BELMONT HIGH SCHOOL
BUILDING COMMITTEE MEETING

FEBRUARY 15 2019

PERKINS+WILL

BUILDING DESIGN

FLOOR PLAN - LEVEL 01

FLOOR PLAN - LEVEL 02

FEBRUARY 15 2019

FLOOR PLAN - LEVEL 03

FEBRUARY 15 2019

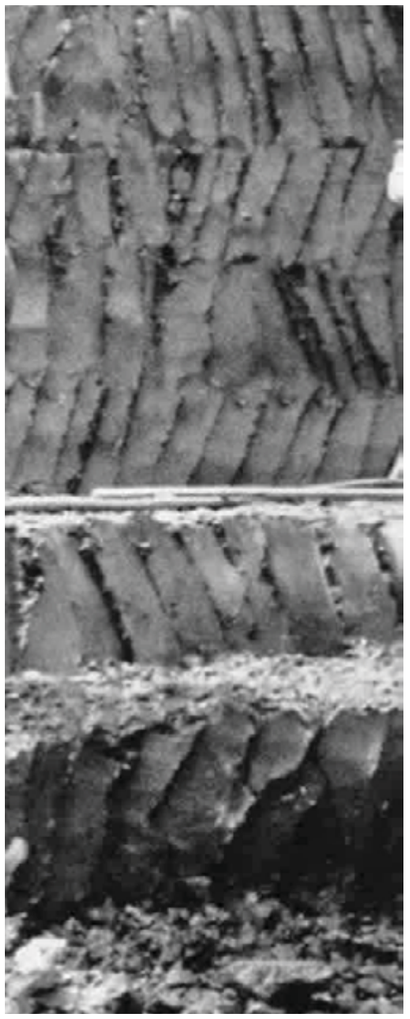
FLOOR PLAN - LEVEL 04

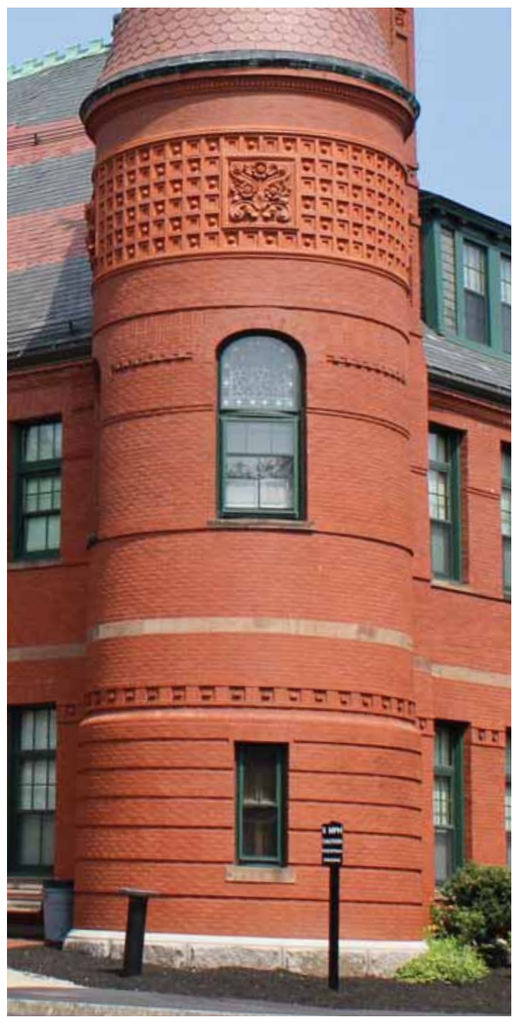
FEBRUARY 15 2019

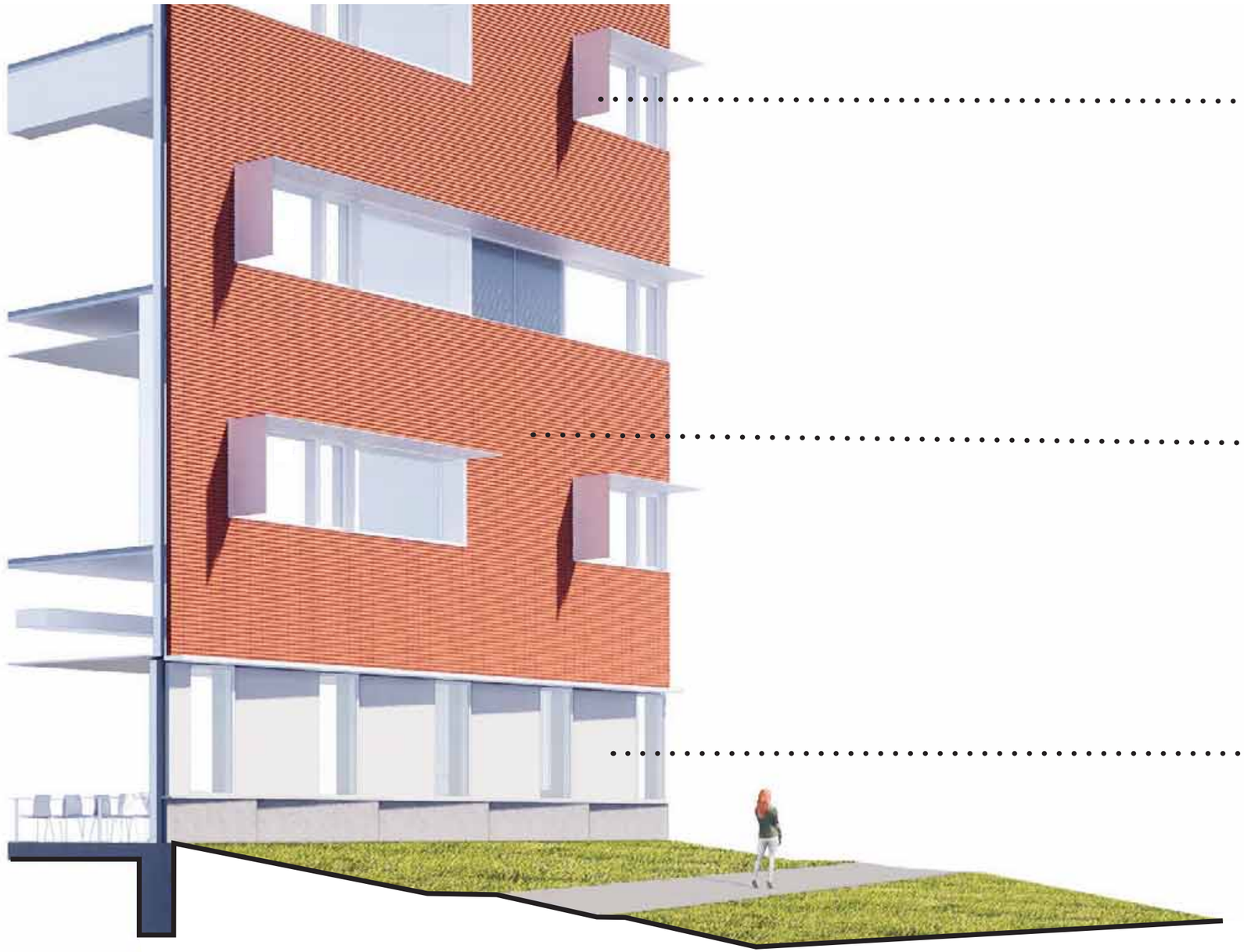
AERIAL OF SITE

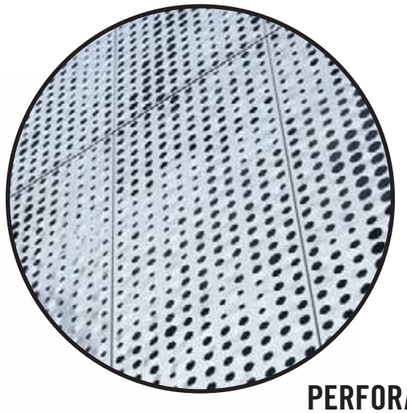
EXTERIOR ELEVATIONS

BUILDING DESIGN

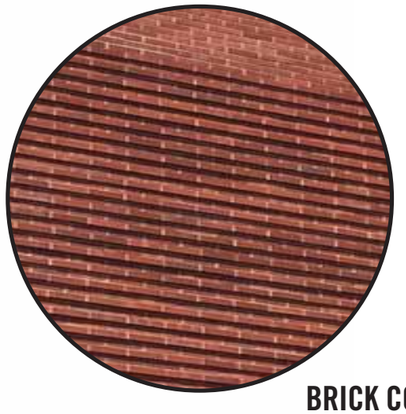




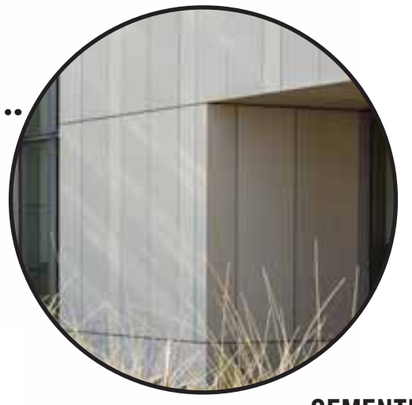




PERFORATED METAL



BRICK COREBELLING



CEMENTITIOUS PANEL

EXTERIOR MATERIALS

FEBRUARY 15 2019

BELMONT TOWN HALL

BELMONT TOWN HALL - HOMER BUILDING

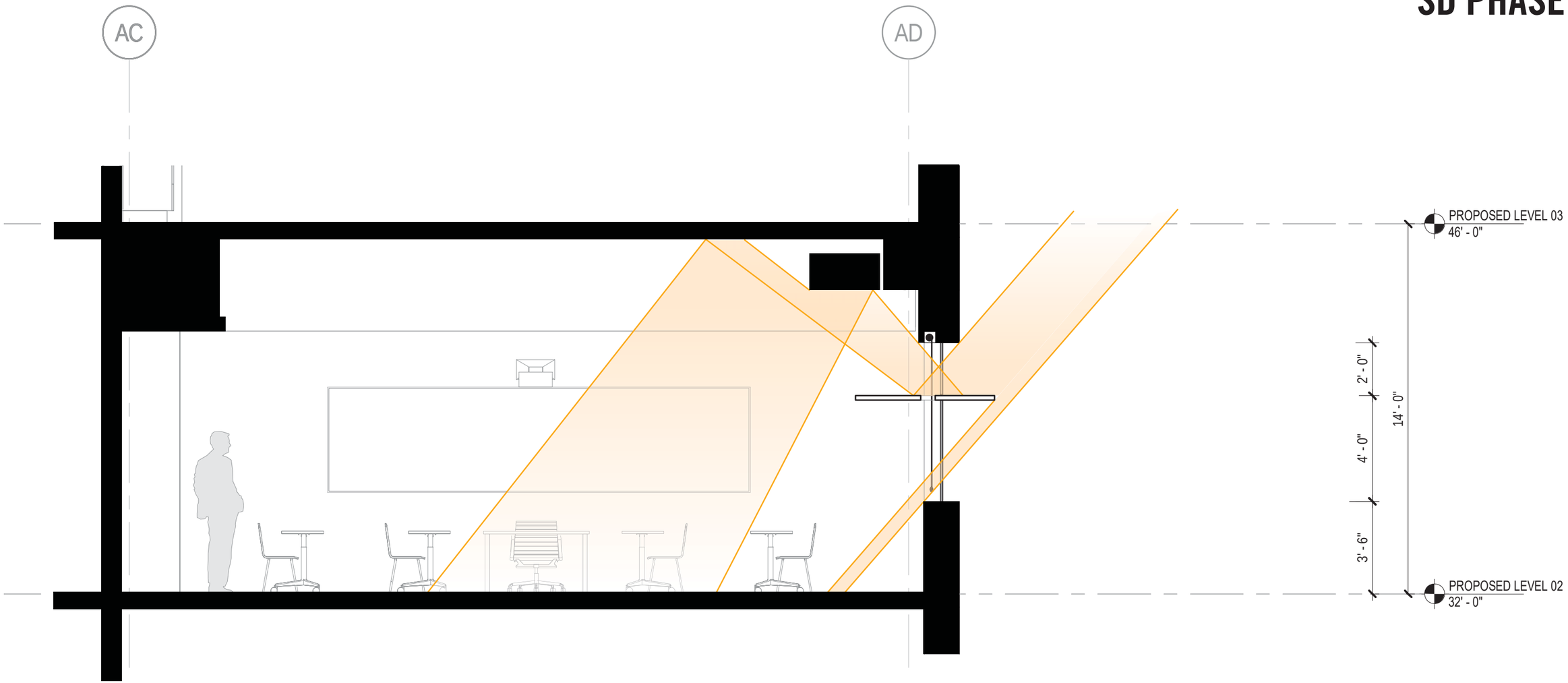
CHENERY MIDDLE SCHOOL

EXISTING BELMONT HIGH SCHOOL

EXTERIOR MATERIALS

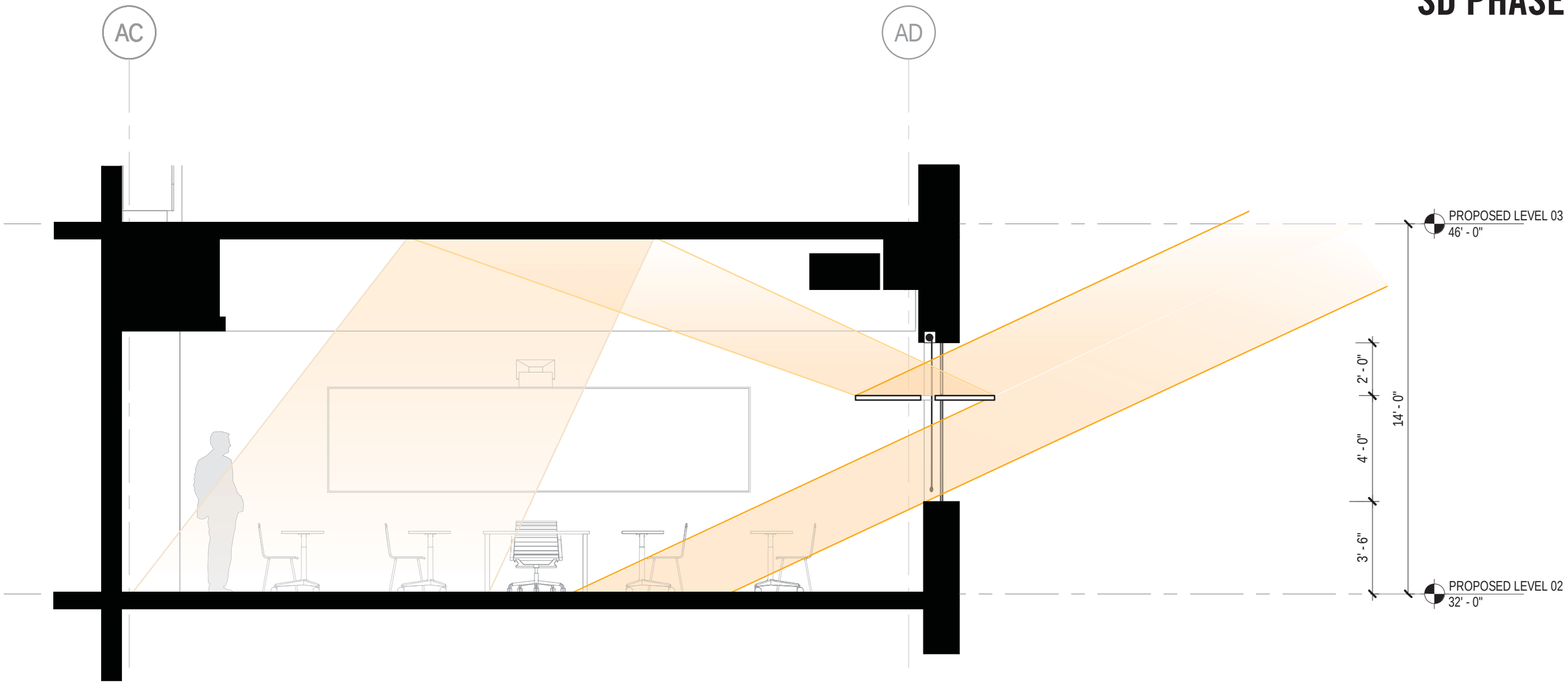
CLASSROOM SUNSHADES

BUILDING DESIGN



EQUINOX

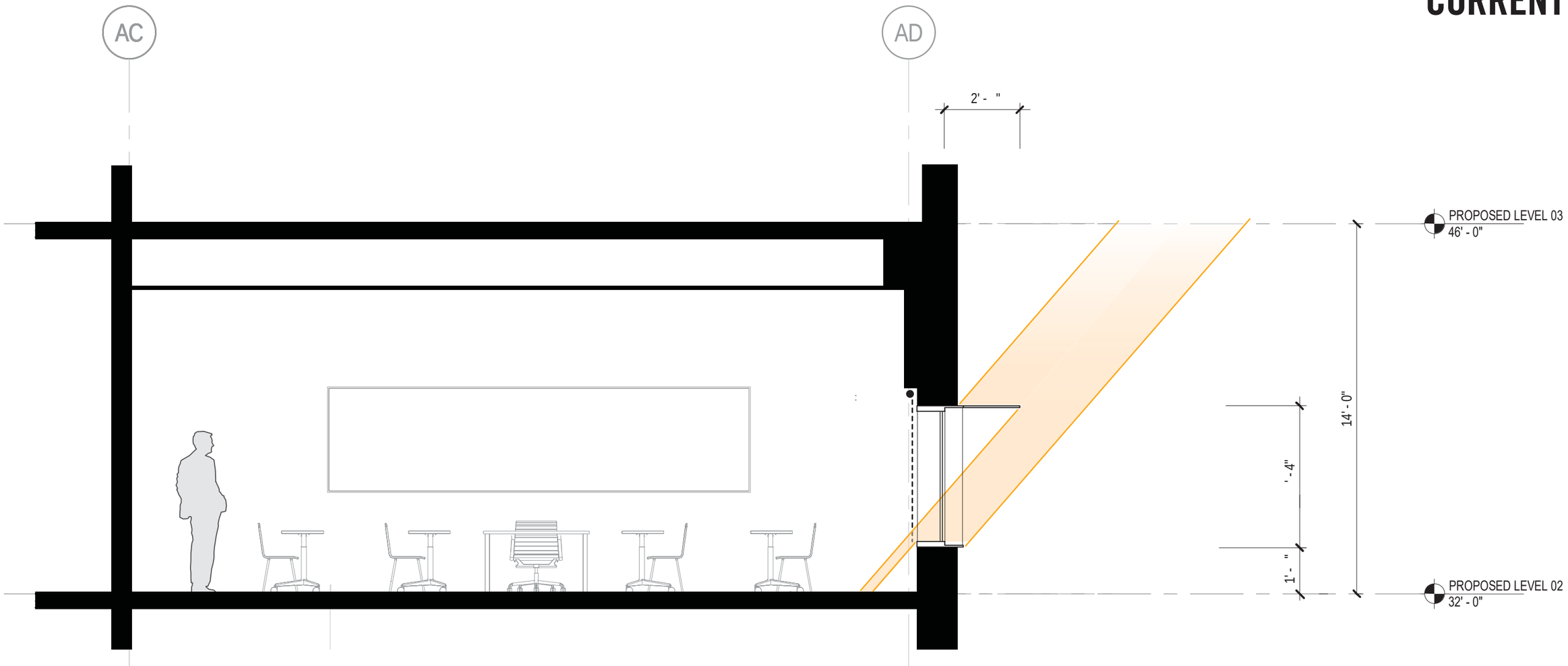
Angular Altitude - 49˚



WINTER SOLSTICE

Angular Altitude - 25˚

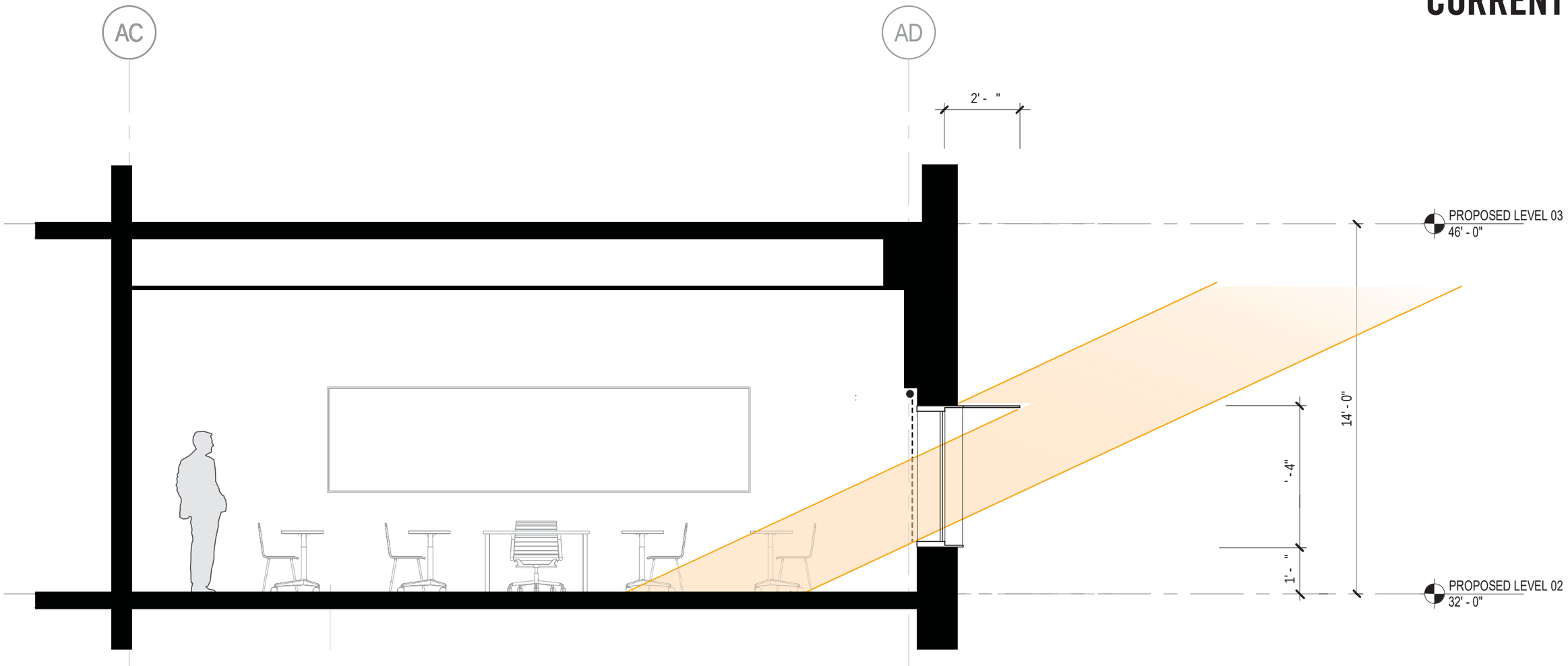
CURRENT



EQUINOX
Angular Altitude - 49˚

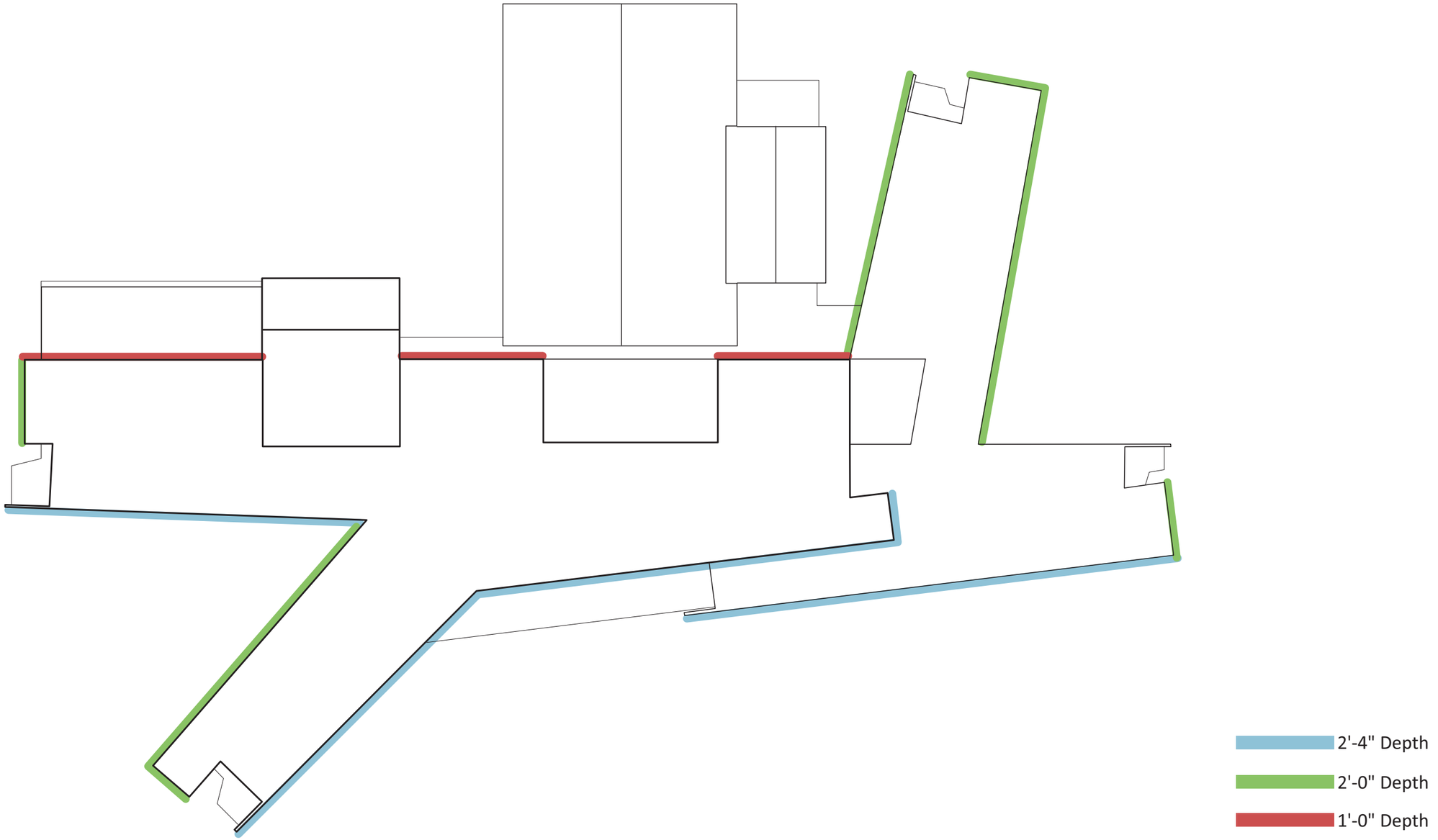
CLASSROOM SUNSHADE : CURRENT DESIGN

CURRENT



WINTER SOLSTICE

Angular Altitude - 25˚



CLASSROOM SUNSHADE : DEPTH DIAGRAM

FEBRUARY 15 2019

Study Period Jan 1, 1:00 AM Through December 31 12:00 AM

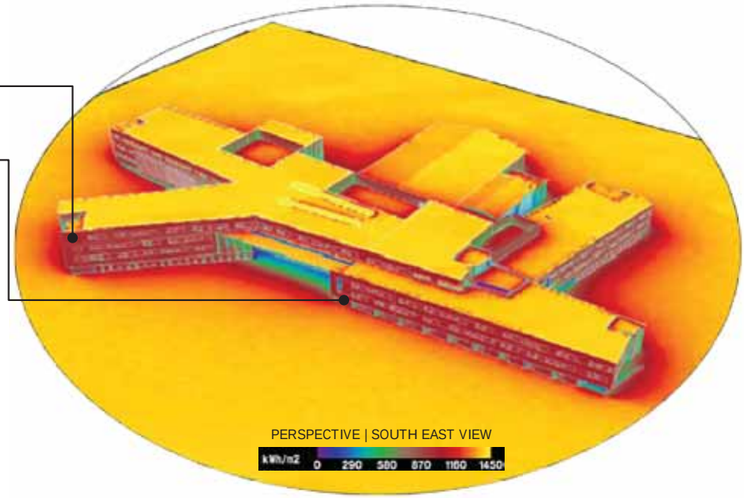
ROOF
THERMAL LOAD | 450 KBTU/SF (1420 KWH/M2)

SOUTH EAST WALLS
THERMAL LOAD | 285 KBTU/SF (900 KWH/M2)

SOUTH WALLS
THERMAL LOAD | 285 KBTU/SF (900 KWH/M2)

Performance Metric: The proposed design featured overhangs on the south and the south east orientations.

- **The south entrance overhangs reduce the thermal load** to less than 100 kBtu/sf (approx. 300 kWh/m2).
- **The fenestration shading devices reduce the thermal load** from 285 kBtu/sf to slightly more than 100 kBtu/sf (approx. 350 kWh/m2).
- **The orientation of the solar panels or azimuth receives more solar radiation** than a horizontal orientation similarly to the roof surfaces and potentially generates more renewable energy.



PERSPECTIVE | SOUTH EAST VIEW

Study Period Jan 1, 1:00 AM Through December 31 12:00 AM

ROOF
THERMAL LOAD | 450 KBTU/SF (1420 KWH/M2)

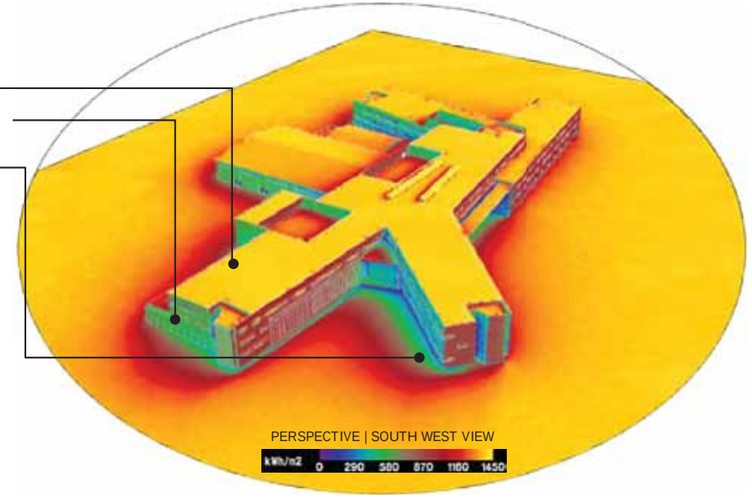
SOUTH WEST WALLS
THERMAL LOAD | 285 KBTU/SF (900 KWH/M2)

WEST WALLS
THERMAL LOAD | 95 KBTU/SF (300 KWH/M2)

NORTH WEST WALLS
THERMAL LOAD | 220 KBTU/SF (700 KWH/M2)

Performance Metric: The proposed design featured overhangs on the south west and west orientations.

- **The northeasterly fenestration has less thermal load due to self-shading of building configuration.**
- **The fenestration shading devices reduce the thermal load** from 285 kBtu/sf to slightly more than 100 kBtu/sf (approx. 350 kWh/m2).
- The northwesterly walls do not benefit from building configuration self-shading.



PERSPECTIVE | SOUTH WEST VIEW

Study Period Jan 1, 1:00 AM Through December 31 12:00 AM

ROOF
THERMAL LOAD | 450 KBTU/SF (1420 KWH/M2)

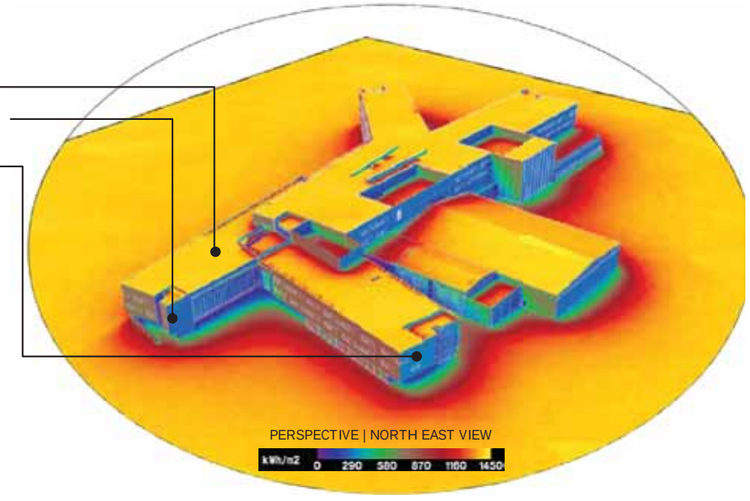
NORTH EAST WALLS
THERMAL LOAD | 80-125 KBTU/SF (250-400 KWH/M2)

NORTH WALLS
THERMAL LOAD | 95 KBTU/SF (300 KWH/M2)

EAST WALLS
THERMAL LOAD | 220 KBTU/SF (700 KWH/M2)

Performance Metric: The proposed design featured overhangs on the north and the north east orientations.

- **The northeasterly fenestration has less thermal load due to self-shading of building configuration.**
- **The south fenestration shading devices reduce the thermal load** from 285 kBtu/sf to slightly more than 100 kBtu/sf (approx. 350 kWh/m2).



PERSPECTIVE | NORTH EAST VIEW

Study Period Jan 1, 1:00 AM Through December 31 12:00 AM

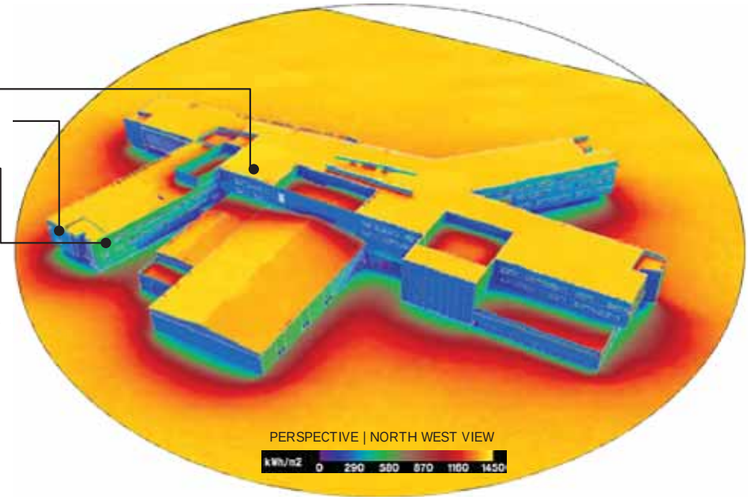
ROOF
THERMAL LOAD | 450 KBTU/SF (1420 KWH/M2)

NORTH WALLS
THERMAL LOAD | 80 KBTU/SF (250 KWH/M2)

NORTH WEST WALLS
THERMAL LOAD | 184 KBTU/SF (580 KWH/M2)

Performance Metric: The proposed design featured overhangs on the north and north west orientations.

- **The northwesterly walls receive thermal load but the fenestration benefit from shading devices** which lower the thermal load to less than 100 kBtu/sf (approx. 300 kWh/m2).
- The walls oriented to the north do not generally require shading devices.



PERSPECTIVE | NORTH WEST VIEW

SOLAR ORIENTATION

CLASSROOM SUNSHADE : SCHEME

CLASSROOM SUNSHADE : SCHEME

PERKINS+WILL

FEBRUARY 15 2019

BUILDING COMMITTEE MEETING

CLASSROOM SUNSHADE : SCHEME

CLASSROOM SUNSHADE : SCHEME

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BUILDING COMMITTEE MEETING

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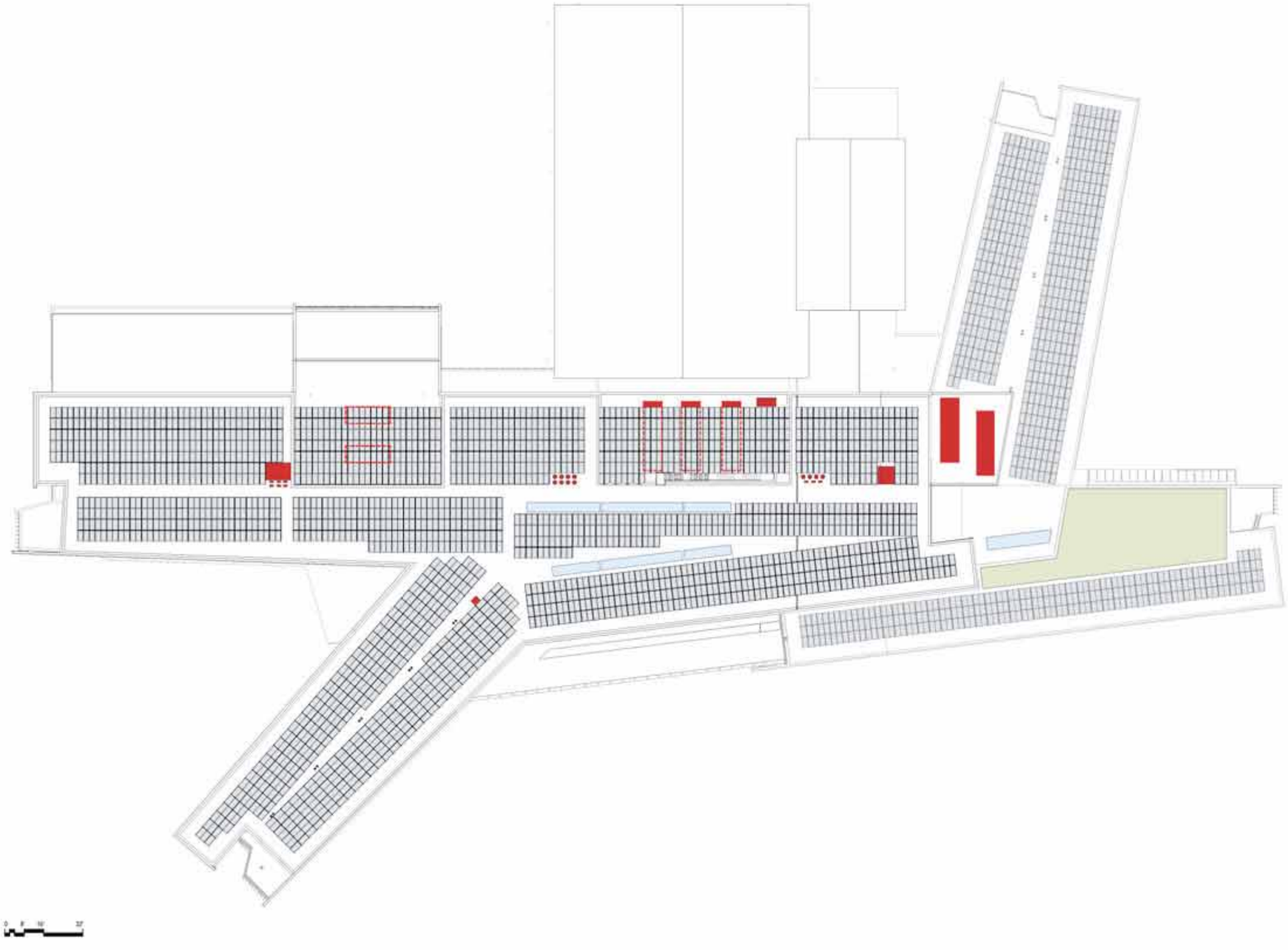
FEBRUARY 15 2019

CLASSROOM SUNSHADE : SCHEME

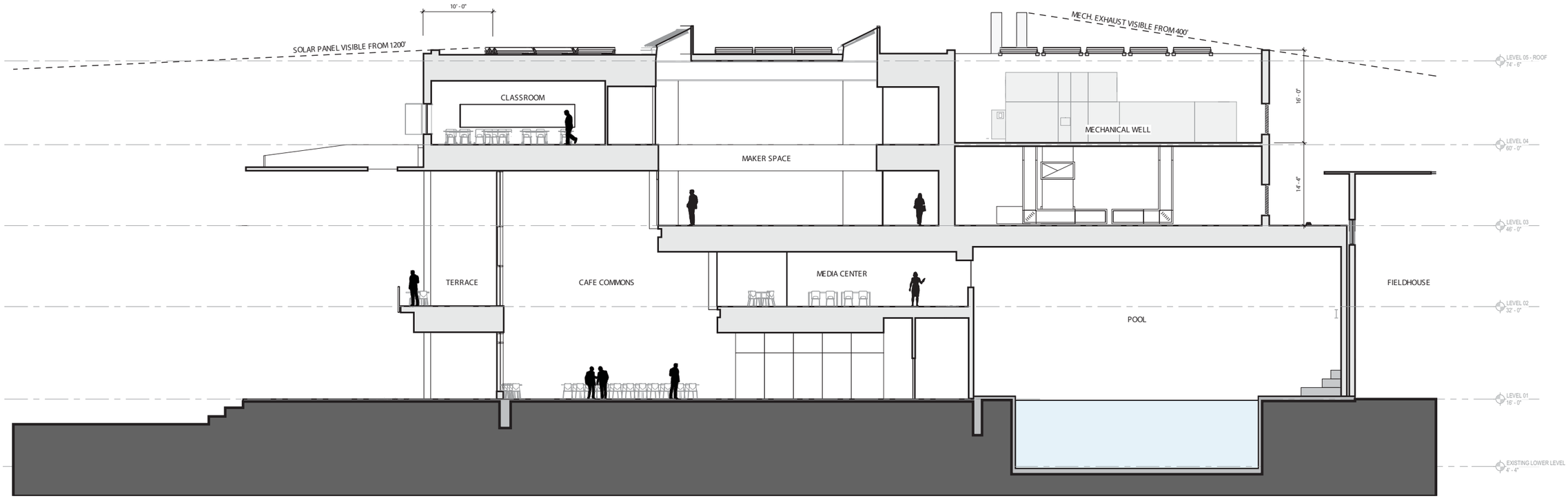
ROOF PLAN

BUILDING DESIGN



ROOF PLAN

FEBRUARY 15 2019



BUILDING SECTION

FEBRUARY 15 2019

BUILDING PERSPECTIVES

BUILDING DESIGN

VIEW TOWARD UPPER SCHOOL ENTRANCE

VIEW TOWARD UPPER SCHOOL ENTRANCE

VIEW FROM THE RUGBY FIELD

VIEW FROM CONCORD AVENUE

FEBRUARY 15 2019

VIEW FROM CONCORD AVENUE

FEBRUARY 15 2019

VIEW TOWARDS COMMONS

VIEW FROM LOWER SCHOOL POND

VIEW FROM POND PATH

VIEW OF LOWER SCHOOL ENTRY

VIEW OF LOWER SCHOOL ENTRY

VIEW OF LOWER SCHOOL ENTRY