

d4.1 COOPERATING WITH TOPOGRAPHY

d4.2 APPROACH AWARENESS

d4.3 DRAINAGE

d4.4 RESPONDING TO VIEWS

d4.5 USING THE SUN

d4.6 USING THE SUN- PASSIVE SOLAR

d4.7 USING THE SUN- ACTIVE SOLAR

d4.8 VEGETATION

d4.9 CONSIDERING IT ALL.....

SITE designing with the site **d4.1**

COOPERATING WITH TOPOGRAPHY

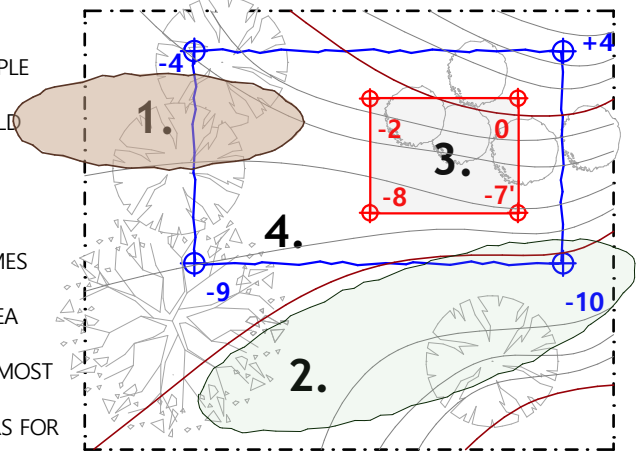
PRIMARY SITE FUNCTIONS (d3.7-d3.9)

***TOPO & APPROACH**_APPROACH DRIVES CAN MANAGE DIFFICULT TOPOGRAPHY. BUT SIMPLE LOGIC DICTATES THAT FLATTER IS BETTER. EASIER TO BUILD, MAINTAIN, AND NAVIGATE.

***TOPO & SEPTIC**_(d1.6) GET PROFESSIONAL HELP DETERMINING THE TYPE AND SIZE OF FIELD THAT MAY BE REQUIRED_EARLY. IF A CONVENTIONAL GRAVITY FIELD IS CALLED FOR THE REQUIRED DRAIN LINES NEED TO FOLLOW THE CONTOUR LINES. IF PUBLIC SEWERS ARE AVAILABLE THEN AN ACCEPTABLE GRAVITY PATH NEEDS TO BE DETERMINED.

***TOPO & BUILDING FOOTPRINT**_THE FOUNDATION SYSTEM MUST ACCOMMODATE THE TOPOGRAPHICAL DIFFERENCES THAT WILL EXIST AT THE CORNERS. THIS FOOTPRINT BECOMES RESPONSIBLE FOR THE LARGER CONSTRUCTION AREA.

***TOPO & CONSTRUCTION AREA**_THE CONSTRUCTION AREA INCLUDES THE PERIMETER AREA BEYOND THE BUILDING FOOTPRINT REQUIRED FOR THE CONSTRUCTION PROCESS ITSELF, DRAINAGE, AND THE VEHICLE ARRIVAL/MANAGEMENT SPACE. THE VEHICLES REQUIRE THE MOST SPACE, AND AND MOST SENSITIVE TO TOPOGRAPHICAL DIFFERENCE. STEEPER TOPO CONDITIONS END UP REQUIRING STRUCTURAL RETAINING WALLS AND OR TIGHT QUARTERS FOR MOVING VEHICLES AROUND.



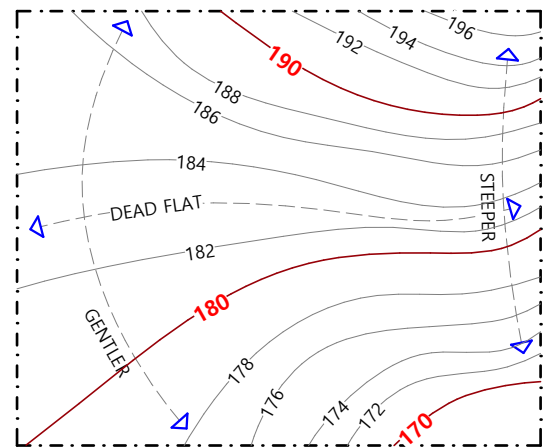
READING THE TOPO & WALKING THE SITE

***SITE PERCEPTION**_ BOTH READING A TOPO MAP AND WALKING A SITE ARE ALWAYS RECOMMENDED. THE TOPO MAP IS THE OVERVIEW DOCUMENT. WALKING THE SITE IS THE 'REAL TIME' EXPERIENCE.

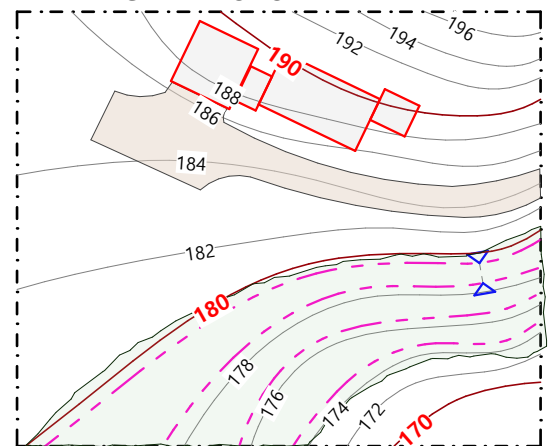
***CHECKING/QUANTIFYING SLOPE**_SEE d3 'WORKING WITH TOPOGRAPHY'

***THE RULE**_COOPERATING WITH A TOPOGRAPHY IS CERTAINLY PRACTICAL AND USUALLY COST EFFECTIVE. BUT....

***THE EXCEPTIONS**_THERE MAY BE ACCESS, DRAINAGE, VIEW, SUN OR TREE CONDITIONS, THAT OVERRIDE THE COOPERATIVE PRACTICAL APPROACH. THERE ARE MANY SCENARIOS WHERE THIS MAY BE TRUE. THE ADVISE IS DO NOT THROW OUT A GREAT VIEW, OR A DESIRED SUN EXPOSURE, OR A REWARDING APPROACH VIEW TO THE HOUSE, WITHOUT CONSIDERING LONG TERM VALUE. PRACTICAL IS NOT ALWAYS BEST.



READING THE TOPO



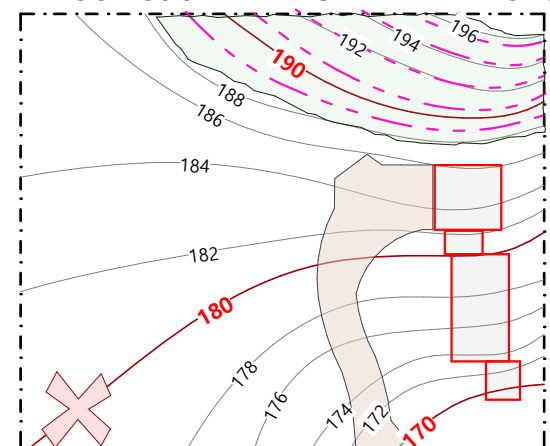
COOPERATING WITH THE TOPO-SAMPLE LAYOUT

***THE APPROACH**_THE APPROACH IS 'ON CONTOUR' AND THE ARRIVAL AREA IS AS FLAT AS THE SITE IS OFFERING.

***THE SEPTIC**_ GRAVITY SEPTIC MUST FOLLOW THE SITE CONTOURS. AND THIS FIELD IS BELOW THE HOUSE SO SEWAGE LINES FEED THE DISTRIBUTION SYSTEM USING GRAVITY FLOW.

***THE CONSTRUCTION AREA & BUILDING FOOTPRINT**_FOOTPRINT COMPONENTS ARE ARRANGED ALONG THE CONTOUR LINES REQUIRING THE MINIMUM CUT AND FILL. THE GARAGE COMPONENT IS NATURALLY SET AT A SLIGHTLY LOWER ELEVATION THAT THE LIVING SPACES WHICH IS DESIRABLE.

LAYOUT COOPERATING WITH THE TOPO



FIGHTING THE TOPO-SAMPLE LAYOUT

***THE APPROACH**_FIGHTING THE TOPOGRAPHY GOING UPHILL. THE ARRIVAL LOCATION IS WORKABLE, NOT GREAT.

***THE SEPTIC**_ SEPTIC FIELD ITSELF MUST FOLLOW CONTOUR LINES BUT THE FIELD IS ABOVE THE HOUSE SO SEWAGE NEEDS TO BE PUMPED UPHILL BEFORE DISTRIBUTION. NOT IDEAL PARTICULARLY WHEN POWER GOES OUT.

***THE CONSTRUCTION AREA & BUILDING FOOTPRINT**_FIGHTING THE TOPO ALSO. THERE IS 18' OF 'FALL' FROM CORNER TO CORNER, AND THE LIVING SPACES ARE BELOW THE GARAGE.

LAYOUT FIGHTING THE TOPO

APPROACH ANALYSIS KEYS

- *ACCESS POINT FROM ROAD_
- *TARGET VIEW TO HOME_
- *ARRIVAL LOCATION CONVENIENCE_
- *ARRIVAL LOCATION SPACE_
- *DRIVEWAY LENGTH_
- *DRIVEWAY DIFFICULTY_

ACCESS POINT FROM ACCESS ROAD

- *PERMISSIONS_ CONNECTING PRIVATE DRIVES TO PUBLIC ROADS MAY REQUIRE PERMISSIONS & HAVE CONDITIONS AND RESTRICTIONS. ALWAYS CHECK.
- *VIEW LINES & SAFETY_ IT IS IMPORTANT AND SOMETIMES REQUIRED THAT A DRIVEWAY 'CUT' (CONNECTION TO THE ACCESS ROAD) HAVE A CLEAR AND DISTANT VIEW LEFT AND RIGHT.
- *TOPOGRAPHY_ FORTHOUGHT TO THE DRIVE PATH, AND AVOIDANCE OF SEVERE TOPOGRAPHY AT THE ACCESS POINT IS SENSIBLE.
- *DRAINAGE/CULVERT_ BECAUSE MOST PUBLIC ROADS HAVE A CENTER CROWN, THERE IS A DRAINAGE 'SYSTEM' OF SOME SIZE AND CAPACITY ON BOTH SIDES. THAT DRAINAGE CANNOT BE INTERRUPTED SO A DRAINAGE PIPE (CULVERT) NEEDS TO BE INSTALLED. USUALLY A SIMPLE INSTALL.
- *EXISTING CURB CUTS_ SUBDIVISION LOTS AND OFTEN URBAN 'INFILL' LOTS MAY HAVE EXISTING CURB CUTS WHICH PRETTY MUCH DEFINE A MANDATORY ENTRY POINT. CHECK IF THIS IS A CONDITION.

TARGET VIEW TO HOME

- *BEST VIEW_ IT IS NICE TO SHOW THE BEST VIEW OF THE HOME TO ONESELF- AND TO GUESTS. THAT DESIRED VIEW NEEDS TO BE IDENTIFIED AND THE VIEW PERSPECTIVE UNDERSTOOD BEFORE LAYING OUT THE DRIVE PATH. A CHALLENGE OFTEN IS THE VEHICLE ARRIVAL SPOT_
- *CONSIDERATIONS_ OPEN PARKING, CARPORT, OR GARAGE WITH DOORS CAN BE ATTRACTIVE AND TIDY, OR THEY CAN BE REAL UTILITY ZONES THAT WANT TO BE OUT OF SITE. IF THAT UTILITY ZONE NEEDS TO BE HIDDEN FROM DIRECT VIEW THE DESIGN PROBLEM DOES GET TOUGHER. SEE (d5) FOR SOME ALTERNATE HOME DESIGN OPTIONS.

ARRIVAL LOCATION CONVENIENCE

- *BEST SPOT_ THE UNIVERSAL DESIRE IS FOR THE ARRIVAL/PARKING SPOT BE NEAR AN ENTRY, A MUD RM OR CLOSET AREA, AND THE KITCHEN.

ARRIVAL LOCATION SPACE

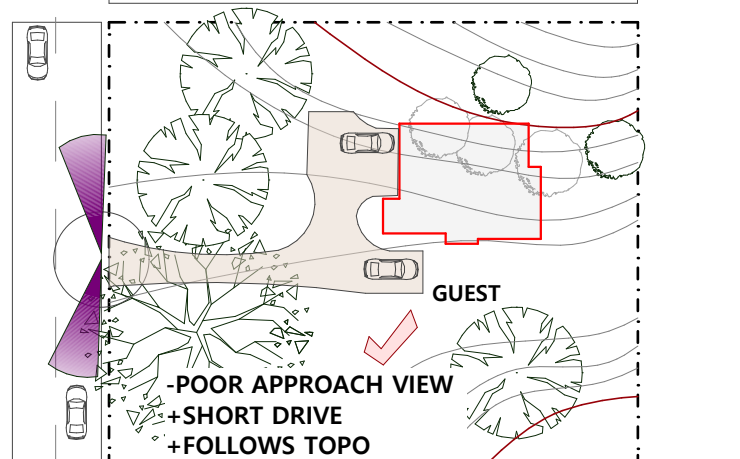
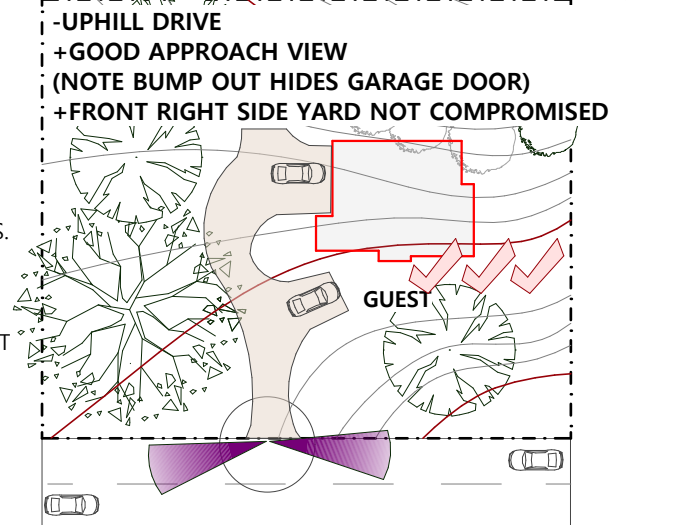
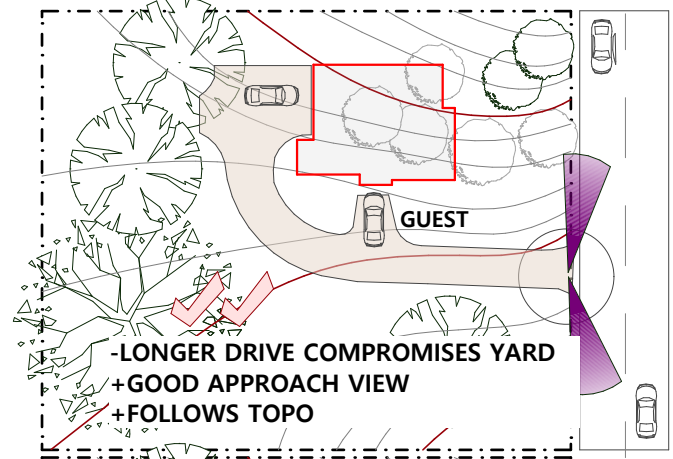
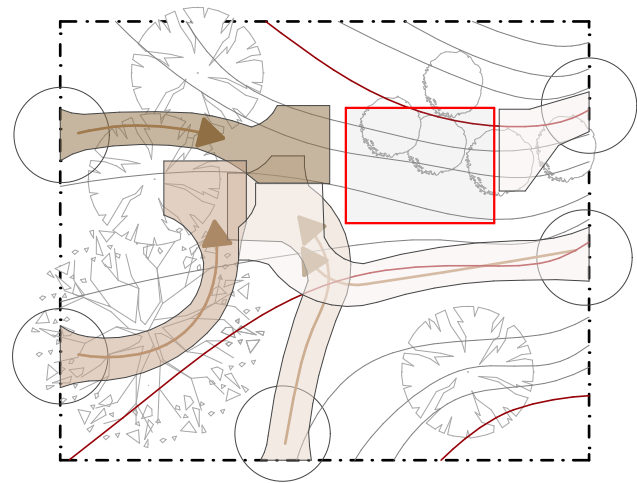
- *VEHICLE COUNT_ HOW MANY VEHICLE ARE BEING MANAGED NEEDS TO BE DETERMINED. ALL VEHICLES NEED TO BE ABLE TO TURN AROUND AND EXIT IN SOME FASHION. SEE (d8.2,8.3) FOR VARIOUS VEHICLE DIMENSIONAL REQUIREMENTS.
- *PARKING & COVER_ OPEN PARKING, CARPORT PARKING AND GARAGE PARKING HAVE SLIGHTLY DIFFERENT SPACE NEEDS. ATTACHED OR DETACHED COVERD PARKING ALSO HAVE DIFFERENT SPACE NEEDS. SEE (d8.4,8.5) FOR PARAMETERS.
- *TOPOGRAPHY_ STEEPER TOPOGRAPHIES MAKE THIS DESIGN ISSUE IMPORTANT. CUT AND FILL OPERATIONS ARE COMMON. WHEN CUT AND FILL NEEDS TO BE AGGRESSIVE STRUCTURAL RETAINING WALLS COME INTO PLAY WHICH ARE COSTLY.

DRIVEWAY LENGTH (TOTAL SQUARE FOOTAGE IS THE COST MEASURE)_

- *EFFICIENCY_ THE SHORTER (AND NARROWER) A DRIVE THE LESS COSTLY TO INSTALL AND MAINTAIN. THERE ALSO CAN BE VIABLE AESTHETIC REASONS TO CREATE A BEND OR CURVE-
- *WIDTH_ DRIVES VARY GENERALLY FROM 9' WIDE TO 13' WIDE. STRAIGHT RUNS CAN BE NARROWER. CURVES WANT TO BE WIDER. SWITCH BACKS WIDER STILL.
- *DRAINAGE_ DRAINAGE IS A CONSIDERATION, BUT ONE THAT USUALLY CAN BE MANAGED WITH THOUGHTFUL CONSTRUCTION.

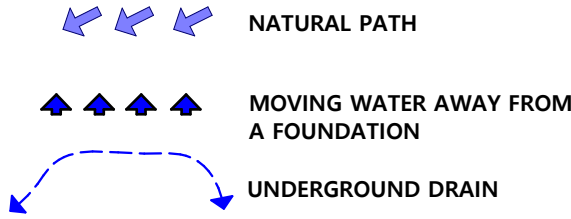
DRIVEWAY DIFFICULTY

- *COMMON SENSE_ REMOVALS, TURNS, STEEP GRADE ALL ADD COST & MAINTENANCE. WISDOM SIMPLY SUGGESTS AVOID THEM WHEN POSSIBLE.
- *THE BASE_ MOST PROJECTS REQUIRE THAT A SUB BASE BE INSTALLED FOR CONSTRUCTION EQUIPMENT, WHICH NECESSARILY INCLUDES A TURN AROUND SPACE. IT IS SMART TO KNOW THE FINAL DRIVEWAYS DESTINATION AND PLACE THAT SUB BASE THERE. IT WILL BE COMPACTED NICELY DURING THE CONSTRUCTION PROCESS.



DRAINAGE ANALYSIS KEYS

- ***TOPO & NATURAL MOVEMENT_**
- ***GENERAL SITE GRADING_**
- ***SWALES_**
- ***DIVERTING_**
- ***SLOPE FROM FOUNDATION_**
- ***FOUNDATION DRAINS_**
- ***POINT TO POINT_**



WATER WARNING!

***RAIN EVENTS** CERTAINLY EXIST AND DO SEEM TO BECOMING MORE FREQUENT. HEAVY RAIN EVENTS DO NOT ALLOW ENOUGH TIME FOR THE EARTH TO DRINK THE WATER AS IS ITS NATIVE DESIRE. SO IT RUNS, AND IT FLOODS. THE AMOUNT OF WATER THAT IS CREATED IN A RAIN EVENT FROM A SIMPLE DRIVEWAY AND ROOF SURFACE IS IMMENSE. RAIN EVENTS NEED TO BE TAKEN SERIOUSLY. (d.10)

***DESIGNING FOR WATER** FORMULAS FOR CALCULATING AND MANAGING WATER VOLUME ARE EASILY FOUND.

TOPO & NATURAL MOVEMENT

***PERPENDICULAR PATH** UNDER NORMAL CIRCUMSTANCES SURFACE WATER WILL SHED (RUN) PERPENDICULARLY TO THE TOPO.

***GATHERING AND SPREADING** USING THE PERPENDICULAR RULE ON A TOPO MAP WILL DEMONSTRATE THAT WATER GATHERS WHEREVER CONTOUR LINES ARE CONCAVE AND WATER WILL SPREAD WHEREVER CONTOUR LINES ARE CONVEX. (CONCAVE AND CONVEX HERE ARE BASED ON THE DESCENDING TOPOGRAPHICAL DIRECTION)

GENERAL SITE GRADING

***EXCAVATION** SITES ARE 'EXCAVATED' TO ACCOMPLISH THE HARD CONSTRUCTION.

***GRADING** SITE AREAS AROUND THE HARD CONSTRUCTION ARE "GRADED" TO CREATE PARKING AREAS, YARDS, LANDSCAPING, **AND PROPER DRAINAGE**. USING THE SIMPLE RULE OF PERPENDICULAR TRAVEL IS A PRIMARY TOOL IN MANAGING SURFACE WATER. GOOD EXCAVATORS CAN READ TOPO WITH THE BEST OF THEM AND USUALLY KNOW WHAT TO DO. NOT SO GOOD EXCAVATORS AND YOU TAKE YOUR CHANCES.

SWALES

***GATHERING & DIRECTING THE PATH** A SWALE MAY BE SPECIFICALLY CREATED TO GATHER WATER AND DIRECT IT (SOMEWHERE).

***FLEXIBLE** A BROAD AND SHALLOW SWALE WILL SLOWLY MANAGE WATER IN A GENERAL DIRECTION. A TIGHT AND NARROW SWALE CAN DIRECT A LARGE VOLUME OF WATER TO A SPECIFIC POINT (WITH MORE VELOCITY). THE SWALE IS A SIMPLE AND EFFECTIVE GRAVITY DESIGN TOOL. BIGGER GRAVEL (BALLAST OR RIP RAP) CAN BE A VERY GOOD FRIEND WHEN AGGRESSIVELY DIRECTING WATER.

DIVERTING

***DIVERTING WATER AROUND SOMETHING** CONDITIONS MAY ARISE WHERE DIVERTING WATER WELL BEFORE IT CAN BECOME A PROBLEM IS SMART. ONE NOT UNCOMMON CONDITION IS DIVERTING UPHILL WATER BEFORE IT GETS TO A YARD AREA, OR A FOUNDATION.

***TECHNIQUES** EARTH BERMS, DESIGNED SWALES, HARDSCAPE WALLS, LANDSCAPE DRAINS CAN ALL ALTER THE POSSIBLE COURSE OF WATER AS A DRAINAGE DESIGN SOLUTION.

SLOPE FROM FOUNDATION

***SIMPLE AND VERY IMPORTANT** A GIVEN SLOPED SITE WILL LIKELY HAVE SOME OF THE NATURAL TOPOGRAPHY RUNNING TOWARD THE FOUNDATION (BUILDING FOOTPRINT) AND THEREFORE BRINGING SURFACE WATER. LIKELY ALSO IS NATURAL TOPOGRAPHY RUNNING AWAY FROM THE FOUNDATION. KEEPING FOUNDATION WALLS DRY IS USUALLY REQUIRED AND ALWAYS DESIRED. THEREFORE SLOPING GRADE AWAY FROM THE FOUNDATION WILL HELP PREVENT WATER FROM SITTING AT THE FOUNDATION PERIMETER.

***CODE REQUIRED** WHETHER A GRADED SLOPE OR A NATURAL ONE, A TYPICAL CODE REQUIREMENT WOULD BE A MINIMUM FALL OF 6" IN 10' (5%) FOR 10'. AT THE 10' LINE WATER STILL NEEDS TO BE MOVED AWAY OR AROUND OR WILL POND AND BECOME A DIFFERENT PROBLEM.

FOUNDATION DRAINS

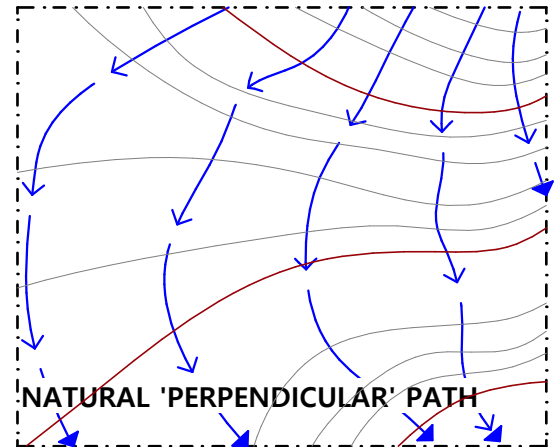
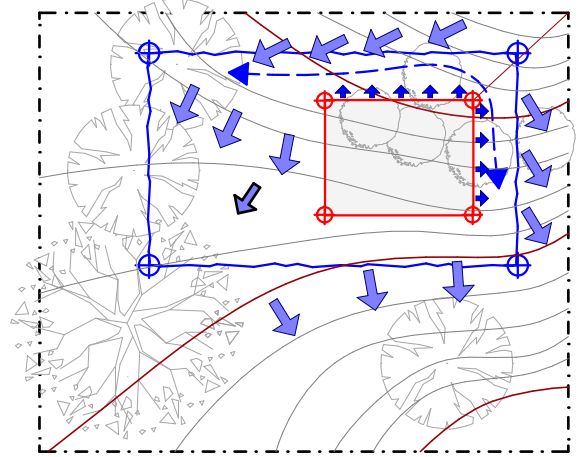
***THE IDEA** A SLOPED GRADE AWAY FROM A FOUNDATION IS NOT A GUARANTEE OF KEEPING A FOUNDATION ASSEMBLY DRY. A PERIMETER FOUNDATION (UNDERGROUND) DRAIN IS USUALLY ALSO REQUIRED OR DESIRED.

***TECHNIQUES** SEVERAL DIFFERENT SYSTEMS FOR FOUNDATION DRAINS EXIST AND ARE MORE COMPLETELY NOTED IN THE CONSTRUCTION GUIDE (c3.3).

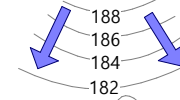
POINT TO POINT

***THE IDEA** WATER IS LED TO AND PICKED UP IN A CONCENTRATED BASIN, OR A GRADED 'MOUTH'. A SLOPED PIPE THEN CARRIES THAT WATER TO DAYLIGHT, OR AN ESTABLISHED STORM WATER SYSTEM, OR POSSIBLY A RETAINING PIT/POND/CULVERT.

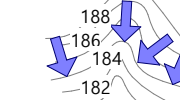
***TECHNIQUES** ANY UNDERGROUND SOLID (SLOPED) PIPE. SIZED AS REQUIRED



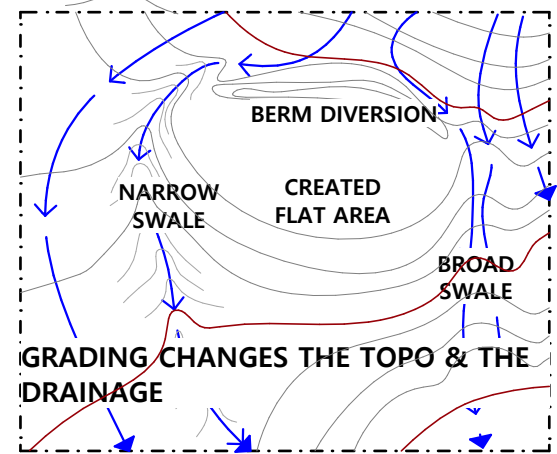
NATURAL 'PERPENDICULAR' PATH



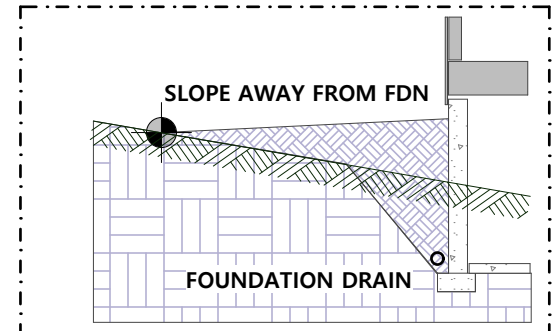
WATER SPREADS OUT ON A 'CONVEX' CONTOUR



WATER GATHERS IN A 'CONCAVE' CONTOUR



GRADING CHANGES THE TOPO & THE DRAINAGE



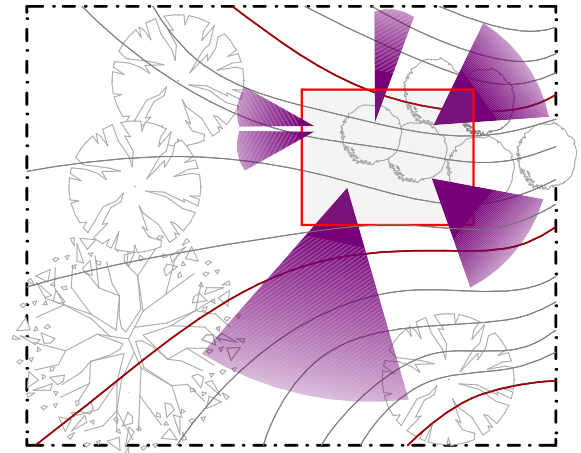
SITE_designing with the site **d4.4** RESPONDING TO VIEWS

VIEW ANALYSIS KEYS

- *BIG VIEWS_
- *SELECTIVE VIEWS_
- *CREATING A VIEW_
- *BLOCKING A VIEW_
- *CLEARING FOR VIEWS_
- *WINDOWS_

GENERAL AWARENESS

- ***WALKING THE SITE**_BE INQUISITIVE WITH THIS PROCESS OF IDENTIFYING VIEWS. THEY CHANGE A LITTLE AS ONE MOVES AROUND A SITE. SEASONAL DIFFERENCES ARE SIGNIFICANT.
- ***VIEW ELEVATION**_VIEWS ALSO CHANGE WHEN EXPERIENCED FROM AN ELEVATED POSITION. MAYBE A BIT AWKWARD, BUT USING A STEP LADDER, PULLING IN A PICK UP TRUCK AND STANDING ON THE REAR BED, OR GETTING EXTREME AND BRINGING IN A BUCKET TRUCK ARE WAYS TO ELEVATE THE SELF TO MORE ACCURATELY EXPERIENCE THAT VIEW.



BIG VIEWS

- ***ASSOCIATIONS WITH SPACE**_THE IDEA IS TO LINK UP THE BIG VIEWS WITH THE BIG WINDOWS, AND THE ACTIVITY THAT ALLOWS ONE TO SIT & ENJOY. THE FAMILY ROOM, AND EATING/KITCHEN AREAS ARE THE USUAL CANDIDATES AS MORE DAYLIGHT TIME IS SPENT IN THOSE SPACES/ACTIVITIES. DITTO FOR EXTERIOR LIVING SPACES.



BIG VIEW OPPORTUNITY HAS BOTH A HORIZONTAL AND VERTICAL COMPONENT. WINDOWS WANT TO CATCH BOTH

SELECTIVE VIEWS

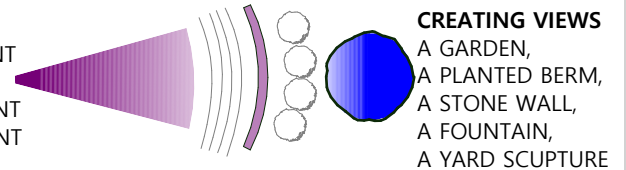
- ***IDENTIFYING THE SMALL TREASURES**_COULD BE A DISTANT VIEW, A MORNING OR EVENING GLIMPSE OF SKY, A UNIQUE TREE, A BIG ROCK. WHATEVER IT MIGHT BE, PAY ENOUGH ATTENTION TO A SITE TO ABSORB ITS SUBTLETIES.
- ***USING SOME IMAGINATION**_AS WITH THE BIG VIEWS, ONE WANTS TO LINK THESE VISUAL EXPERIENCES WITH AN ACTIVITY & A WINDOW. ASIDE FROM THE OBVIOUS BIG FAMILY ROOM WINDOWS THERE ARE PLACES WITHIN THE HOME WE MAY HAVE A MOMENT TO GAZE. THE KITCHEN WINDOW, THE BATH OR CLOSET WINDOW, AND CERTAINLY A STUDY OR OFFICE WINDOW MIGHT BE GOOD CANDIDATES. PROJECTING DAILY LIVING WITHIN THE HOME IS NEEDED HERE TO IDENTIFY THE OPPORTUNITIES.



SELECTIVE VIEW OPPORTUNITIES ALSO HAVE DIRECTION, AND X,Y, AND Z COORDINATES

CREATING VIEWS

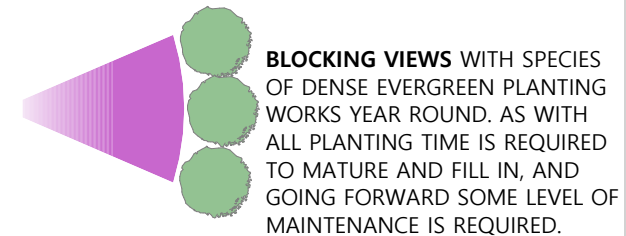
- ***THE NATURAL SITE**_SOMETIMES HAS WONDERS, AND SOMETIMES NOT. REGARDLESS, HOMEOWNERS HAVE ALWAYS ENDEAVORED TO ENHANCE THAT NATURAL ENVIRONMENT WITH LANDSCAPING, HARDSCAPING, GARDENS, & SCULPTURAL FEATURES.
- ***CAPTURE IT**_IF THE ENERGY IS BEING SPENT TO ENHANCE THAT EXTERIOR ENVIRONMENT IT MAKES SENSE TO DESIGN IT SO IT CAN BE ENJOYED FROM THE INSIDE OUT. PLACEMENT RELATIVE TO INTERIOR ACTIVITIES AND WINDOWS THEN ENHANCES THOSE VIEWS



CREATING VIEWS A GARDEN, A PLANTED BERM, A STONE WALL, A FOUNTAIN, A YARD SCULPTURE

BLOCKING VIEWS

- ***THE TOTAL NATURAL SITE**_IT IS CERTAINLY POSSIBLE THAT IN A NATURAL SETTING/SITE THERE IS A FULL 360° OF DESIRABLE VIEW. GOOD DEAL.
- ***THE NOT SO NATURAL SITE**_FREQUENTLY THERE ARE VIEWS THAT WANT TO BE BLOCKED. COMMON ARE NEIGHBORS, VEHICLES AND ROADS. ONE OPTION IS ELIMINATING WINDOWS IN THOSE DIRECTIONS, WHICH ELIMINATES NATURAL LIGHT. ANOTHER OPTION IS USING SHADES OR OBSCURE GLASS TO PERMIT LIGHT BUT NOT THE VIEW. DENSE LANDSCAPE PLANTING IS ANOTHER OPTION AND CAN BE USED TO BLOCK WHAT WANTS TO BE ELIMINATED FROM CONSCIOUSNESS.



BLOCKING VIEWS WITH SPECIES OF DENSE EVERGREEN PLANTING WORKS YEAR ROUND. AS WITH ALL PLANTING TIME IS REQUIRED TO MATURE AND FILL IN, AND GOING FORWARD SOME LEVEL OF MAINTENANCE IS REQUIRED.

CLEARING FOR VIEWS

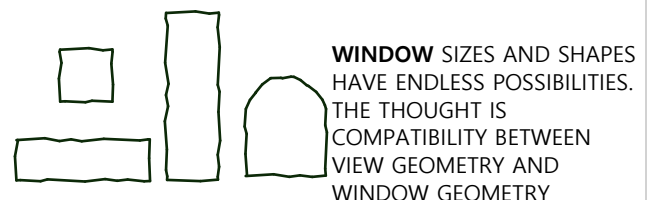
- ***THE SEASONS**_THE VIEW PATH THRU DICIDUOUS TREES CLEARLY CHANGES SEASONALLY. IDEALLY SITE LOCATIONS SHOULD BE EXPERIENCED DURING ALL 4 SEASONS PRIOR TO ATTEMPTING EXTENSIVE TREE REMOVAL OR MANICURING.
- ***TREE MANICURING & REMOVAL**_SELECTIVE REMOVAL & MANICURING IS A RESPECTFUL WAY TO OPEN VIEWS.



SELECTIVE CLEARING ALSO HAS THE POTENTIAL OF ENCOURAGING A MORE DESIRABLE AND FOCUSED VIEW

WINDOW THINKING

- ***SIZE & SHAPE**_BIG IS BIG, SMALL IS SMALL. HORIZONTALLY PROPORTIONED WINDOWS EMPHASIZE THE PANORAMA. VERTICALLY PROPORTIONED WINDOWS AND TALLER WINDOW ASSEMBLIES SHOW US THE TREE TOPS AND SKY. WHAT DOES A VIEW DESERVE IS THE DESIGN QUESTION.
- ***SITTING, STANDING, MOVING ABOUT**_OUR DAILY ACTIVITIES DO HAVE STATIONARY AND OR MOVEMENT PATTERNS THAT WINDOWS WANT TO ALLOW FOR. STANDING HT, SEATED HT, FLEXIBILITY OF SCANNING SIDE TO SIDE REQUIRE CONSIDERATION



WINDOW SIZES AND SHAPES HAVE ENDLESS POSSIBILITIES. THE THOUGHT IS COMPATIBILITY BETWEEN VIEW GEOMETRY AND WINDOW GEOMETRY

SUN ANALYSIS KEYS

- *ORIENTATION_
- *LONGITUDE & LATITUDE_
- *SUN & SPACE_
- *CONTROLLING THE SUN_

ORIENTATION

***NORTH ARROW-TRUE NORTH**_IS THE TRADITIONAL ORIENTATION DIRECTION USED UNIVERSALLY ON MAPS/PLANS/SURVEYS. IT WILL (USUALLY) POINT TOWARD TRUE NORTH. TRUE NORTH IS THE CONVERGENCE POINT OF THE LONGITUDINAL GRID SYSTEM, AND IS CONSTANT.

***MAGNETIC NORTH**_IS PHYSICALLY IN A DIFFERENT PLACE FROM TRUE NORTH, AND IS NOT CONSTANT. THE DIFFERENCE IS PERCEIVED IN THE RELATIVE EAST/WEST POSITION. EAST COAST USA IS (+/-) -13 DEGREES DIFFERENT. WEST COAST USA IS (+/-) +13 DEGREES DIFFERENT. MISSISSIPPI RIVER (+/-) NO DIFFERENT. MAGNETIC NORTH IS TRADITIONALLY 'READ' BY A MAGNETIC COMPASS.

***USING THAT COMPASS**_WITH A 'PAPER HOME DESIGN PLAN' IN HAND, STANDING ON SITE, CORRECT ORIENTATION RELATIVE TO THE NORTH ARROW CAN BE SET.

***ACCURACY**_SMALL INACCURACIES IN DETERMINING THAT TRUE NORTH, WHETHER USING A MAGNETIC OR DIGITAL (A PHONE APP), AND OR NOT CONVERTING THE DECLINATION CORRECTLY. IT FRANKLY DOES NOT MATTER UNLESS ONE IS PURSUING A SERIOUS PASSIVE SOLAR DESIGN. SEE THE NEXT PAGE.

LONGITUDE & LATITUDE

***THE GENERAL OBSERVATION**_THE SUN HAS A HIGHER MORE COMPLETE ARC IN THE SUMMER AND A LOWER AND 'SHORTER' ARC IN THE WINTER. THE FARTHER NORTH A SITE THE MORE EXAGGERATED THE SUMMER/WINTER ARC DIFFERENTIAL IS. THE FARTHER SOUTH THE MORE CONSISTENT THAT DIFFERENTIAL IS. (AT THE EQUATOR THERE IS NO DIFFERENTIAL).

***GLOBAL POSITION**_EVERY SITE HAS AN EXACT LONGITUDE & LATITUDE WHICH IS ITS GLOBAL POSITION. THAT GLOBAL POSITION IS AN IDENTITY ABSOLUTELY UNIQUE TO THAT SPECIFIC POSITION. A GPS APP WILL IDENTIFY YOUR POSITION.

***CHARTING THE SUN**_KNOWING THE LONGITUDE AND LATITUDE OF A SPECIFIC SITE THE SUNS AZIMUTH (ANGLE RELATIVE TO TRUE NORTH IN THE X,Y PLANE) AND ALTITUDE (ANGLE RELATIVE TO TRUE NORTH IN THE Z PLANE) CAN BE CHARTED FROM MORNING TO NIGHT 365 DAYS A YEAR.

***OBSERVING THE SUN**_SIMILARLY TO WALKING A SITE TO EXPERIENCE THE TOPOGRAPHY, BEING PRESENT ON SITE TO OBSERVE THE SUNRISE AND SUNSET HAS REAL VALUE. OBSERVING SAME ON BOTH SUNNY AND CLOUDY DAYS GIVES A MORE COMPLETE PICTURE.

SUN & SPACE & QUALITY OF LIGHT

***BIG TOPIC & QUESTION**_ THE DESIGN QUESTION IS- IN WHAT SPACES AND FUNCTIONS INSIDE THE HOME DOES ONE WANT WHAT QUALITY OF LIGHT???

***NORTH LIGHT**_IS INDIRECT. IT IS SOFTER AND CONSISTENTLY SO. IT CASTS NO SHADOWS.

***EAST & WEST LIGHT**_IS LOWER & CAN ENTER A SPACE DEEPLY. THE SUN (AND THE SKY) CAN BE APPEAR ALIVE AND COLORFUL. IT CAN ALSO BE SEVERE AND BLINDING.

***SOUTH LIGHT**_IS HIGHER AND DOES NOT PENETRATE AS DEEPLY. THE SUN ITSELF (NOT NECESSARILY THE AMBIENT TEMPERATURE) IS HOTTEST AS IT IS MOST DIRECT.

***VITALITY**_DIRECT SUN CREATES SHADOWS. HAVING SOME DIRECT SUN ENTERING A HOME OFFERS THAT VITALITY. WHERE AND HOW MUCH IS WHAT A HOME DESIGN CAN DIRECT AND MANAGE

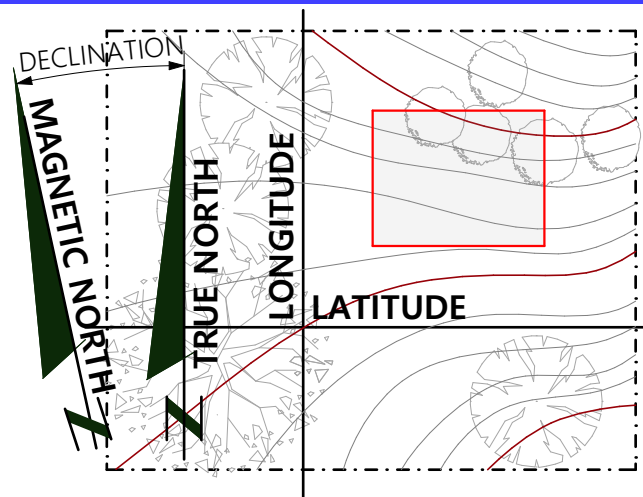
CONTROLLING THE SUN

***THE DESIGN MANAGES THE SUN**_THERE ARE MANY TOOLS TO HELP MANAGE THE SUN & LIGHT. POSITION OF SPACE, WINDOW SIZE & CONFIGURATION, ROOF OVERHANGS, EXTERIOR SUN SHADES, EXTERIOR TREES, INTERIOR SHADES AND BLINDS ARE ALL MANAGEMENT TOOLS.

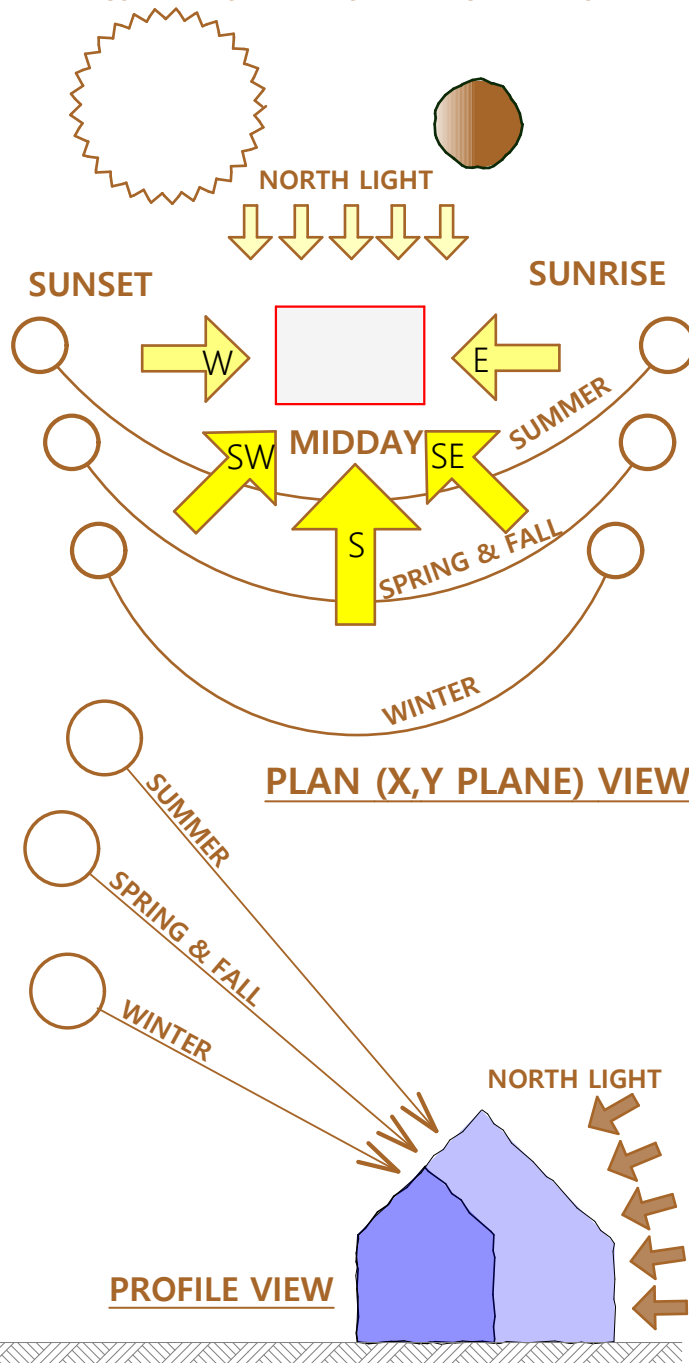
***WELCOMING THE SUN**_SOME GEOGRAPHICAL LOCATIONS WORSHIP THE SUN, AS IT DOESN'T SHOW UP ENOUGH. EVERY TOOL IN THE BOOK TO BRING IN SUN AND LIGHT MAY BE WANTED

***BLOCKING THE SUN**_OTHER GEOGRAPHICAL LOCATIONS MAY HAVE THAT HIGH BRIGHT HOT SUN PRESENT EVERYDAY, AND THE DESIGN CRITERION IS TO BLOCK IT OUT.

***ESTABLISHING THE CRITERIA**_THE END USER



THERE ARE MANY WEBSITES THAT INTERACTIVELY CHART THE SUN. OFFER A MORE SCIENTIFIC & COMPLETE OVERVIEW OF THE ANUAL PATH OF THE



SITE_designing with the site d4.6 USING THE SUN- PASSIVE SOLAR

PASSIVE SOLAR ANALYSIS KEYS

*VIABILITY ANALYSIS

*SOUTH ORIENTATION

*CONTROL TOOLS

*THERMAL MASS

VIABILITY ANALYSIS

*A GREAT & SIMPLE PRINCIPAL_DIRECT SUN CAN WARM UP A SPACE. IF A SPACE OFFERS SOMETHING TO COLLECT & RETAIN THAT HEAT FROM THE SUN (THERMAL MASS) AND RELEASE THAT HEAT AS NIGHT TIME COMES, THEN ITS A GOOD THING. A FREE HEAT SOURCE. IT IS A SIMPLE AND VERY APPEALING IDEA.

*BUT_ THE DEVIL OF COURSE IS IN THE DETAILS. DONE WRONG IT ALL CAN BE A LIABILITY. THE SUGGESTION IS TO RESEARCH PASSIVE SOLAR FROM BOTH THE ADVOCATES AND SKEPTICS SIDES BEFORE GETTING TOO ENGAGED. THERE CERTAINLY ARE INSTANCES WHERE IT CAN BE PULLED OFF EFFECTIVELY, AND OTHERS WHERE DIFFERENT ENERGY CONSERVATION PATHS ARE MUCH WISER.

*PROJECT SCALE_WE TEND TO THINK THAT PASSIVE SOLAR DESIGN IS A 'WHOLE HOUSE' ENDEAVOR. IT DOES NOT NEED TO BE. A ROOM OR ROOMS CAN BE TARGETED. STAY MINDFUL THAT PASSIVE SOLAR IS NOT JUST WARMING UP A SOUTH FACING SPACE. IT MUST HAVE THERMAL MASS TO DO ITS JOB.

SOUTH ORIENTATION

*IN PLAN_THE TARGET AREAS OF A HOME DESIGN WITH A DESIGNATED AMOUNT OF GLASS MUST FACE SOUTH.

*HEATING CYCLE_WE WANT THAT WARM SUN ENTERING THE HOUSE ONLY WHEN IN THE HEATING CYCLE (OR WHEN THE OUTSIDE TEMPERATURE IS LOWER THAN THE DESIRED INSIDE TEMPERATURE). WINTER MONTHS MOST LOCATIONS.

*COOLING CYCLE_WE DO NOT WANT WARM SUN ENTERING DURING THE COOLING CYCLE (OR WHEN THE OUTSIDE TEMPERATURE IS GREATER THAN THE DESIRED INSIDE TEMPERATURE). SUMMER MONTHS MOST LOCATIONS.

*THE VARIABLE MONTHS_MANY/MOST LOCATIONS UNFORTUNATELY EXPERIENCE SEVERAL MONTHS (SEP-NOV, AND MAR-MAY) WHEN TEMPERATURES CYCLE ABOVE AND BELOW THOSE TEMPERATURE BREAK POINTS.

*CONTROLLING THE SUN_SOME CONTROL OVER LETTING SUN IN, AND KEEPING IT OUT, BECOMES PRETTY IMPORTANT. WITHOUT SOME CONTROL TOOLS AN INTERIOR SPACE CAN REMAIN TOO COLD OR OVERHEAT. EASILY.

THE CONTROL TOOLS

*THE ROOF OVERHANG_NEEDS TO BE SET LET SUN IN, OR KEEP SUN OUT, AT A CHOSEN DATE IN SPRING AND FALL. WHEN OUTSIDE TEMPERATURES ARE BELOW THE DESIRED INSIDE TEMPERATURE WE WANT THE SUN TO ENTER. WHEN OUTSIDE TEMPERATURES ARE HIGHER THAN THE DESIRED INSIDE TEMPERATURE WE WANT TO KEEP THE SUN OUT.

*OPERABLE EXTERIOR SUN MANAGEMENT LOUVERS_ARE A MORE ACCURATE EXTERIOR CONTROL DEVICE AND THEREFORE A GREAT IDEA. THEY MANAGE THE SUN BEFORE IT HITS THE GLASS. IT IS A TOUGH DESIGN/CONSTRUCTION DETAIL. PICK EXPENSIVE, OR PICK CUMBERSOME.

*INTERIOR SHADES & BLINDS_LESS EFFECTIVE BECAUSE THE SUN HAS PASSED THRU THE GLASS. BUT EASILY OPERATED AND FAR LESS EXPENSIVE.

*SOPHISTICATED GLASS_TODAYS GLASS COATINGS GIVE US SOME ADDITIONAL CONTROL IN TERMS OF BLOCKING AND PERMITTING SUN PENETRATION. COATINGS ALSO CAN BE SELECTED MANAGE (INTERIOR) HEAT RETENTION.

*DICIDUOUS TREES_LEAVES ON THE TREE SHADE THE GLASS-SUMMER. LEAVES OFF THE TREE LET THE SUN IN-WINTER. A PERFECT AND NATURAL SOLUTION__IF THE TREES ARE IN THE RIGHT SPOT AT THE RIGHT HEIGHT WITH THE RIGHT DENSITY. (TALLER/FULLER TREES NEEDED SO THEY NEED TO BE ON SITE/MATURE).

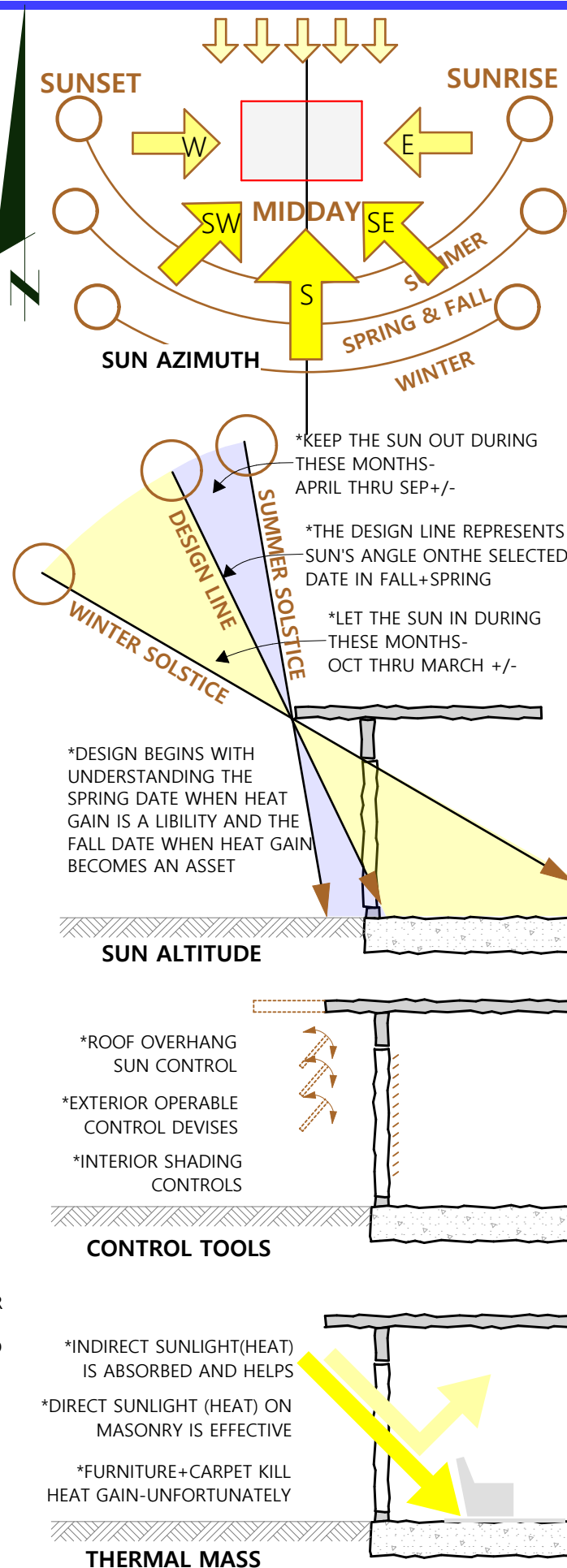
THERMAL MASS

*PHYSICAL LAW_HOT MOVES TO COLD UNTIL TEMPERATURES ARE BALANCED

*COLLECTING_THERMAL MASS WILL ABSORB THAT HEAT AND KEEP THE INTERIOR SPACE FROM OVER HEATING BECAUSE IT IS 'STORING' THAT EXCESS HEAT.

*RELEASING_WHEN AIR TEMPERATURE NATURALLY DROPS IN LATE EVENING AND INTO THE NIGHT THAT ABSORBED HEAT IS RELEASED SLOWLY BACK TO THE INTERIOR SPACE AS IT HAS COOLED AND IS CAPABLE OF RECLAIMING THE STORED HEAT.

*CHALLENGES OF THERMAL MASS_A DESIGNED BALANCE BETWEEN HEAT ENERGY IN AND HEAT ENERGY STORED IS REQUIRED. ALL MATERIALS HAVE A COEFFICIENT OF HEAT ABSORPTION. HEAVY AND DENSE IS GOOD. MASONRY PRODUCTS TOP THE LIST. CONCRETE FLOORS/STONE WALLS. AND ENOUGH TO ACHIEVE THE REQUIRED BALANCE. GETTING THE RIGHT BALANCE IS TOUGH IN AND OF ITSELF- AND MADE MORE DIFFICLT BECAUSE OF THE UNPREDEICTABLE NATURE OF THE SUN'S DAILY HEAT INTENSITY.



ACTIVE SOLAR ANALYSIS KEYS

- *VIABILITY ANALYSIS
- *ORIENTATION TO THE SUN
- *LOCATION OPTIONS
- *INTEGRATION WITH THE UTILITY COMPANY
- *BATTERIES_

VIABILITY OF SOLAR PANELS

***FINANCIAL VIABILITY**_PV ACTIVE SOLAR SOLUTIONS ARE COSTLY AND NEED TO BE THOUGHT OF AS AN INVESTMENT. THERE ARE MANY WEBSITES OUT THERE THAT CAN WALK ONE THRU THE WHOLE PROCESS AND HOOK ONE UP WITH LOCAL AND APPROPRIATE VENDORS. ONE RESPECTED SOURCE IS ENERGYSAGE.COM. IN THE END A PAYBACK CALCULATION CAN BE GENERATED. THIS TAKES THE MYSTERY OUT OF IT AND ALLOWS ONE TO MAKE A SOUND 'FINANCIAL' DECISION.

***SUSTAINABLE VIABILITY**_ACTIVE SOLAR IS UNQUESTIONABLY A PLANET FRIENDLY THING TO DO AND SHOULD BE AN IMPORTANT CONSIDERATION.

***DESIGN VIABILITY**_DESIGNING FOR ACTIVE SOLAR IS ESSENTIALLY ABOUT FINDING ADEQUATE AND PROPERLY ORIENTED SPACE FOR THE PV PANELS OR SHINGLES- AND A LITTLE 'EQUIPMENT' ROOM. AS WITH ALL DESIGN CRITERION IT IS BEST TO DEFINE AND PRIORITIZE EARLY. IF ROOF SURFACE IS GOING TO SUPPORT THE PV SOLUTION THEN AREA AND ORIENTATION OF ROOF BECOMES A MAJOR DESIGN CRITERION.

ORIENTATION TO THE SUN

***ORIENTATION OVERVIEW**_IDEAL ORIENTATIONS ACTUALLY END UP GENERATING 'BEST AVERAGES'. THE SUN ONLY PRESENTS ITSELF AT THAT OPTIMAL PLAN POSITION (MOMENTARILY) EACH DAY, AND THE BEST ALTITUDE ANGLE TWICE A YEAR (MOMENTARILY). THE EARTH DOESN'T STAND STILL. DEVIATING FROM THE OPTIMAL POSITIONING HAS AN EFFICIENCY PENALTY.

***IDEALLY**_THE SOLAR PANELS WOULD 'FOLLOW' THE SUN ALL DAY- TO MAXIMIZE EFFICIENCY. CALLED 'TRACKERS'. THEIR COSTS AND COMPLICATIONS HAVE THEM BETTER SUITED TO LARGE COMMERCIAL INSTALLATIONS.

***FACING SOUTH (AZIMUTH)**_DUE SOUTH IS BEST.

***ANGLE OF TILT (ALTITUDE)**_THE ANGLE OF THE PANEL OR SHINGLES SET AT THE LATITUDE OF THE SITE'S LOCATION IS THE RULE OF THUMB. SOME WILL ADVOCATE TWEAKING THIS. A MIDDLE OF THE COUNTRY LATITUDE IS ABOUT 36° SO A PANEL PITCHED AT 36° TOWARD THE SUN (AND FACING SOUTH) IS THE NEAR OPTIMAL POSITIONING. 36° EQUATES PRETTY CLOSELY TO AN 8in12 ROOF PITCH.

AREA THINKING

***WATTS/AREA**_WATTS IS THE ELECTRICAL ENERGY MEASUREMENT. ACTIVE PV IS RATED IN WATTS PER SQUARE FOOT. SO IF ONE HAS A TARGETED AMOUNT OF WATTS NEEDED- AND KNOWS THE PV PRODUCTS UNIT RATING- A SQUARE FOOTAGE OF SURFACE AREA CAN BE DETERMINED.

***PANELS MOUNTED ON THE ROOF**_VARIATIONS EXIST BUT THE TYPICAL PV PANEL MEASURES 3'(+)-x5'(+), AND PRODUCE 250(+/-) WATTS, OR 17 WATTS PER SQUARE FT. PANELS CAN BE HAD WITH A HIGHER RATING OF COURSE AT AN INCREASED COST.

***PANELS MOUNTED ON THE GROUND**_A PV PANEL CAN BE MOUNTED ANYWHERE. GROUND 'RACKS' ARE TOTALLY COMMON. AND CERTAINLY CAN BE HOME MADE. SOMETIMES THE GROUND, WHEN AVAILABLE, OFFERS MORE SPACE FOR MORE PANELS, AND OR BETTER ORIENTATION OPTIONS.

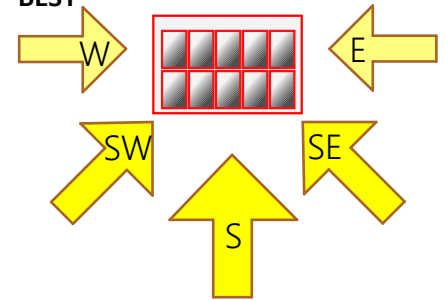
***ROOFING SHINGLES**_WITH INTEGRATED PV CELLS ARE ON THE MARKET AND ARE VIABLE. THEY PRODUCE AN AVERAGE 12 WATTS PER SQUARE FT. AND ARE A LITTLE MORE EXPENSIVE THAN PANELS PER WATT. SHINGLES ARE MORE INTEGRATED LOOKING, AND CAN FILL OUT MORE SQUARE FOOTAGE ON A ROOF SURFACE BECAUSE THEY ARE MORE SIZE FLEXIBLE THAN A PANEL. THERE NATURALLY ARE INSTALLATION CONDITIONS SO THEY DON'T YET FALL INTO THE 'NO BRAINER' CATEGORY.

THE LOCAL POWER COMPANY-ON THE GRID-OFF THE GRID

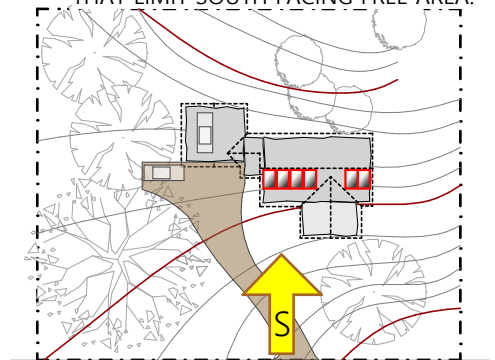
***REMEMBER**_THE SUN CANNOT DELIVER POWER AS IT IS NEEDED. THE SUN AND CLOUDS ARE ON THEIR OWN SCHEDULE. SO A 'SYSTEM' IS NEEDED SO POWER CAN BE AVAILABLE WHEN NEEDED. WEBSITE RESOURCES CAN OFFER COMPLETE EXPLANATIONS FOR THE 'SYSTEMS' OPTIONS.

***OPTIONS**_ONE CAN TEAM UP WITH THE LOCAL ELECTRICAL UTILITY AND SHARE RESOURCES 'ON THE GRID' WHICH IS WHAT IS MOST COMMON AND CONVENIENT. YOUR GENERATED ENERGY BECAUSE PART OF THE GRID'S SUPPLY SIDE AND YOU USE POWER FROM THE SAME GRID AS NEEDED. OR ONE CAN REMAIN INDEPENDENT OF THE ELECTRICAL UTILITY AND STORE THE ENERGY PRODUCED ON SITE - SO IT CAN BE TAPPED WHEN NEEDED. THIS SECOND BATTERY STORAGE BASED OPTION HAS ITS OWN SET OF COSTS, CONDITIONS, AND RULES. FOLKS MAY PURSUE THE INDEPENDENT ROUTE EITHER ON PRINCIPLE, OR BECAUSE ELECTRICAL SERVICE SIMPLY IS NOT AVAILABLE.

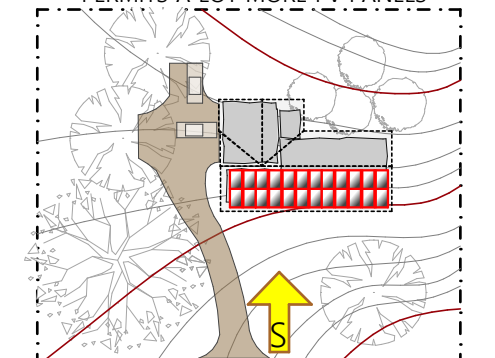
ROOF OR YARD PANELS -OR SOLAR SHINGLES FACING TRUE SOUTH IS BEST



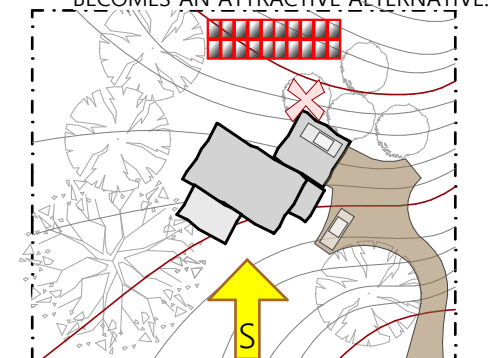
1. **DUE SOUTH ORIENTATION** BUT NOT REALLY ENOUGH ROOF AREA. THE ROOF IS CHOPPED UP- AND HAS 2 VALLEYS THAT LIMIT SOUTH FACING FREE AREA.



2. **REDESIGN** OF BUILDING COMPONENTS CHANGES THE ROOF GEOMETRY AND PERMITS A LOT MORE PV PANELS



3. **USING THE YARD** BECAUSE THE ROOF AND COMPONENTS ARE PREFERRED IN THIS ARRANGEMENT - THE YARD BECOMES AN ATTRACTIVE ALTERNATIVE.



TREES & UNDERGROWTH ANALYSIS KEYS

*GROUND COVER+SOIL STABILIZATION

*365 CHARACTER_

*CHECKING THE CONDITION OF EXISTING TREES_

*REMOVAL CRITERION_

*RECYCLING_

*CARBON CYCLE THINKING_

*NEW PLANTING_

GENERAL NOTE GROUND COVER AND SOIL STABILIZATION

***BECOMING AWARE**_IN THIS INSTANCE GROUND COVER IS LITERALLY REFERENCING WHATEVER MAY BE COVERING BARREN EARTH. IT MAY BE COMPOSTING DEAD LEAVES, HEAVY UNDERGROWTH, A GRASS OF SOME KIND, OR A ROCKY RUBBLE. WHEREVER THERE EXISTS A SLOPED TERAIN, MOTHER NATURE USUALLY HAS PROVIDED, OVER TIME, SOME NATURAL MEANS OF MANAGING SURFACE WATER FLOW. WHEN NATURAL GROUND COVER IS 'DISTURBED' BARREN EARTH IS EXPOSED, AND EROSION PROBLEMS ON SITE AND 'DOWNSTREAM' BECOME POSSIBLE.

***CONTROL DURING CONSTRUCTION**_INVESTIGATE LOCAL CONDITIONS AND REMEDIES. SILT FENCING HAS BECOME KIND OF DEFAULT CONTROL TOOL AND POSSIBLY A REQUIREMENT. SMART ON SITE DRAINAGE/WATER MANAGEMENT IS ADVISABLE. A MUDDY WORK SITE IS INEFFICIENT.

***CONTROL AFTER CONSTRUCTION**_INVOLVES A REPLACEMENT OF THAT GROUND COVER SUCH AS GRASSES, PLANTING AND MULCH, AS SOON AFTER CONSTRUCTION AS POSSIBLE.

365 CHARACTER

***SEASONAL CHANGES**_IT IS AN IDEAL SITUATION TO BE ABLE TO OBSERVE A NATURAL SETTING IN ALL SEASONS AND GET A YEAR ROUND SENSE OF BOTH APPRECIATION AND APPREHENSION FOR TREES AND UNDERGROWTH.

***GOOD, BAD AND UGLY**_WE TEND TO ROMANTICIZE TREES. THE BIG MAPLE WITH GRACEFUL BILLOWING LEAVES THAT TURN A STUNNING ORANGE AND YELLOW IN THE FALL IS A CLASSIC. BUT TREES ALSO SHED & DROP ALL KINDS OF FILTHY AND DECAYING BODY PARTS (INCLUDING THAT MAPLE) DURING THEIR ANNUAL CYCLES. THAT STUFF CAN DENT CARS, STAIN ROOFS, CLOG GUTTERS, AND BE A GENERAL SEASONAL NUISANCE.

REMOVAL CRITERION

***TREE HEALTH**_JUST LIKE HUMANS, TREES HAVE A LIFE CYCLE, AND HEALTH PROBLEMS. THERE ALSO IS AN ONGOING COMPETITION AMONGST TREES FOR LIGHT AND WATER. SURVEYING A PROPERTY FOR DYING, UNHEALTHY, OR OVERCROWDED SPECIES IS ALWAYS SMART. IT IS WISER TO SELECTIVELY REMOVE THOSE TREES AND VEGETATION BEFORE CONSTRUCTION.

***NECESSARY REMOVALS**_TREES AND VEGETATION CAN SIMPLY BE IN THE WAY OF NEW CONSTRUCTION AND HAVE TO BE REMOVED.

***SUBJECTIVE REMOVALS**_ TREES THAT ARE BORDERLINE TOO CLOSE TO CONSTRUCTION ARE A FREQUENT ISSUE. TREES DO CONTINUE TO GROW AND CAN DO SERIOUS DAMAGE TO PAVED AREAS, FOUNDATIONS & ROOFS. AND THEY ALWAYS GET MORE EXPENSIVE TO REMOVE WHEN ADJACENT TO A STRUCTURE. TREES THAT MAY BE BLOCKING VIEWS & SUN, TREES THAT ARE OMINOUSLY LEANING TOWARD THE HOUSE, ARE FURTHER CONSIDERATIONS.

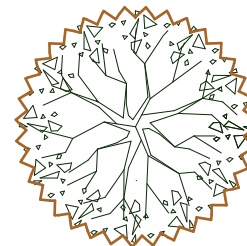
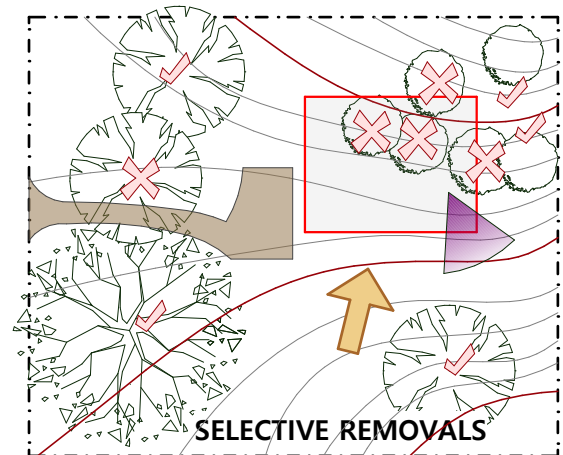
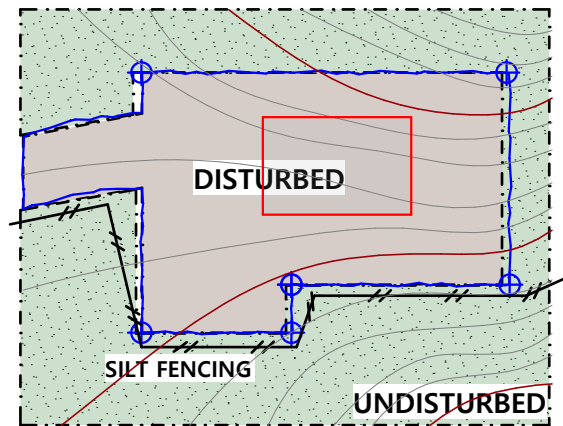
***THE REMOVAL DILEMA REGARDING THE CARBON CYCLE**_ TREES CAN MILLED INTO USEFUL LUMBER. THIS IS GOOD PRACTICE, AS LUMBER, PRIOR TO DECOMPOSITION, CONTINUES TO SEQUESTER CARBON. OTHER RE-USSES SUCH AS MULCH AND FIREWOOD HAVE VALUE. BUT DECOMPOSITION AND BURNING BEGIN THE RELEASE OF CARBON DIOXIDE BACK INTO THE ENVIRONMENT. JUST THE WAY IT IS....

REPLANTING

***THE WORLD OF LANDSCAPING**_LANDSCAPING, HARDSCAPING AND GARDENING CREATE OPPORTUNITIES THAT ARE PRETTY ENDLESS. THERE IS SOME PROBLEM SOLVING THAT NEW PLANTING CAN ACCOMPLISH. SOIL STABILIZATION, ASSISTING IN DRAINAGE REALITIES, MANAGING LIGHT AND VIEWS, CREATING FOOD (THE VEGETABLE GARDEN), AND BENEFITING CARBON SEQUESTRATION AMONG THEM.

***BENEFITING CARBON SEQUESTRATION**_NEW PLANTING AFTER A CONSTRUCTION PROJECT IS COMMON AND USUALLY NECESSARY. THERE ARE **MORE** EFFECTIVE SPECIES OF TREES, PLANTS, AND GRASSES THAT MAY MAKE A GREATER CONTRIBUTION TO CARBON SEQUESTRATION, AND HELP US RE-BALANCE SITES THAT HAVE ALTERED/REMOVED LIVE GROWTH. MORE SCIENCE BECOMES AVAILABLE ON THIS ISSUE ALL THE TIME, AND MORE INFORMATION ON THE RELATIVE SEQUESTRATION VALUES OF VARIOUS PLANT TYPES AND SPECIES.

***COOPERATIVE EXTENSION SERVICES**_ARE ONE NATIONALLY ACCESSIBLE RESOURCE AVAILABLE TO ALL FOR BETTER INFORMATION ABOUT THIS IMPORTANT DESIGN PROBLEM.



TREE DRIPLINE IS THE DIAMETER OF THE LEAF CANOPY. THE RULE OF THUMB IS CONSTRUCTION OUTSIDE THE DRIPLINE WILL NOT DAMAGE A TREE, AND CONSTRUCTION WITHIN MIGHT.



CHARACTER & PURPOSE

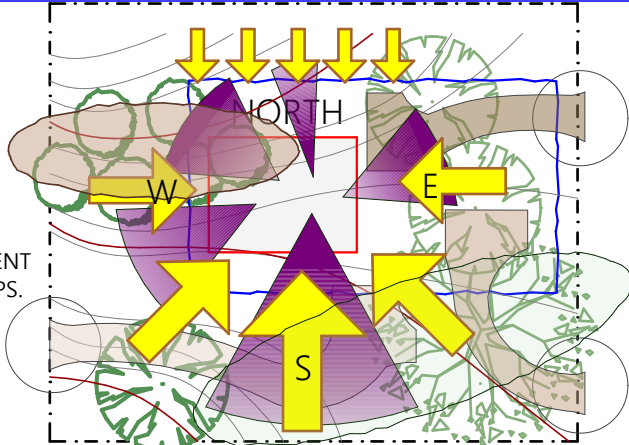
INTELLIGENTLY SELECTING NEW PLANTINGS REQUIRES AN AESTHETIC SENSE AS WELL AS AN UNDERSTANDING OF THE SEQUESTRATION NOTED.

TOTAL PICTURE ANALYSIS KEYS

- *TOPOGRAPHY_
- *APPROACH_
- *DRAINAGE_
- *VIEWS_
- *SUN_
- *VEGETATION_

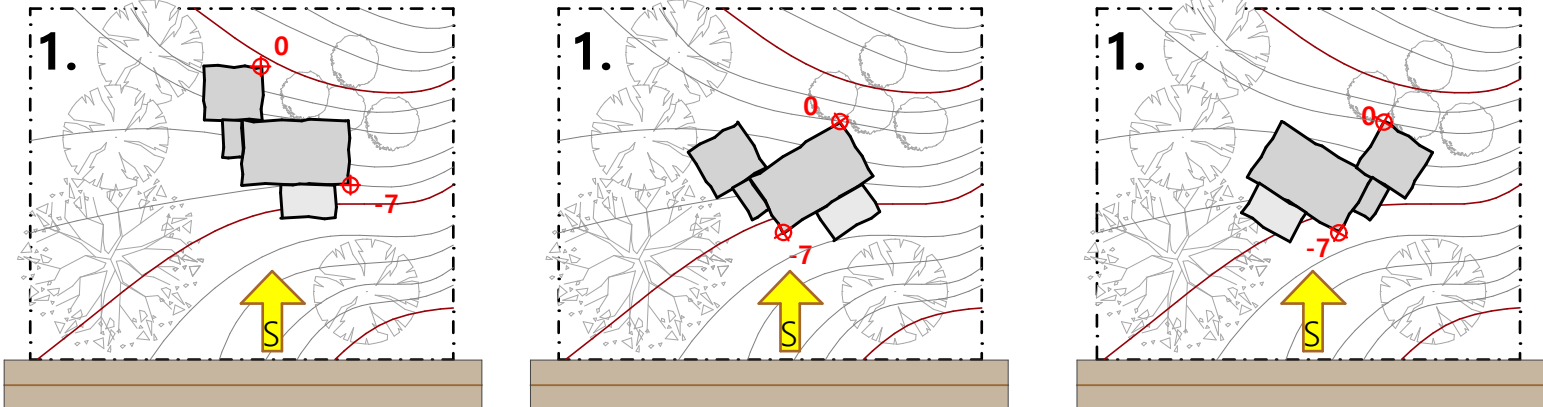
TESTING SITE OPTIONS

***LAYERED PLAN ILLUSTRATION**_EACH OF THE SITE CONSIDERATIONS NEED INDEPENDENT ANALYSIS WHILE CONSIDERING THE BIG PICTURE. BREAKING IT DOWN INTO PARTS HELPS.
 ***DESIGN SEQUENCE BELOW**_SUGGESTS THE DESIGN PROCESS CAN BE APPROACHED METHODICALLY. SOME CRITERION MUST FIRST BE SET. OPTIONS ALWAYS EXIST-PERSISTENCE REQUIRED. THIS EXERCISE DOES NOT CONSIDER EVERYTHING AS THAT CANNOT BE DONE IN A SIMPLIFIED PRESENTATION.



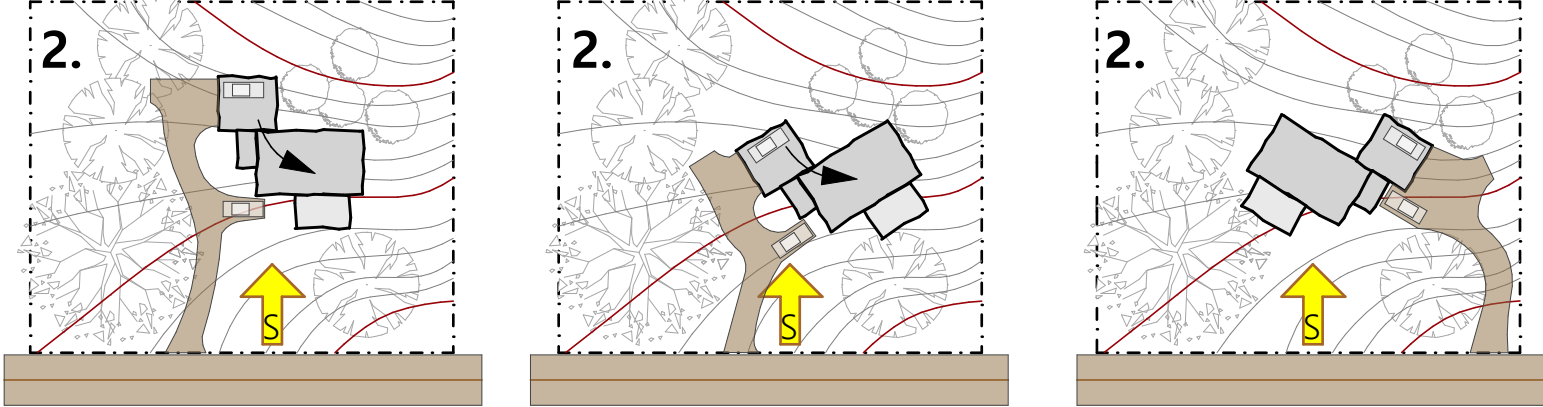
1. POSITIONING THE HOUSE

- ***FIXED SITE CONDITIONS**_BOUNDARIES, ROAD ACCESS (SOUTH SIDE), SUN ORIENTATION, TOPO, TREES
- ***DESIGN CRITERION THIS SAMPLE PROJECT**_DIRECT THE LIVING SPACES TO THE SOUTH, AVOID TREE REMOVAL AS IS POSSIBLE.



2. APPROACH DESIGN

- ***SITE CONCERNS**_MINIMIZE GRADE PROBLEMS, TRY TO KEEP DRIVEWAYS OUTSIDE OF TREE DRIP LINES
- ***DESIGN CRITERION THIS SAMPLE PROJECT**_2 CAR GARAGE WITH TURNAROUND, AND 1 GUEST PARKING



3. ADJUSTING THE HOUSE FOOTPRINT

***THE GARAGE**_THE GARAGE POD IS PROPORTIONALLY LARGE (TYPICAL IN SMALLER HOMES). MOVING IT AROUND HAS CONSEQUENCES. THIS EXERCISE ASSUMES THAT IS POSSIBLE. BOTH THE ROOF CONFIGURATION AND WINDOW ARRANGEMENT ALONG THE REAR/NORTH FACING SIDE OF THE HOME HAVE TO COOPERATE.

