



# Photovoltaic bracket zero-based training

This paper proposes a new structure for a photovoltaic (PV) simulator. The proposed simulator enables obtaining power-voltage (P-V) and current-voltage (I-V) graphs without the need for a PV panel.

Whether you're starting a new career, advancing in the industry, or adding solar skills for personal development, our online campus delivers flexible, expert-led training that fits your schedule.

This document provides a training book for installers and operators of solar photovoltaic systems. It begins with an acknowledgments section thanking contributors.

The Solar PV Installation and Design Training Program is designed to provide participants with comprehensive knowledge and practical skills essential for a successful career in the photovoltaic ...

Solar Training Academy provides you with one of the best education for solar and energy storage installation. Training is designed through crash courses that will help to learn solar and installation ...

What Is Solar Design and Installation Training? Why Is Solar Design and Installation Training Important? Seto Research in Solar Design and Installation Training Additional Resources Deploying safe, reliable solar energy systems requires a skilled workforce that is properly trained to design and install these technologies. Additionally, maintaining these systems across decades of expected operation requires experienced technicians who can identify and address any safety or performance issues. According to the 2020 Solar Jobs Ce... See more on energy.gov

```
#b_results .b_wpt_container{margin:-4px 0 0}#b_results .b_wpt_container
.cards{position:relative}#b_results .b_wpt_container
.grid{width:100%;max-width:848px;min-width:208px;display:grid;position:relative;grid-template-columns:re
peat(var(--grid-col-span),1fr);grid-auto-rows:max-content;gap:var(--smtc-gap-between-content-x-large);paddi
ng-bottom:var(--smtc-gap-between-content-medium);padding-left:1px;padding-right:1px;overflow:hidden}#b
_results .b_wpt_container .grid xed-row-height{grid-auto-rows:88px}#b_results .b_wpt_container
.card-col-1{grid-column:span 1}#b_results .b_wpt_container .card-row-1{grid-row:span 1}#b_results
.b_wpt_container .card-col-2{grid-column:span 2}#b_results .b_wpt_container .card-row-2{grid-row:span
2}#b_results .b_wpt_container .card-col-3{grid-column:span 3}#b_results .b_wpt_container
.card-row-3{grid-row:span 3}#b_results .b_wpt_container .card-col-4{grid-column:span 4}#b_results
.b_wpt_container .card-row-4{grid-row:span 4}#b_results .b_wpt_container .card-col-5{grid-column:span
5}#b_results .b_wpt_container .card-row-5{grid-row:span 5}#b_results .b_wpt_container
.card-col-6{grid-column:span 6}#b_results .b_wpt_container .card-row-6{grid-row:span 6}#b_results
.b_wpt_container .b_wpt_header .lite_acf{margin:0}#b_results .b_wpt_container:not(:has(.b_wpt_tab))
.b_wpt_header{padding-bottom:18px;border-bottom:1px solid
var(--secbrdcol,#ececec);margin-bottom:18px}#b_results .b_wpt_container
.b_wpt_header:has(.pkg_t_header_main){margin-bottom:18px;padding-bottom:0;border-bottom:0}#b_results
```

```
.b_wpt_container
.cards{ overflow:hidden;border-radius:12px;transition-property:opacity,box-shadow;transition-duration:.2s }#b
_results .b_wpt_container .cards.b_wpt_bl_bord{ box-shadow:var(--bing-smtc-shadows-card)}#b_results
.b_wpt_container
.cards.b_wpt_bl_back{ background-color:var(--bing-smtc-background-card-on-primary-alt-rest)}#b_results
.b_wpt_container .cards.large,#b_results .b_wpt_container .cards.small{ max-height:200px }#b_results
.b_wpt_container .cards.large-plus,#b_results .b_wpt_container
.cards.small-plus{ max-height:416px }#b_results .b_wpt_container
.cards.b_sideBleed{ max-width:648px;overflow:visible;border-radius:0;transition-property:none;padding-botto
m:var(--smtc-gap-between-content-medium)}#b_results .b_wpt_container .cards:hover h2
a{ text-decoration:underline }#b_results .b_wpt_container .cards.half-large{ max-height:92px }#b_results
.b_wpt_container.b_wpt_container .utilAns .lite_acf{ background:unset }#b_results
.b_wpt_container.b_wpt_container .utilAns .lite_acf
.l_mcrd_blk.l_ecrd_bkg_hlt{ background-color:unset }#b_results .b_wpt_container
.b_wpt_attr{ display:flex;justify-content:space-between;align-items:center;flex-wrap:wrap;font-size:11px }#b_r
esults .b_wpt_container .b_wpt_attr .b_wpt_footer{ display:inline-block }#b_results .b_wpt_container
.b_wpt_attr .fdbk_thmb_root{ display:inline-block }#b_results .b_wpt_container .b_wpt_attr
.fdbk_thmb_root_mob .fdbtext{ font-size:11px }#b_results .b_wpt_container .b_wpt_attr
.fdbk_thmb_root_mob.fdbk_thmb_root>a{ width:16px;height:16px;background-size:16px }#b_results
.b_wpt_container .fdbtext{ color:var(--regtxt)}#tpPreview.entityPreview{ top:100% }#b_results
.b_wpt_container .b_tpcn,#b_results .b_algoheader{ padding-top:var(--smtc-padding-ctrl-text-side)}#b_results
.b_wpt_container:not(:has(.b_smrpad))
.b_caption{ padding-top:var(--smtc-gap-between-content-x-small);padding-bottom:0}:root { --grid-row-span:
0; --grid-col-span: 6; --grid-col-span-double: 12 }#b_wpt_bl_back
.b_lcmgzsubcrd{ background-color:var(--bing-smtc-background-card-on-primary-alt-rest)}.b_lcmgzsubcrd{ ba
ckground-color:var(--smtc-background-card-on-primary-default-rest)}.b_loccardans{ color:var(--smtc-foregro
und-content-neutral-secondary)}.b_loccardans
h2{ color:var(--smtc-foreground-content-neutral-primary)}#b_results .b_loccardans a,b_loccardans
a,#b_results .b_loccardans a:visited,b_loccardans a:visited,b_dark #b_results .b_loccardans a,b_dark
.b_loccardans a,b_dark #b_results .b_loccardans a:visited,b_dark .b_loccardans
a:visited{ color:var(--bing-smtc-ctrl-link-foreground-brand-rest)}.b_lcmgzsubcrd{ height:-webkit-fill-available;
padding:var(--mai-smtc-padding-card-default);font:var(--bing-smtc-text-global-body3)}.card-row-0
.b_lcmgzsubcrd{ height:unset }.b_loccardans_hdr{ display:flex;gap:var(--smtc-gap-between-content-x-small)}#
b_content .b_wpt_container .b_lcmgzsubcrd h2,.b_lcmgzsubcrd
h2{ font:var(--bing-smtc-text-global-body3-strong);height:22px;padding-bottom:var(--smtc-gap-between-cont
ent-x-small)}.b_loccardans:has(acf-map){ block-size:100% }.b_loccardans .b_module_expansion
.b_expansion_wrapper{ border-top:0}.cards:not(.b_wpt_bl_back) .b_lcmgzsubcrd{ border:1px solid
var(--smtc-stroke-card-on-primary-rest);border-radius:var(--mai-smtc-corner-card-default)}.cards:not(.b_wpt_
bl_back) .b_ac_modal .b_lcmgzsubcrd,.cards:not(.b_wpt_bl_back)
.b_lcmgzsubcrd:has(.b_magInfoCard),.b_dark .cards:not(.b_wpt_bl_back) .b_ac_modal
.b_lcmgzsubcrd,.b_drk .cards:not(.b_wpt_bl_back) .b_ac_modal
```

```
.b_lcmgzsubcrd{border:0}.b_lcmgzsubcrd:has(acf-carousel-pbp[data-style="Standard"]){display:flex;flex-direction:column;padding-bottom:0}.b_lcmgzsubcrd>acf-carousel-pbp[data-style="Standard"]{padding:0;flex:auto;block-size:0;padding-block-start:0}#b_results .b_wpt_container .cards:hover div h2 a,#b_topw .b_wpt_container .b_wpt_bl:hover h2 a{text-decoration:none}#b_results .b_wpt_container .cards div h2 a:hover,#b_topw .b_wpt_container .b_wpt_bl h2 a:hover{text-decoration:underline}.b_loccardans .dynMap a:focus-visible{outline-offset:-2px}.b_loccardans .dynMap img{display:flex;height:100%}.b_loccardans:has(acf-map){block-size:100%}.b_lcmgzimgmap{display:flex}.b_lcmgzimgmap .b_lcmgzdmntimg{margin-inline-start:var(--smtc-gap-between-content-xxx-small)}.b_loccardans .b_lcmgzinfocard{height:182px}.b_loccardans .b_lcmgzinfocard.b_ifot{margin-top:0;margin-bottom:var(--smtc-gap-between-content-xxx-small)}#appShellRoot .b_magInfoCard .b_entityTitle{height:initial;max-height:52px;font:var(--bing-smtc-text-global-subtitle1-strong);align-items:center}.b_lcmgzimgmap .cico{border-radius:0}.b_lcmgzsubcrd:has(.b_lcmgzentitycard){padding:0}.b_lcmgzlpimg .b_lcmgzimgcard:not(:has(.b_lcmgzbgimg)) .cico,.b_lcmgzdmntimg .b_lcmgzimgcard .cico{width:100%!important}.b_lcmgzlpimg .b_lcmgzimgcard:not(:has(.b_lcmgzbgimg)) .cico img,.b_lcmgzdmntimg .b_lcmgzimgcard .cico img{width:100%;height:100%;object-fit:cover}.b_lcmgzimgmap .b_lcmgzlpimg { width: 323px; } .b_lcmgzimgmap .b_lcmgzdmntimg { width: auto; }#b_content .b_wpt_container .cards:has(.b_ifml){margin-top:var(--smtc-gap-between-content-xxx-small)}#b_results .b_wpt_container .cards:has(.b_lcmgzml){border-radius:var(--mai-smtc-corner-card-default)}.b_lcmgzimgmap .b_lcmgzmlmap{margin-inline-start:var(--smtc-gap-between-content-xxx-small)}.b_lcmgzimgmap:has(acf-map){height:200px}.b_lcmgzmlmap:has(acf-map){min-width:323px}.b_lcmgzml .b_lcmgzimgmap{flex-direction:row-reverse}#appShellRoot .b_lcmgzml .b_lcmgzimgmap{flex-direction:row}.cards:not(.b_wpt_bl_back) .b_lcmgzsubcrd:has(.b_lcmgzml .b_lcmgzinfocard){border:unset;border-radius:unset}.card-row-0 .b_loccardans .b_lcmgzinfocard:has(.b_ifml.b_isf){height:unset}#b_results .b_wpt_container .grid xed-row-height:has(.b_lcmgzentitycard .b_magifcol){grid-auto-rows:83px}.b_loccardans .b_lcmgzinfocard:has(.b_isf .b_magifcol){height:160px}.b_lcmgzinfocard:has(.b_magifcol) .b_closedbanner{margin:calc(-1*var(--mai-smtc-padding-card-default)) calc(-1*var(--mai-smtc-padding-card-default)) var(--mai-smtc-padding-card-default) calc(-1*var(--mai-smtc-padding-card-default))}.b_magInfoCard .b_magifcol{display:flex;flex-direction:row;gap:var(--smtc-gap-between-content-small)}.b_magInfoCard .b_magifcol .eh_outer{margin-bottom:var(--smtc-gap-between-content-small)}#b_results .b_magInfoCard.b_isf .b_magiftf .b_factrow,.b_magInfoCard.b_isf .b_magiftf .iconLink_outer{padding-bottom:var(--smtc-gap-between-content-xxx-small)}.b_magInfoCard.b_isf .b_magiftf .iconLink_outer:last-child{padding-bottom:0}.b_lcmgzinfocard:has(.b_isf){padding:var(--mai-smtc-padding-card-default)}.b_loccardans .b_lcmgzinfocard:has(.b_isf) .b_lmsattr:not(:has(.b_magifcol)){height:196px}.b_magInfoCard.b_isf
```

```
.isclaimed_img{height:16px}.b_magInfoCard.b_isf .siz16,.b_magInfoCard.b_isf .isclaimedinfobubble_item
svg{height:16px;width:16px;min-width:16px}.b_magInfoCard.b_isf .l_rev_pi .cipt,.b_magInfoCard.b_isf
.l_rev_pi .cipl,.b_magInfoCard.b_isf .l_rev_pi .cipg,.b_magInfoCard.b_isf .l_rev_pi
.cipa{margin-right:var(--smtc-gap-between-content-x-small)}.b_magInfoCard.b_isf .l_rev_pi
.cico{border-radius:var(--smtc-corner-circular)}.b_magInfoCard.b_isf
.iconDataList{display:-webkit-box;-webkit-line-clamp:1;text-overflow:ellipsis;overflow:hidden;-webkit-box-orient:vertical}.b_magInfoCard.b_isf .iconLink_outer
svg{padding-right:var(--smtc-gap-between-content-x-small)}#b_results .b_magInfoCard.b_isf
.b_factrow{padding-bottom:0}.b_magInfoCard.b_isf
.b_factrow{display:-webkit-box;-webkit-line-clamp:1;-webkit-box-orient:vertical;overflow:hidden;text-overflow:ellipsis;white-space:break-spaces;padding-bottom:0}.b_magInfoCard.b_isf
.iconLink_outer{padding-left:0;display:flex;align-items:center}.b_cards.oh_ib
table{color:var(--smtc-foreground-content-neutral-secondary)}.b_loccardans span.op_mht,.b_cards.oh_ib
a{color:var(--bing-smtc-ctrl-link-foreground-brand-rest)}.b_loccardans .opHours .opHr_Exp .op_dd
svg,.b_loccardans .opHours .opHr_Exp .op_ddr
svg{fill:var(--bing-smtc-ctrl-link-foreground-brand-rest)}.b_magInfoCard .b_actionBtns
a{color:var(--smtc-foreground-ctrl-on-brand-rest);background-color:var(--bing-smtc-background-ctrl-brand-rest)}.b_magInfoCard .b_actionBtns a:visited,#b_results .b_magInfoCard .b_actionBtns a,#b_results
.b_magInfoCard .b_actionBtns a:visited,#b_content .b_actionBtns
a.b_LinksColorMD{color:var(--smtc-foreground-ctrl-on-brand-rest)}.b_magInfoCard .b_actionBtns
a:hover{background-color:var(--smtc-background-ctrl-brand-hover)}.b_magInfoCard .b_actionBtns
a:active{background-color:var(--smtc-background-ctrl-brand-pressed)}@media screen and
(forced-colors:active){.b_magInfoCard.b_isf .iconLink_outer svg,.b_magInfoCard.b_isf .b_factrow
svg{fill:var(--smtc-foreground-ctrl-on-brand-rest)}.b_magInfoCard .isclaimedinfobubble_item
svg{fill:var(--smtc-status-brand-tint-foreground)}.b_magInfoCard .eh_outer .l_smi
svg{fill:var(--smtc-foreground-ctrl-icon-on-subtle-rest)}.b_magInfoCard .eh_outer .l_smi
svg:hover{background-color:var(--smtc-background-ctrl-neutral-hover)}.isclaimedinfobubble_content
a{color:var(--bing-smtc-ctrl-link-foreground-brand-rest)}.b_magInfoCard.b_isf .iconLink_outer
svg{fill:var(--bing-smtc-foreground-content-neutral-secondary-alt)}.b_magInfoCard
.b_factrow{color:var(--smtc-foreground-content-neutral-secondary)}.b_magInfoCard.b_isf .iconLink_outer
a{color:var(--bing-smtc-ctrl-link-foreground-brand-rest)}.b_magInfoCard .opHours
.e_green{color:var(--smtc-status-success-tint-foreground)}.b_magInfoCard .opHours
.e_red{color:var(--smtc-status-danger-tint-foreground)}.b_magInfoCard .opHours .e_brown,
bubble.b_cards.oh_ib .e_brown{color:var(--smtc-status-warning-tint-foreground)}.b_magInfoCard
.b_actionBtns svg{fill:var(--smtc-foreground-ctrl-on-brand-rest)}.b_magInfoCard
.b_closedbanner{background-color:var(--smtc-status-danger-background);color:var(--mai-smtc-foreground-ctrl-on-image-rest)}#b_content .b_wpt_container
.b_wpt_bl_h:hover:has(.b_magInfoCard)::after{opacity:0}.b_magInfoCard{display:flex;flex-direction:column;
;height:100%}#b_content .b_wpt_container .b_lcmgzsubcrd
h2.eh_title.b_entityTitle{padding-bottom:0;display:flex;align-items:center}.b_magInfoCard
.eh_outer{margin-bottom:var(--smtc-gap-between-content-xx-small);gap:var(--smtc-gap-between-content-sma
```

```

ll)}#b_content .b_lcmgzsubcrd .b_magInfoCard h2.b_entityTitle,#b_content .b_wpt_container .b_wpt_bl
.b_magInfoCard h2 a{font:var(--bing-smtc-text-global-subtitle2-strong)}.b_magInfoCard .eh_outer
.eh_subtitle{font:var(--bing-smtc-text-global-caption1)}.b_magInfoCard .eh_text_outer,.b_magInfoCard
.eh_outer .eh_title{overflow:visible}.b_magInfoCard h2 a:focus-visible,.b_magInfoCard .eh_subtitle
a:focus-visible{outline-offset:-2px}#b_content .b_wpt_container .eh_outer
.eh_subtitle{display:flex;padding-right:var(--smtc-padding-content-xxx-large)}#b_content .b_wpt_container
.b_magInfoCard h2 a,#b_content .b_wpt_container .b_magInfoCard h2 span.eh_title_container,#b_content
.b_wpt_container .b_magInfoCard .eh_subtitle
a{display:-webkit-box;-webkit-box-orient:vertical;-webkit-line-clamp:1;overflow:hidden;word-break:break-al
l}.b_magInfoCard
.isclaimedinfobubble_item{display:flex;align-items:center;padding-left:var(--smtc-gap-between-content-xx-s
mall)} bubble_item.isclaimedinfobubble_item
bubble_item{width:20px;height:28px;display:flex;align-items:center}
bubble_content:has(.isclaimedinfobubble_content){margin-top:-36px;padding-top:36px} bubble.b_iftw
.isclaimedinfobubble_content, bubble.b_ifml .isclaimedinfobubble_content{padding:0} bubble.b_iftw
.isclaimedinfobubble_content div:first-child, bubble.b_ifml .isclaimedinfobubble_content
div:first-child{font:var(--bing-smtc-text-global-caption1);padding-bottom:var(--smtc-gap-between-content-x-s
mall)}.b_magInfoCard .l_smi{height:28px}.b_magInfoCard .eh_outer .l_smi
svg{padding:var(--bing-smtc-padding-ctrl-icon-only-text-top)}.b_magInfoCard .eh_outer .l_smi
svg:hover{border-radius:var(--smtc-corner-ctrl-sm-hover);cursor:pointer}.b_magInfoCard
.opHours>span:first-child>span:first-child,.b_magInfoCard .opHours
bubble_item>span:first-child{font:var(--bing-smtc-text-global-caption1-strong)}.b_magInfoCard
span.opHours:hover .op_mht{text-decoration:underline}.b_cards.oh_ib
table{font:var(--bing-smtc-text-global-caption1);width:max-content}.b_cards.oh_ib
td:first-child{width:1%;white-space:nowrap}.b_cards.oh_ib td{padding:0
var(--smtc-gap-between-content-small) 0 0}.b_cards.oh_ib tr:last-child td{padding-bottom:0}.b_cards.oh_ib tr
td:last-child{padding-right:0}.b_cards.oh_ib
.ohi_at{margin-left:0;padding-top:var(--smtc-gap-between-content-x-small)}.b_cards.oh_ib:focus-visible{outl
ine:0}
bubble.b_cards.oh_ib{box-shadow:none;padding:var(--smtc-gap-between-content-medium)}.b_magInfoCard
Module.b_divsec:last-child:has(.b_actionBtns),.b_magInfoCard .b_actionBtns{margin-top:auto}#b_content
.b_wpt_container .b_wpt_bl:has(.b_iftw),#b_content .b_wpt_container .cards:has(.b_ifml){box-shadow:0 0 0
1px var(--smtc-stroke-card-on-primary-rest)}.b_closedbanner
svg#permclosedsvg{height:16px;width:16px;margin-right:var(--smtc-gap-between-content-x-small)}.b_close
dbanner{padding:var(--smtc-gap-between-content-xx-small)
var(--mai-smtc-padding-card-default);font:var(--bing-smtc-text-global-body2-strong);margin:calc(-1*var(--ma
i-smtc-padding-card-default)) calc(-1*var(--mai-smtc-padding-card-default))
var(--mai-smtc-padding-card-default)
calc(-1*var(--mai-smtc-padding-card-default));display:flex;align-items:center}.b_dark #b_content
.b_wpt_container
.b_wpt_bl_h:hover:has(.b_magInfoCard)::after{opacity:1}.eh_subtitle{line-height:18px;color:#767676}h2.eh

```

```

_title{padding-bottom:0;color:#444}.eh_outer{padding-bottom:16px}.b_bgbpad
.eh_outer{padding-bottom:0}.eh_outer .actionmenu{float:right;margin-top:-3px;margin-left:8px}.eh_outer
.bm_save_overlay{float:right;margin-top:-3px;margin-left:8px}.eh_outer .bm_save_overlay
.b_saveOnLocal{display:inline-block;position:relative;box-sizing:border-box;height:32px;width:32px;padding
-top:5px;padding-left:6px;vertical-align:top;cursor:pointer}.eh_text_outer{overflow:hidden}.eh_outer
.eh_title,.eh_outer
.eh_subtitle{display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical;overflow:hidden}.wpc_tp
.b_hList .eh_vBadge{padding-left:8px;top:5px}.wpc_tp .eh_text_outer
.b_hList{padding-bottom:0}.eh_outer{padding-bottom:0}.eh_outer
.eh_title{font-size:24px;font-family:"Arial",Helvetica,Sans-Serif;line-height:32px;color:#444}.eh_subtitle{fo
nt-size:14px}.eh_locflx .eh_text_outer{display:flex;flex-wrap:wrap;align-items:center}.eh_locflx
h2.eh_title.b_entityTitle{flex-basis:100%}.eh_locflx .eh_text_outer .eh_subtitle
a:hover{text-decoration:none}.eh_locflx .eh_text_outer h2:has(+.eh_subtitle:hover) a,.eh_locflx
.eh_header_outer .cico:hover+.eh_text_outer h2 a{text-decoration:underline}.eh_header_outer
.cico{margin-right:8px}.eh_header_outer{display:flex;flex:1 1 auto;align-items:center}.eh_outer{display:flex}.eh_text_outer{flex:1 1 auto}.eh_outer
.eh_action_outer{display:flex}.eh_outer .eh_action_outer .actionmenu{float:none}.eh_outer .eh_action_outer
.actionmenu actions{display:flex}.eh_outer .eh_action_outer .bm_save_overlay{float:none}.iconText
.cipg{margin-right:12px;margin-left:-28px}.icon_up{transform:rotate(90deg)}.icon_down{transform:rotate(-
90deg)}.icon_down,.icon_up{float:right}.iconDataList{display:initial}.iconDataList
.cbl{font-weight:700}.cipt,.cipg,.cipa,.cipl,.ciptr,.cipr{display:inline-block}.cipa,.cipl,.cipr{cursor:pointer}.v
ab{vertical-align:bottom}.vam{vertical-align:middle}.vat{vertical-align:top}.vabl{vertical-align:baseline}.vat
t{vertical-align:text-top;border-radius:0}.vatb{vertical-align:text-bottom} evronDown12,
evronUp12{background:url(/rp/QKITrqL25sGDqfRYQjkmWJWDeG8.png)
no-repeat;background-size:494px 58px;width:12px;height:12px} evronDown12{background-position:-372px
0} evronUp12{background-position:-372px -14px}@media(prefers-color-scheme:dark){#bpage.b_med
evronDown12{background-position:-386px 0}#bpage.b_med evronUp12{background-position:-386px
-14px}}#bpage.b_drk evronDown12{background-position:-386px 0}#bpage.b_drk
evronUp12{background-position:-386px -14px}.cipt,.cipl{margin-right:10px}.cipt .cico,.cipl .cico,.ciptr
.cico,.cipr
.cico{border-radius:0}.b_action>.cipt,.b_action>.cipl{float:left}.ciptr,.cipr{margin-left:10px}.sw_play{heigh
t:16px;width:16px}:not(.dc_aud_wrp)>.sw_play{background-image:url(
goAAAANSUHEUgAAACAAAAAgCAMAAABEpIrGAAAAaVBMVEUAAAAAD58AFaQAE6UAFKUA
E6QAFKUAEEqYAD58AE6QAE6UAFKQAEqUAD6QAE6MAE6QAD6cAE6QAFaQAFKQAEqQAFKUA
EqQAFKUAEEqIAFKMAEEqMAE6MAD58AE6UAE6UAE6IAFKYAFKYAE6MaDJ//AAAAI3RSTIMAEG
Cfz//XyCQj79vMEDfIKAWoK/vYL9gcHDPMM9QkK+fnzHYYSkAAAEVSURBVHgBdZMFkuwwEPPV
k/ULx8nSMN7/jh/X1dUDKgjpyaTIZavqLUF6q2rTo5o24aoaRVkH9MNOkk1DD3QW8AzV7M/zAtIDNGby
qKA5k9+d58OkKPukZFjmU0/0Qf6PdeXGVcDu3wBQphcXpxH+vlioyhtyHRwLrWQeICCEzHyZvunlBmLI
mo0WtsEQQnZU2jMFQwg5cFTCGiGEGF8CBUMMGReGdCpvng/xaT7Ennc3RFyaOMZIOu7LXLF2Q8GL
1tSyROMGx3/O0aSzH1bEyznOUKYZcC/C+XVh2nJT6Yk+yd7giz3wV/LstS8NfvgTPCN0qVkofAk8A+th
MsnehzXQmqLmBVdqHXfZ97JpKPa3ldP6DeOGDIAP873EAAAAAEIFTkSuQmCC);background-size:16px

```

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16px}.e_green{color:#006d21}.e_red{color:#c80000}.e_brown{color:#8b572a}.b_dark
.e_brown{color:#b95700}.e_orange{color:#b95700}.e_bold{font-weight:600}.e_strike{text-decoration:line-t
hrough}.hrRange{padding-right:6px}.opHours .ohi_hasAt
table{margin-bottom:0}.ohi_at{margin-left:12px}.opHr_Exp{cursor:pointer}.opHr_Exp:focus-within{outline
:auto;outline:-webkit-focus-ring-color auto 5px}.op_dd img.rms_img,.op_ddr
img.rms_img{height:6px;width:10px;padding-left:4px;vertical-align:middle;padding-bottom:2px}.opHr_Exp
.ddBtn{outline:0}.opHours td:first-child{width:1%;white-space:nowrap}.ohi_dis{color:#767676}.opHours
.tbhh tr,.opHours .tbhh tr th{height:0;border:0;padding:0}.opHours .tbhh tr th
span{position:absolute;left:-1000px}.hr_tab .opHours
.ohi_at{margin-left:0;margin-bottom:12px}.hDisc{padding-left:10px;cursor:default}.hDisc
svg{vertical-align:text-bottom;padding-right:5px}.hDisc svg path{fill:#767676}.lgb_cnt .opHours
.e_orange,.l_bgcolor_ml .opHours .e_orange{color:#ab4e00}.b_dark
.e_orange{color:#ea6c00}.op_mht{text-wrap:nowrap}.op_dd svg.dd,.op_ddr
svg.ddr{width:10px!important;height:6px!important;padding:0 0 3px
4px!important;vertical-align:middle;margin:0;min-width:unset}.opHours td{padding:0 16px 4px 0}.opHours
table{margin:8px 0 12px 12px} bubble_item, bubble_locator bubble.ifbb_tri_left, bubble_locator
bubble.ifbb_tri_right{display:inline-block} bubble.b_hide{display:none} bubble{box-shadow:0 4px 12px 0
rgba(0,0,0,.1);border:1px solid
#ddd;padding:16px;display:inline-block;position:absolute;z-index:1015;background-color:#fff;border-radius:6
px!important;line-height:20px;transform:translateY(-8px);opacity:0} bubble
bubble_dark{background-color:#000;color:#fff} bubble bubble_gray{background-color:#666;color:#fff}
bubble bubble_nar{padding:0} bubble.ifbb_tri_bottom{transform:translateY(8px)} bubble bubble_noanim,
bubble bubble_noanim bubble_content{transform:none;opacity:1;transition:initial} bubble
bubble_fullbleed{padding:16px 0 16px} bubble bubble_showNoDelay{transform:none;opacity:1} bubble
bubble_fadeIn{transition:opacity .01s linear,transform .24s
cubic-bezier(.3,.55,.1,1);transition-delay:.6s;transform:translateY(0);opacity:1}
bubble_content{word-wrap:break-word;overflow:hidden;position:relative;opacity:.4} bubble
bubble_showNoDelay bubble_content{transition:opacity .2s linear;opacity:1} bubble bubble_fadeIn
bubble_content{transition:opacity .2s linear;transition-delay:.6s;opacity:1} bubble.fullwidth{margin:0 20px}
bubble_overlay{width:100%;height:100%;position:fixed;top:0;left:0;background-color:#000;z-index:1010;op
acity:.6}
bubble_close{position:absolute;top:0;right:0;cursor:pointer;font-size:16px;line-height:16px;padding:2px 4px}
bubble bubble_tri_top fore, bubble bubble_tri_top .after, bubble bubble_tri_bottom fore, bubble
bubble_tri_bottom .after{pointer-events:none;position:absolute;border-left:8px solid
transparent;border-right:8px solid transparent} bubble.ifbb_tri_top fore, bubble.ifbb_tri_top .after,
bubble.ifbb_tri_bottom fore, bubble.ifbb_tri_bottom
.after{pointer-events:none;position:absolute;border-left:8px solid transparent;border-right:8px solid
transparent} bubble.ifbb_tri_top fore{border-bottom:8px solid #ddd;top:-8px} bubble.ifbb_tri_top
.after{border-bottom-width:8px;border-bottom-style:solid;top:-7px;border-bottom-color:#fff}
bubble.ifbb_tri_bottom fore{border-top:8px solid #ddd;bottom:-8px} bubble.ifbb_tri_bottom
.after{border-top-width:8px;border-top-style:solid;bottom:-7px;border-top-color:#fff} bubble.ifbb_tri_left

```

```

fore, bubble.ifbb_tri_left .after, bubble.ifbb_tri_right fore, bubble.ifbb_tri_right
.after{position:absolute;border-top:8px solid transparent;border-bottom:8px solid transparent}
bubble.ifbb_tri_left fore{border-right:8px solid #ddd;left:-8px} bubble.ifbb_tri_left .after{border-right:8px
solid #fff;left:-7px} bubble.ifbb_tri_right fore{border-left:8px solid #ddd;right:-8px} bubble.ifbb_tri_right
.after{border-left:8px solid #fff;right:-7px} bubble.tri_center fore, bubble.tri_center
.after{left:50%;margin-left:-8px} bubble.tri_left fore, bubble.tri_left .after{left:14px} bubble.tri_right fore,
bubble.tri_right .after{right:14px} bubble.tri_middle fore, bubble.tri_middle .after{top:50%;margin-top:-8px}
bubble.tri_top fore, bubble.tri_top .after{top:14px} bubble.tri_bottom fore, bubble.tri_bottom
.after{bottom:14px} bubble.nobeak fore, bubble.nobeak .after{display:none}
bubble_locator{position:relative;vertical-align:top} bubble_locator bubble.ifbb_tri_top, bubble_locator
bubble.ifbb_tri_bottom{left:0;right:0} bubble
bubble_lightborder{border-color:#ccc;border-bottom-color:#ccc} bubble bubble_lightborder
fore{border-top-color:#ccc;border-bottom-color:#ccc}@media(prefers-color-scheme:dark){#bpage.b_med
bubble_overlay{background-color:#faf9f8}#bpage.b_med bubble{background-color:#292827}#bpage.b_med
bubble.ifbb_tri_top fore,#bpage.b_med bubble.ifbb_tri_top
.after{border-bottom-color:#292827}#bpage.b_med bubble.ifbb_tri_top fore,#bpage.b_med
bubble.ifbb_tri_top .after,#bpage.b_med bubble.ifbb_tri_bottom fore,#bpage.b_med bubble.ifbb_tri_bottom
.after{border-top-color:#292827}#bpage.b_drk bubble_overlay{background-color:#faf9f8}#bpage.b_drk
bubble{background-color:#292827}#bpage.b_drk bubble.ifbb_tri_top fore,#bpage.b_drk bubble.ifbb_tri_top
.after{border-bottom-color:#292827}#bpage.b_drk bubble.ifbb_tri_top fore,#bpage.b_drk
bubble.ifbb_tri_top .after,#bpage.b_drk bubble.ifbb_tri_bottom fore,#bpage.b_drk bubble.ifbb_tri_bottom
.after{border-top-color:#292827} bubble.ifbb_tri_bottom bubble_dark .after{border-top-color:#000}
bubble.ifbb_tri_top bubble_dark .after{border-bottom-color:#000} bubble.ifbb_tri_bottom bubble_gray
.after{border-top-color:#666} bubble.ifbb_tri_top bubble_gray
.after{border-bottom-color:#666}.b_magInfoCard
.b_magifbtn{margin-left:auto;padding-top:var(--smtc-gap-between-content-x-small)}.b_magInfoCard
.b_actionBtns .b_hList{width:132px}.b_magInfoCard .b_actionBtns
li{padding-bottom:var(--smtc-gap-between-content-x-small);padding-right:0;width:100%}.b_magInfoCard
.b_actionBtns .b_hList>li:last-child{padding-bottom:0}.b_magInfoCard .b_actionBtns
a{font:var(--bing-smtc-text-global-caption1-strong);border-radius:var(--smtc-corner-ctrl-rest);text-decoration:
none;box-shadow:none;display:flex;align-items:center;justify-content:center;padding:var(--smtc-padding-ctrl-
text-top) var(--smtc-padding-ctrl-horizontal-default)}.b_magInfoCard .b_actionBtns
a:focus-visible{outline-offset:-2px}.b_magInfoCard .b_actionBtns
span{display:-webkit-box;-webkit-box-orient:vertical;-webkit-line-clamp:1;overflow:hidden;word-break:brea
k-all}.b_magInfoCard .b_actionBtns img,.b_magInfoCard .b_actionBtns
svg{height:16px;width:16px;padding-right:var(--smtc-gap-between-content-x-small)}.b_magInfoCard .b_ifb4
.b_actionBtns
.b_hList{display:flex;flex-direction:column;justify-content:space-between;height:160px}.b_magInfoCard
.b_magifbtn.b_ifb4{padding-top:0}.b_magInfoCard .b_ifb4 .b_actionBtns
li{padding-bottom:unset}.b_slimFoot.b_footer{padding:0}.b_slimFoot.b_footer
ul{line-height:30px}.b_slimFoot.b_footer li{display:inline-block;padding:0 15px}.b_slimFoot.b_footer

```

```

a{text-decoration:none}.b_slimFoot.b_footer,.b_slimFoot.b_footer a:hover{color:#666}.b_slimFoot.b_footer
.b_trademark{float:right;padding-right:20px}.b_slimFoot
#b_footerItems{line-height:30px;height:auto;padding:0 20px 0 15px}.b_slimFoot #b_footerItems
span,.b_slimFoot #b_footerItems
a{margin:0}html.bm_oneMap,body.bm_oneMap{position:static}.dynMap{position:relative}.peek
.dynMap{margin:0
auto}.dynMap.bm_interact{cursor:pointer}.mv_hidden{position:absolute;left:-10000px}.mv_hidden
a{display:none}.mv_lm{position:absolute;cursor:pointer;display:none}.mv_lm{height:30px;bottom:0;right:0;
width:105px;line-height:30px;background:#000;background:rgba(0,0,0,.5);text-align:center;font-size:14px}.m
v_lm.icon{width:32px;height:32px;top:0;right:0;background-color:#fff;background-repeat:no-repeat;backgrou
nd-position:8px 8px;margin:8px 8px 0 0;border-radius:4px;box-shadow:0 2px 3px 0
rgba(0,0,0,.14);z-index:10000;display:block}.mv_lm.icon_mgz{width:28px;height:28px;top:var(--smtc-gap-b
etween-content-small);right:var(--smtc-gap-between-content-small);border-radius:var(--smtc-corner-circular);
background-image:none;background-color:var(--bing-smtc-background-ctrl-on-image-switchable-rest);box-sh
adow:unset;z-index:10000;display:block;forced-color-adjust:none}.mv_lm.icon_mgz:hover{background-color
:var(--bing-smtc-background-ctrl-on-image-switchable-hover)}.mv_lm.icon_mgz:active{background-color:va
r(--bing-smtc-background-ctrl-on-image-switchable-pressed)}.mv_lm.icon
.mv_lm_icon{width:32px;height:32px}.mv_lm.icon:hover{background-color:#f5f5f5;box-shadow:0 2px 4px
1px rgba(0,0,0,.25);background-repeat:no-repeat;background-position:8px 8px}.mv_lm.icon
svg{display:block;margin:8px}.mv_lm.icon_mgz
.mv_lm_icon{width:28px;height:28px;mask-repeat:no-repeat;background-color:var(--bing-smtc-foreground-ct
rl-on-image-switchable-rest);mask-position:center center}.mv_lm.icon_mgz
.mv_lm_icon:hover{background-color:var(--bing-smtc-foreground-ctrl-on-image-switchable-hover)}.mv_lm.i
con_mgz
.mv_lm_icon:active{background-color:var(--bing-smtc-foreground-ctrl-on-image-switchable-pressed)}.mv_l
m.mv_lm_txt{width:auto;padding-left:10px;padding-right:10px}.mv_lm.showOnStatic{z-index:10000;displa
y:block}.mv_lm_div{color:#fff;text-decoration:none}.bm_details_overlay:focus .mv_lm_a{outline:1px
solid}.mv_lm_a{height:100%;width:100%;display:inline-block}.MicrosoftMap
.NavBar_Container{z-index:1005}#b_header.b_slimHead.bm_oneMap{padding-top:14px;min-width:945px!i
mportant}#b_header.b_slimHead.bm_oneMap.bm_hideHeader{height:0;padding-top:0;margin:0}#b_header.b
_slimHead.bm_oneMap.bm_hideHeader #sb_form{display:none}#b_header.b_slimHead.bm_oneMap #id_h
#id_s,#b_header.b_slimHead.bm_oneMap #id_h #id_rc,#b_header.b_slimHead.bm_oneMap #id_h
#id_rbc,#b_header.b_slimHead.bm_oneMap #id_h #id_n,#b_header.b_slimHead.bm_oneMap #id_h
#langChange{display:none!important}body #b_header.bm_oneMap #id_h .idp_ham.hide,body
#b_header.bm_oneMap #id_h .idp_ham.nohphbtop.hide,body #b_header.bm_oneMap #id_h
.id_nc.hide{display:none}.b_slimHead
#id_h{z-index:1006}#b_header.b_slimHead.bm_oneMap.bm_hideHeader
#id_h{margin-top:15px}#b_header.b_slimHead.bm_oneMap
#id_h{position:absolute;margin-right:80px!important;right:0}body #b_header.bm_oneMap
#id_h{margin:14px 5px 0 0;top:0}@media screen and (min-device-width:600px) and
(max-device-width:1280px){#b_header.b_slimHead.bm_oneMap{min-width:auto!important}#b_header.b_sli

```

```

mHead.bm_oneMap      #id_h{margin-right:44px!important} #b_header.b_slimHead.bm_oneMap      #id_h
#id_rh,#b_header.b_slimHead.bm_oneMap                      #id_h
#id_rbh{padding-left:8px} #b_header.b_slimHead.bm_oneMap  #id_h
.id_button.hide{display:none} #b_header.b_slimHead.bm_oneMap.bm_hideHeader
.b_scopebar{display:none}.MicrosoftMap.largeMap{position:absolute;z-index:5;top:0;left:0;width:100vw;background-color:#fff;line-height:normal;min-width:945px;overflow-y:hidden}.MicrosoftMap.largeMap
.bm_mapBannerContainer{display:none} #dm_street,#dm_birdsEye,.v8Map
.mv_maps3dLink{position:absolute;left:20px;bottom:5px;border-width:1px 1px 1px 1px;border-style:solid;border-color:#fff;border-radius:6px;overflow:hidden;z-index:2}.mt_magazine
#dm_street{left:16px;bottom:10px;border:2px solid
var(--acf-fore-neutral-white);border-radius:var(--mai-smtc-corner-list-card-default)}.v8Map
.mv_maps3dLink{left:10px;overflow:visible}.v8Map
.mv_maps3dImage>img{margin-right:0;display:flex}.v8Map.hover{overflow:visible}.v8Map
.maps3DText.hover{bottom:-50px}.mv_mobile #dm_street,.mv_mobile
#dm_birdsEye{left:8px;bottom:8px} #dm_birdseye_replace{width:172px;height:86px;background-position-x:-168px;background-position-y:-213px} #dmst_txt{position:absolute;width:100%;bottom:3px;text-align:left;left:10px;color:#fff;line-height:30px;font-size:13px}.dmst_rotate{position:absolute;right:10px;bottom:10px;width:20px;height:20px;background-image:url(data:image/svg+xml,%3Csvg%20xmlns%3D%22http%3A%2F%2F%2F2000%2Fsvg%22%20width%3D%221600.000000pt%22%20height%3D%221600.000000pt%22%20viewBox%3D%220%201600.000000%201600.000000%22%3E%3Cg%20transform%3D%22translate%280.000000%2C1600.000000%29%20scale%280.100000%2C-0.100000%29%22%20fill%3D%22%23f1f1f1%22%20stroke%3D%22none%22%3E%3Cpath%20d%3D%22M7345%2011329%20c-1233%20-43%20-2391%20-199%20-3430%20-464%20-1617%20-411%20-2737%20-1040%20-3268%20-1833%20-79%20-117%20-189%20-343%20-231%20-474%20-66%20-202%20-81%20-305%20-81%20-558%200%20-239%208%20-305%2061%20-493%2051%20-183%20140%20-370%20262%20-553%20434%20-648%201295%20-1198%202507%20-1600%201090%20-362%202476%20-602%203860%20-669%20666%20-3%20161%20-8%20211%20-11%20191%20-6%20207%20-826%20c4%20-455%2010%20-830%2014%20-834%205%20-5%202951%202277%202992%202318%2013%2013%20-2975%202338%20-2995%202330%20-13%20-5%20-15%20-107%20-15%20-821%2010%20-815%20-32%200%20c-210%200%20-930%2057%20-1343%20106%20-1840%20218%20-3406%20760%20-4036%201396%20-328%20332%20-321%20643%20222%20979%20618%20605%202136%201137%203884%201358%20379%2049%20830%2089%201270%20113%20309%2017%201501%2017%201810%200%201381%20-77%202549%20-280%203541%20-615%201171%20-396%201883%20-912%201877%20-1362%20-4%20-278%20-282%20-584%20-797%20-880%20-366%20-209%20-863%20-411%20-1436%20-582%201-95%20-29%20-3%20-687%20c-2%20-574%200%20-688%2012%20-693%2014%20-5%20269%2060%20496%20127%201404%20417%202367%20997%202849%201714%20170%20254%20279%20542%20312%20827%2015%20130%207%20414%20-16%20528%20-38%20197%20-90%20345%20-184%20525%20-553%201066%20-2204%201882%20-4601%202274%20-1060%20173%20-2353%20251%20-3515%20210z%22%2F%3E%3C%2Fg%3E%3C%2Fsvg%3E);background-size:20px 20px}.mt_magazine
.dmst_rotate{background-image:url(data:image/svg+xml,%3Csvg%20xmlns%3D%22http%3A%2F%2F%2F2000%2Fsvg%22%20width%3D%224%22%20height%3D%224%22%20fill%3D%22none%22%3E%3Cp

```



# Photovoltaic bracket zero-based training

ath%20fill%3D%22%23fff%22%20fill-rule%3D%22evenodd%22%20d%3D%22M19.75%201.288c0-.234.0  
58-.449.174-.644.115-.196.269-.35.461-.466.195-.119.407-.178.634-.178.23%200%20.44.06.63.178.188.115.  
339.27.451.466.115.195.173.41.173.644%200%20.233-.058.448-.173.643a1.259%201.259%200%200%201-  
452.457%201.21%201.21%200%200%201-.629.168c-.227%200-.439-.056-.634-.168a1.286%201.286%200%  
200%201-.461-.457%201.243%201.243%200%200%201-.173-.643Zm.65%200c0%20.172.06.318.182.437a.  
613.613%200%200%200%20.437.173.593.593%200%200%200%20.6-.61.615.615%200%200%200-.172-.4  
47.573.573%200%200%200-.428-.178c-.17%200-.315.06-.437.178a.598.598%200%200%200-.183.447ZM1  
2.26%209.652c6.128%200%2010.762%202.407%2010.762%205.631%200%202.828-3.602%205.025-8.653  
%205.51611.471%201.542c.351.374.351.981%200%201.379a.854.854%200%200%201-.637.28.901.901%20  
0%200%201-.659-.281-2.943-3.108a1.033%201.033%200%200%201%200-1.3812.921-3.084a.889.889%200  
%200%201%201.296%200%201.033%201.033%200%200%201%200%201.3791-1.23%201.308c3.91-.467%  
206.61-2.08%206.61-3.552%200-1.752-3.82-3.692-8.938-3.692-5.117%200-8.938%201.94-8.938%203.692%  
200%201.192%201.867%202.524%204.568%203.179.483.116.79.654.68%201.168-.11.514-.614.841-1.097.7  
25C3.74%2019.42%201.5%2017.527%201.5%2015.283c0-3.224%204.634-5.631%2010.761-5.631Zm6.366-  
5.496V3.012c0-.439-.035-.823-.106-1.153a2.908%202.908%200%200%200-.308-.85A1.8%201.8%200%200  
%200%2017.1.11a2.655%202.655%200%200%200-.769-.106c-.346%200-.66.054-.941.163a1.774%201.774  
%200%200%200-.72.524c-.203.237-.358.546-.467.927-.109.378-.163.842-.163%201.393v1.144c0%20.438.0  
35.824.105%201.157.074.333.177.62.308.86a1.878%201.878%200%200%200%201.12.913c.236.07.492.106.  
768.106.346%200%20.658-.056.937-.168.282-.112.523-.289.725-.529.202-.24.356-.552.461-.937.11-.387.16  
4-.855.164-1.402Zm-1.158-1.317v1.48c0%20.349-.024.648-.072.898-.048.25-.12.453-.216.61a.89.89%200%  
200%201-.356.337%201.07%201.07%200%200%201-.485.105c-.144%200-.277-.022-.399-.067a.862.862%2  
00%200%201-.317-.211%201.33%201.33%200%200%201-.23-.375%202.34%202.34%200%200%201-.145-  
.552%205.089%205.089%200%200%201-.048-.745v-1.48c0-.349.024-.645.072-.889.052-.246.125-.445.221-  
595a.864.864%200%200%201%20.356-.327c.14-.07.3-.106.48-.106.148%200%20.28.023.399.068.119.041.2  
24.11.317.206.093.093.17.215.23.365.065.148.113.329.145.543.032.212.048.457.048.735ZM11.973.058h.14  
4v.946h-.082c-.413%200-.77.064-1.071.192a1.981%201.981%200%200%200-.735.529%202.243%202.243  
%200%200%200-.432.788%203.037%203.037%200%200%200-.116.543%201.815%201.815%200%200%2  
01%20.692-.462c.234-.09.49-.134.769-.134.34%200%20.634.064.884.192s.456.303.62.524c.166.217.29.467.  
37.749.083.279.124.57.124.874%200%20.337-.051.65-.154.942a2.214%202.214%200%200%201-.451.76%2  
02.027%202.027%200%200%201-.716.508%202.355%202.355%200%200%201-.951.183c-.375%200-.71-.0  
72-1.004-.216a2.206%202.206%200%200%201-.745-.596%202.717%202.717%200%200%201-.461-.874%2  
03.412%203.412%200%200%201-.159-1.048v-.48c0-.532.068-1.033.202-1.504.135-.474.341-.892.62-1.254  
A2.901%202.901%200%200%201%2010.4.37c.44-.208.963-.312%201.572-.312ZM9.657%204.564v-.389a1.  
343%201.343%200%200%201%20.557-.63c.19-.108.4-.163.63-.163.186%200%20.349.039.49.115a.993.993  
%200%200%201%20.36.313c.096.131.168.285.216.46.052.174.077.36.077.558%200%20.208-.025.4-.077.57  
7a1.354%201.354%200%200%201-.225.456c-.1.128-.22.23-.36.303-.142.07-.299.105-.472.105a1.01%201.01  
%200%200%201-.466-.11%201.174%201.174%200%200%201-.384-.322%201.619%201.619%200%200%2  
01-.255-.533%202.718%202.718%200%200%201-.09-.74Zm-4.722-1.49h-.692v.904h.692c.266%200%20.49  
6.041.692.125.195.08.346.205.451.374.106.17.159.391.159.663%200%20.24-.048.446-.144.615a.901.901%2  
00%200%201-.404.385c-.176.086-.386.13-.63.13-.23%200-.435-.045-.614-.135a1.03%201.03%200%200%2  
01-.413-.37%201.053%201.053%200%200%201-.144-.553H2.73c0%20.327.062.615.187.865.128.247.301.4

53.519.62.218.163.464.287.74.37.275.083.563.125.865.125.336%200%20.647-.045.932-.135.288-.09.54-.222  
.754-.398.214-.177.38-.391.495-.644a2.06%202.06%200%200%200%20.177-.875c0-.24-.043-.467-.13-.682a  
1.507%201.507%200%200%200-.398-.571%201.869%201.869%200%200%200-.666-.384c.209-.095.387-.2  
1.536-.347.183-.17.32-.357.413-.562.093-.205.14-.407.14-.605%200-.436-.095-.8-.284-1.095A1.737%201.73  
7%200%200%200%206.218.23C5.88.08%205.488.005%205.036.005c-.423%200-.804.083-1.144.25-.336.16  
3-.602.389-.797.677a1.722%201.722%200%200%200-.293.99h1.162c0-.205.048-.382.145-.529a.946.946%2  
00%200%201%20.389-.346c.166-.083.352-.125.557-.125.243%200%20.444.044.6.13a.81.81%200%200%20  
1%20.356.37c.08.157.12.346.12.567%200%20.211-.043.399-.13.562a.909.909%200%200%201-.398.384c-.1  
77.093-.4.14-.668.14Z%22%20clip-rule%3D%22evenodd%22%2F%3E%3C%2Fsvg%3E);background-color:  
var(--acf-back-neutral-black);width:40px;height:40px;border-radius:var(--smtc-corner-circular);background-si  
ze:24px  
24px;background-repeat:no-repeat;background-position:8px;right:70px;bottom:40px}.mt\_magazine.mt\_mini  
malistic .dmst\_rotate{width:32px;height:32px;border-radius:var(--smtc-corner-circular);background-size:20px  
20px;background-position:6px;right:64px;bottom:34px}.mv\_mobile  
.dmst\_rotate{right:5px;bottom:8px}.dmst\_ovl{width:100%;position:absolute;bottom:3px;opacity:.3}#dm\_stre  
et .dmst\_ovl{height:36px;background:linear-gradient(rgba(0,0,0,0),#000)}.mt\_magazine #dm\_street  
.dmst\_ovl{background:none}.mt\_magazine #dm\_street:hover .dmst\_rotate{filter:brightness(.5)}.mt\_magazine  
#dm\_street:active .dmst\_rotate{filter:brightness(.3)}#dm\_street  
a{display:flex}#dm\_street:focus-within{outline:1px solid}#dm\_birdsEye  
.dmst\_ovl{height:30px;background-color:#000}#dm\_minimap{position:absolute;left:10px;bottom:10px;borde  
r:2px solid  
#808080;border-radius:6px;overflow:hidden;z-index:10000}.bm\_details\_overlay:has(.hideOnLoad),#dm\_mini  
map.hideOnLoad{display:none!important}.mt\_magazine #dm\_minimap{left:16px;bottom:10px;border:2px  
solid var(--acf-fore-neutral-white);border-radius:var(--mai-smtc-corner-list-card-default)}.mv\_mobile  
#dm\_minimap{left:5px;bottom:5px}.dm\_MiniInfobox3{background-color:#fff;border:1px solid  
#919191;padding:4px;max-width:200px;max-height:100px;color:#444;font:13px  
Arial}div.bm\_ss\_overlay,div.bm\_results\_overlay,span.bm\_details\_overlay,div.bm\_nearbyresults\_overlay,spa  
n.bm\_dir\_overlay,div.bm\_basic\_overlay{cursor:pointer;display:inline}.b\_ans.b\_top.b\_topborder .wpc\_agp  
.v8Map{margin-left:-19px;margin-top:-15px}.b\_ans.b\_top.b\_topborder .dvc  
.v8Map{padding-bottom:10px}.v8OverlayMap#b\_content{position:static;top:50px;padding:0;margin:0}.b\_sli  
mHead.bm\_hideHeader  
.b\_scopebar{border:0}.b\_footer.b\_slimFoot{position:fixed;bottom:0;min-width:945px;height:30px;padding:0;  
z-index:5}.b\_footer.b\_slimFoot.bm\_oneMap{min-width:768px}.b\_ans .b\_entityTP .b\_FBleedModule  
.v8Map,.b\_ans .b\_entityTP .b\_subModule .v8Map{display:inline-block}#b\_context .MicrosoftMap  
.Light.toggleButton.hide,#b\_context .MicrosoftMap .Dark.toggleButton.hide{display:none}.mt\_desktop  
.MicrosoftMap .ms-composite.maclick #mapFocus,.mt\_desktop .MicrosoftMap .ms-composite.maclick  
canvas,.mv\_desktop .MicrosoftMap .ms-composite.maclick #mapFocus,.mv\_desktop .MicrosoftMap  
.ms-composite.maclick canvas{cursor:pointer}.mt\_desktop .MicrosoftMap  
.bm\_bottomRightOverlay,.mv\_desktop .MicrosoftMap  
.bm\_bottomRightOverlay{right:8px!important}.mv\_mobile.mv\_full div.dynMap  
img.mv\_baseMap{width:100%}.bm\_div\_permalink{cursor:pointer}@media(min-device-width:600px) and







# Photovoltaic bracket zero-based training

```
.fdbtext{ font-size:14px;line-height:20px;color:#666}.fdbk_thmb_root>a{ display:inline-block;width:15px;heig
ht:15px;margin-left:6px;padding:0;background-size:15px;vertical-align:middle}.fdbk_thmb_root>a.thumb_n{
transform:scaleY(-1)}.fdbk_thmb_root_mob.fdbk_thmb_root>a{ width:20px;height:20px;background-size:20p
x}.fdbtext>span,.fdbtext>a{ margin-left:4px}.fdbk_thmb_root>a.thumb_y.active{ margin-left:0}.fdbk_emotion
{ display:none;position:absolute:right:0;width:50px;height:50px;opacity:0;animation:emotion 1s ease-in-out
.1s 1 normal forwards}.fdbk_emotion .sat_img,.fdbk_emotion
.dsat_img{ display:none;width:50px;height:50px;opacity:.9}.fdbk_emotion.sat .sat_img,.fdbk_emotion.dsat
.dsat_img{ display:inline-block}.fdbk_emotion.sat{ display:block;margin:-50px 3px 0
0}.fdbk_thmb_root_mob .fdbk_emotion.sat{ margin:-50px 11px 0
0}.fdbk_emotion.dsat{ display:block;margin:-50px -18px 0 0}.fdbk_thmb_root_mob
.fdbk_emotion.dsat{ margin:-50px -15px 0 0}@keyframes
emotion{ 50% { opacity:1 } 100% { opacity:0;transform:translateY(-10px) }}.fdbk_thmb_root>a.thumb{ backgrou
nd-image:url(
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KdjfzDTWp/B/HvF/B0NjauOfGgrJD7e2qzDOeb0MTzqLIQZr85CTNkYjb1zrQRrDmuHw+aB+X2vxa8kDb
DBeU0NDFeS/yJ7gJE9+Mmcr8Ajwab99efeF4AAAAASUVORK5CYII=)}.fdbk_thmb_root>a:,.fdbk_t
hmb_root>a:active,.fdbk_thmb_root>a.active{ background-image:url(/rp/0Ih0lv8-r1C0I7JNB8ZsnpYC90s.png
)}Solar Energy International (SEI) in Paonia, United States39845 Mathews Ln, Paonia, CO 81428Closed
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PMSaturdayClosedSundayClosedMonday9 AM - 5 PMTuesday9 AM - 5 PM(970)
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# Photovoltaic bracket zero-based training

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The training session is packed with information about system design basics, grid tied solar PV system installation, battery based solar PV systems, energy efficiency measures, and ...

Solar design and installation training prepares workers to properly design, install, and maintain solar energy assets.

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