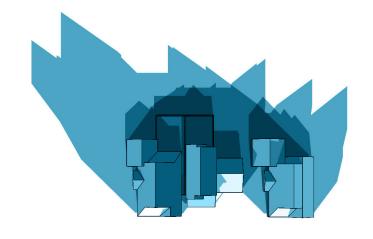
BOZEMAN SINGLE-FAMILY RESIDENCE STUDY ELIZABETH RITCHIE | HORT 432 | FALL 2016



WINTER SUN STUDY

9AM | 12PM | 3PM

WHY THIS PROPERTY?

This property, containing on single family home with alley garage access, was selected to be representative of its neighborhood in regards to orientation, programming, and vegetation. Like many of its peers, this property is relatively narrow with very shallow setbacks to the adjoining properties. It is oriented north-south and offers a fairly sized-able front yard compared to its neighbors. However, this means that the fenced-in backyard is rather small in comparison and is planted only with turf. The covered porch and fenced in backyard offer a sense of security and ownership, especially when considering the shallow setbacks. The abundant use of turf is common in this, and most, residential areas and as such has been termed as culturally significant since it would be exceptional if this was not present. The alley-access garage allows for a narrower house profile on the lot, though this particular design does not seem to take advantage of this fact as much as it could have. Interestingly, the developers have chosen to place the utility boxes on the front face of the lots on this street, likely for cost-reduction or access reasons.







SAVINGS FROM TREE THIS YEAR LIFETIME STORMWATER \$1.11 **AIR QUALITY** CO SUMMER ENERGY WINTER ENERGY noto by Daderot (Wikimedia) Photo by Daderot (Wikimedia) Photo by KENPEI (Wikimedia

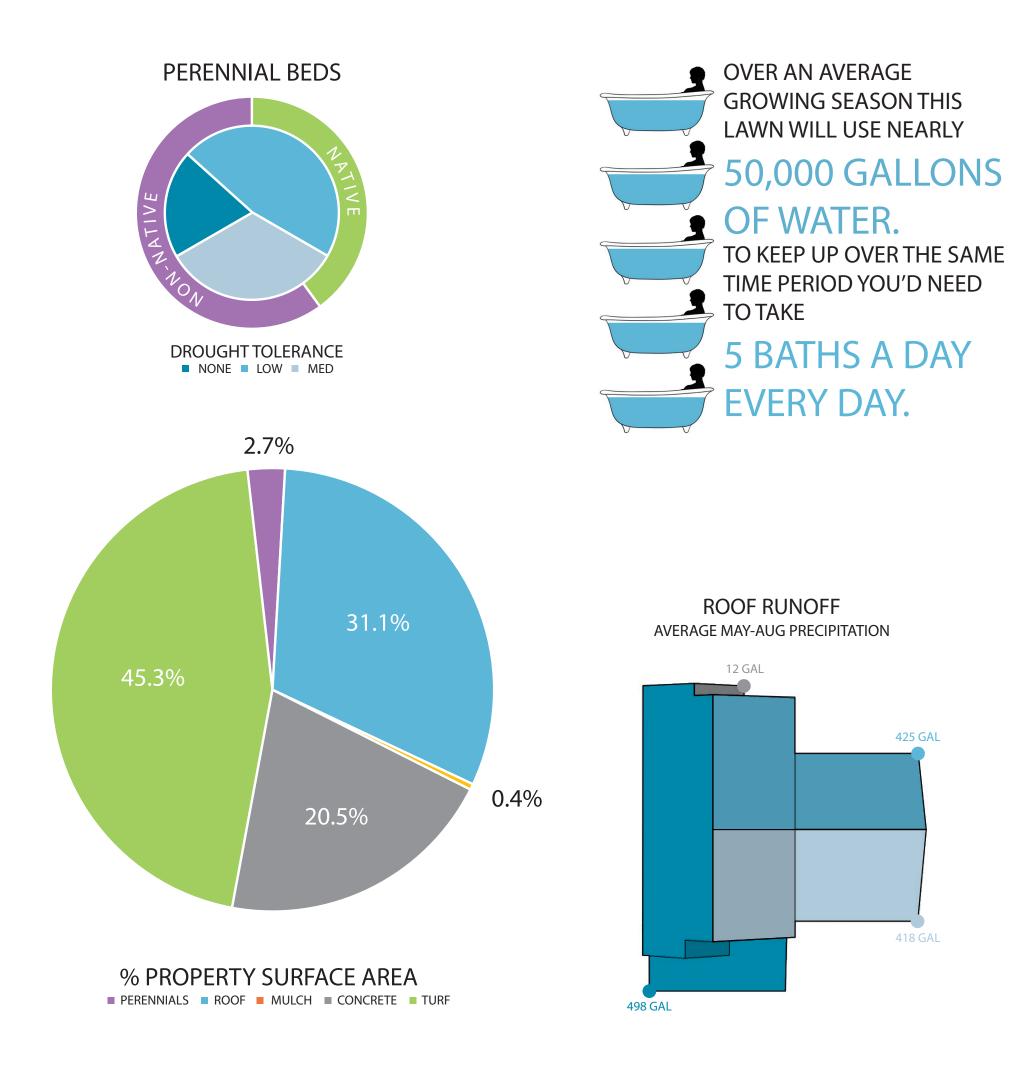




Photo by Marcela (Wikimedia)

Photo by Ghislain118 (Wikimedia)

Photo by Matt Lavin

Photo by Kor!An (Wil

SITE 6:

TOTAL PARCEL SIZE: 5,286 SF HOUSE SIZE: 1,527 SF % PERVIOUS SURFACES: 54% % IMPERVIOUS SURFACES: 46%

THE HOUSE & GARAGE ON SITE ARE ORIENTED EAST-WEST. THE FRONT DOOR OF THE HOUSE IS LOCATED ON THE WEST SIDE.

> EXISTING VEGETATION: 23% VEGETATION = MT NATIVE 12.5% OF TOTAL VEGETATED AREA (2,934 SF) = DROUGHT TOLERANT

HUMAN COMFORT ZONE 1/2 FEATURES: ENCLOSED PORCH THAT IS HIGHLY SECLUDED; ALLOWS FOR RELAXATION & ORGANIZED SOCIALIZATION.

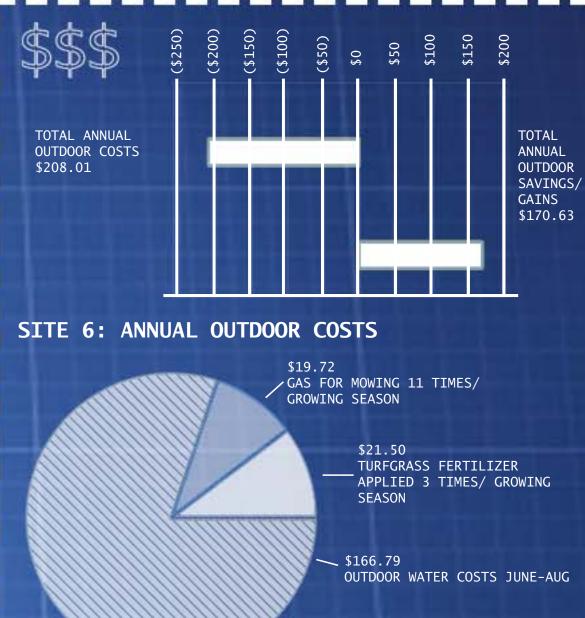
SUMMER SOLSTICE SUN-SHADE ANALYSIS

THE NORTH SIDE OF THE HOUSE RECEIVES 4.5 HOURS OF DIRECT SUNLIGHT

THE EAST SIDE OF THE HOUSE RECEIVES 5.5 HOURS OF DIRECT SUNLIGHT

THE SOUTH SIDE OF THE HOUSE RECEIVES 6 HOURS OF DIRECT SUNLIGHT

THE WEST SIDE OF THE HOUSE RECEIVES 8.5+ HOURS OF DIRECT SUNLIGHT HUMAN COMFORT ZONE 2/2 FEATURES: VIEWS OF LANDSCAPE PROVIDES AN AREA FOR RELAXATION AS WELL AS SPONTANEOUS SOCIALIZATION; SOCIALIZATION WITH NEIGHBORS & PEDESTRIANS PROMOTED DUE TO OPEN ATMOSPHERE OF PORCH



SITE 6: ANNUAL OUTDOOR SAVINGS / GAINS

SOIL ON SITE: LOAM PRIME AGRICULTURE LAND POOR DRAINAGE MODERATE-VERY FAST PERMEABILITY RATE

WINTER SOLSTICE SUN-SHADE ANALYSIS

THE NORTH SIDE OF THE HOUSE RECEIVES A MAXIMUM OF 1 HOUR OF DIRECT SUNLIGHT

THE EAST SIDE OF THE HOUSE RECEIVES 2.5 HOURS OF DIRECT SUNLIGHT

THE SOUTH SIDE OF THE HOUSE RECEIVES A MAXIMUM OF 1 HOUR OF DIRECT SUNLIGHT

THE WEST SIDE OF THE HOUSE RECEIVES 4 HOURS OF DIRECT SUNLIGHT

\$4.47 STORMWATER SAVINGS

ENERGY SAVING

-\$159.00 PROPERTY VALUE INCREASE FROM 2 FRONT YARD TREES