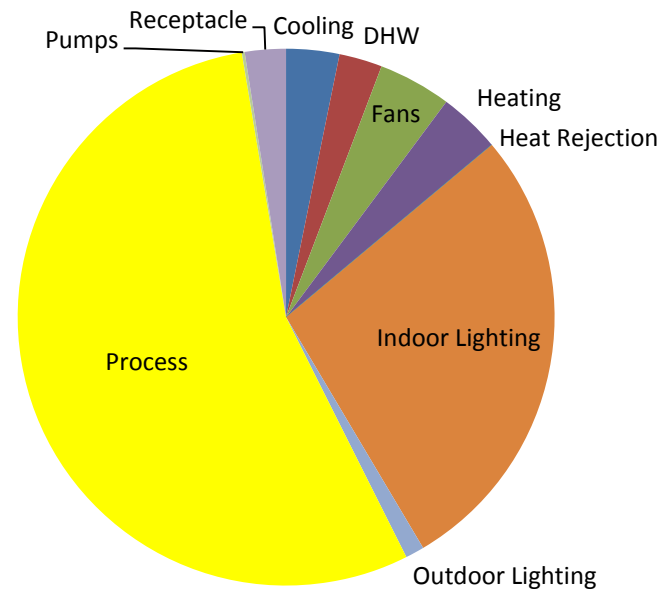
3. Fully Conditioned Spaces

- a) Lower Concourse Public Spaces
- b) Retail Spaces
- c) BOH Program Spaces – SOC, TJPA Facilities, FCC, MDF, IDF
- d) Transit Program Spaces - CalTrain, CHSRA on lower concourse

ENERGY USE – ASHRAE BASELINE

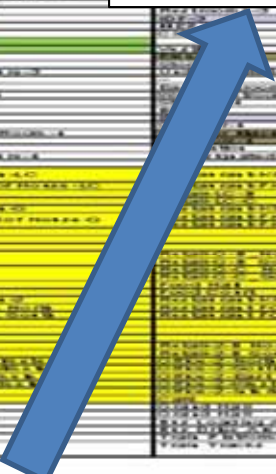
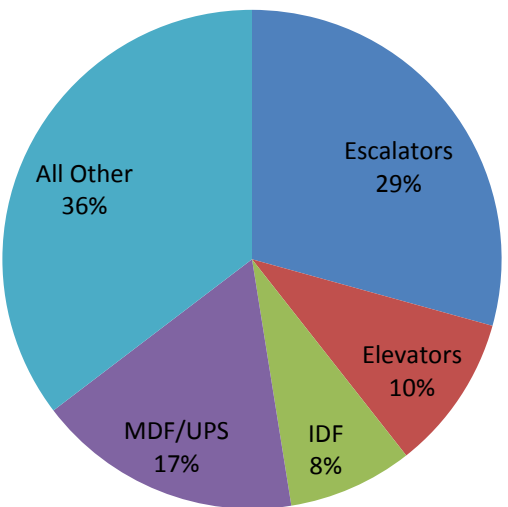


ENERGY USE – PROPOSED DESIGN



Process	Count	Percentage	Process	Count	Percentage
Escalators	29	29%	Escalators	29	29%
Elevators	10	10%	Elevators	10	10%
IDF	8	8%	IDF	8	8%
MDF/UPS	17	17%	MDF/UPS	17	17%
All Other	36	36%	All Other	36	36%

Process Breakdown



Process	Count	Percentage
Escalators	29	29%
Elevators	10	10%
IDF	8	8%
MDF/UPS	17	17%
All Other	36	36%
Total	100	100%

Exceptional Calculations

1. Exemplary Daylighting
 2. Vertical Transportation (Escalators / Elevators)
 3. Transit Management (Bus / Trains)
 4. IDF/MDF Management
-

5. Tenant Standards
6. Lighting Control – Emergency Stairs

Exceptional Calculations

Exemplary Daylighting

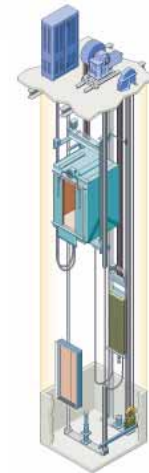
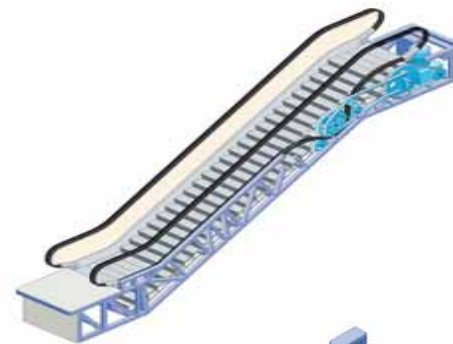
- Grand Hall
- Bus Platform
- Bus Driving Area
- Escalators
- Beale Lobby
- Shaw Lobby
- MUNI Bus Plaza
- Loading Docks



Exceptional Calculations

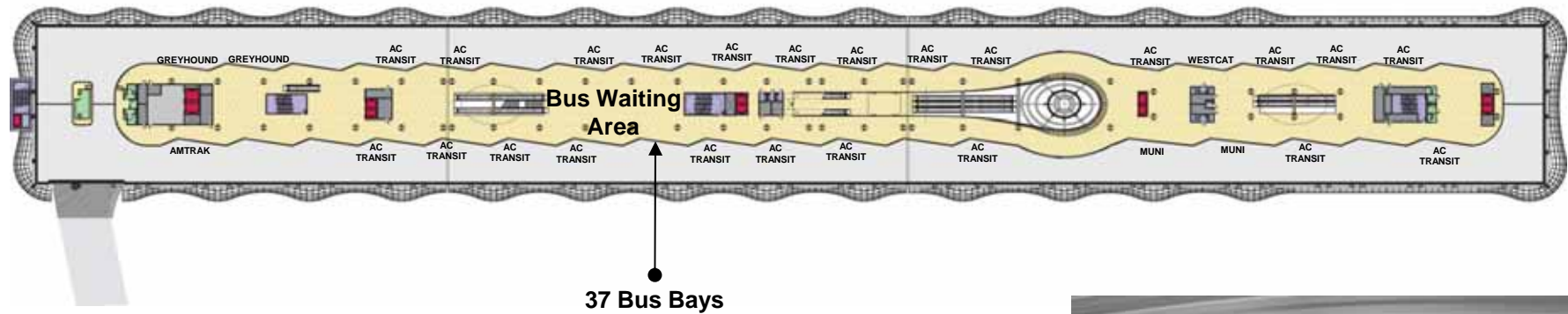
Vertical Transportation (Escalators / Elevators)

- Regenerative energy
- Traffic handling - Speed control
- ON / OFF control
- Stand-by losses
- Direct losses



Exceptional Calculations

Transit Management (Bus / Trains)



Exceptional Calculations

IDF/MDF Management



Potential Savings – Exceptional Calculations

		Cost	Percent Reduction	Process %	LEED Points	Savings due to Exceptional Calculation
	Baseline Model	\$1,941,593				
	Proposed Model (unadjusted)	\$1,357,468	30.08%	35.55%	10	
	Exceptional Calculations					
1	Exemplary Daylighting (only)	\$1,318,500	32.09%	36.91%	11	2.01%
2	Vertical Transportation (in conjunction with above)	\$1,155,672	40.48%	31.36%	15	8.39%
3	Transit Management (in conjunction with above)	\$1,101,607	43.26%	32.48%	16	2.78%
4	IDF/MDF Management (in conjunction with above)	\$1,083,149	44.21%	31.90%	17	0.95%



Discussion