

# Hurstville Lime Kilns Improvement Final Design Report

CEE 4850 – Project Design and Management

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## Section I Executive Summary

The Hurstville Lime Kilns are located one mile north of Maquoketa, IA along U.S. Highway 61. The site contains four lime kilns, the rock crusher, and the bridge that spans the North Fork of the Maquoketa River. The kilns and rock crusher lie on land owned by the Jackson County Historic Society while the bridge is on the land of a private owner. Our team had been requested to provide structural analysis of the three items and provide engineering recommendations on how to rehabilitate them.

The site is an important landmark to Maquoketa for its historical value and the education it provides to the public. The kilns have been there since the late 19<sup>th</sup> century and is a source of knowledge to the community in highlighting the growth of the area as the land slowly industrialized as the kilns provided a key component for mortar which in turn gave back to the land with the urbanization of Iowa and surrounding states. The preservation of the site is of the upmost importance to continue this spread of knowledge to the community for years to come, which is why our team will provide the best options for keeping the three items standing for as long as possible.

The first item, the kilns and the retaining walls connected, have undergone renovation in the 1980's so both items are rather structurally sound, but analysis was still conducted due to visible deterioration of the surfaces and the future addition of a trail system residing behind the structures that would add additional stresses. Soil nails were designed to be implemented into the retaining wall to counteract the increased soil pressures resulting from the trail and are placed in a diagonal formation and covered with decorative star caps. There are openings on the sides of the kilns where there are existing grates that need to be replaced. A platform will also be constructed at the top of the kilns to provide a better view of the inside as well as provide protection against weather from getting inside the kilns. Protection is also needed to prevent visitors from climbing into the kilns, which is a current problem as stated by the client.

The second item is the rock crusher structure. The building is in dire need of renovation or else a loss of structure will happen in the future. The supports need to be replaced as well as other surfaces such as walls and roofs since there is considerable damage to them with holes and rotting. Any work done on the structure needs to be as safe as possible by having a secure site during work and proper outside support for the structure itself.

The third item is the bridge where part of the span has collapsed. Onsite observation showed that the bracing for the bridge is damaged and needs replacing. The supports at the pier are also in need of work. As the same for the rock crusher, any work done on the bridge needs to be supported with outside reinforcement and the site closed off to prevent any trespassers which is evident with graffiti in the rock crusher structure. It was viewed to see if any material could be salvaged from the collapsed span on the opposite side of the river, but it was deemed that new components are needed to support the standing bridge section. Clearing of vegetation is also needed for the bridge and rock crusher since there are many fallen trees around each item and overgrown plants.

The project came with constraints regarding proposed improvements. A goal for the site was to maintain as much originality as possible to not tarnish its historical significance. Our group was sure to base all our decisions by keeping this in mind when designing our alternatives, such as providing additional support to the rock crusher building rather than rebuilding it. Flooding was also seen as an issue for the site but was discovered that most of the water came from ground water and our designed creations were unaffected. If construction on the site is initiated, proper designation of property lines needs to be established since the site shares a close border of ownership between the Historic Society and the private landowner. Budgeting for the project is provided by donations to the Historic Society so total expenses for each design creation were considered. The final constraint that was looked into was that the site is on the National Register of Historic Places which means that any digging on the site was to be done as an archaeological excavation to look out for artifacts.

There are no existing environmental hazards in the area, however for being near the river, precautionary actions need to be taken during the construction process. Fuel for construction equipment would need to be stored over a tarp covered area that will have no chance of spilling and leaking into the ground water table.

The Hurstville Lime Kilns are of great importance to the area which is why preserving the originality of the site is the top goal for this project. With the introduction of a more public friendly area, safety is a priority, which is why the existing structures need to have additional supports to withstand the coming of time and public interaction. There were many challenges crossed during this endeavor, but the conclusion of this project reflects the hard work that was put into it and the care needed to keep providing the educational value that the site has.

## Section II Organization Qualifications and Experience

1. Organization and Design Team Description

The Project Team is three engineering students in the senior design capstone class at the University of Iowa. The project lead was Carson Schuler. Carson was in charge of coordinating project tasks, preparing meeting agendas and organizing presentations. He was also the main contact person for this project. The report editor was Samantha Olson. Samantha's

responsibilities include coordinating the writing of all reports, preparing graphics, and editing. Technology support was provided by Caden Fedeler. Caden was in charge of creating a shared electronic drive for all documents produced by the team and helping with all technology needs in relation to the project.

#### 4. Description of Experience with Similar Projects

All members of this team have a focus in structures, mechanics, and materials. Carson has experience with design of structures with classes that provide many areas of design such as concrete, wood and steel structures as well as foundation design. Carson's internship experience in the past has been working with a municipality and working closely with construction inspection with the repair and resurfacing of streets. Samantha has been working for Hubbard Merrell Engineering since May 2021. She has worked on a wide variety of projects, including retaining walls, wood buildings, and steel structures. During these projects, Samantha was responsible for designing loads, members, foundations, retaining walls, and connections, as well as reviewing steel submittals and compiling calculation packets. Samantha also has class experience with design of wood, concrete, and steel structures, as well as foundation design. Caden has experience working in an engineering team from working at Snyder & Associates for two summers. In these internships he learned how to use engineering software programs and developed his problem-solving skills. He has completed many structural classes which have prepared him for this project.

## Section III Proposed Services

#### 1. Project Scope

The goal of this project was to rehabilitate the Hurstville Lime Kilns. Structural analysis was performed on the existing structures to determine effects of loads and the distribution of internal stresses. Structures that were considered in evaluation include: four historic lime kilns, three spans of retaining wall between the kilns, and a rock crusher building. There were a few areas of focus for this project. First, the overall safety of the site needed to be improved. There were multiple locations that were potential hazards to visitors including the grates at the sides of the kilns, near the rock crusher, on the bridge, and at the top of the kilns themselves. Another focus of the project was to raise awareness about the kilns. Currently, the historic site is often driven by and can easily be seen from the road, but most people don't know about how the kilns originated. Finally, the kilns and other structures needed to be protected from frequent flooding events.

A viewing platform was designed to be placed on top of one of the kilns. It will allow visitors to safely view the inside of the kilns. The platform incorporates watertight decking so that rainwater is diverted away from the kiln and its smokestack. Also, at the base of the kiln, the existing grates are planned to be removed and replaced with a safer wire mesh grate. Finally, the

designed platform will add stresses to the kiln, so we ensured the kiln wouldn't fail under the additional loads.



Figure 3.01 – Existing Method of Viewing at the Top of Kilns

The stability of the retaining wall was analyzed, considering the new loads from the trail and platform. There is a noticeable bulge in the north span and lots of noticeable cracking. We determined that this is likely due to the two large trees located between the northernmost kilns. The trees are planned to be removed and a soil nailing plan will be implemented to repair the adjacent retaining wall.



Figure 3.02 – Span of The Retaining Wall with Bulge

It is clear that the rock crusher building is in poor condition. The rotted supports and missing boards make it unsafe. To prevent this building from collapsing, we identified critical members

of the building and created a plan to stabilize them. The stabilization plan consists of both temporary and permanent supports.



Figure 3.03 - Rotted Members on The Rock Crusher Building

Finally, a nearby bridge needs repair. Currently, only half of a two-span bridge remains standing on site. The bridge's original purpose was to transport limestone from the quarry across the North Fork Maquoketa River. It should be noted that the rehabilitation of the kilns, retaining wall, and rock crusher take precedence over this bridge, so we only created a plan to temporarily stabilize the bridge rather than restore it completely.

The final deliverables for this project include a presentation, construction drawings, a poster, and this design report.

#### 2. Work Plan

Our group completed the design for this project over the last three months. To track the progress of the project, the Gantt chart shown in *Figure 3.04* was used. The project was divided into seven primary components. The work plan was used as a timeline to ensure that the design phase was completed on schedule.

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1.5	Finalize Scope with Client	Al	Wed 2/09/22	Sat 2/19/22	11	100%	8	
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5.2	Bridge Improvements Plans	CF	Mon 3/14/22	Sun 4/03/22	21	100%	15	
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Figure 3.04 - Gantt Chart

#### 3. Methods and Design Guides

This project will be completed in accordance with the Iowa Statewide Urban Design and Specifications (SUDAS) along with the International Building Code 2015 as per the state of Iowa's adopted codes. The Load and Resistance Factor Design (LRFD) was used to evaluate the design of the kilns and retaining wall, as well as to design the anchor bolts. Allowable Stress Design (ASD) was used to design the kiln platforms and wood supports for the bridge and rock crusher. These different designs have different load factors, which suggest different degrees of uncertainty for different loads. Additionally, all improvements made to the bridge follow the Iowa DOT's Bridge Design Manual.

## Section IV Constraints, Challenges, and Impacts

#### 1. Constraints

Our team was not given a set budget for this project, but we understand that the past efforts to restore the site relied significantly on public donations. For this reason, we discussed multiple solutions with the client at various price points to allow the clients to select options that best fit their needs and budgetary constraints.

Another constraint on our design was the connection of the kiln and viewing platforms to the trail system. Two engineering groups worked to develop designs for the site simultaneously. Our team focused on the structural elements for the site, while the other group worked on the site development aspects of this project, specifically including the trail design. The design and placement of both the platform that is designed for the top of the kilns as well as the viewing platforms that shall hold the glass etchings relied on the site development group's trail placement and design. Thus, the platforms were designed to fit around the plans made by the other group.

However, perhaps the most important constraint was the safety of those who visit the site. The site features a large retaining wall, on top of which our plans place a trail and a large viewing platform that will place visitors at heights of over 30 feet. Additionally, visitors are currently entering the rock crusher building, which is in poor condition, as well as climbing into the kilns themselves. Our designs meet or exceed the standards presented in the International Building Code so that visitors can safely access the site. In our designs, we included measures, such as grates and additional members, to prevent the lime kilns and rock crusher building from being accessed by the public.

#### 2. Challenges

The Hurstville Lime Kilns are part of the Hurstville Historic District, and the site is listed on the National Register of Historic Places. This site is one of only two in Iowa on which historic lime kilns remain standing. Our team exercised great care to ensure that our designs, once constructed, will not damage the site, as doing so could result in a significant historical loss. Since this is a historic site, our designs strive to strike a balance between historical accuracy and authenticity of the site, while also considering the ability of visitors to enjoy and learn about the lime kilns now and in the future.

Additionally, the site is located in a non-coastal A-Zone and thus experiences a significant level of flooding that occurs on at least a yearly basis. We considered the regular flooding in both our design and selection of materials. Our team worked with the Site Development Team to best address the flooding concerns and mitigation for this challenge.

Another challenge that our team faced was the lack of engineering drawings for the existing structures on the site. Due to this, our team was required to make certain assumptions as we worked on our design. Some of these assumptions included the type of retaining wall and its

reinforcement, the type of wood used in the rock crusher building, and the steel grade of the bridge. We strived to make conservative assumptions based on the information we were able to obtain from online resources and the site visits, as well as the experience of both ourselves and our mentors. In order to be conservative, we assumed that the retaining wall was a gravity wall that is only as deep as the bottom of the kilns that we observed on our site visit. We obtained the soil data from boring logs in the nearby area. A miscellaneous load was added to the rock crusher dead loads to account for unknowns, such as the framing in the unviewable second level of Building 1.

#### 3. Societal Impact within the Community and/or State of Iowa

**Community Resources -** As mentioned, the Hurstville Lime Kiln site is one of only two sites in Iowa where historic lime kilns remain standing. The other site is the Birdsall Lime Kiln in Winneshiek County. This means that the site has great significance not only to the local area, but it is of great importance to Iowa's history. It is thus important to the community that our design maintains the historical aspects of this site to allow future generations to view and understand pieces of Iowa's history.

Additionally, our team has been informed by a local landowner that there may be a Native American burial ground by the nearby water tower. Any significant excavation of the site runs the risk of uncovering historical artifacts related to these grounds. While this could mean a historical discovery, it also has the potential to delay work on the site and incur additional costs.

**Personal and Property Rights** - A portion of the project that we worked on included the bridge on Bob Garien's property. Both Bob and the Jackson County Historical Society expressed interest in repairing the span of the bridge that is still standing and connecting it to the Hurstville Lime Kiln site so it can be accessible to the public in the future. However, the current path to the bridge is located on both Bob Garien and Jerry Schwenker's properties. To obtain bridge access, the site would require an easement or purchase of property.

Our team did need to scale back the original scope of the project, so there was little design work done for the bridge. However, we did make recommendations to support the bridge for the time being so that a future project could address the goal of connecting the bridge to the site. Legal agreement would be required for any construction work on Bob's property.

**Public Safety -** The client informed both groups that visitors to the site are climbing into the rock crusher building and the kilns, despite current efforts to prevent visitors from using the site in this way. Specifically, the rock crusher seemed to be a gathering place for visitors who are participating in illegal activities. We evaluated the stability of the rock crusher and developed a plan to increase its current stability and also plan to block current entrances to the building to keep visitors out. Additionally, our design adds grates to the openings in the sides of the kilns as well as a kiln platform that prevents visitors from falling or climbing inside of the kilns. All of these efforts will improve site safety, and thus public safety, as well as minimize risk.

**Population Characteristics -** The improvements our design makes to the site also have the potential to increase the number of visitors to the site and surrounding area. This can lead to a beneficial economic impact as visitors would likely patronize local businesses.

## Section V Alternative Solutions That Were Considered

Many design alternatives were taken into account for this project with three goals in mind of originality, safety, and cost effectiveness. Certain alternatives were omitted due to challenges associated with the project, two of which being time and the goal of originality.

A sheet pile wall was considered to be installed to prevent flooding over a large area of the site, with flood waters reaching six to eight feet multiple times a year. It was sought out that a majority of the flooding was from the creek and river next to the site, but it was discovered that the flooding stemmed from ground water. While on a site visit, sediment deposits on the snow were noticed at the low points of the site which confirmed where the flooding originated from. With this discovery, implementing a sheet pile wall would not prevent excessive flooding of the area and the solution was proper drainage through the site with the installation of a culvert leading into the creek.

On the basis of safety, an alternative of tearing down the rock crusher and replacing it with new lumber was considered but this went against the goal of originality and cost effectiveness. While rebuilding the structure would provide more safety to the area and allow people to see it up close and having detailed photographs of the structure in the past, it was decided that reinforcing critical sections of the structure, such as the deteriorating supports.

Geogrid reinforcement and tiebacks were considered for the reinforcement of the retaining wall. These would maximize strength against the added pressures from the trail, but both shared the same issue. To do any of the two reinforcement ideas would involve excavation in the area which would fall under the archaeological excavation route. This would add a delay to the project's time and therefore increase the costs of the project. Utilizing soil nails would avoid the extra excavation time and by using the existing retaining wall as support for the nails, shotcrete is not needed for the process.

## Section VI Final Design Details

#### Kiln Platforms

The kiln platforms were designed with the goal of allowing visitors to view the inside of the kilns, prevent water from entering the top of the kilns, and preventing visitors from climbing into the kilns. Multiple preliminary layout options were discussed with the client. The clients decided that they preferred the large glass viewport that encompassed the kiln's smokestack and a larger platform that would allow stairs to be attached to the side of the platform and better connect with the trail. This preliminary layout that was selected by the clients for design is pictured below in

*Figure 6.01.* Additionally, the clients chose from multiple decking options, but ultimately opted for the DuxxBak decking option because of its low maintenance and that it provides better water protection to the kilns. The clients also decided on a metal handrail that would be durable and yet still fit with the aesthetics of the site. It was also decided that the framing members for the kiln platforms would be designed using Douglas Fir – Larch #1 due to the material's strength and history of performance as an outdoor building material.



Figure 6.01: Preliminary Platform Layout Selected by Clients

The design loads were determined per the ASCE 7-16 and by using information from specific product sites. The risk category was determined from ASCE 7-16, Chapter C1, Figure C1.5-1 Approximate Relationship between Number of Lives Placed at Risk by a Failure and Occupancy Category. Based on this figure, the risk category was determined as risk category II as there could be multiple people on the platform at the same time, but there would not be greater than 100 persons at risk. The dead load for the joists of 8 psf was determined from ASCE 7-16, Chapter C3, Table C3.1-1a Minimum Design Dead Loads. The decking dead load was determined to be 13 psf per information provided by DuxxBak Composite Decking, the makers of the DuxxBak composite decking specified. The glass for the viewport was selected per the guidance of Glass Flooring Systems Inc. and the design loads and drawings they provided (see appendix 8.4), and was selected to be 1.5" thick and have a dead load of 18 psf. The platform live load was determined to be 60 psf. This was determined from ASCE 7-16, Chapter 4, Table 4.3-1 Minimum Uniformly Distributed Live Loads, L<sub>0</sub>, and Minimum Concentrated Live Loads and the Occupancy or Use category of walkways and elevated platforms. The stair live load was determined to be 60 psf as well based on this value. Additionally, the handrail loads were determined per ASCE 7-16, Chapter 4, 4.5 Loads on Handrail, Guardrail, Grab Bar, and Vehicle Barrier Systems, and on Fixed Ladders. This section specifies a distributed load of 50 plf and a concentrated load of 200 lbs for handrails, both applied in any direction, but not simultaneously.

The ground snow load was determined by using the ATC Design Hazards site (See Appendix 8.1) and was determined to be 25 psf. The flat roof snow load, equation (7.3-1) from ASCE 7-16, Chapter 7, 7.3 Flat Roof Snow Loads,  $p_f$ , was used to calculate the snow load on the platform. The flat roof snow load was determined to be 21 psf. The wind loads were also designed according to the ASCE 7-16. First, the wind speed was determined using the ATC Hazards site and was determined to be 115 mph. Then steps 1 through 5 given in ASCE 7-16, Chapter 27, 27.2 General Requirements, Table 27.2-1 Steps to Determine MWFRS Wind Loads for Enclosed, Partially Enclosed, and Open Building of All Heights and equations from ASCE 7-16, Chapter 26 were referenced. However, only Components and Cladding (C&C) wind loads were calculated using ACSE 7-16, Chapter 30, Part 5. The calculated worst-case C&C load of 86 psf was used as the wind load for the entire platform. It was determined that, due to the location of the site, seismic design would not be considered for this project. All kiln platform design loads and supporting calculations can be found in Appendix 8.1.

All of the wood platform members were designed in accordance with the National Design Specification for Wood Construction, 2015 Edition and the National Design Specification Design Values for Wood Construction, 2015 Edition. All wood members were designed using Allowable Stress Design (ASD) loads. However, reactions at the ends of the beams were calculated both for ASD loads as well as for the individual load types. The ASD loads were used in member design, and the individual loads were used to calculate the Load and Resistance Factor Design (LRFD) load combinations. LRFD design was utilized for the design of the anchor bolts and to evaluate the kiln on top of which the platform columns were placed. The applied load combinations were determined by selecting the maximum load as determined from the ASD load combinations. First, the dimensions of the platform were laid out. These dimensions did change throughout the design process and an additional four columns were added. The final member layout and dimensions are shown below in Figures 6.02 and 6.03. The FTool program was used to determine the reaction, shear, and moment forces on the joists and beams. It was also used to calculate the member deflection in the cases where the distributed and point loads varied across the members. Checks for bending, shear, bearing, and deflection were performed on each joist and beam. The joists were determined to be 2x14 DF#1 spaced at 16" on center. This beam depth was used as the governing depth for the other beam members which were all determined to be 2x14, (2) 2x14, or (3) 2x14 DF#1. While not in the design calculations, joist blocking at 6'-0" on center minimum is required for the DuxxBak decking system as per specification from DuxxBak Composite Decking. All of the columns were designed to resist the worst-case individual loads and a maximum point load of 9527.57 lbs, rounded to 9.53 kips, was determined to act on the column. The column was designed as cantilevered. A 6x6 DF#1 column was determined to be the required column size. The stairs were designed similarly to the beams with the same checks. The stair dimensions are based on the IBC 2018 stair standards. (See supporting documentation in Appendix 8.2 for complete calculations.)



Figure 6.02: Member Layout



Figure 6.03: Platform and Member Dimensions

The handrails, as stated earlier, must conform to their own set of design loads. The handrails shall be built per the design provided by Thompson Fabricating, LLC for IBC Public Access Handrails (see Appendix 8.3). The OSHA requirements for the toeboard and self-closing gate need not apply.

Connections were selected for each member based on the Simpson Strong-Tie Wood Construction Connectors document and using the maximum reaction forces at the ends of the members. Members of the same size will require the same connector for ease of construction, regardless of the variation in reaction loads. 2x14 members will use LUS210 hangers, (2) 2x14 members will use HUCQ210-2-SDS hangers, and (3) 2x14 members will use HUCQ210-3-SDS hangers. The exception to this rule will be the stair stringers, as they must be connected at an angle. Stair stringers will be connected with an LSSR210-2Z hanger.

The foundation design was based off of the Allowable Soil Bearing Pressure. The IBC 2018, Chapter 18, Table 1806.2 Presumptive Load-Bearing Values was used to determine an allowable bearing pressure value of 1500 psf. Then the maximum uplift and download forces for the columns on the ground, as opposed to the kilns, were determined. The maximum uplift capacity was determined based on the weight of the footing itself and neglected the soil above. The download capacity was determined using the area of the footing and the allowable bearing pressure. The footing shall be placed below the frostline, with the top of the footing at 4'-0" below the soil surface.

It was important to get the correct anchor bolt design so the platform could be safely attached to the kiln. Simpson Strong-Tie Anchor Designer was used to design the anchor bolts. The tensile strength of the anchor, the breakout strength of the base material, and the adhesive strength are what governed the design. The recommended anchor is SET-3G with #4 A706 Gr. 60 Rebar. The base plate is to be 12-in x 12-in with a thickness of  $\frac{1}{4}$ ". The bore holes shall be spaced 8-in apart with 2-in clear cover on each side of the plate. The anchors must be spaced a minimum of 9-in from the edge of the kiln with an effective embedment depth of 7.5-in. This anchor design should sufficiently resist the shear and moment loads transferred from the columns.

#### Kiln Structural Analysis

The designed platform creates additional loads on the kiln it rests on. This kiln was analyzed to ensure that the added stresses don't cause it to collapse. Four of the platform columns are supported at the top of the kiln: one at each corner. The column loads were factored using LRFD load combinations (opposed to ASD like the platforms), because there was a higher degree of uncertainty for the kilns. Also, the addition of a platform on the kiln upgrades it to Risk Category II since it increases the occupancy of the structure. Because of this, we had to add another factor of safety to the kiln loads. The strength of the kiln's masonry walls was calculated based on methods presented in *Masonry Structures Behavior and Design* by Robert F. Drysdale and Ahmad A. Hamid.

The columns add mostly vertical loads to the kiln. Five different LRFD load combinations were checked to determine the worst-case scenario. The maximum downward load was about 970 kips total, with the columns accounting for less than 10 kips. This minor increase in weight is not enough to significantly impact the bearing strength of the soil underneath the kiln. Also, the compressive strength of limestone is much greater than that of concrete, and it will be able to handle the additional weight of the platform. When checking for uplift of the platform, we found that there is a possibility that the columns could experience tension. It is important to check how this case affects the kilns because the mortar that binds the limestone together has poor tensile strength. In this case, the possible upwards force from the columns isn't enough to counteract the weight of the smokestack and slab, so the mortar won't experience any tensile strengses

In addition to vertical load, the columns also transfer lateral loads onto the kiln. Each column also acts as a railing for the platform. According to section 4.5 of ASCE 7-16, handrail systems must be able to resist 50 pounds per foot in any direction. Using this rule and the dimensions of the platform, we found the design lateral load and design moment of the columns to be 525 pounds and 6,563 pound\*ft, respectively. The walls' shear strength was dependent on the shear strength of the bed joint mortar and the normal stresses on each layer. Since the wall was so heavy, the shear strength of each bed joint was increased. But even if the weight of the wall was neglected, the shear strength of the mortar would be sufficient in resisting the lateral loads from the columns (see Appendix 8.6 for all analysis of the kiln loading).

Finally, the last thing we did with the kilns was specify a plan to repair the openings at the base. Currently, the openings are in poor condition and their grates need to be replaced. The current grates are too weak and have holes that are too large. This makes it too easy for people to pull and mangle the existing grates. We recommend replacing the bent grates with <sup>3</sup>/<sub>4</sub>" hole carbon steel mesh (or any similar steel grid). This type of cover will inhibit visitors from reaching into the kiln, but still allows for any rainwater to drain.

#### Retaining Wall and Soil Nailing Plan

The retaining wall of the limestone kilns has been standing for over a hundred years, but due to the anticipated increase in visitors to the site with the new improvements, along with the additional loading the new additions will bring, analysis was done on the walls to design the best specifications of soil nails for the site.

The first step of the process was to determine the additional soil stresses the new trail and pedestrian live load would impose onto the wall. To do so, the loadings were designed as a strip loading, one positioned 10 feet away from the wall and one against the wall simulating the trail extension to the viewing platform being built on top of a kiln. This was done using the Boussinesq method with steps labelled in *Foundation Design – Principles and Practices* by Donald P. Coduto. The combined stresses were taken and compared to the capacity of the wall, and it was discovered that the system had a factor of safety under 1.5, less than a safe structure needs to be. This supplies the evidence needed for the justification of installing soil nails into the wall.

With cost in mind, soil nail sizes were chosen from the soil nail manufacturer Williams Form Engineering Corp. To find the total length of the soil nail, the nail was split into two sections, one length outside the Rankine failure zone and one length for the boring length that would be filled with cement grout. These equations were pulled from Principles of Foundation Engineering by Braja M. Das. A majority of the forces were concentrated near the surface of the existing ground behind the retaining wall so this was labeled as the critical section, where further lengths calculated for the latter soil nails would be based on. It was found that a total required length of soil nail was 26 ft, and since the retaining wall is about a foot in thickness, total length was increased to 27 ft. Certain specifications such as sizing for the subsequent soil nails and spacing was found using the Soil Nail Walls Reference Manual from the U.S. Department of Transportation Federal Highway Administration. Such specifications were a minimum of 3.5 ft from the surface is needed for installation with the design being 4 ft from the surface. A range of vertical and horizontal spacing of the nails ranged from 4 ft to 6 ft with a 5 ft typical spacing being chosen. The length of soil nails was also specified with the range being 20 ft to 40 ft with the design length falling at 27 ft, within the threshold. Soil nail diameter will be 1.25 inches and components for the nail will follow the same diameter. A diameter of 7 in is also required for drilling into the wall face to install the soil nails to accommodate the size of the nails and the required cement grouting. Finally, the nails should be installed at a 15-degree angle in relevance to the wall.

Once an appropriate length was chosen for the soil nail and the diameter it needs to be, the components needed for the full assembly were chosen. Corrosion protection was also chosen to help increase the lifespan of the soil nails for years to come. For normal soil nail installations, shotcrete is used on the surface to provide added support for the soil nails as it keeps the soil together, but since work is being done on an existing wall, the soil nails will be supported by the wall itself. With this, a 9 in square hole a half foot in depth should be drilled out on center with each 7 in diameter hole where a 9 in square bearing plate will be placed for the support of the nail. To cover up the openings, decorative star caps are chosen to continue to follow along with the originality of the site while mimicking the star anchors used to stabilize older brick structures (*Figure 6.04*).



Figure: 6.04: Retaining Wall Star Placement

#### Rock Crusher Stabilization

The rock crusher building, and the old bridge are in poor condition. To stabilize these structures, both temporary and permanent supports were designed.

The rock crusher building has many critical elements that need to be repaired. Firstly, one of the concrete foundation walls has significant cracking throughout. This wall also retains five feet of soil. A new retaining wall design was designed to go directly in front of the cracked wall. Using ACI codes and standards, we designed the new retaining wall to support all the loads from the retained soil assuming that the existing wall was failing. Our design would be sufficient to resist overturning moment and shear in this section. However, before the retaining wall can be installed, there are two patches of concrete inside the rock crusher that must be removed.

Another issue with the rock crusher is that some of the studs in the wall are bending. All the studs are either 2-in x 10-in or 2-in x 12-in. These need to be straightened out by providing blocking at mid-height. The studs are spaced every 2 feet so a series of 2-in x 10-in x 2-ft members will be enough to straighten the studs and prevent any further buckling.

Since the rock crusher building is so old, there is a lot of rotting in some of the members. Specifically, there are several beams that have lost connection to the columns because of rot. We recommend sistering another beam of the same size to them. Doing this strengthens the member and re-establishes the connection between the rotted beam and the column.

The rock crusher also has many deteriorating columns. These supports carry the roof loads and floor loads of the building, so it is essential that these are repaired. Since the blueprint of the building is uncertain, higher factors were needed when estimating the loads. LRFD load combinations were used to determine the maximum possible load experienced by any given column. The National Design Specification for Wood Construction (NDS 2015) was used to design temporary lumber supports for these columns. The temporary supports consist of two beams and two smaller columns. The beams were designed to be 2-in x 10-in x 3-ft Douglas Fir Strength I members on either side of the building's column. The beams were designed to have adequate shear strength and flexural strength for the maximum possible column load from the rock crusher. The columns for the temporary support are meant to carry the load from the beams to the ground. Each of these column members needed to be designed to have enough compressive strength to carry half of the load from the beams. We found that 4-in x 4-in Douglas Fir Strength I columns have adequate compressive strength to carry the loads from the rock crusher.

#### **Bridge Stabilization**

There are many things that need to be done to the bridge before it can be fully restored. Due to the time constraints of this project our group did not address all these issues. We dealt with the repair of the horizontal bracing of the bridge. We have created a general plan for removing and replacing the damaged cross bracing and crooked out-of-plane bracing. These bracings are

intended to resist horizontal loads and limit the bridge's lateral movement/turning. They do not support any of the bridge's vertical loads. Therefore, the specified temporary supports for the bridge were designed to resist any lateral loads while the bracing was removed and replaced.

Chapter 29 of ASCE 7-16 was used to find the lateral wind force that could act on the bridge. Using formulas for open frame structures we found a design force of 1.8 kips acting on the bridge. The geometry of the temporary lumber cross bracing shown in *Figure 6.05* is simple, but it is all that is needed to resist the design load.



Figure 6.05: Temporary Cross Bracing Plan

#### Viewing Platforms

Viewing platforms showing an artistic depiction of the original Hurstville Lime Kilns shall be placed along the trail in the direction of the kilns itself to provide an interactive history aspect to the site. General construction of the platforms will consist of two 4x4s with a half inch piece of plexiglass inserted between the two with the rendition lining up with a section of the site showing what it would have looked like while the site was active (*Figure 6.06*).

The length of the 4x4s are 11 ft with 4 ft below the surface in compliance with general fence construction for having supporting posts being one third to one half the above length underground. The tops of the posts and plexiglass are covered with a 2x4 piece of lumber that is 4 ft in length and connected by 2 16d nails on either side. The plexiglass will be supported by 3 2-inch bolts on either side. The holes should be no less than twice the thickness of the posts where it will be filled in with gravel for support. Loose limestone will be chosen from the site to create a step up to view through the plexiglass with the dimensions being 4 ft in line with the plexiglass and 3 ft in depth with having no more than a foot in height. Installation of the limestone will be level with the rest of the assembly and the existing ground.



Figure 6.06: Viewing Platform Positioning

## Section VII Engineer's Cost Estimate

The estimated final cost for the structural part of this project is \$119,500. This includes the cost of construction plus 20% and 10% for contingencies and engineering fees respectively. The costs of the project are split up into different sections of the project: rock crusher and bridge stabilization, grates, kiln platforms, soil nailing, and glass etching platforms.

We determined the overall material cost of the project by determining the unit costs of materials and the costs of labor. We used RSMeans and local hardware store prices to determine the unit costs of materials.

		Materia	al Cost Estimate		
	ltem	Unit	Unit Price	Quantity	Cost
	Concrete	CY	\$150.00	3.5	\$525.00
	Concrete removal	SY	\$40.00	4	\$160.00
	#4 Rebar	LF	\$2.55	200	\$510.00
Rock Crusher	8x8 DF#1	BF	\$12.00	110	\$1,320.00
and Bridge Stabilizatoin	2x10 DF#1	BF	\$12.00	60	\$720.00
	4x4 DF#1	BF	\$12.00	60	\$720.00
	2x12 Pine	BF	\$8.00	12	\$96.00
	2x4 Pine	BF	\$8.00	80	\$640.00
-	Stuctural Steel	CWT	\$360.00	30	\$10,800.00
Grates / Side	Clay Brick Masonry	SF	\$25.00	50	\$1,250.00
Openings	Welded Wire 2" Mesh (bundle)	EA	\$150.00	1	\$150.00
	6x6 DF#1	BF	\$12.00	384	\$4,608.00
	2x14 DF#1	BF	\$12.00	1100	\$13,200.00
	Decking	SF	\$5,347.00	303.75	\$5,320.47
	Glass Panel (10-6"x10-6")	СТ	\$4,540.00	1	\$4,540.00
	3.5'x3.5'x24"	CY	\$125.00	0.908	\$113.50
	#5 Rebar	LF	\$22.48	210	\$236.04
	Handrails	LF	\$80.00	104.5	\$8,360.00
	2x14 hangers (LUS210)	СТ	\$1.84	64	\$117.76
	(2) 2x14 hangers (HUCQ210-2-SDS)	СТ	\$42.21	12	\$506.52
Kiln Platforms	(3) 2x14 hangers (HUCQ210-3-SDS)	СТ	\$46.60	4	\$186.40
	Stair hangers (LSSR210-2Z)	СТ	\$27.39	3	\$82.17
	Anchor rebar (4 at each)	LF	\$0.63	25	\$15.85
	Set 3G epoxy (sold in 8.5 OZ)	OZ	\$24.62	33.28	\$98.48
	A36 Base Plates (1/2x12x12)	СТ	\$85.00	10	\$850.00
	A36 Knife Plate (1/2x8x5.5)	СТ	\$44.57	10	\$445.70
	A307 1/2"x7" Hex Bolt	СТ	\$2.12	60	\$127.20
	A3071/2" Hex Nut and Washer	СТ	\$0.67	60	\$40.20
	Welds	LF	\$70.00	10	\$700.00
	Miscellaneous Construction	-	-	-	\$9,280.50
Soil Nailing	Grade 75 #10 Nail @ 27 ft	EA	\$400.00	56	\$22,400.00
Son Mannig	Star Anchor Plates	EA	\$15.00	56	\$840.00
	4x4 Douglas Fir posts @ 12ft	СТ	\$31.00	8	\$248.00
	2x4 Framing Lumber @ 4ft	СТ	\$5.09	4	\$20.36
	3-1/2" 16D Box Nail - 5 lb. Box	СТ	\$19.38	1	\$19.38
Glass Etching	3/4 x 4 x 8 Plywood Sheathing	СТ	\$56.38	1	\$56.38
Platforms	1/2" Clear Acrylic Plexiglass Sheet	СТ	\$600.00	4	\$2,400.00
	5/16" -18 x 2" Zince Grade 2 Hex Bolt	СТ	\$1.09	24	\$26.16
	5/16" -18 Blue Zinc Grade 2 Hex Nut	СТ	\$2.99	24	\$71.76
				TOTAL:	\$91,900.00

Figure 7.01 – Material Cost Estimate

Construction Subtotal	\$91,900.00
10% Contingencies	\$9,200.00
20% Engineering and Administration	\$18,400.00
Total Project Cost	\$119,500.00

Figure 7.02 – Total Project Cost

## Section VIII Appendices

Please see the attached documents for further information.

- 8.01 Kiln Platform Design Loads
- 8.02 Kiln Platform Design
- 8.03 Kiln Platform Handrails
- 8.04 Kiln Platform Glass Viewport
- 8.05 Kiln Platform Anchor Bolt Design
- 8.06 Kiln Analysis Loading
- 8.07 Kiln Analysis Shear Checks
- 8.08 Kiln Analysis Settlement Checks
- 8.09 Kiln Opening Repair
- 8.10 Retaining Wall Analysis
- 8.11 Retaining Wall Soil Nails
- 8.12 Rock Crusher Design Loads
- 8.13 Rock Crusher Supports
- 8.14 Bridge Stabilization Plan

#### Section IX Bibliography

American Society of Civil Engineers., (2017). *Minimum design loads and associated criteria for buildings and other structures: ASCE/SEI 7-16.* 

Coduto, Donald P., et al. Foundation Design: Principles and Practices. Pearson, 2016.

Das, Braja M. Principles of Foundation Engineering. Pacific Grove, CA: Thomson/Brooks/Cole, 2004

Drysdale, Robert G., and Ahmad A. Hamid. Masonry Structures: Behavior and Design. Masonry

Society, 2008.

- Gordian., *Heavy Construction Costs with RSMeans data 32<sup>nd</sup> annual edition*. Gordian Group, 2018
- International Code Council. (2017). 2018 International Building Code. Country Club Hills, Ill:

ICC.

National Highway Institute., *Geotechnical Engineering Circular NO. 7 Soil Nail Walls – Reference Manual.* U.S Department of Transportation, 2015.

Revit 2022., (2022). (computer software), Autodesk Inc., San Rafael, CA.

Simpson Strong-Tie., (2019). Wood Construction Connectors Catalog 2019. Pleasanton, CA.



#### Search Information



The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

#### Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.



#### **Search Information**

Address:	Hurstville Historic District, IA 52060, USA
Coordinates:	42.09751869999999, -90.6831911
Elevation:	668 ft
Timestamp:	2022-02-25T16:18:54.073Z
Hazard Type:	Wind



#### **ASCE 7-16**

ASCE 7-10

#### **ASCE 7-05**

ASCE 7-05 Wind Speed

90 mph

MRI 10-Year 74 mph MRI 10-Year 76 mph 84 mph 81 mph MRI 25-Year MRI 25-Year 90 mph 86 mph MRI 50-Year MRI 50-Year MRI 100-Year 93 mph MRI 100-Year 96 mph 105 mph 101 mph Risk Category I Risk Category I Risk Category II 108 mph Risk Category II 115 mph Risk Category III 115 mph Risk Category III-IV 120 mph Risk Category IV \_\_\_\_\_ 120 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

#### Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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building site described by latitude/longitude location in the report.

		Designer	Date				
	Hu	SRO	02/22				
Kiln Plat	form: Design	LC	ads				
Miscellaneou	s Info						
	Design Guide	=	ASCE 7-1	6			
	Risk Category	=	II				
Dead Loads							
	Decking DL	=	13	psf	*assume	DuxxBak Deck	ing
	Viewport DL	=	18	psf	*assume	1 1/2" thick	-
	Joists	=	8	psf	*assume	2x12 at 16" o.	с.
Live Loads							
	Platform LL	=	60	psf	*elevate	diplatforms	
	Stair LL	=	60	psf	*stairs ar	nd exit ways	
Hand	draile/Guardraile II **	_	50	nlf			
Hand	drails/Guardrails LL**	=	200	pii lb	*single co	oncentrated lo	ad
					U		
	**Handrail and guard	drai	il systems	shall be d	esigned to re	sist a single	
(	giardrail systems shall	JUU	pounds ap	piled in a	ny direction. sist 50 lb/ft a	Handrall and	
	direction along the h	and	Irail. These	e loads ne	ed not be ass	umed to be	
	0		concu	rrent.			
Snow Loads							
	SL ground	_	25	nsf			
	JL, ground	-	25	psi			
	Surface Roughness	=	С				
	Exposure	=	Partially	Exposed			
	Ce	=	1	_			
	I nermal Condition	=	Upen ai	r			
	ls	=	1.2				
			0 740 44				
	SL, flat roof	=	0.7*Ce*(	t*ls*SL, و مدf	round		
	SL, Hat roof	=	21	hzi			

		Designer	Date									
	Hu	SRO	02/22									
Kiln Pla	tform: Design	Lo	ads co	nt.	_							
Wind Loads	- MWFRS Ch. 27.3-4 wind speed	fror	η ΔSCE 7-1	10								
	cii. 27.5 4, wind speed											
	<b>Risk Category</b>	=	П									
	Basic Wind Speed, V	=	115	mph								
D	irectionality factor, K <sub>d</sub>	=	0.85									
	Exposure category	=	С									
F	Γopographic factor, K <sub>zt</sub>	=	1									
Ele	vation above sea level	=	668	ft								
Grou	nd elevation factor, K <sub>e</sub>	=	1									
	Gust effect factor, G	=	0.85									
E	nclosure classification	=	Open									
	building height, h	=	41									
	Kz	=	1.05									
	Gcpi	=	0									
	Velocity pressure, $q_z$	=	31	psf								
	Wind flow		Clear									
	Wind now Roof angle	=	Clear	degrees								
	Root angle	-	0	uegrees								
	Table 1: Ne	t Pr	essure Coe	efficients, C <sub>N</sub>								
	Load Case		C <sub>NW</sub>	C <sub>NL</sub>								
	A		1.2	0.3								
	В		-1.1	-0.1								
	Table 2. M/	ام ما		(mof)								
		na i	c									
			22									
	B			-2								
			-20	<b>∠</b>								

							Designer	Date
		Hu	SRO	02/22				
	. (							
Kiln Pla	tform:	Design	Loac	is co	nt.			
	<b>CA C</b>							
Wind Loads		_						
*ASCE 7-16	Ch. 30, part	5						
	Velocity p	ressure, q <sub>z</sub>	=	31	psf			
	Gust effe	ct factor, G	=	0.85				
		Wind flow	=	Clear				
		Roof angle	=	0	degrees			
Table 1: Net	Pressure C							
Effective	Zone 3 +	Zone 3 -	Zon	e 2 +	Zone 2 -	Zone 1 +	Zone 1 -	

Wind Area	Zone 3 +	Zone 3 -	Zone 2 +	Zone 2 -	Zone 1 +	Zone 1 -
≤a²	2.4	-3.3	1.8	-1.7	1.2	-1.1
>a², ≤4.0a²	1.8	-1.7	1.8	-1.7	1.2	-1.1
>4.0a <sup>2</sup>	1.2	-1.1	1.2	-1.1	1.2	-1.1

Table 2: Wind Pressure, p (psf)

Effective Wind Area	Zone 3 +	Zone 3 -	Zone 2 +	Zone 2 -	Zone 1 +	Zone 1 -
≤a²	64	-86	48	-44	32	-28
>a², ≤4.0a²	48	-44	48	-44	32	-28
>4.0a <sup>2</sup>	32	-28	32	-28	32	-28



						Designer	Date	
	Hu	Hurstville Lime Kilns						
Kiln Pla	tform: Joists							
	Spacing	=	1.34	ft o.c.				
	Max Length	=	13	ft				
	DL	=	21	psf				
	LL	=	60	psf				
	SL	=	21	psf				
	WL	=	86	psf				
	Distributed Load							
	DL	=	28.14	plf				
	LL	=	80.4	plf				
	SL	=	28.14	plf				
	WL	=	115.24	plf				
Ap	plied Distributed Load	=	161	plf				



		Designer	Date			
	Hu	SRO	03/22			
Kiln Pla	tform: Joists				_	
	М	_	3400 45	lh-ft		
	IVI	=	40806	lb-in		
			10000			
	Fb	=	1000	psi		
	CD	=	1.60			
	CM	=	1.00			
	Ct	=	1.00			
	CL	=	1.00			
	Cf	=	1.00			
	Cfu	=	1.00			
	Ci	=	1.00			
	Cr	=	1.15			
	Fb'	=	1840	psi		
	۶x	>	M/Fb			
	43.89	>	22.18			
	Beam selection	=	2x14 DF #:	1		
	M/Sx fb	=	929.73	< 1840 psi		

	Hurstville Lime Kilns					
Hu						
Kiln Platform: Joists						
Shear Check						
V	=	1046.49	lbs			
d	=	13.25	in			
d	=	1.5	in			
fv	=	78.98	psi	< 288		
Fv	=	180	psi			
Fv'	=	288	psi			
Bearing Check						
Fc(perp)	=	625	psi			
Cb	=	1.25				
Fc(perp)'	=	781.25	psi			
fc (perp)	=	465	psi	< 781.25		
lb	=	1.5	inches			
Deflection Check						
DL Deflection limit	=	I/360	per IBC 2018			
DL Deflection limit	=	0.433	inches			
DL +LL Deflection Limit	=	I/240	per IBC 20	18		
DL +LL Deflection Limit	=	0.650	inches			
F	=	620000	nsi			
L 	=	290.8	in^4			
·		230.0				
dst	=	0.101	in	< 0.433		
dlt	=	0.287	in			
$\Delta$ DL + LL	=	0.54	in	< 0.650		
Kcr	=	1.5				
Use	=	2x14 DF #	1 with Simp	son LUS210	hanger	

		Designer	Date				
	Hu	SRO	02/22				
Kiln Pla	tform: B1C1						
	Max Length	=	10.5	ft			
G	lass Viewport Loading						
	DL	=	18	psf			
	LL	=	60	psf			
	SL	=	21	psf			
	WL	=	86	psf			
	Trib	=	2.625	ft			
	Decking Loading						
	DL	=	21	psf			
	LL	=	60	psf			
	SL	=	21	psf			
	WL	=	86	psf			
	Trib	=	0.625	ft			
Combined G	lass and Decking Load						
	DL	=	60.38	plf			
	LL	=	195	plf			
	SL	=	68.25	plf			
	WL	=	279.5	plf			
Ap	plied Distributed Load	=	383.6	plf			
	Reactions at Ends						
	DL	=	316.97	lbs			
	LL	=	1023.75	lbs			
	SL	=	358.32	lbs			
	WL	=	1467.38	lbs			


				Designer	Date
 Hu	irstv	ville Lime K	ilns	SRO	03/22
tformer D1C1					
tiorm: BICI					
М	=	5285.45	lb-ft		
	=	63426	lb-in		
Fb	=	1000	psi		
CD	=	1.60			
CM	=	1.00			
Ct	=	1.00			
CL	=	1.00			
Cf.	=	1.00			
Cfu	=	1.00			
Cr.	_	1.00			
Ci Fh'	_	1600	nsi		
	-	1000	<b>b</b> 31		
Sx	>	M/Fb			
87.78	>	39.64			
Beam selection	=	(2) 2x14 D	F #1		
M/Sx fb	=	722.56	< 1600 psi		

					Designer	Date		
Н.	Hurstville Lime Kilns							
KIIN Platform: B1C1					-			
Shear Check								
V	=	2013.88	lbs					
d	=	13.25	in					
d	=	3	in					
ťv	=	76.00	psi	< 288				
Fv	=	180	psi					
Fv'	=	288	psi					
Bearing Check								
Fc(perp)	=	625	psi					
Cb	=	1.25	•					
Fc(perp)'	=	781.25	psi					
fc (perp)	=	448	psi	< 781.25				
lb	=	1.5	inches					
Deflection Check								
DL Deflection limit	=	I/360	per IBC 201	.8				
DL Deflection limit	=	0.350	inches					
DL+LL Deflection Limit	=	I/240	per IBC 201	.8				
DL+LL Deflection Limit	=	0.525	inches					
E	_	620000	nsi					
E	_	581 6	in^4					
·	-	551.0						
dst	=	0.0458	in	< 0.350				
dlt	=	0.1479	in					
Δ DL+LL	=	0.268	in	< 0.525				
Kcr	=	1.5						
Use	=	(2) 2x14 D	F #1 with Sir	npson LUS2	14-2 hange	er		

Kiln Plat	Hu	urstv	ille Lime K	(ilns		SRO	02/22
Kiln Plat	form, D2C1						
Kiln Plat	$\mathbf{r}$						
	UTIII. BZCI						
	Max Length	=	13	ft			
Gla	ss Viewport Loading	from	n 1.25' to 1	12.75'			
	DL	=	18	psf	=	47.25	plf
	LL	=	60	psf	=	157.5	plf
	SL	=	21	psf	=	55.13	plf
	WL	=	86	psf	=	225.75	plf
	Glass Trib	=	2.625	ft			-
	Decking Loading	from	n 2.25' to 1	12.75'			
	DL	=	21	psf	=	10.5	plf
	LL	=	60	psf	=	30	plf
	SL	=	21	psf	=	10.5	plf
	WL	=	86	psf	=	43	plf
	Glass Trib	=	0.5	ft			
	Decking Loading	from	n 0' to 2.25	5' and 12.75	' to 13'		
	DL	=	21	psf	=	21	plf
	LL	=	60	psf	=	60	plf
	SL	=	21	psf	=	21	plf
	WL	=	86	psf	=	86	plf
	Glass Trib	=	1	ft			
	B2C2 Point load	at 2.	25' and 12	2.75'			
	DL	=	316.97	lbs			
	LL	=	1023.75	lbs			
	SL	=	358.32	lbs			
	WL	=	1467.38	lbs			





		Designer	Date
	Hurstville Lime Kilns	SRO	03/2
Kiln Dlatform			
		<u>_</u>	
DL Deflection (in)			1
DY = -2.904e-92	DV = 8 208= 02	D¥ = 2.904e-02	
	21 - 0.00002		
LL Deflection (in)			
DY = -3.40		- 3.400E-02	2
	DY = -3.014e-01		

				Designer	Date
Ht	urstv	ville Lime K	ilns	SRO	03/22
Kiin Platform: B2C1					
М	=	10106.94	lb-ft		
	=	121284	lb-in		
Fb	=	1000	psi		
CD	=	1.60			
СМ	=	1.00			
Ct	=	1.00			
CL	=	1.00			
Cf	=	1.00			
Cfu	=	1.00			
Ci	=	1.00			
Cr	=	1.00			
Fb'	=	1600	psi		
Sx	>	M/Fb			
131.67	>	75.80			
Beem coloction	_	(2) 2,14 0	F #1		
Dearn Selection	-	(5) 2X14 D	F #1		
M/Sx fb	=	921.12	< 1600 psi		

					Designer	Date		
Н	Hurstville Lime Kilns							
Kiln Platform: B2C1								
Shear Check								
V	=	4099.22	lbs					
d	=	13.25	in					
b	=	4.5	in					
fv	=	103.13	psi	< 288				
Fv	=	180	psi					
Fv'	=	288	psi					
Bearing Check								
Fc(perp)	=	625	psi					
Cb	=	1.1875						
Fc(perp)'	=	742.19	psi					
fc (perp)	=	455	psi	< 742.19				
lb	=	2	inches					
Deflection Check								
DL Deflection limit	=	I/360	per IBC 201	8				
DL Deflection limit	=	0.433	inches					
DL +LL Deflection Limit	=	I/240	per IBC 201	8				
DL +LL Deflection Limit	=	0.650	inches					
			_					
E	=	620000	psi					
I	=	872.4	ın^4					
dst	=	0.09309	in	< 0.433				
dlt	=	0.3014	in					
$\Delta$ DL + LL	=	0.55	in	< 0.650				
Kcr	=	1.5						
Use	=	(3) 2x14 D	F #1 with Sin	npson HUC	Q210-3-SDS	S Hanger		

						Designer	Date
	Hu	urstv	ville Lime H	Kilns		SRO	02/22
Kiln Pla	tform: B1C2						
	Max Length	=	11.5	ft			
	Decking Loads	from	n 0' to 10.	5'			
	DL	=	21	psf	=	13.13	plf
	LL	=	60	psf	=	37.5	plf
	SL	=	21	psf	=	13.13	plf
	WL	=	86	psf	=	53.75	plf
	Trib	=	0.625	ft			
	Decking Loads	fron	n 10.5' to	11.5'			
	DL	=	21	psf	=	136.5	plf
	LL	=	60	psf	=	390	plf
	SL	=	21	psf	=	136.5	plf
	WL	=	86	psf	=	559	plf
	Trib	=	6.5	ft			
	Handrail						
	DL	=	28	plf			
	LL	=	50	plf			
	SL	=	0	plf			
	WL	=	0	plf			
	B2C1 Point Loads	at O'	' and 10.5	,			
	DL	=	646.4	lbs			
	LL	=	2083.11	lbs			
	SL	=	729.12	lbs			
	WL	=	2985.75	lbs			







					Designer	Date
	Hu	irstv	ville Lime K	ilns	SRO	03/22
Kiln Platfor	m: B1C2					
					-	
	М	=	4460.21	lb-ft		
		=	53523	lb-in		
	Fb	=	1000	psi		
	CD	=	1.60	•		
	СМ	=	1.00			
	Ct	=	1.00			
	CL	=	1.00			
	Cf	=	1.00			
	Cfu	=	1.00			
	Ci	=	1.00			
	Cr	=	1.00			
	Fb'	=	1600	psi		
	С.v					
	۵۲ דס סד דס	~	1VI/FD 22.45			
	87.78	1	55.45			
	Beam selection	=	(2) 2x14 D	F #1		
	M/Sx fb	=	609.74	< 1600 psi		

						Designer	Date		
	Hu	Hurstville Lime Kilns							
	fame. D1C2								
KIIN Plat									
Shear Check									
	V	=	4852.49	lbs					
	d	=	13.25	in					
	b	=	3	in					
	fv	=	183.11	psi	< 288				
	Fv	=	180	psi					
	Fv'	=	288	psi					
Bearing Chec	<u>:k</u>								
	Fc(perp)	=	625	nsi					
	Cb	=	1.125	<b>P</b> 31					
	Fc(perp)'	=	703.13	psi					
	fc (perp)	=	539	psi	< 703.13				
	lb	=	3	inches					
Deflection Cl	neck								
	DI Deflection limit	_	1/360	ner IBC	2018				
	DL Deflection limit	=	0.383	inches	2010				
1	DL+LL Deflection limit	=	1/240	per IBC	2018				
I	DL+LL Deflection limit	=	, 0.575	inches					
	E	=	620000	psi					
	I	=	581.6	in^4					
	dst	=	0.01664	in	< 0.383				
	dlt	=	0.04827	in	–				
	$\Delta$ total	=	0.09	in	< 0.575				
	Kcr	=	1.5						
	Use	=	(2) 2x14 D	F #1 with	n Simpson HUCC	Q210-2-SDS	5		

						Designer	Date
	Hu	ırstvil		SRO	02/22		
Kiln Pla	Kiln Platform: B1C3						
	Max Length	=	9.5	ft			
	Decking Loads	from	0' to 9.5	5'			
	DL	=	21	psf	=	136.5	plf
	LL	=	60	psf	=	390	plf
	SL	=	21	psf	=	136.5	plf
	WL	=	86	psf	=	559	plf
	Trib	=	6.5	ft			
	Handrail						
	DL	=	28	plf			
	LL	=	50	plf			
	SL	=	0	plf			
	WL	=	0	plf			







					Designer	Date
	Hu	ırstı	ville Lime K	ilns	SRO	03/22
Kiln Platform: B1C	2					
	5				-	
	м	=	9569.44	lb-ft		
		=	114834	lb-in		
	Fb	=	1000	psi		
	CD	=	1.60			
	CM	=	1.00			
	Ct	=	1.00			
	CL	=	1.00			
	Cf	=	1.00			
	Cfu	=	1.00			
	Ci	=	1.00			
	Cr	=	1.00			
	Fb'	=	1600	psi		
	6					
	Sx	>	M/Fb			
8	/./8	>	/1.//			
Beam selec	ction	=	(2) 2x14 D	F #1		
M/Sx	fb	=	1308.20	< 1600 psi		

				Designer	Date			
Н	Hurstville Lime Kilns							
Kiln Platform: B1C3				-				
Shear Check								
V	=	7104.21	lbs					
d	=	13.25	in					
b	=	3	in					
fv	=	268.08	psi < 288					
Fv	=	180	psi					
Fv'	=	288	psi					
Bearing Check								
Fc(perp)	=	625	psi					
Cb	=	1.09375	<b>F</b>					
Fc(perp)'	=	683.6	psi					
fc (perp)	=	592	psi < 683.6					
lb	=	4	inches					
Deflection Check								
DL Deflection limit	=	I/360	per IBC 2018					
DL Deflection limit	=	0.317	inches					
DL+LL Deflection limit	=	I/240	per IBC 2018					
DL+LL Deflection limit	=	0.475	inches					
_		620000						
E	=	620000 E01 C	psi inA4					
I	=	9.195	m** <del>4</del>					
dst	=	0.00836	in < 0.317					
dlt	=	0.02236	in					
Δ total	=	0.05	in < 0.475					
Kcr	=	1.5						
Use	=	(2) 2x14 D	F #1 with Simpson HUC	Q210-2-SDS	5			

			Designer	Date				
		Н	SRO	02/22				
К	iln Pla	tform: B3C2						
		Max Length	=	4	ft			
		Decking Loads	fron	n 0' to 4'		Decking + H	landrail	
		DL	=	21	psf	=	164.5	plf
		LL	=	60	psf	=	440	plf
		SL	=	21	psf	=	136.5	plf
		WL	=	86	psf	=	559	plf
		Trib	=	6.5	ft			
		Handrail						
		DL	=	28	plf			
		LL	=	50	plf			
		SL	=	0	plf			
		WL	=	0	plf			
	Out	er Stair Stringer Loads	at 0	'-0" and 4'	-0"			
		DL	=	149.45	lbs			
		LL	=	335.5	lbs			
		SL	=	64.05	lbs			
		WL	=	262.3	lbs			
		Total	=	567.15	lbs			
	Cen	ter Stair Stringer Load	at 2	'-0"				
		DL	=	128.1	lbs			
		LL	=	365.99	lbs			
		SL	=	128.1	lbs			
		WL	=	524.59	lbs			
		Total	=	734.74	lbs			
		Reactions						
		DL	=	393.05	lbs			
		LL	=	1063	lbs			
		SL	=	337.05	lbs			
		WL	=	1380.3	lbs			





		Designer	Date				
	Hu	SRO	03/22				
Kiln Pla	tform: B3C2						
	Μ	=	2431.13	lb-ft			
		=	29174	lb-in			
	Fb	=	1000	psi			
	CD	=	1.60	<b>P</b> = 1			
	СМ	=	1.00				
	Ct	=	1.00				
	CL	=	1.00				
	Cf	=	1.00				
	Cfu	=	1.00				
	Ci	=	1.00				
	Cr	=	1.00				
	Fb'	=	1600	psi			
	Sx	>	M/Fh		does not w	ork with (4)	2x14
	43.89	>	18.23				2714
	Beam selection	=	(1) 2x14 D	F #1			
	M/Sx fb	=	664.71	< 1600 psi			

				Designer	Date		
Hu	Hurstville Lime Kilns						
Kiln Platform: B3C2				-			
Shear Check							
V	=	2064.2	lbs				
d	=	13.25	in				
b	=	1.5	in				
fv	=	155.79	psi < 288				
Fv	=	180	psi				
Fv'	=	288	psi				
Bearing Check							
Fc(perp)	=	625	psi				
Cb	=	1.09375					
Fc(perp)'	=	683.6	psi				
fc (perp)	=	344	psi < 683.6				
lb	=	4	inches				
Deflection Check							
DL Deflection limit	=	I/360	per IBC 2018				
DL Deflection limit	=	0.133	inches				
DL +LL Deflection Limit	=	I/240	per IBC 2018				
DL +LL Deflection Limit	=	0.200	inches				
E	_	620000	nci				
E	_	20000	psi inA4				
I	-	290.8	104				
dst	=	0.000295	in < 0.133				
dlt	=	0.000801	in				
Δ total	=	0.01	in < 0.200				
Kcr	=	1.5					
Use	=	2x14 DF #1	L with Simpson HU214				

		Designer					
	Hu	irstv	SRO	02/22			
Kiln Pla	tform: B3C1						
	Length	=	13	ft			
	Decking Loads				Decking + H	andrail Lo	ads
	DL	=	21	psf	=	42.07	plf
	LL	=	60	psf	=	90.2	plf
	SL	=	21	psf	=	14.07	plf
	WL	=	86	psf	=	57.62	plf
	Trib	=	0.67	ft			
	Reactions at End						
	DL	=	273.46	lbs			
	LL	=	586.3	lbs			
	SL	=	91.46	lbs			
	WL	=	374.53	lbs			
	Total	=	950.32	lbs			
	Use	=	2x12 DF #	1 with	Simpson LUC2102	Z hanger	
		n)					

					Designer	Date
Н	Hurstville Lime Kilns					
Kiln Platform: Platforr	n (	Colum	ns			
		corarm			-	
Max Height	=	12	ft			
Max Axial Load	at 8	.5'				
DL	=	1725.85	lbs			
LL	=	4872.69	lbs			
SL	=	1522.73	lbs			
WL	=	6233.66	lbs			
Total	=	9327.57	lbs			
Axial Load 2	at 1	2'				
DL	=	0	lbs			
LL	=	200	lbs			
SL	=	0	lbs			
WL	=	0	lbs			
Total	=	200	lbs			
Total Axial Load	=	9527.57	lbs			
	=	9.53	kips			

					Designer	Date				
	Hu	Hurstville Lime Kilns								
Kiln Pla	tform: Platforr	n (	Columns							
	Use: 6x6 DF #1 Column									
	Height = 12 ft									
	d	=	5.5 inches							
	b	=	5.5 inches							
	Reference I	Desig	n Values							
	Fc	=	1500 psi							
	E,min	=	620000 psi							
	Adjustment	: Fac	tors							
	C,D	=	1.6							
	C,M	=	1							
	C,t	=	1							
	C,F	=	1 for Fc							
	C,i	=	1							
	C,P	= :	see below							
	Find F,cE									
	le/d	=	52.37							
	Кх	=	2.5							
	F,cE	=	465 psi							
	Calc Pc									
	Fc*	=	2400 psi							
	F,cE/Fc*	=	0.194							
	C	=	0.8							
	C,P	=	0.190							
	F,c'	=	456.0 psi							
	Pc	=	13.794 kips	> 9.53 kips						
	Use	= (	6x6 DF#1 with Simps	son ABU88Z						

		Designer	Date				
	Hu	SRO	02/22				
Kiln Pla	tform: Center	Sta	ir Stri	ngei	r (B1C5)	_	
	Total Length	=	16.25	ft			
	Span 1	=	8.125	ft			
	Span 2	=	8.125	ft			
	Stair Loads						
	DL	=	21	psf			
	LL	=	60	psf			
	SL	=	21	psf			
	WL	=	86	psf			
	Trib	=	2	ft			
	Distributed Loads						
	DL	=	42	plf			
	LL	=	120	plf			
	SL	=	42	plf			
	WL	=	172	plf			
	Total Distributed Load	=	240.9	plf			





	Hu	Hurstville Lime Kilns						
Kiln Pla	tform: Center							
	М	= =	1987.51 23851	lb-ft lb-in				
	Fb	=	1000 1.60	psi				
	CM	=	1.00					
	CL	=	1.00					
	Cf Cfu	=	1.00 1.00					
	Ci Cr	=	1.00 1.15					
	Fb'	=	1840	psi				
	Sx	=	19.53	l				
	Sx	>	M/Fb					
	59.07	,	12.90					
	Beam selection	=	(2) 2x14 D	F #1 notched for stairs				
	M/Sx fb	=	610.47	< 1840 psi				

Hu	Hurstville Lime Kilns						
	•						
Kiln Platform: Center	Sta	air Stri	nger	(B1C5)			
Shear Check							
v	=	611.88	lbs				
d	=	6.25	in	(2x14 notch	ned 0'-7")		
b	=	3	in				
fv	=	48.95	psi	< 288			
Fv	=	180	psi				
Fv'	=	288	psi				
Bearing Check							
Fc(perp)	=	625	psi				
Ch	=	1 25	P31				
Ec(perp)'	=	781.25	psi				
10(20,2)		,01.20	<b>P</b> 31				
fc (perp)	=	272	psi	< 781.25			
lb	=	1.5	inches				
Deflection Check							
DL Deflection limit	=	1/360	per IBC	2018			
DL Deflection limit	=	0.542	inches	2010			
DL +LL Deflection Limit	=	I/240	per IBC	2018			
DL +LL Deflection Limit	=	0.813	inches				
E	=	620000	psi				
1	=	122.08	in^4				
dst	=	0.04508	in	< 0.542			
dlt	=	0.1288	in				
$\Delta$ DL + LL	=	0.24	in	< 0.813			
Kcr	=	1.5					
	_	(2) 2214	E #1 po+	ched for stairs			
Use	=	with Simp	son LSSR	210-2Z			

		Designer	Date						
	Hu	SRO	02/22						
Kiln Plat	Kiln Platform: Outer Stair Stringers (B1C4)								
	Total Length	=	16.25	ft					
	Span 1	=	8.125	ft					
	Span 2	=	8.125	ft					
	Stair Loads								
	DL	=	21	psf					
	LL	=	60	psf					
	SL	=	21	psf					
	WL	=	86	pst					
	Trib	=	1	ft					
	Handrail Loads								
	DL	=	28	plf					
	LL	=	50	plf					
	SL	=	0	plf					
	WL	=	0	plf					
	Distributed Loads								
	DL	=	49	plf					
	LL	=	110	plf					
	SL	=	21	plf					
	WL	=	86	plf					
-	Total Distributed Load	=	185.95	plf					




				-	Designer	Date
	Hu	SRO	03/22			
Kiln Pla	tform: Outer S	ta	ir Strin	gers (B1C4)		
	М	= =	1534.15 18410	lb-ft lb-in		
	Fb CD	= =	1000 1.60	psi		
	CM Ct	=	1.00 1.00 1.00			
	Cf Cfu	=	1.00 1.00 1.00			
	Ci Cr Fb'	= = -	1.00 1.15 1840	nsi		
	Sx	=	19.53	μsi		
	Sx	>	M/Fb			
	39.07 Beam selection	>	10.01 (2) 2x14 D	F #1 notched for stairs		
	M/Sx fb	=	471.21	< 1840 psi		

					Designer	Date
Hu	Hurstville Lime Kilns				SRO	03/22
Kiln Dlatform, Outor S	`+~	ir Ctrin	aora			
			gers			
<u>Shear Check</u>						
v	=	944.61	lbs			
d	=	6.25	in	(2x14 notch	ned 0'-7")	
b	=	3	in			
fv	=	75.57	psi	< 288		
Fv	=	180	psi			
Fv'	=	288	psi			
Bearing Check						
Fc(perp)	=	625	psi			
Cb	=	1.25	F-21			
Fc(perp)'	=	781.25	psi			
fc (perp)	=	420	psi	< 781.25		
lb	=	1.5	inches			
Deflection Check						
DL Deflection limit	=	1/360	per IBC	2018		
DL Deflection limit	=	0.542	Inches	2019		
DL +LL Deflection Limit	_	0 813	inches	2018		
	-	0.015	inches			
-		620000				
E	=	122 09	psi inA4			
	-	122.00	111.4			
dst	=	0.05302	in	< 0.542		
dlt	=	0.119	in			
		0.24	:	- 0.010		
	=	0.24	IN	< 0.813		
Kcr	=	1.5				
Use	=	(2) 2x14 D	F #1 not	ched for stairs		
		with Simp	son LSSR	210-2Z		

						Designer	Date
	Hu	ırstv	ville Lime K	ilns		SRO	03/22
Kiln Pla	tform: Off-Kiln	F	ooting				
	ASBP	=	1.5	ksf			
	Max Loads						
	DL	=	1323.88	lbs			
	LL	=	3488.5	lbs			
	SL	=	1049.48	lbs			
	WL	=	4297.85	lbs			
	Max Uplift	=	-1.7843	k			
	Max Download	=	6.6614	lbs			
	Length	=	3.5	ft			
	Width	=	3.5	ft			
	Depth	=	2	ft			
	Max Uplift Allowed	=	2.131	k	> 1.7843 k		
М	ax Download Allowed	=	18.375	k	> 6.6614 k		
	Total Rebar Required	=	6	#5 Rebar			
Rel	par at top and bottom	=	3	#5 Rebar			

Use = 3'-6" x 3'-6" x 2'-0" footing with (3) #5 rebar, top and bottom both ways



**Design Specifications for Public-Access Guardrail** 

(International Building Code)

1. Guardrails and Handrails shall be the product of a company normally engaged in the manufacture of pipe railing. Railings shall be shop assembled in lengths not to exceed 24 feet for field erection.

2. The handrail shall be made of pipes joined together with component fittings. Samples of all components, bases, toeboard and pipe must be submitted for approval at the request of the engineer. Components that are pop-riveted or glued at the joints will not be acceptable. All components must be mechanically fastened with stainless steel hardware. Handrail and components shall be TUFRAIL, as manufactured by Thompson Fabricating, LLC (Birmingham, Alabama) or an approved equal.

3. Railings shall be 1 1/2" Schedule 40 aluminum pipe alloy 6105-T5, ASTM-B-429 or ASTM-B-221. Post shall be 1 1/2" Schedule 80 aluminum pipe of the same alloy. Post spacing shall be a maximum of 6'-0".

4. Guardrails and Handrails shall be designed to withstand a 200lb concentrated load applied in any direction and at any point on the top rail. Guardrails and Handrails shall also be designed to withstand a uniform load of 50 lb/ft applied horizontally to the top rail. Uniform loads are not to be applied simultaneously with the concentrated loads.

5. Pickets and intermediate railings shall be provided such that a 4-inch diameter sphere cannot pass through any opening up to a height of 34 inches. From a height of 34 inches to 42 inches above the adjacent walking surface, a sphere 8 inches in diameter shall not pass. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches in diameter cannot pass through the opening.

6. Pickets and intermediate railings shall be designed to withstand a horizontally applied normal load of 50lb on an area not to exceed one square foot including openings and spaces between rails.

7. The manufacturer shall submit calculations for approval at the request of the Engineer. Testing of base castings or base extrusions by an independent lab or manufacturer's lab (if manufacturer's lab meets the requirements of the Aluminum Association) will be an acceptable substitute for calculations. Calculations will be required for approval of all other design aspects.

8. Posts shall not interrupt the continuation of the top rail at any point along the railing, including corners and end terminations (OSHA 1910.23). The top surface of the top railing shall be smooth and shall not be interrupted by projected fittings.



# **Design Specifications for Public-Access Guardrail** (page2)

(International Building Code)

9. The mid-rail at a corner return shall be able to withstand a 200lb load without loosening. The manufacturer is to determine this dimension for their system and provide physical tests from a laboratory to confirm compliance.

10. Concrete anchors shall be stainless steel type 303 or 304 wedge anchors and shall be furnished by the handrail manufacturer. The anchor design shall include the appropriate reduction factors for spacing and edge distances in accordance with the manufacturers published data.

11. Toeboard shall conform to OSHA standards. Toeboard shall be a minimum of 4" high and shall be an extrusion that attaches to the posts with clamps that will allow for expansion and contraction between posts. Toeboards shall be set 1/4" above the walking surface. Toeboards shall be provided on handrails as required by OSHA and/or as shown on drawings. Toeboards shall be shipped in stock lengths for field installation.

12. A self-closing gate shall guard openings in the railing (OSHA 1910.23). Safety chains shall not be used unless specifically shown on the drawings.

13. Finish shall be Aluminum Association M10-C22-A41 (215-R1). The pipe shall be plastic-wrapped. The plastic wrap is to be removed after erection.

14. Aluminum surfaces in contact with concrete, grout or dissimilar metals will be protected with a coat of bituminous paint, Mylar isolators or other approved material.



GUARDRAILS SHALL BE TOP-MOUNTED OR SIDE-MOUNTED, AS SHOWN ON PLANS

Note 5. Pickets and intermediate railings shall be provided such that a 4-inch diameter sphere cannot poss through any opening up to a height of 34 inches. From a height of 34 inches to 42 inches above the adjacent walking surface, a sphere 8 inches in diameter shall not poss. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a size such that a sphere of 6 inches in diameter connot poss through the opening.





٠

(1 Piece) -SDE NOANT TO CONCRETE SLAD--SDE NOUNT TO CHANNEL-

6 1/2"

3/4"

3/8

1/2

3

12

3/8" SS ST SDELTS

-SDE MOUNT TO BEAM OR DWINEL-



#TBF-3.4 Base Flange - TOP HOUNT TO CONCETE -

6

\$ 1/4"

SS SHW

3/8" S.S. SET SCREW

n

-

1/6

7/8

3

5 'n

\$

/16

2

#SMB-3 Side-Mt. Bracket

+









L 5/8" HOLES







**#TBF-2** Base Flange - TOP MOUNT TO BEAM OR CHANNEL -



#### #ABF Base Flange - MARES FROM 30' TO 4F-(RP MOUNT TO STRINGER)





TCO ALUMINUM WALL CONCRETE

#AWF Adjustable Wall Rail Bracket



Fleid Splice Locks

#SL-1 Splice Lock

**#ES-1 Expansion Splice** 

#TE-1 90° Corner Elbow









# **Glass Flooring System Inc.:**

# Walkable Aluminum Skylight Rafter System

### General Notes and Assumptions:

- 1. Calculations based on ASCE7/10 and 2010 ADM
- 2. Deflection limitations are based on L/500 for the total load (TL)
- 3. Mullions and structural members and components shall be 6063-T6 unwelded aluminum (min)
- 4. "I" and "T" Rafters shall have section properties as shown on the following sheet
- 5. Glass lights were assumed to be 30" maximum width
- 6. For multiple light conditions, the girder mullions are assumed to be continuous, spanning in the short direction of overall opening with intermediate rafters notched to fit at the point of intersection. No notching of the girder mullion is allowed
- 7. Aluminum perimeter zee shapes are assumed to be in constant bearing with structural steel or concrete and anchored at 24" o.c. min.
- 8. Mullions assumed to be connected to perimeter zee with (2) 1/4" thick aluminum angle with 5/8" fasteners each end
- 9. Span tables are for reference only, project specific engineering shall be required for unique project conditions and loading prior to ordering of materials.

		Exterior - Roof Applications (20 psf Live Load)								
	Single Light Double Light Triple Light									
	Max	Max End	Max	Max End	Max	Max End				
	Length	Reaction	Length	Reaction	Length	Reaction				
I Rafter	13'-1"	772 (lbf)	12'-6"	818 (lbf)	11'-9"	853 (lbf)				
T Rafter	8'-3"	493 (lbf)	7'-7"	535 (lbf)	7'-5"	603 (lbf)				
		1 00 01 11 1 00	611 1 1 0 5	C 1 1 11C 1 CO C	1 1					

Max span based on 20psf dead load, 20 psf live load, 25psf wind uplift and 30psf snow load

Max end reaction indicates the max bearing or uplift each end of rafter

	Residential Applications (40 psf Live Load)										
	Single Light Double Light Triple Light										
	Max	Max	Max		Max						
	Length	Reaction	Length	Max End Reaction	Length	Max End Reaction					
I Rafter	13'-8"	949 (lbf)	13'-0"	986 (lbf)	12'-8"	1047 (lbf)					
T Rafter	8'-9"	595 (lbf)	8'-2"	639 (lbf)	8'-0"	711 (lbf)					

• Max span based on 20psf dead load, 40 psf live load, and 5psf wind uplift

Max end reaction indicates the max bearing each end of rafter

		Residential Balcony Applications (60 psf Live Load)							
	Single Light Double Light Triple Light								
	Max	Max End	Max	Max End	Max	Max End			
	Length	Reaction	Length	Reaction	Length	Reaction			
l Rafter	12'-10"	1142 (lbf)	12'-0"	1171 (lbf)	11'-8"	1246 (lbf)			
T Rafter	8'-2"	715 (lbf)	7'-8"	775 (lbf)	7'-6"	864 (lbf)			

• Max span based on 20psf dead load, 60 psf live load, and 25psf wind uplift

• Max end reaction indicates the max bearing each end of rafter





# **<u>Glass Flooring System Inc.</u>**

# Walkable Aluminum Skylight Rafter System

		Commercial Load Applications (100 psf Live Load)								
	Single Light Double Light Triple Light									
	Max	Max End	Max	Max End	Max	Max End				
	Length	Reaction	Length	Length Reaction		Reaction				
I Rafter	11'-3"	1435 (lbf)	10'-6"	1498 (lbf)	10'-0"	1593 (lbf)				
T Rafter	7'-6"	946 (lbf)	6'-11"	1032 (lbf)	6'-9"	1169 (lbf)				

• Max span based on 20psf dead load, 100 psf live load, and 5psf wind uplift

Max end reaction indicates the max bearing each end of rafter



"I" Rafter

Area:	8.0221
Perimeter.	22.7803
Bounding box:	X: -1.5000 1.5000
1	-3.0053 3.1597
Centroid:	X: 0.0000
1	1:0.0000
Moments of ine	ertia: X: 33.3564
1	1.2.6920
Product of iner	tia: XY: 0.0000
Radii of gyratio	n: X; 2.0391
	0 5793

## "T" Rafter



Page 2 of 2



						Designer	Date
	Hurstville Lime Kilns				SRO	04/22	
Kiln Plat	form: Columr	<u>1 Co</u>	onnecti	on			
	D	=	0.5	in			
	l,m	=	0.25	in			
	l,s	=	2.62	in			
	F,em	=	87000	psi			
	F,es	=	3150	psi			
	F.vb	=	45000	psi			
	θ	=	0	degree	25		
	К.Ө	=	1				
	R.e	=	27.62				
	k.3	=	0.57				
	Yield Mode Z values						
	l.m	=	2718.8	lb			
	.,	=	2063.3	lb			
	i,s III s	=	1370.8	lb			
	IV	=	1492.2	lb			
			1452.2	15			
	Z	=	1370.8	lb			
	C.D	=	1.6				
	C.M	=	1				
	C.t	=	1				
	C.Δ	=	1				
	с, С.я	=	0 893	*calcu	lation below		
	Сер	=	1	carea			
	C di	=	1				
	C.tn	=	-				
	7'	=	1958.6	lb	for 1 bolt		
	E		1990.0	15			
Мi	nimum End Distance	=	2	in			
	linimum Bolt Spacing	=	- 2	in			
		=	0.5				
Min	imum Edge Distance	=	0.75	in			
14111			5.75				
numhe	er of bolts in a row n	=	3				
numbe	number of rows	=	2				
	Total 7	=	<u>م</u> 11751 6	lhs	> 9530 lbc		
		_	11, 51.0	103	- 2020 102		

	[					Designer	Date
	H	urst	ville Lime Kilı	ns		SRO	04/22
KIIN PIa	tform: Column		onnectio	on			
	E,s	=	620000	psi			
	A,s	=	28.82	in^2			
	E,m	=	29,000,000	psi			
	A,m	=	1.375	in^2			
	R,EA	=	0.449				
	У	=	95460	lbs/in			
	S	=	2	in			
	u	=	1.1				
	m	=	0.65				
	n	=	3				
	C,g	=	0.893				
<u>Weld Design</u>	<u>1</u>						
	D	=	2	/16 in			
	I	=	5.5	in			
	F,EXX	=	70	ksi			
	Ω	=	2				
	R,n/Ω	=	10210	lbs	> 9530 lbs		
	Use	=	0'- 0 1/2"x0 plate with	י'-5 1/2"» ו 1/2" dia	x8" ASTM A36 S a. hex bolts, spa detail	Steel Knife aced per	





# SIMPSON

Strong-I

## Anchor Designer™ Software Version 3.0.7947.0

Company:	Date:	4/5/2022
Engineer:	Page:	1/6
Project:	 	
Address:		
Phone:		
E-mail:		

### **1.Project information**

Customer company: Customer contact name: Customer e-mail: Comment:

### 2. Input Data & Anchor Parameters

**General** Design method:ACI 318-14 Units: Imperial units

### Anchor Information:

Anchor type: Bonded anchor Material: A706 Grade 60 Rebar Diameter (inch): 0.500 Effective Embedment depth, her (inch): 6.000 Code report: ICC-ES ESR-4057 Anchor category: -Anchor ductility: Yes hmin (inch): 7.25  $c_{ac}$  (inch): 13.04 Cmin (inch): 1.75 Smin (inch): 2.50

#### **Recommended Anchor**

Anchor Name: SET-3G - SET-3G w/ #4 A706 Gr. 60 Rebar Code Report: ICC-ES ESR-4057



Project description: Location: Fastening description:

#### Base Material

Concrete: Normal-weight Concrete thickness, h (inch): 12.00 State: Cracked Compressive strength, f'c (psi): 4000  $\Psi_{c,v}$ : 1.0 Reinforcement condition: B tension, B shear Supplemental reinforcement: Not applicable Reinforcement provided at corners: No Ignore concrete breakout in tension: No Ignore concrete breakout in tension: No Ignore concrete breakout in shear: No Hole condition: Dry concrete Inspection: Continuous Temperature range, Short/Long: 150/110°F Ignore 6do requirement: Not applicable Build-up grout pad: No

#### **Base Plate**

Length x Width x Thickness (inch): 12.00 x 12.00 x 0.25

# SIMPSON Strong-Tie

Anchor Designer™ Software Version 3.0.7947.0

Company:	Date	e:	4/5/2022
Engineer:	Pag	je:	2/6
Project:			
Address:			
Phone:			
E-mail:			

## Load and Geometry

Load factor source: ACI 318 Section 5.3 Load combination: not set Seismic design: No Anchors subjected to sustained tension: No Apply entire shear load at front row: No Anchors only resisting wind and/or seismic loads: No

Strength level loads:

Nua [lb]: 1564 Vuax [lb]: 525 Vuay [lb]: 0 Mux [ft-lb]: 0 Muy [ft-lb]: 6563 Muz [ft-lb]: 0







Anchor Designer™ Software Version 3.0.7947.0

Company:	Date:	4/5/2022
Engineer:	Page:	3/6
Project:		
Address:		
Phone:		
E-mail:		

<Figure 2>



N Anchor Designer	Company:	Date:	4/5/2022
Anchor Designer	Engineer:	Page:	4/6
lie Software	Project:		
Version 3.0.7947.0	Address:		
	Phone:		
	E-mail:		

## 3. Resulting Anchor Forces

SIMI

Stron

Anchor	Tension load, Nua (Ib)	Shear load x, V <sub>uax</sub> (lb)	Shear load y, V <sub>uay</sub> (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (Ib)
1	50.7	131.3	0.0	131.3
2	50.7	131.3	0.0	131.3
3	4646.0	131.3	0.0	131.3
4	4646.0	131.3	0.0	131.3
Sum	9393.4	525.0	0.0	525.0

<Figure 3>

Maximum concrete compression strain (‰): 0.16 Maximum concrete compression stress (psi): 683 Resultant tension force (lb): 9393 Resultant compression force (lb): 7830 Eccentricity of resultant tension forces in x-axis, e'<sub>Nx</sub> (inch): 0.00 Eccentricity of resultant tension forces in y-axis, e'<sub>Ny</sub> (inch): 3.91 Eccentricity of resultant shear forces in x-axis, e'<sub>vx</sub> (inch): 0.00 Eccentricity of resultant shear forces in y-axis, e'<sub>vy</sub> (inch): 0.00



### 4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N <sub>sa</sub> (lb)	$\phi$	$\phi N_{sa}$ (lb)
16000	0.75	12000

### 5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

		-			-				
$N_b = k_c \lambda_a \sqrt{f'}$	chef <sup>1.5</sup> (Eq. 17.4	1.2.2a)							
<i>k</i> c	λa	f'c (psi)	hef (in)	<i>N</i> ₅ (lb)					
17.0	1.00	4000	5.333	13243		_			
$\phi N_{cbg} = \phi (A)$	Nc / А№со) ¥ес, №	$\mathcal{Y}_{ed,N} \mathcal{Y}_{c,N} \mathcal{Y}_{cp,N} \mathcal{N}_{b}$	(Sec. 17.3.1 &	Eq. 17.4.2.1b)	)				
A <sub>№</sub> (in²)	Anco (in²)	Ca,min (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	Ψc,N	$\Psi_{cp,N}$	<i>N</i> ₀ (lb)	$\phi$	$\phi N_{cbg}$ (Ib)
576.00	256.00	8.00	0.671	1.000	1.00	1.000	13243	0.65	13005
$\frac{6. \text{ Adhesiv}}{\tau_{k,cr} = \tau_{k,cr} f_{she}}$ $\tau_{k,cr} (\text{psi})$	r <mark>e Strength of</mark> ort-termKsat(f <sup>°</sup> c / 2 fshort-term	f Anchor in Te 1,500)" Ksat	rnsion (Sec. 1) f'c (psi)	<b>7.4.5)</b> n		Ther (DSI)			
1402	1.00	1.00	4000	0.25		1577			
$N_{ba} = \lambda_{a} \tau_{cr} \pi$	πd₀h₀f (Eq. 17.4	.5.2)							
λa	$ au_{cr}$ (psi)	<i>d</i> ₂ (in)	hef (in)	N <sub>ba</sub> (lb)					
1.00	1577	0.50	6.000	14861		-			
$\phi N_{ag} = \phi \left( A_{I} \right)$	Na∕ANa0)Ψec,Na	$arphi_{ extsf{ed}, extsf{Na}}arPsi_{ extsf{cp}, extsf{Na}} oldsymbol{N}_{ extsf{ba}}$	(Sec. 17.3.1 &	Eq. 17.4.5.1b)					
<i>A</i> № (in²)	A <sub>Na0</sub> (in²)	с <sub>Na</sub> (in)	Ca,min (in)	$\Psi_{ extsf{ec},  extsf{Na}}$	$arPsi_{ extsf{ed}, extsf{Na}}$	$arPsi_{cp,Na}$	N <sub>ba</sub> (lb)	$\phi$	$\phi N_{ag}$ (lb)
482.43	195.00	6.98	8.00	0.641	1.000	1.000	14861	0.65	15314

# SIMPSON Anchor Designer™ Strong-Tie Software Version 3.0.7947.0

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Phone:		
E-mail:		

## 8. Steel Strength of Anchor in Shear (Sec. 17.5.1)

Vsa (lb)	$\phi_{grout}$	$\phi$	$\phi_{grout}\phi V_{sa}$ (lb)
9600	1.0	0.65	6240

## 9. Concrete Breakout Strength of Anchor in Shear (Sec. 17.5.2)

## Shear perpendicular to edge in x-direction:

$V_{bx} = \min[7(I_e)]$	$(d_a)^{0.2} \sqrt{d_a \lambda_a} \sqrt{f_c} C$	a1 <sup>1.5</sup> ; 9λa√f'cCa1 <sup>1.8</sup>	eq. 17.5.2.2a (Eq.	& Eq. 17.5.2.2b	))			
<i>l</i> ₀ (in)	d₄ (in)	λa	f'c (psi)	Ca1 (in)	V <sub>bx</sub> (lb)			
4.00	0.500	1.00	4000	8.00	10737	_		
$\phi V_{cbgx} = \phi (Ava$	Avco) $\Psi_{ec,V} \Psi_{ed,V}$	vΨc,vΨh,vVbx (Se	c. 17.3.1 & Eq. ′	17.5.2.1b)				
Avc (in²)	Avco (in²)	₩ <sub>ec,V</sub>	$\Psi_{ed,V}$	<b>Ψс,</b> v	$\Psi_{h,V}$	V <sub>bx</sub> (lb)	$\phi$	$\phi V_{cbgx}$ (lb)
288.00	288.00	1.000	0.900	1.000	1.000	10737	0.70	6764

### Shear parallel to edge in y-direction:

$V_{bx} = \min[7(I_{e})]$	a∕da) <sup>0.2</sup> √daλa√t	f'cCa1 <sup>1.5</sup> ; 9λa√f'c0	Ca1 <sup>1.5</sup>   (Eq. 17.5.2	.2a & Eq. 17.5.2	2.2b)			
<i>I</i> ∉ (in)	d₄ (in)	λa	f′₀ (psi)	<i>C</i> a1 (in)	V <sub>bx</sub> (lb)			
4.00	0.500	1.00	4000	8.00	10737			
$\phi V_{cbgy} = \phi$ (2)	(Avc / Avco) $\Psi_{ec}$ ,	, v $\Psi_{ed, V} \Psi_{c, V} \Psi_{h, V}$	/bx (Sec. 17.3.1,	17.5.2.1(c) & Eo	q. 17.5.2.1b)			
$A_{Vc}$ (in <sup>2</sup> )	Avco (in²)	$\Psi_{ec,V}$	₩ed, V	<b>Ψ</b> с, v	$\Psi_{h,V}$	V <sub>bx</sub> (lb)	$\phi$	$\phi V_{cbgy}$ (lb)
288.00	288.00	1.000	1.000	1.000	1.000	10737	0.70	15031

## 10, Concrete Pryout Strength of Anchor in Shear (Sec. 17,5,3)

 $\phi V_{cpg} = \phi \min[k_{cp} N_{ag}; k_{cp} N_{cbg}] = \phi \min[k_{cp} (A_{Na} / A_{Na0}) \Psi_{ec, Na} \Psi_{ed, Na} \Psi_{cp, Na} N_{ba}; k_{cp} (A_{Nc} / A_{Nco}) \Psi_{ec, N} \Psi_{cp, N} N_{b}] \text{ (Sec. 17.3.1 & Eq. 17.5.3.1b)}$ 

<i>k</i> <sub>cp</sub>	<i>А</i> № (in²)	A <sub>Na0</sub> (in <sup>2</sup> )	$arPsi_{ed,Na}$	$arphi_{ ext{ec,Na}}$		$\Psi_{cp,Na}$	N <sub>ba</sub> (lb)	<i>N</i> ₄ (lb)	
2.0	482.43	195.00	1.000	1.000		1.000	14861	36766	
A <sub>№</sub> (in²)	A <sub>Nco</sub> (in²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	Ψc,N	$\Psi_{cp,N}$	<i>N</i> <sup>b</sup> (lb)	N <sub>cb</sub> (lb)	$\phi$	
576.00	256.00	1.000	1.000	1.000	1.000	13243	29796	0.70	

*∳V<sub>cpg</sub>* (lb)\_\_\_\_\_ 41715

### 11. Results

### Interaction of Tensile and Shear Forces (Sec. 17.6.)

Tension	Factored Load, Nua (lb)	Design Strength, øNn (lb)	Ratio	Status
Steel	4646	12000	0.39	Pass
Concrete breakout	9393	13005	0.72	Pass (Governs)
Adhesive	9393	15314	0.61	Pass
Shear	Factored Load, Vua (Ib)	Design Strength, øVn (Ib)	Ratio	Status
Steel	131	6240	0.02	Pass
T Concrete breakout x+	525	6764	0.08	Pass (Governs)

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Strong-Tie	Sollware		P	Project:				
R	Version 3.0.7947.0	A	ddress:					
Ū			P	hone:				
			E	-mail:				
Concrete break	out y+ 263		15031		0.02	2	Pass (G	overns)
Pryout	525		41715		0.01		Pass	
Interaction check	Nu₂/øNn	Vua/øVn		Combined Ratio	)	Permissible	Status	
				=0.00/		4.0	_	

SET-3G w/ #4 A706 Gr. 60 Rebar with hef = 6.000 inch meets the selected design criteria.

## <u>12. Warnings</u>

- Designer must exercise own judgement to determine if this design is suitable.

- Refer to manufacturer's product literature for hole cleaning and installation instructions.



Dead Loads		
Smokestacks		
Kilns 1 and 4		Kilns 2 and 3
$W_{ssa} \coloneqq 2400.9 \ lbf$		$W_{ssb} \coloneqq 1637.7 \ lbf$
$A_a := 139.63 \ ft^2$		$A_b \coloneqq 81.2 \ ft^2$
$c_a := 41.89 \; ft$		$c_b \coloneqq 31.9 \ ft$
Concrete Slab t	$=5 in \qquad \gamma_{conc} = 145 p$	
Kilns 1 and 4		Kilns 2 and 3
$W_{slaba} \coloneqq 116.4 \ ft^2 \cdot t$	$t \cdot \gamma_{conc} = 7.033 \ kip$	$W_{slabb}$ := 174.8 $ft^2 \cdot t \cdot \gamma_{conc}$ = 10.561 $kip$
$A_{slaba}$ := 116.4 $ft^2$		$A_{slabb} \coloneqq 174.8 \; ft^2$
Limestone Block Walls	$\gamma_{limestone} \coloneqq 170   pcf$	$\gamma_{brick} \coloneqq 110 \ pcf$ $H \coloneqq 32 \ ft$
	$t_{limestone}\!\coloneqq\!1.5\;ft$	$t_{brick} \coloneqq 8 \ in$
$w_{wall} \coloneqq H ullet (\gamma_{limestone} ullet$	$t_{limestone} + \gamma_{brick} \cdot t_{brick}) = 1$	10.507 $\frac{kip}{c_i}$

Soil	$\gamma_{soil} \coloneqq 123 \ pcf$	$\phi' \coloneqq 32 \ deg$	$K_o := 1 - \sin(\phi') = 0.47$
	$d_e\!\coloneqq\!4.5~ft$	(depth of embedm	nent)

# **Snow Loads**

$p_{fI} \coloneqq 25 \ psf$	minimum for risk category I
$p_{fII} \coloneqq 30 \ psf$	minimum for risk category II

# Wind Loads

windward wall	leeward wall		
$p_{wwI} \coloneqq 11.046 \ psf$	$p_{lwI} \coloneqq 13.366 \ psf$	risk category I	
$p_{wwII} \coloneqq 12.631 \ psf$	$p_{lwII} \coloneqq 15.283 \ psf$	risk category II	



















<b>GIVEN VALUES</b>									
$P_{SL} \coloneqq 45 \ kip$	$D_f \coloneqq 4.5 \ ft$			γ :=	123 pcf			$H \coloneqq 15 ft$	
$t_{i} = 10 in$	$\alpha := 150 \text{ ncf}$								
$\gamma_{i} := 120 \ ncf$	$f_c = 100 \ pcj$ $H_1 c = 4.5 \ ft - 10$	in							
76f - 120 pej	11 <sub>6f</sub> - 4.0 f v 10								
$\alpha \coloneqq 4 \qquad B \coloneqq 16 f_1$	t	$L \coloneqq B$	$A_f \coloneqq B \cdot L$	$=256 ft^{2}$		$B' \coloneqq \frac{B}{2}$	L'	$=\frac{L}{2}$	
	tomf		tonf			2		4	
$H \coloneqq 5 B \qquad E_{s1} \coloneqq$	$160 \frac{tonj}{ft^2}$	$E_{s2} \coloneqq$	$250 \frac{tonj}{ft^2}$		$\mu_{s1} \coloneqq 0.3$	ļ	$u_{s2} \coloneqq 0.3$		
$E_{s1} \cdot 4.5 ft + E_{s2} \cdot 10^{-3}$	(H-4.5 ft) 244	one tonf		$\mu_s$	$_{1} \cdot 4.5 \frac{ft}{ft} +$	$-\mu_{s2} \cdot (H)$	-4.5 ft		
$E_s :=$	<i>= 244.</i>	$\frac{938}{ft^2}$		$\mu_s \coloneqq -$		H			
$q_{net} \coloneqq \frac{P_{SL}}{I} = 175.8 \ psf$									
$A_f$									
DEPTH FACTOR C	ALCS		0.01						
$\beta_1 \coloneqq 3 - 4 \cdot \mu_s$		$r \coloneqq 2 D_f$	=9 ft						
$\beta_2 \coloneqq 5 - 12 \cdot \mu_s + 8 \cdot \mu_s^2$		$r_1 \coloneqq \underbrace{\sqrt{L^2}}_{L=0}$	$\frac{r^2}{r^2} = 18.3$	58 ft					
$\beta_3 \coloneqq -4 \cdot \mu_s \cdot (1 - 2 \cdot \mu_s)$		$r_2 \coloneqq \underbrace{\sqrt{B^2}}_{1 \to \infty}$	$r^{*} + r^{*} = 18.3$	58 ft					
$\beta_4 \coloneqq -1 + 4 \cdot \mu_s - 8 \cdot \mu_s^2$		$\frac{r_3 \coloneqq \sqrt{L^2}}{L^2}$	$\frac{a^2 + B^2}{a^2} + r^2 =$	=24.352 <i>ft</i>					
$\boldsymbol{\beta}_5 \coloneqq -4 \boldsymbol{\cdot} \left( 1 - 2 \boldsymbol{\cdot} \boldsymbol{\mu}_s \right)$		$r_4 \coloneqq \sqrt{B^2}$	$L^{2} + L^{2} = 22.6$	327 <i>ft</i>					
$Y_t \coloneqq L \cdot \ln\left(\frac{r_4 + B}{r_4 + B}\right)$	$+B\cdot\ln\left(\frac{r_4+L}{r_4}\right)$	$r_4^3 - L^3 -$	$-B^3 = 23.78$	6 ft					
L		3 • L • I	BB	,o j v					
$Y_2 \coloneqq L \cdot \ln\left(\frac{r_3 + B}{r_1}\right)$	$+B \cdot \ln\left(\frac{r_3+L}{r_2}\right) - \frac{r_3}{r_3}$	$r_3^3 - r_2^3 \cdot I$	$\frac{-r_1^3 + r^3}{c \cdot B} =$	21.562 <i>ft</i>					
$r^2$ (( $r_2 + I$	$(r_1) \cdot r_1$ $r_2$ $(n_1)$	$r_1 + L \cdot r_2$	-						
$Y_3 \coloneqq \frac{1}{L} \cdot \ln \left( \frac{\sqrt{2}}{(B+n)} \right)$	$\left(\frac{r_{3}}{r_{3}}\cdot r\right) + \frac{r_{3}}{B}\cdot \ln\left(\frac{r_{3}}{c_{3}}\right)$	$\frac{1}{L+r_3} \cdot r$	$ =5.589 \ ft$						
$\mathbf{V} := \frac{r^2 \cdot (r_1 + r_2 - r_1)}{r_1 \cdot (r_1 + r_2 - r_2)}$	$(r_3 - r) = 1.064 ft$								
$Y_5 \coloneqq r \cdot \operatorname{atan} \left( \frac{L \cdot B}{2} \right)$	= 7.765 ft								
$(r \cdot r_3)$		0.11							
$I_F \coloneqq \frac{\beta_1 \cdot Y_1 + \beta_2 \cdot Y_2}{\beta_1 \cdot Y_1 + \beta_2 \cdot Y_2}$	$(\beta_1 + \beta_3 \cdot Y_3 + \beta_4 \cdot Y_4 + \beta_4 \cdot Y_4 + \beta_4 \cdot Y_4)$	$-\frac{\beta_5 \cdot Y_5}{-} =$	0.861						
	$(\beta_1 + \beta_2) \cdot Y_1$								
SHAPE FACTOR C	ALCS								
$M \coloneqq \frac{L'}{B'} \qquad N \coloneqq \frac{L'}{B'}$	$\frac{H}{B'} \qquad I_1 \coloneqq \frac{1}{\pi} \cdot \left( N \right)$	$M \cdot \ln\left(\frac{1}{M}\right)$	$+\sqrt{M^2+1}$ $M\cdot\left(1+\sqrt{M^2}\right)$	$\cdot \sqrt{M^2 + N^2}$	$\left(\frac{T^2}{T}\right) + \ln\left(-\frac{T^2}{T}\right)$	$\left(M + \sqrt{M}\right)$ $M + \sqrt{M}$	$\sqrt{\frac{M^2+1}{M^2+N}}$	$\left( \frac{\sqrt{1+N^2}}{\sqrt{1+1}} \right) =$	=0.498
$I_2 \coloneqq \frac{N}{2 \pi} \cdot \operatorname{atan} \left( \frac{1}{N \cdot \sqrt{N}} \right)$	$\frac{M}{M^2 + N^2 + 1} = 0.0$	16 I <sub>s</sub>	$:= I_1 + \left(\frac{1-2}{1-1}\right)$	$\left(\frac{2 \mu_s}{\mu_s}\right) \cdot I_2 = 0$	0.507				
Footing Rigidity	Factor, Ir	$I_r \coloneqq 0$	).93						
	$(1-\mu_{c}^{2})$								
$\delta_{im} \coloneqq \alpha \cdot q_{net} \cdot B'$	$\cdot \frac{(I_s - F_s)}{E_s} \cdot I_s \cdot I_F \cdot$	$I_r = 0.051$	in						








Brick is in good condition - only replace grates remove protruding steel

Kiln 4

Brick is in poor condition - replace grate and section of bricks remove protruding steel

				Designer Da	ate
	Hu	irstville Lime	Kilns	SRO	02/2
ROCK Cr	usner: Design	Loads			
Miscellaneou	us Info				
	Design Guide	= ASCE 7-1	6		
	Risk Category	= 11			
Dead Loads					
	Metal Roof	= 3	psf		
	Wood boards	= 8	psf		
	Roof Joists	= 5	psf		
	lotal Roof DL	= 16	_psf		
	Floor Joists	= 7	psf		
	Floor Boards	= 8	psf		
	Total 2nd Floor DL	= 15	_psf		
	Wood boards	= 8	psf		
	Wood studs	= 2.5	psf		
_	Miscellaneous	= 5	psf		
Тс	otal Wall DL Building 1	= 15.5	_psf		
	Metal Siding	= 3	psf		
	Wood boards	= 8	psf		
т		= 2	pst Traf		
10	otal wall DL Building 2	= 13	_psr		
Live Loads					
	Roof LL	= 20	psf		
	2nd Floor LL	= 20	psf		

Hurstville Lime Kilns her: Design Loads	SRO	02/22
her: Design Loads		
ner: Design Loads		
SL. ground = 25 psf		
urface Roughness = C		
Exposure = Partially Exposed		
Ce = 1		
hermal Condition = Open air		
Ct = 1.2		
ls = 1		
SL, flat roof = 0.7*Ce*Ct*Is*SL, ground		
SL, flat roof = 21 psf		
ding 1		
Roof Slope = 45 degrees		
C,s = 1		
SL, sloped roof = C,s*SL, flat roof		
SL, sloped roof = 21 psf		
ding 2		
Roof Slope = 42.51 degrees		
C,s = 1		
SL, sloped roof = C,s*SL, flat roof		
SL, sloped roof = 21 psf		
kway Roof		
Roof Slope = 45 degrees		
C,s = 1		
SL, sloped roof = C,s*SL, flat roof		
SL, sloped roof = 21 psf		
SL, sloped roof = C,s*SL, flat roof SL, sloped roof = 21 psf		

				Designer	Date						
	Hu	urstville Lime H	Kilns	SRO	02/22						
Rock Cr	usher: Design	Loads co	ont.								
	To Old Bock Crusher B	uilding									
	Roof Slope	= 75	degrees								
	C.s	= 0									
	SL, sloped roof	= C,s*SL, fla	at roof								
	SL, sloped roof	= 0	psf								
	Building 1 Opening Roo	of									
	Roof Slope	= 22.26	degrees								
	C,s	= 1									
	SL, sloped roof	= C,s*SL, fla	at roof								
	SL, sloped roof	= 21	psf								
	*No Unbalanced Snow	/ Loads Applica	able								
Drift Snow L	oads										
		Configuration of Sn	Balanced Snow Los	d t							
	FIGURE 7.7-2 Configuration of Snowdrifts on Lower Roofs										
	ا,u h,d/sqrt(l,s) ا,s h,d y p,d h,c w	= 30 = 1.75 = 1 = 1.75 = 17.25 = 31 = 5 = 2.45	ft $\frac{h_d}{\sqrt{I_s}} = (0.43)$ ft ft ft pcf psf ft ft	$\sqrt[3]{I_{u}} \sqrt[4]{p_{g}+10}$	-1.5						
Sliding Snow	/ Loads										
	۱۸/	= 3	ft								
	W Max sliding snow load	= 26	psf								



| Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, <1.0$ For roof angle of 45 degrees normal to ridgeWindward Leeward $h/L$ $-C_p$ $-C_p$ $-C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.8$ $0.0$ $0.34$ $-0.6$                                      | $\frac{1 \text{ Wind Loads - MWFRS Direction A}}{p = q^*GC, p-q, i^*(GC, pi)}$ Roof C <sub>p</sub> Interpolation rections A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $\frac{h/L}{-C_p} + \frac{C_p}{C_p} C_p$ 0.5 0.0 0.4 -0.6 $\geq 1.0 0.0 0.3 - 0.6$ 0.8 0.0 0.34 -0.6  | Preserved as a construction and the const | Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridgeWindward Leewardh/L $-C_p$ h/L $-C_p$ 0.50.00.40.50.00.80.00.34-0.62 1.00.00.80.0UnderstandWindward Leewardh/L $-C_p$ $c_p$ $c_p$ 0.50.00.4 $0.34$ -0.62 1.00.00.3 $0.8$ 0.0 $0.34$ -0.6 $d_{0.8}$ 0.0 $d_{0.8}$ 0.0WindwardLeeward $h/L$ $c_p$ for use with $q_h$ LeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindward <th>Rock Crusher: Design Loads cont.         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1.00.00.3-0.60.80.00.90.3Mindward Leewardh/L<math>-C_p</math>c, no0.4-0.6&gt; 1.00.00.3-0.60.80.00.34Angle &amp; filegreesMindward Leewardh/L<math>-C_p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math>Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesAngle &amp; filegrees&lt;</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building <math>1 = 0.80 &gt; 0.5, &lt;1.0</math>For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Windward Leeward<math>h/L</math><math>-C_p</math><math>1.0</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Auge with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>1.0</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.6</math><math>0.3</math><math>0.0</math>Auge with <math>q_h</math>Total with <math>r_h</math>Auge total with <math>r_h</math><td< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> <math display="block">P = q^*GC, p-q, i^*(GC, pi)</math></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math><math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees
normal to ridge<br/>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><br/><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br/><math>0.8 0.0 0.34 - 0.6</math>Moder Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br><math>0.8 0.0 0.34 - 0.6</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math><math>0.8 0.0 0.34 - 0.6</math>Exod Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - 0.6 + 0.6</math></br></br></br></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.8</math><math>0.0</math><math>0.34</math>Cond Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>Mindward</math>Leeward<math>h/L</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>WindwardLeeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward&lt;</th><th>Bailding 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Asof C<sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C<sub>p</sub>       +C<sub>p</sub>       C<sub>p</sub>         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<math>Windward</math>Leeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.62 1.00.00.3-0.60.80.00.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.60.80.00.34-0.6</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.6<math>0.8</math>0.00.34-0.6</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt; 0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>HOM Pressure Coefficients, C<sub>p</sub> for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.80.00.34-0.60.80 &gt;0.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math></th></td<></th></th></td<></th> | Rock Crusher: Design Loads cont.         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Colspan="2">Colspan="2" <td< th=""><th>Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = <math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math>h/L<math>-C_p</math><math>C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Condet of the second s</th><th>Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>-0.6</math><math>\ge 1.0</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>\ge 1.0</math><math>0.0</math><math>0.34</math><math>-0.6</math>Mode of Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLewardMode of <math>A_{0,0}</math>Mode of <math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{p,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><math>A_{0,0}</math><th>Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leewardh/L<math>-C_p</math>h/L<math>-C_p</math>0.50.00.4-0.6&gt; 1.00.00.3-0.60.80.00.90.3Mindward Leewardh/L<math>-C_p</math>c, no0.4-0.6&gt; 1.00.00.3-0.60.80.00.34Angle &amp; filegreesMindward Leewardh/L<math>-C_p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math>Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesAngle &amp; filegrees&lt;</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building <math>1 = 0.80 &gt; 0.5, &lt;1.0</math>For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Windward Leeward<math>h/L</math><math>-C_p</math><math>1.0</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Auge with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>1.0</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.6</math><math>0.3</math><math>0.0</math>Auge with <math>q_h</math>Total with <math>r_h</math>Auge total with <math>r_h</math><td< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> <math display="block">P = q^*GC, p-q, i^*(GC, pi)</math></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math><math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><br/><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br/><math>0.8 0.0 0.34 - 0.6</math>Moder Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br><math>0.8 0.0 0.34 - 0.6</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math><math>0.8 0.0 0.34 - 0.6</math>Exod Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - 0.6 + 0.6</math></br></br></br></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.8</math><math>0.0</math><math>0.34</math>Cond Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>Mindward</math>Leeward<math>h/L</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>WindwardLeeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward&lt;</th><th>Bailding 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Asof C<sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C<sub>p</sub>       +C<sub>p</sub>       C<sub>p</sub>         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<math>Windward</math>Leeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.62 1.00.00.3-0.60.80.00.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.60.80.00.34-0.6</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.6<math>0.8</math>0.00.34-0.6</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt; 0.5,
&lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>HOM Pressure Coefficients, C<sub>p</sub> for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.80.00.34-0.60.80 &gt;0.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math></th></td<></th></th></td<> | Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ h/L $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $0.3$ $0.6$ $21.0$ $0.0$ $0.3$ Colspan="2">Condet of the second s   | Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridgeWindward Leeward $h/L$ $-C_p$ $h/L$ $-C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $\ge 1.0$ $0.0$ $0.34$ $-0.6$ $\ge 1.0$ $0.0$ $0.34$ $-0.6$ Mode of Pressure Coefficients, $C_p$ , for use with $q_h$ WindwardLewardMode of $A_{0,0}$ Mode of $A_{0,0}$ $A_{p,0}$ $A_{0,0}$ <th>Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leewardh/L<math>-C_p</math>h/L<math>-C_p</math>0.50.00.4-0.6&gt; 1.00.00.3-0.60.80.00.90.3Mindward Leewardh/L<math>-C_p</math>c, no0.4-0.6&gt; 1.00.00.3-0.60.80.00.34Angle &amp; filegreesMindward Leewardh/L<math>-C_p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math><math>rect p</math>Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesNot colspan="2"&gt;Angle &amp; filegreesAngle &amp; filegrees&lt;</th> <th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building <math>1 = 0.80 &gt; 0.5, &lt;1.0</math>For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Windward Leeward<math>h/L</math><math>-C_p</math><math>1.0</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.6</math><math>21.0</math><math>0.0</math><math>0.3</math>Colspan="2"&gt;Auge with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>1.0</math><math>0.0</math><math>0.3</math><math>0.3</math><math>0.6</math><math>0.3</math><math>0.0</math>Auge with <math>q_h</math>Total with <math>r_h</math>Auge total with <math>r_h</math><td< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> <math display="block">P = q^*GC, p-q, i^*(GC, pi)</math></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math><math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><br/><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br/><math>0.8 0.0 0.34 - 0.6</math>Moder Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br><math>0.8 0.0 0.34 - 0.6</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math><math>0.8 0.0 0.34 - 0.6</math>Exod Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - 0.6 + 0.6</math></br></br></br></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.8</math><math>0.0</math><math>0.34</math>Cond Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>Mindward</math>Leeward<math>h/L</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>WindwardLeeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward&lt;</th><th>Bailding 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Asof C<sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C<sub>p</sub>       +C<sub>p</sub>       C<sub>p</sub>         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<math>Windward</math>Leeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.62 1.00.00.3-0.60.80.00.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.60.80.00.34-0.6</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to
ridgeWindwardLeewardh/L<math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.6<math>0.8</math>0.00.34-0.6</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt; 0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>HOM Pressure Coefficients, C<sub>p</sub> for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.80.00.34-0.60.80 &gt;0.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math></th></td<></th> | Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridgeWindward Leewardh/L $-C_p$ h/L $-C_p$ 0.50.00.4-0.6> 1.00.00.3-0.60.80.00.90.3Mindward Leewardh/L $-C_p$ c, no0.4-0.6> 1.00.00.3-0.60.80.00.34Angle & filegreesMindward Leewardh/L $-C_p$ $rect p$ $rect p$ $rect p$ $rect p$ $rect p$ $rect p$ Angle & filegreesNot colspan="2">Angle & filegreesNot colspan="2">Angle & filegreesNot colspan="2">Angle & filegreesNot colspan="2">Angle & filegreesAngle & filegrees<   | Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building $1 = 0.80 > 0.5, <1.0$ For roof angle of 45 degrees normal to ridgeWindward Leeward $h/L$ $-C_p$ $h/L$ $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.3$ $0.3$ $0.3$ $0.6$ $21.0$ $0.0$ $0.3$ Colspan="2">Windward Leeward $h/L$ $-C_p$ $1.0$ $0.0$ $0.3$ $0.3$ $0.6$ $21.0$ $0.0$ $0.3$ Colspan="2">Auge with $q_h$ WindwardLeeward $h/L$ $-C_p$ $1.0$ $0.0$ $0.3$ $0.3$ $0.6$
$0.3$ $0.0$ Auge with $q_h$ Total with $r_h$ Auge total with $r_h$ <td< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> <math display="block">P = q^*GC, p-q, i^*(GC, pi)</math></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math><math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><br/><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br/><math>0.8 0.0 0.34 - 0.6</math>Moder Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p C_p</math><math>0.5 0.0 0.4 - 0.6</math><br/><math>\geq 1.0 0.0 0.3 - 0.6</math><br><math>0.8 0.0 0.34 - 0.6</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math><math>0.8 0.0 0.34 - 0.6</math>Exod Pressure Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br><math>h/L - C_p + C_p C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - C_p + C_p + C_p + C_p</math>Coefficients, <math>C_p</math>, for use with <math>q_i</math>Windward Leeward<br/><math>h/L - 0.6 + 0.6</math></br></br></br></th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindward Leeward<math>h/L</math><math>-C_p</math><math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.8</math><math>0.0</math><math>0.34</math>Cond Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeeward<math>Mindward</math>Leeward<math>h/L</math><math>-C_p</math><math>-C_p</math><math>0.5</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math>WindwardLeeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward<math>-Mindward</math>Leeward&lt;</th><th>Bailding 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Asof C<sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C<sub>p</sub>       +C<sub>p</sub>       C<sub>p</sub>         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridge<math>Windward</math>Leeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.62 1.00.00.3-0.60.80.00.34-0.6</th><th>Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeeward<math>h/L</math><math>-C_p</math><math>C_p</math>0.50.00.4-0.6<math>\geq 1.0</math>0.00.3-0.60.80.00.34-0.6</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - 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0.6$<br>$0.8 0.0 0.34 - 0.6$ Moder Pressure Coefficients, $C_p$ , for use with $q_i$ Windward Leeward<br>$h/L - C_p + C_p C_p$ $0.5 0.0 0.4 - 0.6$<br>$\geq 1.0 0.0 0.3 - 0.6$<br>  | Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45
degrees normal to ridgeWindward Leeward $h/L$ $-C_p$ $h/L$ $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $0.8$ $0.0$ $0.34$ Cond Pressure Coefficients, $C_p$ , for use with $q_h$ WindwardLeeward $h/L$ $-C_p$ $+C_p$ $0.8$ $0.0$ $0.34$ $-0.6$ Coof Pressure Coefficients, $C_p$ , for use with $q_h$ WindwardLeeward $Mindward$ Leeward $h/L$ $-C_p$ $-C_p$ $0.5$ $0.0$ $0.34$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$ WindwardLeeward $-Mindward$ Leeward $-Mindward$ Leeward<   | Bailding 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Asof C <sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6  | Book Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridge $Windward$ Leeward $h/L$ $-C_p$ $C_p$ 0.50.00.4-0.62 1.00.00.3-0.60.80.00.34-0.6  
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| Rock Crusher: Design Loads cont.<br><u>Building 1 Wind Loads - MWFRS Direction A</u><br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 -0.6<br>$\ge 1.0$ 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6 | $\frac{1 \text{ Wind Loads - MWFRS Direction A}}{p = q^*GC, p-q, i^*(GC, pi)}$ Roof C <sub>p</sub> Interpolation rections A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $\frac{h/L}{-C_p} + \frac{C_p}{C_p} C_p$ 0.5 0.0 0.4 -0.6 $\geq 1.0 0.0 0.3 - 0.6$ 0.8 0.0 0.34 -0.6  | Presign Loads cont.<br>VFRS Direction A<br>$p = q^*GC, p-q, i^*(GC, pi)$ molation<br>ilding 1 = 0.80 > 0.5, < 1.0<br>roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>-C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.0 0.4 -0.6<br>0.0 0.3 -0.6<br>0.0 0.34 -0.6<br>10 0.4 -0.6<br>10 0.0 0.34 -0.6<br>Leeward<br>for use with q <sub>h</sub><br>Vindward Leeward<br>-C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.0 0.34 -0.6<br>10 0.34 -0.6  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindment N/L 10 15 20 25 30 35 45 26° 10 15 20   
   
  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof $C_p$ Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 -0.6<br>$\geq 1.0$ 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Leeward Aragh, 8 (degrees) Aragh, 9 (d  | Rock Crusher: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $C_p$ 0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6 $\geq 1.0$ 0.0       0.34       -0.6         Mindward       Leeward         Mindward       Leeward <t< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof <math>C_p</math> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L <math>-C_p</math> <math>+C_p</math> <math>C_p</math><br/>0.5 0.0 0.4 -0.6<br/><math>\ge 1.0</math> 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math><br/>Mind<br/>Mind Angle, @ (degreen)<br/>Note: The set of th</th><th>Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1<math>p = q^*GC, p-q, i^*(GC, pi)</math>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Broof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub><br/>Mindward Leeward Argin, &amp; Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^{*}GC, p-q, i^{*}(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Proof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub><br/>Mindward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt; 0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>State Transmission Coefficients, C<sub>p</sub>, for use with q<sub>h</sub><br/>Mindward Leeward<br/>h/L -C<sub>p</sub> + C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>State Transmission Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub><br/>Michand Michael Mic</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt; 0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Roof Pressure Coefficients, C<sub>p</sub> for use with q<sub>h</sub><br/>The determined of the diagramment of the diag</th><th>Rock Crusher: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Roof <math>C_p</math> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward Leeward         h/L       <math>-C_p</math> <math>+C_p</math> <math>C_p</math>         0.5       0.0       0.4       -0.6       <math>21.0</math> <math>0.0</math> <math>0.3</math> <math>-0.6</math>         Not Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leward         Mindward       Leward         h/L       C p         0.5       0.0       0.3       <math>-0.6</math> <math>0.8</math> <math>0.0</math> <math>0.34</math>
<math>-0.6</math>       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward      <t< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Proference Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Roof <math>C_p</math> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       <math>-C_p</math> <math>C_p</math>         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/><math>\geq 1.0</math> 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Bood Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Beod Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6</th></t<></th></t<>   | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof $C_p$ Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 -0.6<br>$\ge 1.0$ 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Mind<br>Mind Angle, @ (degreen)<br>Note: The set of th   | Rock Crusher: Design Loads cont.Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L   
   
   | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Broof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindward Leeward Argin, & Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Proof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   
  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub>
+C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>State Transmission Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindward Leeward<br>h/L -C <sub>p</sub> + C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>State Transmission Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Michand Michael Mic  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub><br>The determined of the diagramment of the diag  | Rock Crusher: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward Leeward         h/L $-C_p$ $+C_p$ $C_p$ 0.5       0.0       0.4       -0.6 $21.0$ $0.0$ $0.3$ $-0.6$ Not Pressure Coefficients, $C_p$ , for use with $q_h$ Windward       Leward         Mindward       Leward         h/L       C p         0.5       0.0       0.3 $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$ Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward         Mindward       Leward <t< th=""><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math display="block">p = q^*GC, p-q, i^*(GC, pi)</math> Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Proference Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Roof <math>C_p</math> Interpolation         h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       <math>-C_p</math> <math>C_p</math>         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/><math>\geq 1.0</math> 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Bood Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6<br/>Beod Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Rock Crusher: Design Loads cont.<br/>Building 1 Wind Loads - MWFRS Direction A<br/>*ASCE 7-16 27.3-1<br/><math>p = q^*GC, p-q, i^*(GC, pi)</math><br/>Roof C<sub>p</sub> Interpolation<br/>h/L, Directions A, C for Building 1 = 0.80 &gt;0.5, &lt;1.0<br/>For roof angle of 45 degrees normal to ridge<br/>Windward Leeward<br/>h/L -C<sub>p</sub> +C<sub>p</sub> C<sub>p</sub><br/>0.5 0.0 0.4 -0.6<br/>≥ 1.0 0.0 0.3 -0.6<br/>0.8 0.0 0.34 -0.6</th></t<> | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Proference Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  
   | Rock Crusher: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $C_p$ 0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6  
   | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>$\geq 1.0$ 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Bood Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Beod Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   
  | Rock Crusher: Design Loads cont.<br>Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$<br>Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6   |   |  |  |  |   |
| Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridge<br>Windward Leewardh/L $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $0.8$ $0.0$ $0.34$ $0.8$ $0.0$ $0.34$  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation rections A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $h/L - C_p + C_p C_p$ 0.5 0.0 0.4 -0.6 $\geq 1.0 0.0 0.3 - 0.6$ 0.8 0.0 0.34 -0.6   | WFRS Direction A $p = q^*GC, p-q, i^*(GC, pi)$ nolation         ilding 1 =       0.80 >0.5, <1.0         roof angle of 45 degrees normal to ridge         Windward       Leeward $-C_p$ $+C_p$ $C_p$ 0.0       0.4       -0.6         0.0       0.34       -0.6         0.0       0.34       -0.6         for use with $q_h$ Leeward         Angle, 0 (degrees)       Angle, 0 (degrees)         20       25       30       35       45       >60 <sup>+</sup> 10       15       >20  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -Cp       +Cp       Cp         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6   
   
  | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>\geq 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>BROOF Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub><br><u>Vindward</u> Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>\geq 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>BROOF Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub>  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $+C_p$ $C_p$ 0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6   
   
  | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Min | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward Leeward         h/L         h/L         O 0.0         0.4         0.5         0.0         0.4         O 0.0         Mindward         Leeward         h/L         O 0.0         0.3         O 0.3         O 0.34         O 0.34         O 0.3         O 0.3         O 0.3         O 0.3         O 0.3         O 0.4         O 0.3         O 0.3         O 0.3         O 0.3         O 0.0         O 0.0       O 0.0   
  | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Boot Pressure Coefficients, C <sub>p</sub> for use with q <sub>b</sub><br>Mindward Leeward -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Boot Pressure Coefficients, C <sub>p</sub> for use with q <sub>b</sub>  
  | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Boof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>For Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   
   | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>BOO Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>The term Argis, e (degrees)<br>Number 1 = 0.80 > 0.5 < 0.0<br>Argis, e (degrees)<br>Number 2 = 0.5 0.0<br>Number 2 = 0.5 0.0   | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Bood Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindward Leeward<br>h/L -C <sub>p</sub> ±C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6  
  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $+C_p$ $C_p$ 0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $+C_p$ $C_p$ 0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Leeward         Windward       Leeward  
   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $+C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.33$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$  
   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $+C_p$ $C_p$ 0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = $0.80 > 0.5, <1.0$ For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.33$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L $-C_p$ $+C_p$ $C_p$ 0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6   | Building 1 Wind Loads - MWFRS Direction A         *ASCE
7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0         For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C_p       +C_p       C_p         0.5       0.0       0.4       -0.6         ≥ 1.0       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6   |   |  |  |  |   |
| Building 1 Wind Loads - MWFRS Direction A*ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation rections A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $h/L - C_p + C_p C_p$ 0.5 0.0 0.4 -0.6 $\geq 1.0 0.0 0.3 - 0.6$ 0.8 0.0 0.34 -0.6  | $P = q^*GC, p-q, i^*(GC, pi)$<br>nolation<br>ilding 1 = 0.80 > 0.5, < 1.0<br>   | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>For Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindmard Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>For Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  
   
  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0  
   
  | Building 1 Wind Loads - MWFRS Direction A<br>*ASCE 7-16 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind<br>Mind        | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0  
  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         p = q*GC,p-q,i*(GC,pi)         Roof C <sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0   
  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         p = q*GC,p-q,i*(GC,pi)         Roof C <sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0   
   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         p = q*GC,p-q,i*(GC,pi)         Roof C <sub>p</sub> Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0  
  | <td>Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         <math>p = q^*GC, p-q, i^*(GC, pi)</math>         Roof <math>C_p</math> Interpolation         h/L, Directions A, C for Building 1 =       0.80 &gt;0.5, &lt;1.0</td> For roof angle of 45 degrees normal to ridge         Windward       Leeward         h/L       -C_p       +C_p       C_p         0.5       0.0       0.4       -0.6          ≥ 1.0       0.0       0.3       -0.6          0.8       0.0       0.34       -0.6   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0  
   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =         0.80 >0.5, <1.0  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =         0.80 >0.5, <1.0  
   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =         0.80 >0.5, <1.0  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0   
  | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0   | Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $p = q^*GC, p-q, i^*(GC, pi)$ Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =         0.80 >0.5, <1.0                              |  |  |  |   |
| $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $h/L -C_{p} +C_{p} C_{p}$ 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6  | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation rections A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $h/L - C_{p} + C_{p} C_{p}$ 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6  | $p = q^*GC, p-q, i^*(GC, pi)$<br>holation<br>ilding 1 = 0.80 > 0.5, < 1.0<br>roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>-C_p +C_p C_p<br>0.0 0.4 -0.6<br>0.0 0.3 -0.6<br>0.0 0.34 -0.6<br>for use with q_h<br><u>Vindward Leeward</u><br>Angle, 0 (degrees)<br>20 25 30 35 45 > 50° 10 15 > 20   | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{Vindward}{Interval} = Interval$  
   
  | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{Vindward}{Angle, e (degrees)} = \frac{Leward}{Angle, e (degrees)}$   | ASEL 7-10 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   
   
  | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{Vindward}{Angle, e (degrees)} = \frac{Vindward}{Angle, e (degrees)}$   | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 $\geq 1.0$ 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Boof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mind = \frac{Windward}{\frac{Angle, 0 (degrees)}{yindward}} = \frac{Vindward}{\frac{Angle, 0 (degrees)}{yindward}} = \frac{Vindward}{yindward} = Vindw$  
  | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br><u>Vindward</u> Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br><u>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></u><br><u>Vindward</u> Leeward<br><u>Angle, 0 (degrees)</u> Arge, 0 (degrees)<br><u>Vindward</u> 20.25 -0.7 -0.7 -0.2 0.04 0.04 0.01.0 -0.3 -0.5 -0.6   
  | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Processure Coefficients, C <sub>p</sub> for use with q <sub>h</sub> $Mindward = \frac{Windward}{Vindward} + \frac{Vindward}{Vindward} + Vindw$   
   | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub> $\frac{Vindward}{Vindward} = Vindward = Vi$   | $p = q^{*}GC, p-q, j^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub> $Mindward = \frac{Vindward}{Angle, e (degrees)} = \frac{Vindward}{Angle, e (degrees)}$   | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mindward = \frac{Windward}{Mindward} = \frac{Vindward}{Argle, 0 (degrees)} = \frac{Vindward}{Argle, 0 (degrees)} = \frac{Vindward}{Vindward} = Vindw$  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Poof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{Windward}{Windward} = \frac{Ueward}{Ueward}$   
  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{Vindward}{Vindward} = \frac{Vindward}{Vindward} = \frac{Vindward}{Vindwa$   | ASEL 7-10 27.3-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Boof Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub>  
  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6   
   | ASEL 7-10 27.5-1<br>$p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6  |   |  |  |  |   |
| $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6   | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation rections A, C for Building 1 = 0.80 >0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward $h/L -C_{p} +C_{p} C_{p}$ 0.5 0.0 0.4 -0.6 $\geq 1.0 0.0 0.3 -0.6$ 0.8 0.0 0.34 -0.6   | $p = q^*GC, p-q, i^*(GC, pi)$<br>holation<br>ilding 1 = 0.80 > 0.5, < 1.0<br>Troof angle of 45 degrees normal to ridge<br>Windward Leeward<br>-C_p +C_p C_p<br>0.0 0.4 -0.6<br>0.0 0.3 -0.6<br>0.0 0.34 -0.6<br>for use with q_h<br><u>Vindward Leeward</u><br>Angle, 8 (degrees)<br>20 25 30 35 45 > 50° 10 15 > 20  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Bool 0.34 -0.  
   
   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mind_{Mind} = \frac{Vindward}{Angle, e (degrees)} = \frac{Vindward}{Angle, e (degrees)}$  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Bool Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mindward = \frac{Vindward}{Angle, \ell (degrees)} = \frac{Vindward}{Angle, \ell (degrees)}$  
   
   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Boot Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mind_{Mind} = \frac{Vindward}{Angle, e (degrees)} = \frac{Vindward}{Angle, e (degrees)}$  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Broof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mind_{interim} = \frac{Vindward}{Argle, e (degrees)} = \frac{Leeward}{Argle, e (degrees)}$   
   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>$\frac{Vindward}{Vindward} = \frac{Vindward}{Vindward} = Vindw$   
   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>Mindward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   
  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 $\geq 1.0$ 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 For Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mindward = \frac{Vindward}{Vindward} = Vind$   | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Poole Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mindward = \frac{Vindward}{Vindward} + \frac$ | $p = q^{*}GC, p-q, i^{*}(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Pool Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $Mindward = \frac{Vindward}{Vindward} + \frac{Leward}{Vindward} + \frac{Vindward}{Vindward} + Vi$  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> for use with q <sub>h</sub> $Mindward = \frac{Windward}{Angle, e (digrees)} = \frac{Windward}{Angle, e (digrees)}$   
  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 $\geq 1.0$ 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6 Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  
  | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 $\ge 1.0$ 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, <1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6   
   | $p = q^*GC, p-q, i^*(GC, pi)$ Roof C <sub>p</sub> Interpolation h/L, Directions A, C for Building 1 = 0.80 > 0.5, < 1.0 For roof angle of 45 degrees normal to ridge Windward Leeward h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub> 0.5 0.0 0.4 -0.6 ≥ 1.0 0.0 0.3 -0.6 0.8 0.0 0.34 -0.6   |   |  |  |  |   |
| Roof $C_p$ Interpolation         h/L, Directions A, C for Building 1 =       0.80 >0.5, <1.0   | Roof $C_p$ Interpolation         rections A, C for Building 1 =       0.80 >0.5, <1.0   | polation         ilding 1 = $0.80 > 0.5, < 1.0$ roof angle of 45 degrees normal to ridge         Windward       Leeward $-C_p$ $+C_p$ $C_p$ $0.0$ $0.4$ $-0.6$ $0.0$ $0.3$ $-0.6$ $0.0$ $0.34$ $-0.6$ $0.0$ $0.34$ $-0.6$ $0.0$ $0.34$ $-0.6$ $0.0$ $0.34$ $-0.6$ $d_{nole}$ $e(degrees)$ Angle, $e(degrees)$   | Roof C <sub>p</sub> Interpolation<br>h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>$0.5$ $0.0$ $0.4$ $-0.6$<br>$\geq 1.0$ $0.0$ $0.3$ $-0.6$<br>$0.8$ $0.0$ $0.34$ $-0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Windward Leeward<br>$0.3$ $-0.6$ Mindward Coefficients, $C_p$ , for use with $q_h$ Windward Coefficients, $C_p$ , for use with $q_h$ Leeward Coefficients, $C_p$ , for use with $q_h$ Coefficients, $C_p$ , for use with $q_h$ Leeward Coefficients, $C_p$ , for use with $q_h$ Description of the pressure Coefficients, $C_p$ , for use with $q_h$ Coefficients, $C_p$ , for use with $q_h$ Description of the pressure Coefficients, $C_p$ , for use with $q_h$ Description of the pressure Coefficients, $C_p$ , for use with $q_h$ Description of the pressure Coefficients, $C_p$ , for use $M$ and  
   
  | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.8$ $0.0$ $0.34$ Horder Coefficients, $C_{pr}$ for use with $q_h$ LeewardMindwardLeewardAngle, 6 (degrees)Angle, 6 (degrees)   | Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $2 1.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ Colspan="2">Exercise Coefficients, $C_p$ , for use with $q_h$ VindwardLewardArgle, $e$ (degrees)Argle, $e$ (degrees)  
   
  | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$ Coefficients, $C_p$ , for use with $q_h$ WindwardLeewardAngle, $\theta$ (degrees)Angle, $\theta$ (degrees)   | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $21.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $0.8$ $0.0$ $0.34$ WindwardLeewardArgie, for use with $q_h$ Koof Pressure Coefficients, $C_p$ , for use with $q_h$ WindwardLeewardArgie, 6 (diagrees)Mind <th <="" colspan="3" td=""><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindward Leewardh/L<math>-C_p</math>h/L<math>-C_p</math><math>C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>21.0</math><math>0.0</math><math>0.3</math><math>21.0</math><math>0.0</math><math>0.3</math><math>21.0</math><math>0.0</math><math>0.34</math><math>21.0</math><math>0.0</math><math>0.34</math><math>21.0</math><math>0.0</math><math>0.34</math><math>21.0</math><math>0.0</math><math>0.34</math>Condent colspan="2"&gt;LeewardLeewardLeewardCondent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Angle, 8 (degrees)Normal Colspan="2"&gt;Condent colspan="2"&gt;Colspan="2"&gt;Condent colspan="2"&gt;Colspan="2"Colspan="2"Colspan="2"Colspan=""2"C</td><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>-0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>LeewardVindwardLeewardArgle, # (degrees)Argle, # (degrees)Argle, # (degrees)Argle, # (degrees)VindLeewardArgle, # (degrees)Argle, # (degrees)</td><td>Roof Cp Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math> for use with <math>q_h</math>VindwardLeewardMindwardLeewardMindwardCoofVindwardLeewardMindwardLeewardVindwardLeewardMindwardLeewardMindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeeward&lt;</td><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_{pr}</math> for use with <math>q_h</math>LaewardLaewardMindwardLaewardAngle, e (degrees)MindwardLaewardAngle, e (degrees)MindwardLaewardAngle, e (degrees)Angle, e (degrees)</td><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq
1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\sim 0.8</math><math>0.0</math><math>0.34</math><math>\sim 0.6</math><math>0.8</math><math>0.0</math>VinduardLeewardMinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeeward<th colspan<="" td=""><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridge<br/>WindwardWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math></td><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeewardWindwardLeewardWindwardLeewardApple # (degrees)</td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>0.8</math><math>0.0</math><math>0.34</math>Coefficients, <math>C_p</math>, for use with <math>q_h</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.50.00.3<math>\geq 1.0</math>0.00.30.80.00.34Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math>0.80.00.34<math>-0.6</math></td></th></td></th>  | <td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindward Leewardh/L<math>-C_p</math>h/L<math>-C_p</math><math>C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>21.0</math><math>0.0</math><math>0.3</math><math>21.0</math><math>0.0</math><math>0.3</math><math>21.0</math><math>0.0</math><math>0.34</math><math>21.0</math><math>0.0</math><math>0.34</math><math>21.0</math><math>0.0</math><math>0.34</math><math>21.0</math><math>0.0</math><math>0.34</math>Condent colspan="2"&gt;LeewardLeewardLeewardCondent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Condent colspan="2"&gt;Angle, 8 (degrees)Normal Colspan="2"&gt;Condent colspan="2"&gt;Colspan="2"&gt;Condent colspan="2"&gt;Colspan="2"Colspan="2"Colspan="2"Colspan=""2"C</td>
<td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>-0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>LeewardVindwardLeewardArgle, # (degrees)Argle, # (degrees)Argle, # (degrees)Argle, # (degrees)VindLeewardArgle, # (degrees)Argle, # (degrees)</td> <td>Roof Cp Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math> for use with <math>q_h</math>VindwardLeewardMindwardLeewardMindwardCoofVindwardLeewardMindwardLeewardVindwardLeewardMindwardLeewardMindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeeward&lt;</td> <td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_{pr}</math> for use with <math>q_h</math>LaewardLaewardMindwardLaewardAngle, e (degrees)MindwardLaewardAngle, e (degrees)MindwardLaewardAngle, e (degrees)Angle, e (degrees)</td> <td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\sim 0.8</math><math>0.0</math><math>0.34</math><math>\sim 0.6</math><math>0.8</math><math>0.0</math>VinduardLeewardMinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeeward<th colspan<="" td=""><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridge<br/>WindwardWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math></td><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeewardWindwardLeewardWindwardLeewardApple # (degrees)</td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>0.8</math><math>0.0</math><math>0.34</math>Coefficients, <math>C_p</math>, for use with <math>q_h</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.50.00.3<math>\geq 1.0</math>0.00.30.80.00.34Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math>0.80.00.34<math>-0.6</math></td></th></td> |   
  |  | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindward Leewardh/L $-C_p$ h/L $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $21.0$ $0.0$ $0.3$ $21.0$ $0.0$ $0.3$ $21.0$ $0.0$ $0.3$ $21.0$ $0.0$ $0.34$ $21.0$ $0.0$ $0.34$ $21.0$ $0.0$ $0.34$ $21.0$ $0.0$ $0.34$ Condent colspan="2">LeewardLeewardLeewardCondent colspan="2">Condent colspan="2">Condent colspan="2">Condent colspan="2">Condent colspan="2">Condent colspan="2">Angle, 8 (degrees)Normal Colspan="2">Condent colspan="2">Colspan="2">Condent
colspan="2">Colspan="2"Colspan="2"Colspan="2"Colspan=""2"C  | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $\geq 1.0$ $0.0$ $0.3$ $-0.8$ $0.0$ $0.34$ Coof Pressure Coefficients, $C_p$ , for use with $q_h$ LeewardVindwardLeewardArgle, # (degrees)Argle, # (degrees)Argle, # (degrees)Argle, # (degrees)VindLeewardArgle, # (degrees)Argle, # (degrees)  | Roof Cp Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $21.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ Coof Pressure Coefficients, $C_p$ for use with $q_h$ VindwardLeewardMindwardLeewardMindwardCoofVindwardLeewardMindwardLeewardVindwardLeewardMindwardLeewardMindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeewardVindwardLeeward<   | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $0.8$ $0.0$ $0.34$ Coof Pressure Coefficients, $C_{pr}$ for use with $q_h$ LaewardLaewardMindwardLaewardAngle, e (degrees)MindwardLaewardAngle, e (degrees)MindwardLaewardAngle, e (degrees)Angle, e (degrees)   
   | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $\geq 1.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $-0.6$ $\geq 1.0$ $0.0$ $\sim 0.8$ $0.0$ $0.34$ $\sim 0.6$ $0.8$ $0.0$ VinduardLeewardMinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeewardVinduardLeeward <th colspan<="" td=""><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridge<br/>WindwardWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math></td><td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeewardWindwardLeewardWindwardLeewardApple # (degrees)</td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>0.8</math><math>0.0</math><math>0.34</math>Coefficients, <math>C_p</math>, for use with <math>q_h</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.50.00.3<math>\geq 1.0</math>0.00.30.80.00.34Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math></td><td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math>0.80.00.34<math>-0.6</math></td></th>   
   | <td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridge<br/>WindwardWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.5<math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math></td> <td>Roof C<sub>p</sub> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math>Coof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>WindwardLeewardWindwardLeewardWindwardLeewardApple # (degrees)</td> <td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td> <td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math><math>0.8</math>0.00.34<math>-0.6</math></td> <td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>21.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>0.8</math><math>0.0</math><math>0.34</math>Coefficients, <math>C_p</math>, for use with <math>q_h</math></td> <td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4-0.50.00.3<math>\geq 1.0</math>0.00.30.80.00.34Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math></td> <td>Roof <math>C_p</math> Interpolationh/L, Directions A, C for Building 1 =<math>0.80 &gt; 0.5, &lt; 1.0</math>For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L<math>-C_p</math><math>+C_p</math>0.50.00.4<math>-0.6</math><math>\geq 1.0</math>0.00.3<math>-0.6</math>0.80.00.34<math>-0.6</math></td> | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridge<br>WindwardWindwardLeewardh/L $-C_p$ $+C_p$ 0.5 $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $\geq 1.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$   | Roof C <sub>p</sub> Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $21.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ Coof Pressure Coefficients, $C_p$ , for use with $q_h$ WindwardLeewardWindwardLeewardWindwardLeewardApple # (degrees)  
                                    | Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.50.00.4 $-0.6$ $\geq 1.0$ 0.00.3 $-0.6$ $0.8$ 0.00.34 $-0.6$  | Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.50.00.4 $-0.6$ $\geq 1.0$ 0.00.3 $-0.6$ $0.8$ 0.00.34 $-0.6$ | Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $21.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $0.8$ $0.0$ $0.34$ Coefficients, $C_p$ , for use with $q_h$ | Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.50.00.4-0.50.00.3 $\geq 1.0$ 0.00.30.80.00.34Roof Pressure Coefficients, $C_p$ , for use with $q_h$ | Roof $C_p$ Interpolationh/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$ For roof angle of 45 degrees normal to ridgeWindwardLeewardh/L $-C_p$ $+C_p$ 0.50.00.4 $-0.6$ $\geq 1.0$ 0.00.3 $-0.6$ 0.80.00.34 $-0.6$ |   |
| h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6≥ 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6$  | rections A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L -C <sub>p</sub> +C <sub>p</sub> C <sub>p</sub><br>0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6   | ilding 1 = 0.80 >0.5, <1.0<br>roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$-C_p$ + $C_p$ $C_p$<br>0.0 0.4 -0.6<br>0.0 0.3 -0.6<br>0.0 0.34 -0.6<br>for use with $q_h$<br><u>Vindward Leeward</u><br>Angle, $\ell$ (degrees)<br>29 25 39 35 45 $>60^{\circ}$ 10 15 $>20$   | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ for use with $q_h$<br>Mind Mindward Leeward Leeward $-1.6= 1.0 0.0 0.3 - 0.6= 1.0 0.0 0.34 - 0.6= 1.0 0.0 0.34 - 0.6= 1.0 0.0 0.34 - 0.6$   
   
  | h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hWindward LeewardAngle, 6 (degrees) Angle, 9 (degrees)$   | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\ge 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br><u>Windward Leeward</u><br>Angle, $\theta$ (degrees)<br>Windward Leeward   
   
  | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Mind<br>Mind In/L 10 15 20 25 30 35 45 $\geq 50^{\circ}$ 10 15 $\geq 20$   | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ for use with $q_h$<br><u>Kindward</u> Leeward <u>Leeward</u> <u>Angle, 0 (degrees)</u><br><u>Angle, 0 (degrees)</u> <u>Angle, 0 (degrees)</u><br><u>Hind b/L 10 15 20 25 30 35 45 200° 10 15 200</u>  
  | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ for use with $q_h$<br>Example 4 (degrees)<br>Mindward Leeward $-\frac{1}{200} + \frac{10}{25} + \frac{10}{20} + \frac{10}{25} + $  
  | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\ge 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Foof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Foof Pressure Coefficients, $C_p$ , for use with $q_h$<br>The transfer $\frac{Vindward}{Vindward}$ Leeward<br>Angle, 9 (degrees)<br>Vind $Vindward$ $Vind$  
  | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ for use with $q_h$<br>Trind<br>Trind<br>Trind<br>Number 4 (degrees)<br>$\frac{Angle, 9 (degrees)}{10 \ 15 \ 20 \ 25 \ 30 \ 35 \ 45 \ 260^{\circ} \ 10 \ 15 \ 20 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 10 \ 15 \ 15$   | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>The direction h/L 10 15 20 25 30 35 45 $\geq 50^{\circ}$ 10 15 $\geq 20$  | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\geq 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br><u>Kindward</u> Leeward <u>Angle, &amp; (degrees)</u> <u>Angle, &amp; (degrees)</u><br><u>Nindward</u> 10 15 20 25 30 35 45 $\geq 60^{\circ}$ 10 15 $\geq 20$   
  | h/L, Directions A, C for Building 1 = 0.80 >0.5, <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 $-0.6$<br>$\ge 1.0$ 0.0 0.3 $-0.6$<br>0.8 0.0 0.34 $-0.6$<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Mindward Leeward Leeward<br>Angle, 9 (degrees) Angle, 9 (degrees)  | h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hWindward LeewardApple 8 (degrees)$   
  | h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hWindward Leeward$  | h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hWindward Leeward$   
   | h/L, Directions A, C for Building 1 = $0.80 > 0.5, < 1.0$<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_h$  | h/L, Directions A, C for Building 1 = $0.80 > 0.5$ , <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_h$  | h/L, Directions A, C for Building 1 = $0.80 > 0.5$ , <1.0<br>For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>h/L $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6$   
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| For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$   | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $\ge 1.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $-0.6$   | roof angle of 45 degrees normal to ridge         Windward       Leeward $-C_p$ $+C_p$ $C_p$ $0.0$ $0.4$ $-0.6$ $0.0$ $0.3$ $-0.6$ $0.0$ $0.34$ $-0.6$ $0.0$ $0.34$ $-0.6$ Mindward       Leeward         Joint Colspan="3">Joint Colspan="3"Joint Colspan="3">Joint Colspan="3"Joint Colspan="3">Joint Colspan="3"Joint Colspan="3"Joint Colspan="3"Joint Colspan="3"Joint Colspan="3"Joint Colspan="3">Joint Colspan="3"Joint Colspan="3"Jointe Colspan="3"Joint Colspan="3"Joint Colspan="  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_{pr} for use with q_h\boxed{Mindward} Leeward\boxed{Angle, \ell (degrees)} \boxed{Angle, \ell (degrees)}h/L 10 15 20 25 30 35 45 \geq 50^{\circ} 10 15 \geq 20$   
   
  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_h\boxed{Windward} \boxed{Leward}\boxed{Angle, e (degrees)} \boxed{Angle, e (degrees)}$  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p for use with q_hLeeward Angle, \theta (degrees) Angle, \theta (degrees)$   
   
  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\ge 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hMindward$ Leeward Angle, $e$ (degrees)<br>Mindward $e$ (degrees)<br>$h/L$ 19 15 20 25 30 35 45 $\ge 60^c$ 10 15 $\ge 20$   | For roof angle of 45 degrees normal to ridge<br>Windward Leewardh/L-Cp+CpCp0.50.00.4-0.6 $\geq 1.0$ 0.00.3-0.60.80.00.34-0.6Roof Pressure Coefficients, Cp, for use with qhLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMindwardLeewardMind is 2020VindwardLeewardMind is 2020VindwardLeewardMind is 2020   
  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 0.0 0.4 -0.6<br>$\geq 1.0$ 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Therefore $\frac{Vindward}{10}$ $\frac{Leeward}{10}$ $\frac{Angle, 0 (degrees)}{10}$ $\frac{Angle, 0 (degrees)}{10}$ $\frac{Angle, 0 (degrees)}{10}$ $\frac{Vindward}{10}$ $\frac{Leeward}{10}$ $\frac{Leeward}{10}$  
  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hVind Marek Coefficients, C_p, for use with q_hCoefficients, C_p, for C_p, C$  
  | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hTindImedian black 0$ (degrees)<br>$Introd 15$ 20 25 30 35 45 $\geq 60^{\circ}$ 10 15 $\geq 20$<br>$Ioural \leq 0.23$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $-0.2$ $0.0^{\circ}$   | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_hMindward LeewardAngle, \theta (degrees) Angle, \theta (degrees)h/L 10 15 20 25 30 35 45 \geq 50^\circ 10 15 \geq 20$   
   | For roof angle of 45 degrees normal to ridge<br>Windward Leeward<br>$h/L$ $-C_p$ $+C_p$ $C_p$<br>0.5 $0.0$ $0.4$ $-0.6\geq 1.0 0.0 0.3 -0.60.8$ $0.0$ $0.34$ $-0.6Roof Pressure Coefficients, C_p, for use with q_h\boxed{Mindward} LeewardAngle, \ell (degrees)Mind_{kined} Angle, \ell (degrees)Mind_{kined} Minde_{kined} Minde_$   | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$ Poof Pressure Coefficients, $C_p$ for use with $q_h$ WindwardLeewardAngle, $\theta$ (degrees)   | For roof angle of 45 degrees normal to ridge         Windward       Leeward $h/L$ $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Leeward   
  | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$  | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$   
   | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $2 1.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $0.8$ $0.0$ $0.34$ $0.6$ $0.8$ $0.0$ $0.8$ $0.0$ $0.34$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ $0.8$ $0.0$ $0.0$ <t< td=""><td>For roof angle of 45 degrees normal to ridgeWindwardLeeward<math>h/L</math><math>-C_p</math><math>+C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>0.5</math><math>0.0</math><math>0.4</math><math>\ge 1.0</math><math>0.0</math><math>0.3</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math><math>0.8</math><math>0.0</math><math>0.74</math><math>-0.6</math></td><td>For roof angle of 45 degrees normal to ridgeWindwardLeeward<math>h/L</math><math>-C_p</math><math>+C_p</math><math>C_p</math><math>0.5</math><math>0.0</math><math>0.4</math><math>-0.6</math><math>\geq 1.0</math><math>0.0</math><math>0.3</math><math>-0.6</math><math>0.8</math><math>0.0</math><math>0.34</math><math>-0.6</math></td></t<>  | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $0.5$ $0.0$ $0.4$ $0.5$ $0.0$ $0.4$ $\ge 1.0$ $0.0$ $0.3$ $0.8$ $0.0$ $0.34$ $-0.6$ $0.8$ $0.0$ $0.74$ $-0.6$   | For roof angle of 45 degrees normal to ridgeWindwardLeeward $h/L$ $-C_p$ $+C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$  
  |   |  |  |  |   |
| h/L $-C_p$ $+C_p$ $C_p$ 0.50.00.4-0.6≥ 1.00.00.3-0.60.80.00.34-0.6   | h/L-Cp+CpCp0.50.00.4-0.6≥ 1.00.00.3-0.60.80.00.34-0.6   | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   
   
  | $\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p}$ $0.5 - 0.0 - 0.4 - 0.6$ $\geq 1.0 - 0.0 - 0.3 - 0.6$ $0.8 - 0.0 - 0.34 - 0.6$ $Roof Pressure Coefficients, C_{p}, for use with q_{h}$ $\frac{Windward}{Angle, \theta (degrees)} - Angle, \theta (degrees)}$  | $\frac{h/L}{h/L} -C_{p} +C_{p} C_{p}$ $0.5  0.0  0.4  -0.6$ $\geq 1.0  0.0  0.3  -0.6$ $0.8  0.0  0.34  -0.6$ $Roof Pressure Coefficients, C_{p}, for use with q_{h}$ $\frac{Windward}{Angle, \ell (degrees)} Leeward$ $Mind \qquad Mind \qquad Minde (degrees)$  
   
  | $\frac{h/L}{0.5} - C_{p} + C_{p} C_{p}$ $0.5 0.0 0.4 - 0.6$ $\geq 1.0 0.0 0.3 - 0.6$ $0.8 0.0 0.34 - 0.6$ $\boxed{Roof Pressure Coefficients, C_{p}, for use with q_{h}}$ $\boxed{Vindward} \underbrace{Leward}_{Angle, \theta (degrees)} Angle, \theta (degrees)}$ $\underbrace{Vind}_{brection} h/L 10 15 20 25 30 35 45 \geq 60^{\circ} 10 15 \geq 20$  | h/L       -Cp       +Cp       Cp         0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6         Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Leeward         Leeward         Mindward         Mindward         Leeward         Angle, 9 (degrees)         Angle, 9 (degrees)         Mind         Leeward         Leeward         Mind         Mind         Leeward         Mind         Mind         Mind         Leeward         Mind         Mind         Mind         Mind         Mind         Mind       Leeward         Mind       Mind         Mind       Leeward         Mind       Leeward <th colspan<="" td=""><td><math display="block">\frac{h/L}{0.5} - C_p + C_p C_p</math> 0.5 0.0 0.4 -0.6<br/><math display="block">\geq 1.0 0.0 0.3 -0.6</math> 0.8 0.0 0.34 -0.6<br/>Reof Pressure Coefficients, <math>C_p</math> for use with <math>q_h</math><br/><math display="block">\frac{Vind}{Direction} \frac{Vindward}{h/L} \frac{Leeward}{Angle, \theta (degrees)} \frac{Angle, \theta (degrees)}{10 15 20}</math> Normal <math>\leq 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}</math><br/>Normal <math>\leq 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}</math></td><td><math display="block">\frac{h/L}{0.5} -C_{p} + C_{p} C_{p}</math> <math display="block">0.5 0.0 0.4 -0.6</math> <math display="block">\geq 1.0 0.0 0.3 -0.6</math> <math display="block">0.8 0.0 0.34 -0.6</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vind_{interview}}{1600000000000000000000000000000000000</math></td><td><math display="block">\frac{h/L}{0.5} -C_{p} +C_{p} C_{p}</math> <math display="block">0.5 0.0 0.4 -0.6</math> <math display="block">\geq 1.0 0.0 0.3 -0.6</math> <math display="block">0.8 0.0 0.34 -0.6</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vindward}{Vindward} - \frac{Leeward}{Angle, \theta (degrees)}</math> <math display="block">\frac{Angle, \theta (degrees)}{h/L 10 15 20 25 30 35 45 \ge 60^{\circ} 10 15 \ge 20}</math> <math display="block">\int 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}</math></td><td><math display="block">\frac{h/L}{0.5} -C_{p} +C_{p} C_{p}</math> <math display="block">0.5 0.0 0.4 -0.6</math> <math display="block">\geq 1.0 0.0 0.3 -0.6</math> <math display="block">0.8 0.0 0.34 -0.6</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vindward}{Ind_{Intervent}} - \frac{Vindward}{Ind_{Intervent}} - \frac{Leeward}{Ind_{Intervent}}</math></td><td><math display="block">\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p} \\ 0.5 - 0.0 &amp; 0.4 - 0.6 \\ \ge 1.0 - 0.0 &amp; 0.3 - 0.6 \\ 0.8 - 0.0 &amp; 0.34 - 0.6 \\ \hline</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vindward}{Vindward} - \frac{Leeward}{Angle, \theta (degrees)} + \frac{Angle, \theta (degrees)}{10 - 15 - 20} \\ \hline</math></td><td>h/L-CpCp0.50.00.4<math>\geq 1.0</math>0.00.30.80.00.34Coefficients, <math>C_p</math> for use with <math>q_h</math>WindwardLeewardAngle, <math>\ell</math> (degrees)</td><td><math display="block">\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p}</math> <math display="block">0.5 - 0.0 - 0.4 - 0.6</math> <math display="block">\geq 1.0 - 0.0 - 0.3 - 0.6</math> <math display="block">0.8 - 0.0 - 0.34 - 0.6</math> <math display="block">\boxed{Pool Pressure Coefficients, C_{p}, for use with q_{h}}</math> <math display="block">\boxed{Windward} = \underbrace{Leeward}</math> Angle 8 (degrees)</td><td>h/L       -Cp       Cp         0.5       0.0       0.4       -0.6         <math>\geq 1.0</math>       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</td><td><math>h/L</math> <math>-C_p</math> <math>C_p</math> <math>0.5</math> <math>0.0</math> <math>0.4</math> <math>-0.6</math> <math>\geq 1.0</math> <math>0.0</math> <math>0.3</math> <math>-0.6</math> <math>0.8</math> <math>0.0</math> <math>0.34</math> <math>-0.6</math>         Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leeward</td><td></td><td></td><td><math
display="block"> \begin{array}{cccc} h/L &amp; -C_p &amp; +C_p &amp; C_p \\ 0.5 &amp; 0.0 &amp; 0.4 &amp; -0.6 \\ ≥ 1.0 &amp; 0.0 &amp; 0.3 &amp; -0.6 \\ 0.8 &amp; 0.0 &amp; 0.34 &amp; -0.6 \end{array} </math></td></th>  | <td><math display="block">\frac{h/L}{0.5} - C_p + C_p C_p</math> 0.5 0.0 0.4 -0.6<br/><math display="block">\geq 1.0 0.0 0.3 -0.6</math> 0.8 0.0 0.34 -0.6<br/>Reof Pressure Coefficients, <math>C_p</math> for use with <math>q_h</math><br/><math display="block">\frac{Vind}{Direction} \frac{Vindward}{h/L} \frac{Leeward}{Angle, \theta (degrees)} \frac{Angle, \theta (degrees)}{10 15 20}</math> Normal <math>\leq 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}</math><br/>Normal <math>\leq 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}</math></td> <td><math display="block">\frac{h/L}{0.5} -C_{p} + C_{p} C_{p}</math> <math display="block">0.5 0.0 0.4 -0.6</math> <math display="block">\geq 1.0 0.0 0.3 -0.6</math> <math display="block">0.8 0.0 0.34 -0.6</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vind_{interview}}{1600000000000000000000000000000000000</math></td> <td><math display="block">\frac{h/L}{0.5}
-C_{p} +C_{p} C_{p}</math> <math display="block">0.5 0.0 0.4 -0.6</math> <math display="block">\geq 1.0 0.0 0.3 -0.6</math> <math display="block">0.8 0.0 0.34 -0.6</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vindward}{Vindward} - \frac{Leeward}{Angle, \theta (degrees)}</math> <math display="block">\frac{Angle, \theta (degrees)}{h/L 10 15 20 25 30 35 45 \ge 60^{\circ} 10 15 \ge 20}</math> <math display="block">\int 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}</math></td> <td><math display="block">\frac{h/L}{0.5} -C_{p} +C_{p} C_{p}</math> <math display="block">0.5 0.0 0.4 -0.6</math> <math display="block">\geq 1.0 0.0 0.3 -0.6</math> <math display="block">0.8 0.0 0.34 -0.6</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vindward}{Ind_{Intervent}} - \frac{Vindward}{Ind_{Intervent}} - \frac{Leeward}{Ind_{Intervent}}</math></td> <td><math display="block">\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p} \\ 0.5 - 0.0 &amp; 0.4 - 0.6 \\ \ge 1.0 - 0.0 &amp; 0.3 - 0.6 \\ 0.8 - 0.0 &amp; 0.34 - 0.6 \\ \hline</math> Roof Pressure Coefficients, <math>C_{p}</math> for use with <math>q_{h}</math> <math display="block">\frac{Vindward}{Vindward} - \frac{Leeward}{Angle, \theta (degrees)} + \frac{Angle, \theta (degrees)}{10 - 15 - 20} \\ \hline</math></td> <td>h/L-CpCp0.50.00.4<math>\geq 1.0</math>0.00.30.80.00.34Coefficients, <math>C_p</math> for use with <math>q_h</math>WindwardLeewardAngle, <math>\ell</math> (degrees)</td> <td><math display="block">\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p}</math> <math display="block">0.5 - 0.0 - 0.4 - 0.6</math> <math display="block">\geq 1.0 - 0.0 - 0.3 - 0.6</math> <math display="block">0.8 - 0.0 - 0.34 - 0.6</math> <math display="block">\boxed{Pool Pressure Coefficients, C_{p}, for use with q_{h}}</math> <math display="block">\boxed{Windward} = \underbrace{Leeward}</math> Angle 8 (degrees)</td> <td>h/L       -Cp       Cp         0.5       0.0       0.4       -0.6         <math>\geq 1.0</math>       0.0       0.3       -0.6         0.8       0.0       0.34       -0.6</td> <td><math>h/L</math> <math>-C_p</math> <math>C_p</math> <math>0.5</math> <math>0.0</math> <math>0.4</math> <math>-0.6</math> <math>\geq 1.0</math> <math>0.0</math> <math>0.3</math> <math>-0.6</math> <math>0.8</math> <math>0.0</math> <math>0.34</math> <math>-0.6</math>         Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leeward</td> <td></td> <td></td> <td><math display="block"> \begin{array}{cccc} h/L &amp; -C_p &amp; +C_p &amp; C_p \\ 0.5 &amp; 0.0 &amp; 0.4 &amp; -0.6 \\ ≥ 1.0 &amp; 0.0 &amp; 0.3 &amp; -0.6 \\ 0.8 &amp; 0.0 &amp; 0.34 &amp; -0.6 \end{array} </math></td>  | $\frac{h/L}{0.5} - C_p + C_p C_p$ 0.5 0.0 0.4 -0.6<br>$\geq 1.0 0.0 0.3 -0.6$ 0.8 0.0 0.34 -0.6<br>Reof Pressure Coefficients, $C_p$ for use with $q_h$<br>$\frac{Vind}{Direction} \frac{Vindward}{h/L} \frac{Leeward}{Angle, \theta (degrees)} \frac{Angle, \theta (degrees)}{10 15 20}$ Normal $\leq 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}$<br>Normal $\leq 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}$   
   | $\frac{h/L}{0.5} -C_{p} + C_{p} C_{p}$ $0.5 0.0 0.4 -0.6$ $\geq 1.0 0.0 0.3 -0.6$ $0.8 0.0 0.34 -0.6$ Roof Pressure Coefficients, $C_{p}$ for use with $q_{h}$ $\frac{Vind_{interview}}{1600000000000000000000000000000000000$  
  | $\frac{h/L}{0.5} -C_{p} +C_{p} C_{p}$ $0.5 0.0 0.4 -0.6$ $\geq 1.0 0.0 0.3 -0.6$ $0.8 0.0 0.34 -0.6$ Roof Pressure Coefficients, $C_{p}$ for use with $q_{h}$ $\frac{Vindward}{Vindward} - \frac{Leeward}{Angle, \theta (degrees)}$ $\frac{Angle, \theta (degrees)}{h/L 10 15 20 25 30 35 45 \ge 60^{\circ} 10 15 \ge 20}$ $\int 0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0^{\circ}$   | $\frac{h/L}{0.5} -C_{p} +C_{p} C_{p}$ $0.5 0.0 0.4 -0.6$ $\geq 1.0 0.0 0.3 -0.6$ $0.8 0.0 0.34 -0.6$ Roof Pressure Coefficients, $C_{p}$ for use with $q_{h}$ $\frac{Vindward}{Ind_{Intervent}} - \frac{Vindward}{Ind_{Intervent}} - \frac{Leeward}{Ind_{Intervent}}$  | $\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p} \\ 0.5 - 0.0 & 0.4 - 0.6 \\ \ge 1.0 - 0.0 & 0.3 - 0.6 \\ 0.8 - 0.0 & 0.34 - 0.6 \\ \hline$ Roof Pressure Coefficients, $C_{p}$ for use with $q_{h}$ $\frac{Vindward}{Vindward} - \frac{Leeward}{Angle, \theta (degrees)} + \frac{Angle, \theta (degrees)}{10 - 15 - 20} \\ \hline$   
   | h/L-CpCp0.50.00.4 $\geq 1.0$ 0.00.30.80.00.34Coefficients, $C_p$ for use with $q_h$ WindwardLeewardAngle, $\ell$ (degrees)  | $\frac{h/L}{0.5} - C_{p} + C_{p} - C_{p}$ $0.5 - 0.0 - 0.4 - 0.6$ $\geq 1.0 - 0.0 - 0.3 - 0.6$ $0.8 - 0.0 - 0.34 - 0.6$ $\boxed{Pool Pressure Coefficients, C_{p}, for use with q_{h}}$ $\boxed{Windward} = \underbrace{Leeward}$ Angle 8 (degrees)   
   | h/L       -Cp       Cp         0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6  | $h/L$ $-C_p$ $C_p$ $0.5$ $0.0$ $0.4$ $-0.6$ $\geq 1.0$ $0.0$ $0.3$ $-0.6$ $0.8$ $0.0$ $0.34$ $-0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Windward       Leeward   |  
  |  | $ \begin{array}{cccc} h/L & -C_p & +C_p & C_p \\ 0.5 & 0.0 & 0.4 & -0.6 \\ ≥ 1.0 & 0.0 & 0.3 & -0.6 \\ 0.8 & 0.0 & 0.34 & -0.6 \end{array} $  |  |  |  |   |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $0.5  0.0  0.4  -0.6$ $\geq 1.0  0.0  0.3  -0.6$ $0.8  0.0  0.34  -0.6$ $Roof Pressure Coefficients, C_p, for use with q_h$ $\qquad \qquad $  
   
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
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   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | 0.5       0.0       0.4       -0.6 $\geq 1.0$ 0.0       0.3       -0.6         0.8       0.0       0.34       -0.6         Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Windward       Leeward         Angle, ê (degrees)   |
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   
  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | 0.5 0.0 0.4 -0.6<br>≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$   
   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   |   |  |  |  |   |
| ≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6  | ≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\frac{\geq 1.0  0.0  0.3  -0.6}{0.8  0.0  0.34  -0.6}$<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>$\frac{Windward}{10  15  20  25  30  35  45  \geq 50^{\circ}}  10  15  \geq 20$  
   
  | $ \ge 1.0  0.0  0.3  -0.6 \\ 0.8  0.0  0.34  -0.6 $ $ Roof Pressure Coefficients, C_p, for use with q_h $ $ \begin{tabular}{ c c c c c } \hline Windward & & & & & & & & & & & & & & & & & & &$  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   
  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\frac{\geq 1.0  0.0  0.3  -0.6}{0.8  0.0  0.34  -0.6}$<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br>$\frac{\text{Windward}}{\text{Angle, θ (degrees)}} \qquad $  
   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   | $\frac{\geq 1.0  0.0  0.3  -0.6}{0.8  0.0  0.34  -0.6}$ Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{\text{Windward}}{\frac{\text{Angle, } \theta \text{ (degrees)}}{\text{Windward}}} \underbrace{\frac{\text{Leeward}}{\text{Angle, } \theta \text{ (degrees)}}}_{\text{Vind}}$  
  | $\frac{\geq 1.0  0.0  0.3  -0.6}{0.8  0.0  0.34  -0.6}$<br>Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub><br><u>Vindward</u> <u>Leeward</u><br><u>Angle, θ (degrees)</u> <u>Angle, θ (degrees)</u><br><u>irrection</u> <u>h/L 10 15 20 25 30 35 45 <math>\geq 60^{\circ}</math> 10 15 <math>\geq 20</math><br/><u>formal <math>\leq 0.25  -0.7  -0.5  -0.3  -0.2  -0.2  0.0^{\circ}</math> </u></u>  
   | $\frac{\geq 1.0  0.0  0.3  -0.6}{0.8  0.0  0.34  -0.6}$ Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> $\frac{Windward}{\frac{Angle, \theta (degrees)}{10  15  20  25  30  35  45  \geq 60^{\circ}}  10  15  \geq 20}$  | $\frac{\geq 1.0  0.0  0.3  -0.6}{0.8  0.0  0.34  -0.6}$<br>Roof Pressure Coefficients, $C_{pr}$ for use with $q_h$<br>$\frac{Windward}{Angle, \ \theta \ (degrees)} \qquad Leeward}{Angle, \ \theta \ (degrees)}$<br>Vind<br>$\frac{Hinection}{h/L  10  15  20  25  30  35  45  \geq 60^{c}  10  15  \geq 20}$   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  |
$ \geq 1.0  0.0  0.3  -0.6 \\ 0.8  0.0  0.34  -0.6 $ Roof Pressure Coefficients, $C_p$ , for use with $q_h$ $ \qquad \qquad$   | $ \geq 1.0  0.0  0.3  -0.6 \\ 0.8  0.0  0.34  -0.6 $<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Windward Leeward  
   | $ \geq 1.0  0.0  0.3  -0.6 \\ 0.8  0.0  0.34  -0.6 $ Roof Pressure Coefficients, $C_{p}$ for use with $q_h$ Windward         Leeward   | $\geq 1.0  0.0  0.3  -0.6$ $0.8  0.0  0.34  -0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$  | $\geq 1.0 \qquad 0.0 \qquad 0.3 \qquad -0.6$ $0.8 \qquad 0.0 \qquad 0.34 \qquad -0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$   
  | ≥ 1.0 0.0 0.3 -0.6<br>0.8 0.0 0.34 -0.6  |   |  |  |  |   |
| 0.8 0.0 0.34 -0.6  | 0.8 0.0 0.34 -0.6   | 0.0     0.34     -0.6       for use with q <sub>h</sub> Windward       Leeward       Angle, e (degrees)     Angle, e (degrees)       20     25     30     35     45     >60°     10     15     >20  | $0.8  0.0  0.34  -0.6$ $Roof Pressure Coefficients, C_p, for use with q_h$ $Vindward \qquad Vindward \qquad Vindward$   
   
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
  | $0.8  0.0  0.34  -0.6$ Roof Pressure Coefficients, $C_p$ , for use with $q_h$ $\frac{\text{Windward}}{\text{Angle, } \theta \text{ (degrees)}}  \text{Leeward}$ Windwird $\frac{\text{Leeward}}{\text{Angle, } \theta \text{ (degrees)}}$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
  | 0.8  0.0  0.34  -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$<br>Windward<br>Understand<br>Windward<br>Monod<br>$b/L$ $10$ $15$ $20$ $25$ $30$ $35$ $45$ $\geq 50^c$ $10$ $15$ $\geq 20$<br>Normal<br>$\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $-0.2$ $0.0^c$<br>0.4 $0.4$ $0.018$ $-0.3$ $-0.5$ $-0.6$  
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | 0.8         0.0         0.34         -0.6           Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward         Leeward           Angle, ê (degrees)         Angle, ê (degrees)   | 0.8 0.0 0.34 -0.6   
   | 0.8         0.0         0.34         -0.6           Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward         Leeward   
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | 0.8 $0.0$ $0.34$ -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$   | 0.8 0.0 0.34 -0.6<br>Roof Pressure Coefficients, $C_p$ , for use with $q_h$   | 0.8 0.0 0.34 -0.6  
   |   |  |  |  |   |
|  |   | for use with q <sub>h</sub> Windward         Leeward           Angle, 0 (degrees)         Angle, 0 (degrees)           20         25         30         35         45         >60 <sup>c</sup> 10         15         >20  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward         Leeward           Angle, θ (degrees)         Angle, θ (degrees)           Wind         10         15         20         25         30         35         45         ≥60°         10         15         ≥20  
   
  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward       Leeward         Angle, θ (degrees)       Angle, θ (degrees)         Vindum       bit       10       15       20       25       25       10       15       10   | Windward       Leeward         Angle, 0 (degrees)       Angle, 0 (degrees)  
   
  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward         Leeward           Angle, 9 (degrees)         Angle, 9 (degrees)           Wind         III         15         20         25         30         35         45         ≥60 <sup>c</sup> 10         15         ≥20  | Windward         Leeward           Mindward         Leeward           Angle, 9 (degrees)         Angle, 9 (degrees)           Wind         Angle, 9 (degrees)           Mind         Angle, 9 (degrees)           h/L         10         15         20         25         30         35         45         >60°         10         15         >20   
  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward       Leeward         Mindward       Leeward         Leeward   
   | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Undward       Leeward         Mindward       Leeward         Angle, 0 (degrees)         Mindward       Leeward         Mindward       Leeward <td colspan="5" mindwar<="" th=""><th>Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leeward         Angle, <math>\theta</math> (degrees)         Ind       15       20       25       30       35       45       <math>\geq 60^c</math>       10       15       <math>\geq 20</math>         formal       <math>\leq 0.25</math> <math>-0.7</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^c</math> <math>=</math> <math>=</math></th><th>Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leeward         Angle, ê (degrees)         Ind       Angle, ê (degrees)         Ind       Angle, ê (degrees)         Ind       Ind       Is 20       25       30       35       45       <math>\geq 80^\circ</math>       10       Is <math>\geq 20</math></th><th>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub>           Windward         Leeward           Angle, θ (degrees)         Angle, θ (degrees)           Vind         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20</th><th>Windward       Leeward         Angle, 0 (degrees)       Angle, 0 (degrees)</th><th>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th><th>Reaf Brazzura Coefficiente C., for une with a</th></td>  
   | <th>Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leeward         Angle, <math>\theta</math> (degrees)         Ind       15       20       25       30       35       45       <math>\geq 60^c</math>       10       15       <math>\geq 20</math>         formal       <math>\leq 0.25</math> <math>-0.7</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^c</math> <math>=</math> <math>=</math></th> <th>Roof Pressure Coefficients, <math>C_p</math>, for use with <math>q_h</math>         Windward       Leeward         Angle, ê (degrees)         Ind       Angle, ê (degrees)         Ind       Angle, ê (degrees)         Ind       Ind       Is 20       25       30       35       45       <math>\geq 80^\circ</math>       10       Is <math>\geq 20</math></th> <th>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub>           Windward         Leeward           Angle, θ (degrees)         Angle, θ (degrees)           Vind         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20</th> <th>Windward       Leeward         Angle, 0 (degrees)       Angle, 0 (degrees)</th> <th>Roof Pressure Coefficients, C<sub>p</sub>, for use with q<sub>h</sub></th> <th>Reaf Brazzura Coefficiente C., for une with a</th> |   |   
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  | Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Windward       Leeward         Angle, $\theta$ (degrees)         Ind       15       20       25       30       35       45 $\geq 60^c$ 10       15 $\geq 20$ formal $\leq 0.25$ $-0.7$ $-0.3$ $-0.2$ $0.0^c$ $=$   | Roof Pressure Coefficients, $C_p$ , for use with $q_h$ Windward       Leeward         Angle, ê (degrees)         Ind       Angle, ê (degrees)         Ind       Angle, ê (degrees)         Ind       Ind       Is 20       25       30       35       45 $\geq 80^\circ$ 10       Is $\geq 20$   
   | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub> Windward         Leeward           Angle, θ (degrees)         Angle, θ (degrees)           Vind         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20  | Windward       Leeward         Angle, 0 (degrees)       Angle, 0 (degrees)  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  
  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>  | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | Reaf Brazzura Coefficiente C., for une with a |
| Roof Pressure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | sure Coefficients, C <sub>p</sub> , for use with q <sub>h</sub>   | Angle, θ (degrees)         Angle, θ (degrees)           20         25         30         35         45         >60°         10         15         >20   | Angle, θ (degrees)         Angle, θ (degrees)           Wind         Direction         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20  
   
  | Angle, θ (degrees)         Angle, θ (degrees)           Wind   | للمعلم المعلم المعلم<br>المعلم المعلم   
   
  | Angle, θ (degrees)         Angle, θ (degrees)           Wind         Direction         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20   | Angle, θ (degrees)         Angle, θ (degrees)           Wind         Direction         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20  
  | Minimize         Angle, $\theta$ (degrees)         Angle, $\theta$ (degrees)           Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.0^{\circ}$ $0.0^{\circ}$ $0.4$ $0.4$ $0.01$ $0.3$ $-0.5$ $-0.6$  
  | Mind         Angle, θ (degrees)         Angle, θ (degrees)           Vind         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20           tormal         ≤0.25         -0.7         -0.5         -0.2         0.0°         0.1°         0.1°         0.5         0.5   
   | Angle, $\theta$ (degrees)         Angle, $\theta$ (degrees)           Ind<br>prection         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ formal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.0^{\circ}$ $-0.2^{\circ}$ $0.0^{\circ}$ $=$   | Angle, θ (degrees)         Angle, θ (degrees)           Ind         15         20         25         30         35         45         ≥60°         10         15         ≥20   
  | Angle, θ (degrees)         Angle, θ (degrees)           Vind         h/L         10         15         20         25         30         35         45         ≥60°         10         15         ≥20   | Angle, θ (degrees)     Angle, θ (degrees)   | Angle, 8 (degrees)  
   |   
   |  |   | Windward   
  | Windward   |   |  |  |  |   |
| Angle, θ (degrees) Angle, θ (degrees   | Angle, θ (degrees) Angle, θ (degrees)   | 20 25 30 35 45 >60° 10 15 >20   | Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   
   
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  | Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20  | Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   
  | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.0^{\circ}$ $-0.2$ $0.0^{\circ}$ $-0.3$ $-0.2$ $0.0^{\circ}$ $-0.3$ $-0.3$ $0.4$ $0.01$ $-0.3$ $-0.6$  
  | Vind     birection     h/L     10     15     20     25     30     35     45     ≥60°     10     15     ≥20       Youngal     ≤0.25     -0.7     -0.5     -0.3     -0.2     0.0°     0.10     0.3     0.5     0.10     0.3     0.5  
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   | migle, a (nedices)  | Angle, 6 (degrees) Angle, 8 (degrees)   
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| Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60 <sup>e</sup> 10 15  | h/L 10 15 20 25 30 35 45 ≥60 <sup>°</sup> 10 15 ≥20   |   |   
   
  | anection it/π. το το ∠ο 25 du d5 45 ≧60° 10 15 ≥20   | Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   
   
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  | Younda ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>d</sup>   
   | formal $\leq 0.25 - 0.7 - 0.5 - 0.3 - 0.2 - 0.2 0.0^{a}$  
  |   |  | Vind<br>Vinection h/L 10 15 20 25 30 35 <b>4</b> 5 ≥60 <sup>e</sup> 10 15 ≥20   
   | Vind<br>)irrection h/L 10 15 20 25 30 35 45 ≥80° 10 15 ≥20  | Mind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 >20   
   | Wind   |   |  
  | Angle, 8 (degrees) Angle, 8 (degrees)  |   |  |  |  |   |
| -<br>Normal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>d</sup><br>to Didge -0.18 0.0 <sup>d</sup> 0.2 0.3 0.4 0.4 0.0 0 -0.3 -0.5   | $0.25 - 0.7 - 0.5 - 0.3 - 0.2 - 0.2 0.0^{4}$<br>-0.18 0.0 <sup>4</sup> 0.2 0.3 0.3 0.4 0.4 0.019 - 0.3 - 0.5 - 0.6  | $-0.3$ $-0.2$ $-0.2$ $0.0^{a}$  | Normal $\leq 0.25$ -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>4</sup>  
   
  |  |   
   
  | Normal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>d</sup>   | Normal ≤ $0.25 - 0.7 - 0.5 - 0.3 - 0.2 - 0.2 0.0^{\circ}$<br>to Ridge018 0.0° 0.2 0.3 0.4 0.4 0.010 - 0.3 - 0.5 - 0.6   
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   | PridageU_8 0.0° 0.2 0.3 0.4 0.4 0.0 0.00.30.50.6  
  | formal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>4</sup>  | $\frac{1}{10000000000000000000000000000000000$   |   
   |   |   
   | Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20  | Vind<br>Irrection h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   | Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20  
  | Angle, θ (degrees)         Angle, θ (degrees)           Wind   |   |  |  |  |   |
| for $0.5 - 0.9 - 0.7 - 0.4 - 0.3 - 0.2 - 0.2 - 0.2 - 0.0''$  | -0.10 $0.0$ $0.1$ $0.3$ $0.3$ $0.4$ $0.4$ $0.4$ $0.010$ $-0.3$ $-0.3$ $-0.5$ | 0.2 0.2 0.2 0.4 0.4 0.01 0 0.2 0.5 0.6  |   
   
  |  | Normal <u>\$0.25</u> −0.7 −0.5 −0.3 −0.2 0.0°<br>• Dideo −0.18 0.0° 0.2 0.2 0.4 0.4 0.010 0.2 0.5 0.6   
   
  |  | or noge −0.11 0.0 0.2 0.3 0.3 0.4 0.4 0.4 0.4 0.10 −0.3 −0.3 −0.3   
  | for $0.5 - 0.9 - 0.7 - 0.4 - 0.3 - 0.2 - 0.2 0.0''$  
  | or $0.5 - 0.9 - 0.7 - 0.4 - 0.3 - 0.2 - 0.2 - 0.2 - 0.0''$   
   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  
  |   | 5 Kidge -0.10 0.0 0.2 0.5 0.5 0.4 0.4 0.010 -0.5 -0.5 -0.0   | Younal ≤0.25 −0.7 −0.5 −0.3 −0.2 −0.2 0.0°  
   | Nutural ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>4</sup>   | Normal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 $0.0^{\circ}$<br>$_{0}$ Pidro -0.18 0.07 0.2 0.3 0.4 0.4 0.01 0 0.2 0.5 0.6   
   | Direction h/L 10 15 20 25 30 35 45 ≥ $60^{\circ}$ 10 15 ≥ $20$   | Vind<br>Nimection h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20<br>Normal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0°<br>$\sim 0^{12}dec = -0.18 0.0°$  | Wind         Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.0^{\circ}$ $-0.2$ $0.0^{\circ}$ $-0.2$ $0.0^{\circ}$ $-0.2$ $0.0^{\circ}$ $-0.2$ $0.4$ $0.4$ $0.01$ $0.2$ $0.5$ $0.6$  
  | Angle, $\theta$ (degrees)         Angle, $\theta$ (degrees)           Wind         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $0.0^{\circ}$ $-0.2$ $0.4$ $0.01$ $0.2$ $0.5$ $0.6$  |   |  |  |  |   |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | -0.13 $-0.08$ (10) $0.2$ $0.3$ $0.4$ (10) $0.5$ $-0.5$ $-0.6\ge 0.0 -1.3^{b} -1.0 -0.7 -0.5 -0.3 -0.2 0.0^{a}$  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   
   
  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | Normal $\leq 0.25$ -0.7 -0.5 -0.3 -0.2 -0.2 0.0"<br>to Ridge -0.18 0.0" 0.2 0.3 0.3 0.4 0.4 0.010 -0.3 -0.5 -0.6<br>for 0.5 -0.9 -0.7 -0.4 -0.3 -0.2 -0.2 0.0"  
   
  | to Ridge $-0.18$ $0.0^{\prime\prime}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01$ $\theta$ $-0.3$ $-0.5$ $-0.6$<br>for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $-0.2$ $0.0^{\prime\prime}$   |   
  | $A \ge 10^{\circ}$ -018 -018 (10 <sup>-0.2</sup> 0.2 0.2 0.4 0.4 0.019 -0.5 -0.5 -0.6  
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  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | or 0.5 -0.9 -0.7 -0.4 -0.3 -0.2 -0.2 0.0"  | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.0^{ar}$ o Ridge $-0.18$ $0.0^{ar}$ $0.2$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{ar}$ $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{ar}$ $0.10^{ar}$ $0.10^{ar}$ $0.10^{ar}$ $0.01^{ar}$ $0.5^{ar}$ $0.5^{ar}$   
   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.0^{or}$ o Ridge $-0.18$ $0.0^{or}$ $0.2$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $-0.0^{or}$ $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $-0.0^{or}$ $0.10^{or}$ $0.2^{or}$ $0.2^{or}$ $-0.2$ $0.0^{or}$ $0.0^{or}$  | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.2$ $0.0^a$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $0.0^a$ $o$ Ridge $-0.18$ $0.0^a$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01$ $-0.3$ $-0.5$ $-0.6$ $or       0.5 -0.9 -0.7 -0.4 -0.3 -0.2 -0.2^a 0.0^a o No       0.01 0.12 0.24 0.22 -0.2 0.0^a $  
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Vind $h/L$ 10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$  | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.0^{$  
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| 0.18 0.18 0.0° 0.2 0.2 0.3 0.01 0 0.7 0.6  | 0.18 0.18 0.18 0.0" 0.2 0.2 0.3 0.01 0 0.7 0.6 0.6  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   
   
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  | $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0''$   
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  | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  |   |  |  |  |   |
| Wind Direction MA Horizontel Distance from Windward Edge C <sub>p</sub>  | h/ Harizontal Distance from Windward Edge   | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   
  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$   
   
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   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Normal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>d</sup><br>to Ridge -0.18 0.0 <sup>d</sup> 0.2 0.3 0.3 0.4 0.4 0.01 θ -0.3 -0.5 -0.6<br>for 0.5 -0.9 -0.7 -0.4 -0.3 -0.2 -0.2 0.0 <sup>d</sup><br>$3 \ge 10^{\circ}$ -0.18 -0.18 0.0 <sup>d</sup> 0.7 0.3 0.3 0.4 0.01 θ -0.5 -0.5 -0.6<br>$\ge 1.0$ -1.3 <sup>b</sup> -1.0 -0.7 -0.5 -0.3 -0.2 0.0 <sup>d</sup><br>0.18 0.18 0.0 <sup>d</sup> 0.2 0.2 0.2 0.3 0.01 θ 0.7 0.6 0.6  
   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $   | $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$  
  | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  |   |  |  |  |   |
| Normal to Ridge for $\leq 0.5$ 0 to $h/2$ $-0.9, -0.18$ $\theta < 10^\circ$ and Parallel $h/2$ to $h$ $-0.9, -0.18$  | оран славания инполнания и проставительно и сородания и полнания и проставительного и сородания и полнания и   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   
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   | Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ o Ridge $-0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.4$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ $a \ge 10^{\circ}$ $-0.18$ $-0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.01 \ \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{\circ}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ\prime}$ $0.7$ $0.6$ $0.6$ Wind Direction       Mt       Merizontal Distance from Windward Edge $C_p$ $C$  | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $-0.0^{\circ}$ $-0.6$ $-0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $-0.2$ $0.0^{\circ}$ $ 2 10^{\circ}$ $-0.18$ $0.01^{\circ}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01 \ \theta$ $-0.5$ $-0.6$ $ 2 10^{\circ}$ $-0.18$ $0.18$ $0.0^{\circ}$ $0.2$ $0.2$ $0.3$ $0.01 \ \theta$ $-0.5$ $-0.6$ $ 2 .0^{\circ}$ $-1.3^{\circ}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.7$ $0.6$ $0.6$ Wind Direction       bit $0.18$ $0.18$ $0.0^{\circ}$ $0.2$ $0.2$ $0.3$ $0.01 \ \theta$ $0.7$ $0.6$ $0.6$  | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ $0.0^{\circ}$ $0.3$ $0.4$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ o Ridge $-0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ o S $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ\prime}$ $0.0^{\circ\prime}$ $-0.5$ $-0.6$ $A \ge 10^{\circ}$ $-0.18$ $-0.18$ $0.0^{\circ\prime}$ $0.3$ $0.4$ $0.01 \ \theta$ $-0.5$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ\prime}$ $0.01 \ \theta$ $0.7$ $0.6$ $0.6$ $\geq 1.0$ $-1.3^{\circ \circ}$ $-1.0$ $0.7$ $0.6$ $0.6$ $0.0^{\circ\prime}$ <td< td=""><td>Angle, θ (degrees)         Angle, θ (degrees)           Wind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Normal<br/>to Ridge         <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>-0.18</math> <math>0.0^{\circ}</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>-0.3</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math>
<math>-0.6</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.5</math> <math>-0.6</math> <t< td=""></t<></td></td<>   | Angle, θ (degrees)         Angle, θ (degrees)           Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal<br>to Ridge $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $-0.18$ $0.0^{\circ}$ $-0.2$ $0.0^{\circ}$ $-0.3$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.5$ $-0.6$ $-0.5$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.5$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ <t< td=""></t<>  |   |  |  |  |   |
| to Ridge for All $\theta$ h to 2 <i>h</i> $-0.5, -0.18$  | dge for $\leq 0.5$ 0 to $h/2$ $-0.9, -0.18$ arallel $h/2$ to $h$ $-0.9, -0.18$  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
  | Wind Direction       M       Mode       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1       0.0       0.1  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   
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   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{q}$ o Ridge $-0.18$ $0.0^{q}$ $0.2$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{q}$ $2 10^{o}$ $-0.18$ $-0.18$ $0.0^{q}$ $0.2$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 10^{o}$ $-0.18$ $0.0^{q}$ $0.2$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{q'}$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.2$ $0.2^{q'}$ $0.01 \theta$ $0.7$ $0.6$ $0.6$ $\sim 0.18$ $0.18$ $0.0^{q'}$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0$   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ $o \ Ridge$ $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ $for$ $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{e}$ $0.18$ $0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.4$ $0.01 \ \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ $0.18$ $0.18$ $0.0^{e}$ $0.2$ $0.2$ $0.3$ $0.01 \ \theta$ $0.7$ $0.6$ $0.6$ Wind Dimetion       M       Horizontal Distance from Windward Edge $C_p$ $-0.9, -0.18$ Normal to Ridge for<br>$\theta < 10^{e}$ and Parallel $20.5$ $0 \ 10 \ h'/2$ $-0.9, -0.18$   
   | $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Number<br>to Ridge       -0.7       -0.5       -0.3       -0.2       -0.0°       -0.18       -0.0       -0.5       -0.6       -0.6       -0.5       -0.6       -0.  | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ\prime}$ $-0.5$ $-0.6$ $4 \ge 10^{\circ}$ $-0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{\circ}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ\prime}$ $0.7$ $0.6$ $0.6$ Wind Direction $\bullet 0.18$ $0.18$ $0.0^{\circ\circ}$ $0.2$ $0.2$ $0.3$ $0$  
  | Angle, $\theta$ (degrees)         Angle, $\theta$ (degrees)           Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal<br>to Ridge<br>for $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.1 \ \theta$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.1 \ \theta$ $-0.5$ $-0.6$ $\delta I 10^{\circ}$ $0.18$ $0.0^{\circ}$ $0.2$ $0.2$ $0.0^{\circ}$ $0.1 \ \theta$ $-0.5$ $-0.5$ $-0.6$ $\delta I 10^{\circ}$ $0.18$ $0.18$ $0.0^{\circ}$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0$   |   |  |  |  |   |
| -0.3, -0.18  | Image: display block of the second state edge $L_p$ dge for $\leq 0.5$ 0 to $h/2$ $-0.9$ , $-0.18$ tratlel $h/2$ to $h$ $-0.9$ , $-0.18$ All $\theta$ $h$ to $2h$ $-0.5$ , $-0.18$ >2h $-0.3$ , $-0.18$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
  | Minimum product       Month of the log of the l  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   
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  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{ef}$ o Ridge $-0.18$ $0.0^{ef}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{ef}$ $\delta \geq 10^{0}$ $-0.18$ $-0.18$ $0.0^{ef}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ $\delta \geq 10^{0}$ $-0.18$ $0.0^{ef}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\delta \geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{ef}$ $0.0^{ef}$ $0.1\theta$ $0.7$ $0.6$ $0.6$ Wind Direction       bit $0.18$ $0.0^{ef}$ $0.2$ $0.2$ $0.2$ $0.3$ $0.01 \theta$ $0.7$ $0.6$ $0.6$ Wormal to Ridge for $\leq 0.5$ $0$ to $h'2$ $-0.9$ , $-0.18$ $-0.9$ , $-0.18$ $-0.9$ , $-0.18$ $-0.5$ , $-0.18$ <td< td=""><td>Normal       <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{a}</math> <math>co Ridge</math> <math>-0.18</math> <math>0.0^{a}</math> <math>0.2</math> <math>0.3</math> <math>0.3</math> <math>0.4</math> <math>0.4</math> <math>0.01 \theta</math> <math>-0.3</math> <math>-0.5</math> <math>-0.6</math>         for       <math>0.5</math> <math>-0.9</math> <math>-0.7</math> <math>-0.4</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{a}</math> <math>R \geq 10^{9}</math> <math>-0.18</math> <math>-0.18</math> <math>0.0^{a}</math> <math>0.2</math> <math>0.3</math> <math>0.3</math> <math>0.4</math> <math>0.01 \theta</math> <math>-0.5</math> <math>-0.6</math> <math>\geq 1.0</math> <math>-1.3^{b}</math> <math>-1.0</math> <math>0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{a'}</math> <math>\geq 1.0</math> <math>-1.3^{b}</math> <math>-1.0</math> <math>0.7</math> <math>-0.5</math> <math>-0.5</math> <math>-0.6</math> <math>\geq 1.0</math> <math>-1.3^{b}</math> <math>0.18</math> <math>0.18</math>
<math>0.0^{a'}</math> <math>0.2</math> <math>0.2</math> <math>0.2</math> <math>0.7</math> <math>0.6</math> <math>0.6</math>         Wind Direction       M.       Horizontal Distance from Windward Edge       <math>C_{p}</math> <math>-0.9</math> <math>-0.18</math> <math>0.6 &lt; 0.6</math>         Wind Direction       M.       Horizontal Distance from Windward Edge       <math>-0.9</math> <math>-0.18</math> <math>-0.9</math> <math>-0.18</math> <math>-0.9</math> <math>-0.18</math><td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td><td>Wind<br/>Direction       h/L       10       15       20       25       30       35       45       <math>\geq 60^{\circ}</math>       10       15       <math>\geq 20</math>         Normal<br/>o Ridge       -0.7       -0.5       -0.3       -0.2       -0.0°       -       -       -       -       -       -       -       -       -       -       -       0.0°       -       -       -       -       -       0.0°       -       -       -       -       -       0.0°       -       -       -       0.0°       -       0.0°       -       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°&lt;</td><td>Wind       h/L       10       15       20       25       30       35       45       <math>\geq 60^{\circ}</math>       10       15       <math>\geq 20</math>         Normal       <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.0^{\circ}</math><td>Mind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Normal<br/>to Ridge         <math>= 0.7</math> <math>= 0.5</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.18</math> <math>= 0.0^{\circ}</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.18</math> <math>= 0.0^{\circ}</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.3</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.6</math> <math>= 0.6^{\circ}</math> <math>= </math></td></td></td></td<> | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{a}$ $co Ridge$ $-0.18$ $0.0^{a}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{a}$ $R \geq 10^{9}$ $-0.18$ $-0.18$ $0.0^{a}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{a'}$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $0.7$ $-0.5$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $0.18$ $0.18$ $0.0^{a'}$ $0.2$ $0.2$ $0.2$ $0.7$ $0.6$ $0.6$ Wind Direction       M.       Horizontal Distance from Windward Edge $C_{p}$ $-0.9$ $-0.18$ $0.6 < 0.6$ Wind Direction       M.       Horizontal Distance from Windward Edge $-0.9$ $-0.18$ $-0.9$ $-0.18$ $-0.9$ $-0.18$ <td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td> <td>Wind<br/>Direction       h/L       10       15       20       25       30       35       45       <math>\geq 60^{\circ}</math>       10       15       <math>\geq 20</math>         Normal<br/>o Ridge       -0.7       -0.5       -0.3       -0.2       -0.0°       -       -       -       -       -       -       -       -       -       -       -       0.0°       -       -       -       -       -       0.0°       -       -       -       -       -       0.0°       -       -       -       0.0°       -       0.0°       -       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°&lt;</td> <td>Wind       h/L       10       15       20       25       30       35       45       <math>\geq 60^{\circ}</math>       10       15       <math>\geq 20</math>         Normal       <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.0^{\circ}</math><td>Mind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Normal<br/>to Ridge         <math>= 0.7</math> <math>= 0.5</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.18</math> <math>= 0.0^{\circ}</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.18</math> <math>= 0.0^{\circ}</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.3</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.6</math> <math>= 0.6^{\circ}</math> <math>= </math></td></td> | $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal<br>o Ridge       -0.7       -0.5       -0.3       -0.2       -0.0°       -       -       -       -       -       -       -       -       -       -       -       0.0°       -       -       -       -       -       0.0°       -       -       -       -       -       0.0°       -       -       -       0.0°       -       0.0°       -       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°       -       0.0°<   
  | Wind       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ <td>Mind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Normal<br/>to Ridge         <math>= 0.7</math> <math>= 0.5</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.0^{\circ}</math> <math>= 0.18</math> <math>= 0.0^{\circ}</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.18</math> <math>= 0.0^{\circ}</math> <math>= 0.2</math> <math>= 0.0^{\circ}</math> <math>= 0.3</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.5</math> <math>= 0.6</math> <math>= 0.6</math> <math>= 0.6^{\circ}</math> <math>= </math></td> | Mind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal<br>to Ridge $= 0.7$ $= 0.5$ $= 0.2$ $= 0.0^{\circ}$ $= 0.0^{\circ}$ $= 0.0^{\circ}$ $= 0.0^{\circ}$ $= 0.0^{\circ}$ $= 0.0^{\circ}$ $= 0.18$ $= 0.0^{\circ}$ $= 0.2$ $= 0.0^{\circ}$ $= 0.18$ $= 0.0^{\circ}$ $= 0.2$ $= 0.0^{\circ}$ $= 0.3$ $= 0.5$ $= 0.6$ $= 0.5$ $= 0.6$ $= 0.5$ $= 0.6$ $= 0.6$ $= 0.6^{\circ}$ $= $   |   |  |  |  |   |
| $\geq 1.0 \qquad \qquad \begin{array}{c} -0.1 \\ 0 \ \text{to} \ h/2 \\ > h/2 \\ \end{array} \qquad \begin{array}{c} -0.3 \\ -0.18 \\ -0.18 \\ -0.7 \\ -0.18 \end{array}$  | dge for<br>trailed $\leq 0.5$ 0 to $h/2$ $-0.9$ , $-0.18$ $h/2$ to $h$ $-0.3$ , $-0.18$ $\geq 1.0$ $0$ to $h/2$ $h/2$ $-0.7$ , $-0.18$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
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                           | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{q}$ o Ridge $-0.18$ $0.0^{q}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{q}$ $\delta 10^{0}$ $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.2$ $0.0^{q}$ $\delta 10^{0}$ $-0.18$ $0.01^{q}$ $0.2$ $0.3$ $0.4$ $0.01 P$ $-0.5$ $-0.6$ $\delta 10^{0}$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{q'}$ $\delta 1.8$ $0.18$ $0.18$ $0.0^{q'}$ $0.2$ $0.2$ $0.3$ $0.01 P$ $0.5$ $-0.5$ $-0.6$ $\delta 1.0$ $0.18$ $0.18$ $0.0^{q'}$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.7$ $0.6$ $0.6$  | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{ot}$ $\log Ridge$ $-0.18$ $0.0^{ot}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{ot}$ $\geq 1.0^{ot}$ $-0.18$ $0.0^{ot}$ $0.2$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{ot}$ $0.18$ $0.18$ $0.0^{ot}$ $0.2$ $0.2$ $0.3$ $0.01 \theta$ $-0.5$ $-0.6$ Wind Direction       M       Horizontal Distance from Windward Edge $C_p$ $-0.6$ $0.6$ Wind Direction       M       Horizontal Distance from Windward Edge $-0.9$ $-0.18$ $-0.9$ $-0.18$ $0.0^{ot}$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ $0.2$ <  
   | $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal<br>o Ridge $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ <t< td=""><td>Wind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Normal         <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.2</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.0^{\circ}</math> <math>0.18</math> <math>0.0^{\circ}</math> <math>0.2</math> <math>0.3</math> <math>0.4</math> <math>0.4</math> <math>0.01</math> <math>03</math> <math>-0.5</math> <math>-0.6</math>           for         <math>0.5</math> <math>-0.9</math> <math>-0.7</math> <math>-0.4</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.0^{\circ}</math> <math>-0.5</math> <math>-0.6</math> <math>\delta r</math> <math>-0.18</math> <math>-0.18</math> <math>0.0^{\circ}</math> <math>0.2</math> <math>0.3</math> <math>0.4</math> <math>0.01</math> <math>0.5</math> <math>-0.5</math> <math>-0.6</math> <math>4 \geq 10^{\circ}</math> <math>-0.18</math> <math>-0.18</math> <math>0.0^{\circ}</math> <math>0.2</math> <math>0.2</math> <math>0.3</math> <math>0.01</math> <math>0.5</math> <math>-0.5</math> <math>-0.5</math> <math>-0.6</math> <math>-0.6</math></td><td><math display="block"> \begin{array}{c c c c c c c } \hline Mind &amp; Mark et (degrees) \\ \hline Mind &amp; M/L &amp; 10 &amp; 15 &amp; 20 &amp; 25 &amp; 30 &amp; 35 &amp; 45 &amp; 260^{\circ} &amp; 10 &amp; 15 &amp; 220 \\ \hline Mind &amp; M/L &amp; 10 &amp; 15 &amp; 20 &amp; 25 &amp; 30 &amp; 35 &amp; 45 &amp; 260^{\circ} &amp; 10 &amp; 15 &amp; 220 \\ \hline Mind &amp; S0.25 &amp; -0.7 &amp; -0.5 &amp; -0.3 &amp; -0.2 &amp; -0.2 &amp; 0.0^{\circ} &amp; &amp;</math></td></t<> | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.4$ $0.01$ $03$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $-0.5$ $-0.6$ $\delta r$ $-0.18$ $-0.18$ $0.0^{\circ}$ $0.2$ $0.3$ $0.4$ $0.01$ $0.5$ $-0.5$ $-0.6$ $4 \geq 10^{\circ}$ $-0.18$ $-0.18$ $0.0^{\circ}$ $0.2$ $0.2$ $0.3$ $0.01$ $0.5$ $-0.5$ $-0.5$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$ $-0.6$   
  | $ \begin{array}{c c c c c c c } \hline Mind & Mark et (degrees) \\ \hline Mind & M/L & 10 & 15 & 20 & 25 & 30 & 35 & 45 & 260^{\circ} & 10 & 15 & 220 \\ \hline Mind & M/L & 10 & 15 & 20 & 25 & 30 & 35 & 45 & 260^{\circ} & 10 & 15 & 220 \\ \hline Mind & S0.25 & -0.7 & -0.5 & -0.3 & -0.2 & -0.2 & 0.0^{\circ} & & & & & & & & & & & & & & & & & & &$   |   |  |  |  |   |
| ≥1.0 0 to h/2 -1.3 <sup>6</sup> , -0.18<br>>h/2 -1.3 <sup>6</sup> , -0.18<br>>h/2 -0.7, -0.18  | Image: constraint of the second decision of                       | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
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   | $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0$   | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0$   | Mind<br>Direction         h/L         10         15         20         25         30         35         45         260°         10         15         20           Normal<br>to Ridge<br>to Ridgeto<br>Ridge<br>to Ridge<br>to Ridge<br>to Ridge<br>to Ridgeto<br>Ridgeto<br>Rid |   |  |  |  |   |
| $\frac{ -1,3^{\circ},-0,18 }{ -1,3^{\circ},-0,18 }$ $\frac{  Wall Pressure Coefficients, C_{\rho}}{  Surface  L  B   C_{\rho}  U_{P}  V_{P}  C_{\rho}  }$  | $\frac{1}{100} = \frac{1}{10000000000000000000000000000000000$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
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  | $ \begin{array}{c c c c c c c c c } & 1.3^{b} & -1.0 & -0.7 & -0.5 & -0.3 & -0.2 & 0.0'' \\ \hline 0.18 & 0.18 & 0.18 & 0.0' & 0.2 & 0.2 & 0.3 & 0.01 & 0 & 0.7 & 0.6 & 0.6 \\ \hline \end{tabular} \\ \hline \end{tabular} & \begin{tabular}{c c c c c c c c c c c c c c c c c c c $  
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  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $ \frac{1}{10^{\circ}} = \frac{1}{10^{\circ}} + 1$ | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ o Ridge $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{e}$ $\delta \geq 10^{9}$ $-0.18$ $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\delta \geq 10^{9}$ $-0.18$ $-0.18$ $0.0^{e}$ $0.2$ $0.2$ $0.2$ $0.3$ $0.01 \theta$ $-0.5$ $-0.6$ $\delta \geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e'}$ $0.0^{e'}$ $0.6^{e'}$ $0.6^{$   
   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $0.0^{e}$ to Ridge $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $-0.0^{e}$ $0.0^{e}$ $\delta t$ $0.0^{e}$ $0.2$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0^{\circ}$ $-0.18$ $0.0^{e}$ $0.2$ $0.2$ $0.0^{e'}$ $-0.5$ $-0.5$ $-0.6$ $\geq 1.0^{\circ}$ $-1.0^{\circ}$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e'}$ $\geq 1.0^{\circ}$ $-1.0^{\circ}$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e'}$ $\geq 1.0^{\circ}$ $0.18^{\circ}$ $0.18^{\circ}$ $0.18^{\circ}$ $0.16^{\circ}$ $-0.9, -0.18^{\circ}$ Normal to Ridge for All $\theta$ $\delta 1.5^{\circ}$ $0.0^{\circ}/2^{\circ}$ $-0.5, -0.18^{\circ}$ $-0.5, -0.18^{\circ}$ $\delta < 10^{\circ}$ and Parallel $h' 2 to h$ $-0.3, -0.18^{\circ}$ $-0.7, -0.18^{\circ}$ $-0.7, -0.18^{\circ}$   | $\begin{array}{c c c c c c c c c c c c c c c c c c c $  
  | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Numal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $-0.18$ $0.0^{\circ}$ $-0.2$ $0.0^{\circ}$ $0.1$ $0.1$ $0.0^{\circ}$ $-0.5$ $-0.5$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.6$ $-0.6$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ $-0.5$ <   | $\begin{array}{ c c c c c c c c c c c c c c c c c c c$  | Marke 0 (degrees)         Angle, 0 (degrees)           Wind<br>Direction         h/L         10         15         20         25         30         35         45         260°         10         15         20           Normal<br>So Ridge<br>for         -0.1         0.07         -0.5         -0.3         -0.2         0.07°         -0.4         0.01         0         -0.5         -0.6           So Ridge<br>for         0.5         -0.07         -0.4         -0.3         -0.2         0.07°         -0.4         0.01         0         -0.5         -0.6           So 10.0         -0.18         0.18         0.07         0.3         0.3         0.4         0.4         0.01         0         -0.5         -0.6           So 10         -1.18         0.18         0.07         0.3         -0.2         0.07°         0.10         0.18         0.6         0.6           Wind Direction         M         M         0.07         0.5         -0.3         -0.2         0.07°         0.01         0         0.7         0.6         0.6           Wind Direction         M         M         0.18         0.18         0.07         0.5         -0.18         -0.5<  
  |   |  |  |  |   |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Wall Pressure Coefficients, $C_p$ Wall All values $0.8$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
   
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
  | $ \begin{array}{c c c c c c c c c } \hline \geq 1.0 & -1.3^{b} & -1.0 & 0.7 & -0.5 & -0.3 & -0.2 & 0.0'' \\ \hline 0.18 & 0.18 & 0.18 & 0.0'' & 0.2 & 0.2 & 0.3 & 0.01 & 0 & 0.7 & 0.6 & 0.6 \\ \hline \hline \text{Wind Direction} & & & & & & & & & & & & & & & & & & &$   
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ o Ridge $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{e}$ $\geq 10^{o}$ $-0.18$ $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.4$ $0.01$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{e}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ $\geq 1.0$ $-1.3^{e}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e'}$ $\geq 1.0$ $-1.3^{e}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e'}$ $-0.7$ $0.6$ $0.6$ Normal to Ridge for $\leq 0.5$ $0$ to $h'/2$ $-0.9$ $-0.18$ $-0.5$ $-0.18$ $-0.5$ $-0.18$ $-0.5$ $-0.18$ $-0.5$ $-0.18$ $-0.7$ $-0.5$ $-0.18$ $-0.7$ $-0.7$ $-0.18$   
   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{o^2}$ o Ridge $-0.18$ $0.0^{o^2}$ $0.3$ $0.4$ $0.4$ $0.01$ $0$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{o^2}$ $10^{o^2}$ $-0.18$ $-0.18$ $0.0^{o^2}$ $0.3$ $0.4$ $0.01$ $00.3$ $-0.5$ $-0.6$ $12 10^{o^2}$ $-0.18$ $-0.18$ $0.0^{o^2}$ $0.3$ $0.4$ $0.01$ $0.5$ $-0.5$ $-0.6$ $12 10^{o^2}$ $-1.3^{o^2}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{o^2}$ $0.0^{o^2}$ $0.0^{o^2}$ $0.6$ $0.6^{o^2}$ $0.00^{o^2}$ $0.6^{o^2}$ </td <td>Normal       <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{e}</math>         to Ridge       <math>-0.18</math> <math>0.0^{e}</math> <math>0.2</math> <math>0.3</math> <math>0.3</math> <math>0.4</math> <math>0.4</math> <math>0.01 \theta</math> <math>-0.3</math> <math>-0.5</math> <math>-0.6</math>         for       <math>0.5</math> <math>-0.9</math> <math>-0.7</math> <math>-0.4</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{e}</math> <math>-118</math> <math>-0.18</math> <math>0.18</math> <math>0.18</math> <math>0.12</math> <math>0.3</math> <math>0.4</math> <math>0.01 \theta</math> <math>-0.5</math> <math>-0.6</math> <math>\geq 1.0</math> <math>-1.3^{b}</math> <math>-1.0</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{e}</math> <math>\geq 1.0</math> <math>-1.3^{b}</math> <math>-1.0</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{e}</math> <math>\geq 1.0</math> <math>-1.3^{b}</math> <math>-1.0</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{e}</math> <math>0.01 \theta</math> <math>0.7</math> <math>0.6</math> <math>0.6</math>         Wind Direction       M       Horizontal Distance from Windward Edge       <math>C_{\rho}</math> <math>-0.9, -0.18</math> <math>-0.9, -0.18</math> <math>-0.9, -0.18</math> <math>-0.9, -0.18</math> <math>-0.5, -0.18</math> <math>-0.5, -0.18</math> <math>-0.5, -0.18</math> <math>-0.7, -0.18</math> <math>-0.7, -0.18</math> <math>-0.7, -0.18</math> <math>-0.7,</math></td> <td><math display="block">\begin{array}{c c c c c c c c c c c c c c c c c c c </math></td> <td>Mind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Numeal         <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.00^{\circ}</math> <math>-0.3</math> <math>-0.2</math> <math>0.00^{\circ}</math> <math>-0.3</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.2</math> <math>0.00^{\circ}</math> <math>-0.3</math> <math>-0.5</math> <math>-0.6</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.6</math></td> <td><math display="block">\begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td>Wind<br/>Direction         h/L         10         15         20         25         30         35         45         <math>\geq 60^{\circ}</math>         10         15         <math>\geq 20</math>           Normal         <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.01</math> <math>0.18</math> <math>\geq 20</math>           Normal         <math>\leq 0.25</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.10</math> <math>0.18</math> <math>-0.5</math> <math>-0.6</math> <math>0.5</math> <math>-0.9</math> <math>-0.7</math> <math>-0.4</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.01</math> <math>0.5</math> <math>-0.5</math> <math>-0.6</math> <math>a_{2}</math> 10°         <math>-1.3^{\circ}</math> <math>-1.0</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.01</math> <math>0.5</math> <math>-0.5</math> <math>-0.6</math> <math>a_{10}</math> <math>-1.3^{\circ}</math> <math>-1.0</math> <math>-0.7</math> <math>-0.5</math> <math>-0.3</math> <math>-0.2</math> <math>0.0^{\circ}</math> <math>0.0^{\circ}</math> <math>0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math> <math>-0.5</math> <math>-0.6</math></td>   | Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ to Ridge $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01 \theta$ $-0.3$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{e}$ $-118$ $-0.18$ $0.18$ $0.18$ $0.12$ $0.3$ $0.4$ $0.01 \theta$ $-0.5$ $-0.6$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ $\geq 1.0$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ $0.01 \theta$ $0.7$ $0.6$ $0.6$ Wind Direction       M       Horizontal Distance from Windward Edge $C_{\rho}$ $-0.9, -0.18$ $-0.9, -0.18$ $-0.9, -0.18$ $-0.9, -0.18$ $-0.5, -0.18$ $-0.5, -0.18$ $-0.5, -0.18$ $-0.7, -0.18$ $-0.7, -0.18$ $-0.7, -0.18$ $-0.7,$   
   | $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Mind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Numeal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.00^{\circ}$ $-0.3$ $-0.2$ $0.00^{\circ}$ $-0.3$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.2$ $0.00^{\circ}$ $-0.3$ $-0.5$ $-0.6$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.6$ $-0.5$ $-0.6$  | $\begin{array}{ c c c c c c c c c c c c c c c c c c c$   
  | Wind<br>Direction         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.01$ $0.18$ $\geq 20$ Normal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.10$ $0.18$ $-0.5$ $-0.6$ $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.01$ $0.5$ $-0.5$ $-0.6$ $a_{2}$ 10° $-1.3^{\circ}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.01$ $0.5$ $-0.5$ $-0.6$ $a_{10}$ $-1.3^{\circ}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{\circ}$ $0.0^{\circ}$ $0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$  |   |  |  |  |   |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Sec $L_p$ dge for<br>brallel $\leq 0.5$ 0 to $h/2$<br>h/2 to h $-0.9$ , $-0.18-0.9, -0.18           All \theta h to 2h -0.5, -0.18-0.5, -0.18 \geq 1.0 0 to h/2 -1.3^{\circ}, -0.18 \geq 1.0 0 to h/2 -1.3^{\circ}, -0.18           Wall Pressure Coefficients, C_p -0.5, -0.18           Surface         L/B C_p           Windward wall         All values         0.8 q_z           Leeward wall         2         -0.3 q_h$   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  
   
  | $\frac{1}{100} = \frac{1}{100} + \frac{1}$ | Normal $\leq 0.25$ $-0.7$ $-0.3$ $-0.2$ $0.0^{-1}$ to Ridge $-0.18$ $0.0^{0}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01$ $03$ $-0.5$ $-0.6$ for $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.3$ $-0.2$ $0.0^{0}$ $0.18$ $-0.18$ $0.0^{0}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.01$ $05$ $-0.5$ $-0.6$ $0.18$ $-0.18$ $0.0^{0}$ $0.2$ $0.2$ $0.2$ $0.3$ $0.01$ $0.16$ $-0.5$ $-0.6$ $0.18$ $0.18$ $0.18$ $0.0^{0}$ $0.2$ $0.2$ $0.2$ $0.3$ $0.01$ $0.7$ $0.6$ $0.6$ Wind Dimetion       Mt       Horizontal Distance from Windward Edge $C_p$ $-0.9$ , $-0.18$ $-0.9$ , $-0.18$ $-0.9$ , $-0.18$ $-0.9$ , $-0.18$ $-0.9$ , $-0.18$ $-0.5$ , $-0.3$ , $-0.18$ $-0.3$ , $-0.18$ $-0.5$ , $-0.3$ , $-0.18$ $-0.3$ , $-0.18$ $-0.7$ , $-0.18$ $-0.7$ , $-0.18$ $-0.7$ , $-0.18$ $-0.7$ , $-0.18$ $-0.7$ , $-0.18$ $-0.7$ , $-0.18$   
   
  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | $\frac{1}{2} 10^{9} \qquad -0.18 \qquad -0.18 \qquad 0.0^{4} \qquad 0.2 \qquad 0.2 \qquad 0.0 \qquad 0 \qquad $   
   | $ \underbrace{ \begin{array}{c cccccccccccccccccccccccccccccccccc$  
   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   
  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $\begin{array}{cccccccccccccccccccccccccccccccccccc$  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  
  | Numal $\leq 0.25$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e}$ o Ridge $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.3$ $0.4$ $0.4$ $0.01$ $-0.3$ $-0.5$ $-0.6$ or $0.5$ $-0.9$ $-0.7$ $-0.4$ $-0.2$ $0.0^{e}$ $0.0^{e}$ $0.01$ $-0.5$ $-0.6$ $h^{2}$ $10^{o}$ $-0.18$ $0.0^{e}$ $0.2$ $0.3$ $0.4$ $0.01$ $0.65$ $-0.5$ $-0.6$ $h^{2}$ $10^{o}$ $-1.3^{b}$ $-1.0$ $-0.7$ $-0.5$ $-0.3$ $-0.2$ $0.0^{e'}$ $h^{2}$ $0.18$ $0.18$ $0.0^{e'}$ $0.2$ $0.2$ $0.3$ $0.01$ $0.7$ $0.6$ $0.6$ Wind Direction       M       Horizontal Distance from Windward Edge $C_{p}$ $-0.9$ $-0.18$ $-0.9$ $-0.18$ $-0.9$ $-0.18$ $-0.9$ $-0.18$ $-0.5$ $-0.3$ $-0.3$ $-0.5$ $-0.3$ $-0.5$ $-0.5$ $-0.7$ $-0.18$ $-0.7$ $-0.7$  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  
  | Normal       50.25       -0.7       -0.5       -0.3       -0.2       -0.0"         to Ridge       -0.18       0.0"       0.2       0.3       0.3       0.4       0.01.9       -0.3       -0.5       -0.6         for       0.5       -0.9       -8.7       -0.4       -0.2       -0.2       0.0" $3 \ge 10^{9}$ -0.18       -0.18       0.0"       0.2       0.3       0.3       0.4       0.01.9       -0.5       -0.6 $2!.0$ -1.3"       -0.18       0.0"       0.2       0.2       0.3       0.01.9       -0.5       -0.6 $2!.0$ -1.3"       -1.0       -0.7       -0.5       -0.3       -0.2       0.0"       0.0       0.7       0.6       0.6         Wind Direction       bit       0.0"       0.2       0.2       0.3       0.01.9       0.7       0.6       0.6         Normal to Ridge for<br>$\theta < 10° and Parallel$   | $\begin{array}{c c c c c c c c c c c c c c c c c c c $   
   | Wind<br>Birection         h/L         10         15         20         25         30         35         45 $\geq 60^{\circ}$ 10         15 $\geq 20$ Nureal $\leq 0.25$ $-0.7$ $-0.5$ $-0.2$ $-0.2$ $-0.2$ $0.0^{or}$ $0.01 \ \theta$ $-0.3$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.2$ $0.0^{or}$ $-0.2$ $0.0^{or}$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.6$ $-0.5$ $-0.6$ $-0.5$ $-0.6$ $-0.6$ $-0.6$ $-0.5$ $-0.6$ $-0.7$   | Wind<br>Direction       h/L       10       15       20       25       30       35       45 $\geq 60^{\circ}$ 10       15 $\geq 20$ Normal<br>o Ridge       -0.18       0.07       0.2       0.3       0.3       0.4       0.4       0.01 $\theta$ -0.3       -0.5       -0.6         o Ridge       -0.18       0.07       0.2       0.3       0.3       0.4       0.4       0.01 $\theta$ -0.3       -0.5       -0.6         o r       0.5       -0.9       -0.7       -0.4       -0.3       -0.2       -0.2       0.07         10°       -1.18       -0.18       0.07       0.2       0.3       0.3       0.4       0.1 $\theta$ -0.5       -0.5       -0.6         21.0       -1.3 <sup>2</sup> -1.0       -0.7       -0.5       -0.3       -0.2       0.2       0.3       0.01 $\theta$ 0.7       0.6       0.6         Wind Direction       bd       Marizontal Distance from Windward Edge $C_p$ -0.9, -0.18       -0.5, -0.18       -0.5, -0.18       -0.5, -0.18       -0.5, -0.18       -0.5, -0.18       -0.5, -0.18       -0.5, -0.18       -0.7, -0.18       -0.7, -0.18       -0.7, -0.18       -0.7, -0.18       -0.7, -0.18   | Wind<br>Direction         h/L         10         15         20         25         30         35         45         260°         10         15         200           Numal<br>So Ridge<br>for         -0.7         -0.5         -0.3         -0.2         -0.0°         -0.0°         -0.5         -0.6           60 Ridge<br>for         0.5         -0.9         -0.7         -0.4         -0.3         -0.2         -0.0°         -0.6         -0.5         -0.6           10         118         -0.0°         0.2         0.3         0.3         0.4         0.010         -0.5         -0.6           10         -118         -0.18         0.0°         0.2         0.2         0.2         0.0°         -0.5         -0.6         -0.6           10         -1.18         -1.0         -0.7         -0.5         -0.3         -0.2         0.0°         0.19         0.7         0.6         0.6           Wind Direction         M         Mutrontel Distance from Windward Edge         Cp         -0.9, -0.18         -0.9, -0.18         -0.9, -0.18         -0.9, -0.18         -0.9, -0.18         -0.9, -0.18         -0.3, -0.18         -0.3, -0.18         -0.3, -0.18         -0.3, -0.18         -0.3, -0.18         -0.3, -0.1  |   |  |  |  |   |
| Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15  | h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   |   |   
   
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  |  |   
  | Normal $\leq 0.25$ -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>a</sup><br>to Ridge -0.18 0.0 <sup>a</sup> 0.7 0.3 0.3 0.4 0.4 0.010 -0.3 -0.5 -0.6   
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| Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15  | h/L 10 15 20 25 30 35 45 ≥60 <sup>e</sup> 10 15 ≥20   |   |   
   
  | 211°C-0101 11/12 10 10 20 25 d0 d5 45 ≥80° 10 15 ≥20   | Dirrection h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20  
   
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   | Vind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   | Mind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 >20   
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  | unección n/⊾ 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   | unrecum n/r. 10 15 20 25 30 35 45 ≥60° 10 15 ≥20  
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   | $\frac{1}{10000000000000000000000000000000000$  
  | inecuum n/r⊾ 10 15 20 25 30 35 45 ≥60° 10 15 ≥20  | nnection 1/μ. το το ∠ου Ζο 30 35 45 ≥60° 10 15 ≥20   |   
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| Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60 <sup>c</sup> 10 15  | h/L 10 15 20 25 30 35 45 ≥60 <sup>c</sup> 10 15 ≥20   |   |   
   
  | zirecuoni irj⊾ iu io ∠u ∠o du do 45 ≥60° 10 15 ≥20   | Direction h/L 10 15 20 25 30 35 45 ≥60 <sup>e</sup> 10 15 ≥20   
   
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  |   |  | Vind<br>Vinection h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   
   | Vind<br>)irrection h/L 10 15 20 25 30 35 45 ≥80° 10 15 ≥20  | Mind<br>Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15 >20   
   | Wind   |   | | | | |
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| Direction h/L 10 15 20 25 30 35 45 ≥60° 10 15  | h/L 10 15 20 25 30 35 45 ≥60° 10 15 ≥20   |   |   
   
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  | Normal $≤ 0.25$ -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>4</sup>  
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  | Angle, θ (degrees) Angle, θ (degrees)  |   |  |  |  |   |
| Wind<br>Direction h/L 10 15 20 25 30 35 45 ≥60 <sup>°</sup> 10 15  | h/L 10 15 20 25 30 35 45 ≥60 <sup>°</sup> 10 15 ≥20   |   |   
   
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  | Youndal ≤0.25 -0.7 -0.5 -0.3 -0.2 -0.2 0.0 <sup>d</sup>  
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Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         h/L = 0.80 All loads +/- 13.2 psf $p, Walls$ $L/B$ $L/B$ 0.43         1       16.32 psf         WW       2         2       -14.28 psf         3       = -10.20 psf         4       = -14.28 psf         SW $p_{Roof}$ 11       = -23.26 psf       Parallel         12       = -23.26 psf       Parallel         12       = -23.26 psf       Parallel         Building 1 Wind Loads - MWFRS Direction B       *         *ASCE 7-16 27.3-1         h/L       = 1.88 All loads +/-       13.2 psf         p.Roof       11       = -23.26 psf       Parallel         12       = -23.26 psf       Parallel       12         Building 1 Wind Loads - MWFRS Direction B       *       *       N/L         *ASCE 7-16 27.3-1       *       L/B       2.34       L         1       = -14.28 psf       SW       2       2       16.32 psf       WW         3       = -14.28 psf       SW       2       2       16.32 psf       SW     <	ite	Date	Designer		ilne	lla lima "			
Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1 $h/L = 0.80$ All loads +/-       13.2       psf $p,Walls$ $L/B = 0.43$ $1 = 16.32$ psf $L/B = 0.43$ $1 = 16.32$ psf       WW $2 = -14.28$ psf       SW $3 = -10.20$ psf       LW $4 = -14.28$ psf       SW $\underline{p,Roof}$ 11 $= -23.26$ psf       Parallel         12 $= -23.26$ psf       Parallel         Hall loads +/-       13.2       psf       SW         *ASCE 7-16 27.3-1 $h/L = 1.88$ SW $2 = 16.32$ psf         WW $3 = -14.28$ psf       SW $2 = 16.32$ psf       SW $2 = 16.32$ psf       SW $4 = -5.77$ psf       LW $4 = -5.77$ psf	02/22		SRO						
ROCK Crusner: Design Loads cont.         Building 1 Wind Loads - MWFRS Direction A         *ASCE 7-16 27.3-1         h/L = 0.80 All loads +/- 13.2 psf         p. Walls L/B = 0.43 1 = 16.32 psf WW 2 = -14.28 psf SW 3 = -10.20 psf LW 4 = -14.28 psf SW         D. Roof 11 = -23.26 psf Parallel 12 = -23.26 psf Parallel         Building 1 Wind Loads - MWFRS Direction B         *ASCE 7-16 27.3-1         h/L = 1.88 All loads +/- 13.2 psf         D. Walls L/B = 2.34 1 = -14.28 psf SW 2 = 16.32 psf WW 3 = -14.28 psf SW 4 = -5.77 psf LW         D. Roof 11 = -12.24 psf LW						<b>I</b> :	• •		
Building 1 Wind Loads - MWFRS Direction A *ASCE 7-16 27.3-1 h/L = 0.80 All loads +/- 13.2 psf p, Walls $L/B = 0.43$ $1 = 16.32 psf WW$ $2 = -14.28 psf SW$ $3 = -10.20 psf LW$ $4 = -14.28 psf SW$ $p, Roof$ $11 = -23.26 psf Parallel$ $12 = -23.26 psf Parallel$ Building 1 Wind Loads - MWFRS Direction B *ASCE 7-16 27.3-1 h/L = 1.88 All loads +/- 13.2 psf p, Walls $L/B = 2.34$ $1 = -14.28 psf SW$ $2 = 16.32 psf WW$ $3 = -14.28 psf SW$ $4 = -5.77 psf LW$			-		nt.	ads co	lign Loa	usher:	ROCK Cr
*ASCE 7-16 27.3-1 h/L = 0.80 All loads +/- 13.2 psf $p.Walls$ $L/B = 0.43$ $1 = 16.32 psf WW$ $2 = -14.28 psf SW$ $3 = -10.20 psf LW$ $4 = -14.28 psf SW$ $\frac{p.Roof}{11} = -23.26 psf Parallel$ $12 = -23.26 psf Parallel$ $\frac{Building 1 Wind Loads - MWFRS Direction B}{*ASCE 7-16 27.3-1}$ $h/L = 1.88$ All loads +/- 13.2 psf SW $\frac{p.Walls}{1} = -14.28 psf SW$ $\frac{p.Walls}{1} = -14.28 psf SW$ $\frac{p.Walls}{2} = 16.32 psf WW$ $3 = -14.28 psf SW$ $4 = -5.77 psf LW$					_	n A	RS Directio	ind Loads -	Building 1 W
$ \begin{array}{rcrcrcr} h/L &=& 0.80 \\ All \log s +/- & 13.2 & psf \end{array} \\ \hline p, Walls \\ l/B &=& 0.43 \\ 1 &=& 16.32 & psf & WW \\ 2 &=& -14.28 & psf & SW \\ 3 &=& -10.20 & psf & LW \\ 4 &=& -14.28 & psf & SW \\ \hline p, Roof \\ 11 &=& -23.26 & psf & Parallel \\ 12 &=& -23.26 & psf & Parallel \\ 12 &=& -23.26 & psf & Parallel \\ \hline mathbf{Ball} \\ \hline mathbf{Ball} \\ \hline mathbf{Ball} \\ \hline mathbf{Ascer7-16 27.3-1} \\ \hline h/L &=& 1.88 \\ All loads +/- & 13.2 & psf \\ \hline p, Walls \\ l/B &=& 2.34 \\ 1 &=& -14.28 & psf & SW \\ 2 &=& 16.32 & psf & SW \\ 2 &=& 16.32 & psf & SW \\ 3 &=& -14.28 & psf & SW \\ 4 &=& -5.77 & psf & LW \\ \hline \hline p, Roof \\ 11 &=& -12.24 & psf & LW \\ \hline \end{array} $					_			27.3-1	*ASCE 7-16 2
All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 0.43$ $\frac{1}{1} = 16.32 \text{ psf} WW$ $\frac{2}{2} = -14.28 \text{ psf} SW$ $\frac{3}{3} = -10.20 \text{ psf} LW$ $\frac{4}{4} = -14.28 \text{ psf} SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf} Parallel$ $\frac{12}{12} = -23.26 \text{ psf} Parallel$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $\frac{h/L}{1} = 1.88 \text{ All loads } +/- 13.2 \text{ psf}$ $\frac{p, Walls}{L/B} = 2.34 \text{ loads } +/- 13.2 \text{ psf}$ $\frac{p, Walls}{1} = -14.28 \text{ psf} SW$ $\frac{2}{2} = 16.32 \text{ psf} WW$ $\frac{3}{3} = -14.28 \text{ psf} SW$ $\frac{4}{3} = -5.77 \text{ psf} LW$						0.80	h/L =		
$\frac{p, Walls}{L/B} = 0.43$ $1 = 16.32 \text{ psf} WW$ $2 = -14.28 \text{ psf} SW$ $3 = -10.20 \text{ psf} LW$ $4 = -14.28 \text{ psf} SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf} Parallel$ $12 = -23.26 \text{ psf} Parallel$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $\frac{h/L}{1} = \frac{1.88}{All \log ds} + \frac{1}{13.2} \text{ psf}$ $\frac{p, Walls}{1} = -14.28 \text{ psf} SW$ $2 = 16.32 \text{ psf} WW$ $3 = -14.28 \text{ psf} SW$ $4 = -5.77 \text{ psf} LW$					psf	13.2	loads +/-		
$L/B = 0.43$ $1 = 16.32 \text{ psf}  WW$ $2 = -14.28 \text{ psf}  SW$ $3 = -10.20 \text{ psf}  LW$ $4 = -14.28 \text{ psf}  SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf}  Parallel$ $12 = -23.26 \text{ psf}  Parallel$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $h/L = 1.88 \text{ All loads +/-}  13.2 \text{ psf}$ $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 \text{ psf}  SW$ $2 = 16.32 \text{ psf}  WW$ $3 = -14.28 \text{ psf}  SW$ $\frac{p, Roof}{L} = -5.77 \text{ psf}  LW$							Walls		
$1 = 16.32 \text{ psf} WW$ $2 = -14.28 \text{ psf} SW$ $3 = -10.20 \text{ psf} LW$ $4 = -14.28 \text{ psf} SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf} Parallel$ $12 = -23.26 \text{ psf} Parallel$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $h/L = 1.88 \text{ All loads +/- 13.2 psf}$ $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 \text{ psf} SW$ $2 = 16.32 \text{ psf} WW$ $3 = -14.28 \text{ psf} SW$ $4 = -5.77 \text{ psf} LW$ $\frac{p, Roof}{11} = -12.24 \text{ psf} LW$						0.43	L/B =		
$2 = -14.28 \text{ psf} \qquad SW$ $3 = -10.20 \text{ psf} \qquad LW$ $4 = -14.28 \text{ psf} \qquad SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf} \qquad Parallel$ $12 = -23.26 \text{ psf} \qquad Parallel$ $\frac{Building 1 \text{ Wind Loads} - MWFRS \text{ Direction B}}{*ASCE 7-16 27.3-1}$ $h/L = 1.88 \text{ All loads } +/- 13.2 \text{ psf}$ $\frac{p, Walls}{1} = -14.28 \text{ psf} \qquad SW$ $2 = 16.32 \text{ psf} \qquad WW$ $3 = -14.28 \text{ psf} \qquad SW$ $4 = -5.77 \text{ psf} \qquad LW$				WW	psf	16.32	1 =		
$3 = -10.20 \text{ psf} \qquad LW$ $4 = -14.28 \text{ psf} \qquad SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf} \qquad Parallel$ $12 = -23.26 \text{ psf} \qquad Parallel$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $h/L = 1.88$ All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 \text{ psf} \qquad SW$ $2 = 16.32 \text{ psf} \qquad WW$ $3 = -14.28 \text{ psf} \qquad SW$ $4 = -5.77 \text{ psf} \qquad LW$				SW	psf	-14.28	2 =		
$\frac{4}{4} = -14.28 \text{ psf} \qquad SW$ $\frac{p, Roof}{11} = -23.26 \text{ psf} \qquad Parallel$ $12 = -23.26 \text{ psf} \qquad Parallel$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $\frac{h/L}{1} = 1.88 \text{ All loads +/-} 13.2 \text{ psf}$ $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 \text{ psf} \qquad SW$ $2 = 16.32 \text{ psf} \qquad WW$ $3 = -14.28 \text{ psf} \qquad SW$ $4 = -5.77 \text{ psf} \qquad LW$ $\frac{p, Roof}{11} = -12.24 \text{ psf} \qquad LW$				LW	psf	-10.20	3 =		
$\frac{p, Roof}{11} = -23.26 \text{ psf} Parallel}$ $\frac{p, Roof}{12} = -23.26 \text{ psf} Parallel}$ $\frac{Building 1 \text{ Wind Loads - MWFRS Direction B}}{*ASCE 7-16 27.3-1}$ $\frac{h/L}{I} = 1.88 \text{ All loads } +/- 13.2 \text{ psf}$ $\frac{p, Walls}{I} = -14.28 \text{ psf} SW$ $2 = 16.32 \text{ psf} WW$ $3 = -14.28 \text{ psf} SW$ $4 = -5.77 \text{ psf} LW$				SW	pst	-14.28	4 =		
$11 = -23.26 \text{ psf} \qquad \text{Parallel}$ $12 = -23.26 \text{ psf} \qquad \text{Parallel}$ $Building 1 \text{ Wind Loads - MWFRS Direction B}$ *ASCE 7-16 27.3-1 $h/L = 1.88$ All loads +/- 13.2 psf $\frac{p, \text{Walls}}{L/B} = 2.34$ $1 = -14.28 \text{ psf} \qquad \text{SW}$ $2 = 16.32 \text{ psf} \qquad \text{WW}$ $3 = -14.28 \text{ psf} \qquad \text{SW}$ $4 = -5.77 \text{ psf} \qquad \text{LW}$ $\frac{p, \text{Roof}}{11} = -12.24 \text{ psf} \qquad \text{LW}$							Roof		
$12 = -23.26 \text{ psf} \text{ Parallel}$ $\frac{\text{Building 1 Wind Loads - MWFRS Direction B}}{\text{*ASCE 7-16 27.3-1}}$ $\frac{h/L = 1.88}{\text{All loads +/-} 13.2 \text{ psf}}$ $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 \text{ psf} \text{ SW}$ $2 = 16.32 \text{ psf} \text{ WW}$ $3 = -14.28 \text{ psf} \text{ SW}$ $4 = -5.77 \text{ psf} \text{ LW}$ $\frac{p, Roof}{11} = -12.24 \text{ psf} \text{ LW}$				Parallel	psf	-23.26	11 =		
Building 1 Wind Loads - MWFRS Direction B *ASCE 7-16 27.3-1 h/L = 1.88 All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 psf$ $WW$ $3 = -14.28 psf$ $WW$ $3 = -14.28 psf$ $WW$ $\frac{p, Roof}{11} = -12.24 psf$ $LW$				Parallel	psf	-23.26	12 =		
*ASCE 7-16 27.3-1 h/L = 1.88 All loads +/- 13.2 psf p, Walls L/B = 2.34 1 = -14.28 psf SW 2 = 16.32 psf WW 3 = -14.28 psf SW 4 = -5.77 psf LW p, Roof 11 = -12.24 psf LW					_	n B	RS Directio	ind Loads -	Building 1 W
$h/L = 1.88$ All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 psf SW$ $2 = 16.32 psf WW$ $3 = -14.28 psf SW$ $4 = -5.77 psf LW$ $\frac{p, Roof}{11} = -12.24 psf LW$								27.3-1	*ASCE 7-16 2
All loads +/- 13.2 psf $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$						1.88	h/L =		
$\frac{p, Walls}{L/B} = 2.34$ $1 = -14.28 \text{ psf}  SW$ $2 = 16.32 \text{ psf}  WW$ $3 = -14.28 \text{ psf}  SW$ $4 = -5.77 \text{ psf}  LW$ $\frac{p, Roof}{11} = -12.24 \text{ psf}  LW$					psf	13.2	loads +/-		
$L/B = 2.34$ $1 = -14.28 \text{ psf}  SW$ $2 = 16.32 \text{ psf}  WW$ $3 = -14.28 \text{ psf}  SW$ $4 = -5.77 \text{ psf}  LW$ $\frac{p, Roof}{11} = -12.24 \text{ psf}  LW$							Walls		
$ \begin{array}{rcrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$						2.34	L/B =		
$2 = 16.32 \text{ psf} WW$ $3 = -14.28 \text{ psf} SW$ $4 = -5.77 \text{ psf} LW$ $\underline{p, Roof}$ $11 = -12.24 \text{ psf} LW$				SW	psf	-14.28	1 =		
3 = -14.28 psf SW 4 = -5.77 psf LW <u>p, Roof</u> 11 = -12.24 psf LW				WW	psf	16.32	2 =		
4 = -5.77 psf LW <u>p, Roof</u> 11 = -12.24 psf LW				SW	psf	-14.28	3 =		
<u>p, Roof</u> 11 = -12.24 psf LW				LW	psf	-5.77	4 =		
11 = -12.24 psf LW							Roof		
_				LW	psf	-12.24	11 =		
12 = 6.94 psf WW				WW	psf	6.94	12 =		

					Designer	Date
	Hurst	ville Lime I	Kilns		SRO	02/22
Rock Cr	usher: Design Lo	bads co	ont.		_	
Building 1 W	/ind Loads - MWFRS Direct	ion C	_			
*ASCE 7-16	27.3-1					
	h/L =	0.80				
	All loads +/-	13.2	psf			
	p, Walls					
	L/B =	0.43				
	1 =	-10.20	psf	LW		
	2 =	-14.28	pst	SW		
	3 =	10.32	pst			
	4 =	-14.20	psi	200		
	<u>p, Roof</u>					
	11 =	-23.26	pst	Parallel		
	12 =	-23.26	pst	Parallel		
Building 1 W	/ind Loads - MWFRS Direct	ion D	_			
*ASCE 7-16	27.3-1					
	h/L =	1.88				
	All loads +/-	13.2	psf			
	<u>p, Walls</u>					
	L/B =	2.34				
	1 =	-14.28	psf	SW		
	2 =	-5.77	psf	LW		
	3 =	-14.28	psf	SW		
	4 =	16.32	psf	WW		
	<u>p, Roof</u>					
	11 =	6.94	psf	WW		
	12 =	-12.24	psf	LW		

I					Designer	Date
	Hurst	ville Lime I	Kilns		SRO	02/22
Rock Crusher:	Design Lo	bads co	ont.		_	
Building 2 Wind Loads	- MWERS Direct	ion A				
*ASCE 7-16 27.3-1			_			
	h/L =	1.94				
	All loads +/-	13.2	pst			
	p, Walls					
	L/B =	1.16				
	6 =	16.32	psf	WW		
	7 =	-14.28	psf	SW		
	8 =	-9.54	psf	LW		
	5 =	-14.28	psf	SW		
	p. Roof					
	13 =	-26.52	psf	Parallel		
	14 =	-26.52	psf	Parallel		
*ASCE 7-16 27.3-1	- WWFRS Direct					
	h/L =	1.67				
	All loads +/-	13.2	psf			
	n Walls					
	<u>b, wans</u> L/B =	0.86				
	6 =	-14.28	psf	SW		
	7 =	16.32	psf	WW		
	8 =	-14.28	psf	SW		
	5 =	-10.20	psf	LW		
	n Roof					
	13 =	-12.24	psf	LW		
	14 =	6.12	psf	WW		
			-			

Hurstville Lime Klins         SRO         02/2           Rock Crusher: Design Loads cont.           hulding 2 Wind Loads - MWFRS Direction C           ASCE 7-16 27.3-1 $h/L = 1.94$ All loads +/-         13.2         psf $y/B = 1.16$ 6         -9.54         psf $y/B = 1.16$ 6         -9.54         psf $y/B = 1.12$ psf         LW $7 = -14.28$ psf         SW $8 = 16.32$ psf         WW $5 = -14.28$ psf         SW $\frac{p_{\mu}Roof}{13} = -26.52$ psf         Parallel           wilding 2 Wind Loads - MWFRS Direction D           ASCE 7-16 27.3-1           h/L = 1.67           All loads +/- 13.2         psf $y/B = 0.86$ 6         -14.28         psf $y/B = 0.10.20$ psf         SW $7 = -10.20$ psf         SW $7 = -10.20$ psf         SW           Supprime to the set of the s				<i>(</i> )		Designer	Date
Acc Crusher: Design Loads cont.         Autiling 2 Wind Loads - MWFRS Direction C         Acc 7 16 27.31 $h/L = 1.94$ $h/L = 1.94$ All loads +/- $13.2$ $p/Walls$ $L/B = 1.16$ $6 = -9.54$ $6 = -9.54$ $7 = -14.28$ $p/Walls$ $L/B = -16.22$ $5 = -14.28$ $p/Societariesian         D/L = -26.52 p f = 1.67 13 = -26.52 p f = 1.67 All loads +/ Acc 7 - 16 27.31 $		Hurstv				SRO	02/22
KOCK Crusner: Design LOAGS CONT.building 2 Wind Loads - MWFRS Direction C ASCE 7-16 27.3-1 $A   I   loads + /- 13.2 psf$ $p, WallsUB = 1.166 = -9.44 psf LW7 = -14.28 psf SW8 = 16.32 psf WW5 = -14.28 psf SWp, Roof13 = -26.52 psf Parallel14 = -26.52 psf Parallel14 = -26.52 psf Paralleltuilding 2 Wind Loads - MWFRS Direction DASCE 7-16 27.3-1h/L = 1.67All loads +/- 13.2 psfP, WallsUB = 0.866 = -14.28 psf SWP, WallsUB = 0.366 = -14.28 psf SWP, WallsUB = 0.366 = -14.28 psf SWP, WallsUB = 0.366 = -14.28 psf SWP, Roof13 = 6.12 psf WWP, Roof13 = 6.12 psf WWP, Roof13 = 6.12 psf WWA = -12.24 psf WW$							
$\frac{\text{hullding 2 Wind Loads - MWFRS Direction C}{\text{ASCE 7-16 27.3-1}}$ $\frac{\text{h/L} = 1.94}{\text{All loads +/-} 13.2 \text{ psf}}$ $\frac{\text{p. Walls}}{\text{L/B}} = 1.16$ $6 = -9.54 \text{ psf} \text{ LW}$ $7 = -14.28 \text{ psf} \text{ SW}$ $8 = 16.32 \text{ psf} \text{ WW}$ $5 = -14.28 \text{ psf} \text{ SW}$ $\frac{\text{p. Roof}}{13} = -26.52 \text{ psf} \text{ Parallel}$ $\frac{\text{p. Walls}}{14} = -26.52 \text{ psf} \text{ Parallel}$ $\frac{\text{p. Walls}}{\text{All loads +/-} 13.2 \text{ psf}}$ $\frac{\text{p. Walls}}{\text{All loads +/-} 13.2 \text{ psf}}$ $\frac{\text{p. Walls}}{14} = -26.52 \text{ psf} \text{ SW}$ $\frac{\text{p. Roof}}{13} = -26.52 \text{ psf} \text{ Parallel}$	ROCK Cr	usner: Design Lo	ads co	ont.		_	
ASCE 7-16 27.3-1 h/L = 1.94 All loads +/- 13.2 psf p, Walls $l/B = 1.16$ $6 = -9.54$ psf LW 7 = -14.28 psf SW 8 = 16.32 psf WW 5 = -14.28 psf SW p, Roof 13 = -26.52 psf Parallel 14 = -26.52 psf Parallel 14 = -26.52 psf VWH ASCE 7-16 27.3-1 h/L = 1.67 All loads +/- 13.2 psf p, Walls $l/B = 0.86$ $6 = -14.28 psf SW 7 = -10.20 psf LW 8 = -14.28 psf SW 5 = 16.32 psf WW 3 = -14.28 psf SW 7 = -10.20 psf LW 8 = -14.28 psf SW 5 = 16.32 psf WW 14 = -12.24 psf LW$	Building 2 W	/ind Loads - MWFRS Direction	on C				
$h/L = 1.94$ All loads +/- 13.2 psf $\frac{p, Walls}{l/B} = 1.16$ 6 = -9.54 psf LW 7 = -14.28 psf SW 8 = 16.32 psf WW 5 = -14.28 psf SW $\frac{p, Roof}{13} = -26.52 psf Parallel$ 14 = -26.52 psf Parallel 14 = -26.52 psf Parallel wilding 2 Wind Loads - MWFRS Direction D ASCE 7-16 27.3-1 $h/L = 1.67$ All loads +/- 13.2 psf $\frac{p, Walls}{l/B} = 0.86$ 6 = -14.28 psf SW 7 = -10.20 psf LW 8 = -14.28 psf SW 5 = 16.32 psf WW 14 = -12.24 psf LW	*ASCE 7-16	27.3-1		_			
All loads +/- 13.2 psf $\frac{p, Walls}{L/8} = 1.16$ $6 = -9.54 psf LW$ $7 = -14.28 psf SW$ $8 = 16.32 psf WW$ $5 = -14.28 psf SW$ $\frac{p, Roof}{13} = -26.52 psf Parallel$ $14 = -26.52 psf Parallel$ $\frac{14}{14} = -22.24 psf WW$ $\frac{14}{14} = -12.24 psf LW$		h/L =	1.94				
$\frac{p, Walls}{L/B} = 1.16$ $6 = -9.54 \text{ psf} LW$ $7 = -14.28 \text{ psf} SW$ $8 = 16.32 \text{ psf} WW$ $5 = -14.28 \text{ psf} SW$ $\frac{p, Roof}{13} = -26.52 \text{ psf} Parallel$ $14 = -26.52 \text{ psf} Parallel$ $\frac{14}{14} = -22.24 \text{ psf} Parallel$		All loads +/-	13.2	psf			
$\frac{p, \text{ Value}}{L/B} = 1.16$ $6 = -9.54 \text{ psf}  LW$ $7 = -14.28 \text{ psf}  SW$ $8 = 16.32 \text{ psf}  WW$ $5 = -14.28 \text{ psf}  SW$ $\frac{p, \text{Roof}}{13} = -26.52 \text{ psf}  Parallel$ $14 = -26.52 \text{ psf}  Parallel$ $\frac{14}{14} = -167 \text{ psf}  LW$ $\frac{14}{14} = -12.24 \text{ psf}  LW$		n Walls					
$6 = -9.54 \text{ psf} \qquad LW$ $7 = -14.28 \text{ psf} \qquad SW$ $8 = 16.32 \text{ psf} \qquad WW$ $5 = -14.28 \text{ psf} \qquad SW$ $\frac{p, Roof}{13} = -26.52 \text{ psf} \qquad Parallel$ $14 = -26.52 \text{ psf} \qquad Parallel$ $\frac{14}{14} = -26.52 \text{ psf} \qquad WW$		<u>p, vvans</u> L/B =	1.16				
$7 = -14.28 \text{ psf} \qquad SW$ $8 = 16.32 \text{ psf} \qquad WW$ $5 = -14.28 \text{ psf} \qquad SW$ $\frac{p, Roof}{13} = -26.52 \text{ psf} \qquad Parallel$ $14 = -26.52 \text{ psf} \qquad Parallel$ $\frac{14}{14} = -26.52 \text{ psf} \qquad Parallel$ $\frac{16}{14} = -26.52 \text{ psf} \qquad Parallel$ $\frac{14}{14} = -26.52 \text{ psf} \qquad Parallel$ $\frac{16}{14} = -26.52 \text{ psf} \qquad SW$ $\frac{16}{14} = -26.52 \text{ psf} \qquad SW$ $\frac{16}{14} = -26.52 \text{ psf} \qquad WW$ $\frac{16}{14} = -12.24 \text{ psf} \qquad WW$		6 =	-9.54	psf	LW		
$8 = 16.32 \text{ psf} WW$ $5 = -14.28 \text{ psf} SW$ $\frac{p, Roof}{13} = -26.52 \text{ psf} Parallel$ $14 = -26.52 \text{ psf} Parallel$ $\frac{14}{14} = -26.52 \text{ psf} Parallel$ $\frac{16}{14} = -26.52  p$		7 =	-14.28	psf	SW		
$5 = -14.28 \text{ psf} \qquad SW$ $\frac{p, Roof}{13} = -26.52 \text{ psf} \qquad Parallel$ $14 = -26.52 \text{ psf} \qquad Parallel$ $\frac{14}{14} = -167 \text{ psf} \qquad Parallel$ $\frac{1}{14} = -12.24 \text{ psf} \qquad SW$ $\frac{p, Roof}{14} = -12.24 \text{ psf} \qquad WW$		8 =	16.32	psf	WW		
$\frac{p, Roof}{13} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{13}{14} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{14}{14} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{14}{14} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{14}{14} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{16}{14} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{16}{14} = -26.52 \text{ psf} \qquad Parallel}$ $\frac{16}{14} = -16.7 \text{ psf} \qquad Parallel}$ $\frac{16}{14} = -12.24 \text{ psf} \qquad Parallel}$		5 =	-14.28	psf	SW		
13 = -26.52  psf Parallel $14 = -26.52  psf$ Parallel Paralle Parallel Paralle Parallel Paralle Parallel Paralle Paralle Parallel Parallel Parallel Paralle Parallel Parallel		<u>p, Roof</u>					
14 = -26.52  psf Parallel Building 2 Wind Loads - MWFRS Direction D ASCE 7-16 27.3-1 h/L = 1.67 All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 0.86$ $6 = -14.28 \text{ psf}$ SW 7 = -10.20  psf LW 8 = -14.28  psf SW 5 = 16.32  psf WW $\frac{p, Roof}{13} = 6.12 \text{ psf}$ WW 14 = -12.24  psf LW		13 =	-26.52	psf	Parallel		
Building 2 Wind Loads - MWFRS Direction DASCE 7-16 27.3-1 $h/L = 1.67$ All loads +/- $n/L = 1.67$ All loads +/- $p, Walls$ $L/B = 0.86$ $6 = -14.28$ psf $W = -14.28$ $7 = -10.20$ psf $V = -10.20$ psf $V = -10.20$ psf $SW = -14.28$ psf <t< td=""><td></td><td>14 =</td><td>-26.52</td><td>psf</td><td>Parallel</td><td></td><td></td></t<>		14 =	-26.52	psf	Parallel		
ASCE 7-16 27.3-1 h/L = 1.67 All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 0.86$ 6 = -14.28 psf SW 7 = -10.20 psf LW 8 = -14.28 psf SW 5 = 16.32 psf WW $\frac{p, Roof}{13} = 6.12 psf WW$ 14 = -12.24 psf LW	Building 2 W	ind Loads - MWFRS Direction	on D	_			
$h/L = 1.67$ All loads +/- 13.2 psf $\frac{p, Walls}{L/B} = 0.86$ $6 = -14.28 psf SW$ $7 = -10.20 psf LW$ $8 = -14.28 psf SW$ $5 = 16.32 psf WW$ $\frac{p, Roof}{13} = 6.12 psf WW$ $14 = -12.24 psf LW$	*ASCE 7-16 2	27.3-1					
All loads +/- 13.2 psf $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		h/L =	1.67				
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		All loads +/-	13.2	psf			
$L/B = 0.86$ $6 = -14.28 \text{ psf}  SW$ $7 = -10.20 \text{ psf}  LW$ $8 = -14.28 \text{ psf}  SW$ $5 = 16.32 \text{ psf}  WW$ $\frac{p, Roof}{13} = 6.12 \text{ psf}  WW$ $14 = -12.24 \text{ psf}  LW$		<u>p, Walls</u>					
$6 = -14.28 \text{ psf} \qquad SW \\7 = -10.20 \text{ psf} \qquad LW \\8 = -14.28 \text{ psf} \qquad SW \\5 = 16.32 \text{ psf} \qquad WW \\\frac{p, Roof}{13} = 6.12 \text{ psf} \qquad WW \\14 = -12.24 \text{ psf} \qquad LW $		L/B =	0.86				
$7 = -10.20 \text{ psf} \qquad LW$ $8 = -14.28 \text{ psf} \qquad SW$ $5 = 16.32 \text{ psf} \qquad WW$ $\frac{p, Roof}{13} = 6.12 \text{ psf} \qquad WW$ $14 = -12.24 \text{ psf} \qquad LW$		6 =	-14.28	psf	SW		
8 = -14.28 psf SW 5 = 16.32 psf WW <u>p, Roof</u> 13 = 6.12 psf WW 14 = -12.24 psf LW		7 =	-10.20	psf	LW		
5 = 16.32 psf WW <u>p, Roof</u> 13 = 6.12 psf WW 14 = -12.24 psf LW		8 =	-14.28	psf	SW		
<u>p, Roof</u> 13 = 6.12 psf WW 14 = -12.24 psf LW		5 =	16.32	psf	WW		
13 = 6.12 psf WW 14 = -12.24 psf LW		<u>p, Roof</u>					
14 = -12.24 psf LW		13 =	6.12	psf	WW		
		14 =	-12.24	psf	LW		

					Designer	Date
	Hurstv	ille Lime H	Kilns		SRO	02/2
Rock Cr	usher: Design Lo	ads co	ont.		_	
Connection	Path Wind Loads - MWERS I	Direction	۵			
*ASCE 7-16	27.3-1		<u></u>			
	h/L =	1.50				
	All loads +/-	13.2	psf			
	p, Walls					
	L/B =	0.53				
	9 = 10 -	16.32	pst psf	WW		
	10 -	-10.20	<b>P</b> 31	LVV		
	<u>p, Roof</u>					
	15 =	6.12	psf pcf	WW		
	10 -	-12.24	hai	LVV		
Connection	Path Wind Loads - MWFRS I	Direction	B			
ASCE 7-10	27.3-1					
	h/L =	0.80				
	All loads +/-	13.2	psf			
	<u>p, Roof</u>					
	15 =	-23.26	psf	Parallel		
	16 =	-23.26	psf	Parallel		

					Designer	Date
	Hurstv	ille Lime I	Kilns		SRO	02/2
Rock Cru	usher: Design Lo	ads co	ont.			
Connection P	ath Wind Loads - MWERS I	Direction	c			
*ASCE 7-16 2	7.3-1		<u> </u>			
	h/L =	1.50				
	All loads +/-	13.2	psf			
	<u>p, Walls</u>					
	L/B =	0.53		1.1.47		
	9 = 10 =	-10.20 16.32	psr psf	LVV WW		
	<u>p, Roof</u> 15 =	-12.24	psf	LW		
	16 =	6.12	psf	WW		
Connection P	ath Wind Loads - MWFRS I	Direction	D			
*ASCE 7-16 2	7.3-1		_			
	h/L =	0.80				
	All loads +/-	13.2	psf			
	<u>p, Roof</u>					
	15 = 16 -	-23.26	psf psf	Parallel		
	10 -	-23.20	hai	Parallel		

						Designer	Date
		Hu	rstville Lime K	ilns		SRO	02/22
Kiln Plat Wind Loads - *ASCE 7-16 C	C&C Roof Ch. 30, part Velocity p	Design   1 ressure, g,	Loads co = 24	nt.		-	
	Gust effec	et factor, G	= 0.85	θ			
GCp Roof (an	PLAN	5 45 degrees	   ELE	B VATION			
GCp Roof (an Effective Wind Area	plan	o 45 degrees	[   5) 2n	B VATION	Зе	3r	
GCp Roof (an Effective Wind Area 1	ngle of 27 to 1.8	0 45 degrees 2e -1.8	∫ = <u>5)</u> 2n −2	2r -1.8	<b>3e</b> -3.2	<b>3r</b> -2	
GCp Roof (an Effective Wind Area 1	PLAN plan 1 -1.8 -1.8	2e -1.8 -1.8	[  → ELE 5) 2n -2 -2 -2	2r -1.8 -1.8	<b>3e</b> -3.2 -2.5	<b>3r</b> -2 -2	
GCp Roof (an Effective Wind Area 1 10 20	ngle of 27 to 1 -1.8 -1.8 -1.5	2e -1.8 -1.8 -1.5	5) 2n -2 -2 -1.8	<b>2</b> r -1.8 -1.8 -1.5	<b>3e</b> -3.2 -2.5 -2.2	<b>3r</b> -2 -2 -1.8	
GCp Roof (ar Effective Wind Area 1 10 20 50	1 -1.8 -1.8 -1.5 -1.1	2e -1.8 -1.8 -1.5 -1.1 0.2	5) 2n -2 -2 -1.8 -1.5 1 2	<b>2</b> r -1.8 -1.8 -1.5 -1.1	<b>3e</b> -3.2 -2.5 -2.2 -1.8	<b>3r</b> -2 -2 -1.8 -1.5	
GCp Roof (an Effective Wind Area 1 10 20 50 100	■ gle of 27 to PLAN 1 -1.8 -1.8 -1.5 -1.1 -0.8	2e -1.8 -1.8 -1.5 -1.1 -0.8	5) 2n -2 -2 -1.8 -1.5 -1.2	<b>2r</b> -1.8 -1.8 -1.5 -1.1 -0.8	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5	<b>3r</b> -2 -2 -1.8 -1.5 -1.2	
GCp Roof (an Effective Wind Area 1 10 20 50 100 p (psf) Roof	■ PLAN PLAN 1 -1.8 -1.8 -1.8 -1.5 -1.1 -0.8	2e -1.8 -1.8 -1.5 -1.1 -0.8	5) 2n -2 -2 -1.8 -1.5 -1.2	<b>2</b> r -1.8 -1.8 -1.5 -1.1 -0.8	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5	<b>3r</b> -2 -2 -1.8 -1.5 -1.2	
GCp Roof (an Effective Wind Area 1 10 20 50 100 p (psf) Roof Effective	ngle of 27 to 1 -1.8 -1.8 -1.5 -1.1 -0.8	2e -1.8 -1.8 -1.5 -1.1 -0.8	5) 2n -2 -2 -1.8 -1.5 -1.2	<b>2</b> r -1.8 -1.8 -1.5 -1.1 -0.8	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5	<b>3r</b> -2 -2 -1.8 -1.5 -1.2	
GCp Roof (an Effective Wind Area 1 10 20 50 100 p (psf) Roof Effective Wind Area	■ PLAN PLAN 1 -1.8 -1.8 -1.5 -1.1 -0.8	2e -1.8 -1.8 -1.5 -1.1 -0.8 2e	5) 2n -2 -2 -1.8 -1.5 -1.2 2n	2r -1.8 -1.8 -1.5 -1.1 -0.8	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5	<b>3r</b> -2 -1.8 -1.5 -1.2 <b>3r</b>	
GCp Roof (an Effective Wind Area 1 10 20 50 100 p (psf) Roof Effective Wind Area 1	ngle of 27 to 1 -1.8 -1.8 -1.5 -1.1 -0.8 1 -43.20	2e -1.8 -1.8 -1.5 -1.1 -0.8 2e -43.20	5) 2n -2 -2 -1.8 -1.5 -1.2 2n -48.00	2r -1.8 -1.8 -1.5 -1.1 -0.8 2r -43.20	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5 <b>3e</b> -76.80	<b>3r</b> -2 -1.8 -1.5 -1.2 <b>3r</b> -48.00	+/- 13.20
GCp Roof (and Effective Wind Area 1 10 20 50 100 p (psf) Roof Effective Wind Area 1 10 100	ngle of 27 to 1 -1.8 -1.8 -1.5 -1.1 -0.8 1 -43.20 -43.20	2e -1.8 -1.8 -1.8 -1.5 -1.1 -0.8 2e -43.20 -43.20	5) 2n -2 -2 -1.8 -1.5 -1.2 2n -48.00 -48.00 -48.00	2r -1.8 -1.8 -1.5 -1.1 -0.8 2r -43.20 -43.20	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5 <b>3e</b> -76.80 -60.00	<b>3r</b> -2 -2 -1.8 -1.5 -1.2 <b>3r</b> -48.00 -48.00	+/- 13.20 +/- 13.20
GCp Roof (an Effective Wind Area 1 10 20 50 100 p (psf) Roof Effective Wind Area 1 10 20 50 100	ngle of 27 to 1 -1.8 -1.8 -1.8 -1.5 -1.1 -0.8 1 -43.20 -43.20 -43.20 -36.00	2e -1.8 -1.8 -1.5 -1.1 -0.8 2e -43.20 -43.20 -43.20 -36.00	5) 2n -2 -2 -1.8 -1.5 -1.2 2n -48.00 -48.00 -48.00 -43.20	2r -1.8 -1.8 -1.5 -1.1 -0.8 2r -43.20 -43.20 -43.20 -36.00	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5 <b>3e</b> -76.80 -60.00 -52.80	<b>3r</b> -2 -1.8 -1.5 -1.2 <b>3r</b> -48.00 -48.00 -43.20	+/- 13.20 +/- 13.20 +/- 13.20
GCp Roof (and Effective Wind Area 1 10 20 50 100 p (psf) Roof Effective Wind Area 1 10 20 50 100	PLAN agle of 27 to 1 -1.8 -1.8 -1.5 -1.1 -0.8 1 -43.20 -43.20 -36.00 -26.40	2e -1.8 -1.8 -1.8 -1.5 -1.1 -0.8 2e -43.20 -43.20 -43.20 -43.20 -26.40	5) 2n -2 -2 -1.8 -1.5 -1.2 2n -48.00 -48.00 -48.00 -48.00 -43.20 -36.00	2r -1.8 -1.8 -1.5 -1.1 -0.8 2r -43.20 -43.20 -43.20 -36.00 -26.40	<b>3e</b> -3.2 -2.5 -2.2 -1.8 -1.5 <b>3e</b> -76.80 -60.00 -52.80 -43.20	<b>3r</b> -2 -2 -1.8 -1.5 -1.2 <b>3r</b> -48.00 -48.00 -43.20 -36.00	+/- 13.20 +/- 13.20 +/- 13.20 +/- 13.20

Hurstville Lime Kilns         SRO         02/22           Kiln Platform: Design Loads cont.           Wind Loads - C&C Walls           *ASCE 7-16 Ch. 30, part 1           OF Walls           *ASCE 7-16 Ch. 30, part 1           OF Walls           Effective           Wind Area         -4         -5         + 485           1         -1.1         -1.4         1           20         -1.05         -1.3         0.9           50         -1         -1.15         0.85           10         -1.1         -1.4         1           20         -1.05         -1.3         0.9           50         -1         -1.15         0.85           200         -0.9         -0.95         0.8           200         -0.9         -0.95         0.8           500         -0.8         0.7						Designer	Date
$\frac{\text{Kiln Platform: Design Loads cont.}}{\text{Wind Loads - C&C Walls}}$ *ASCE 7-16 Ch. 30, part 1 $\frac{\text{GCp Walls}}{\text{*ASCE 7-16 Ch. 30, part 1}}$ GCp Walls Effective Wind Area 4 5 + 4&5 1 -1.1 -1.4 1 20 -1.05 -1.3 0.9 50 -1 -1.1 5 0.85 200 -0.9 -0.95 0.8 500 -0.8 -0.8 0.7 p.Walls Effective Wind Area 4 -5 + 4&5 1 0 -1.1 5 0.8 200 -0.9 0.95 0.8 500 -0.8 0.8 0.7 p.Walls Effective Wind Area 4 -5 + 4&5 1 0 -26.40 -33.60 24.00 psf +/- 13.20 10 -26.40 -33.60 24.00 psf +/- 13.20 20 -25.20 -31.20 21.60 psf +/- 13.20 50 -24.00 -27.60 20.40 psf +/- 13.20 10 -26.40 -32.80 19.20 psf +/- 13.20 20 -21.60 -22.80 19.20 psf +/- 13.20 20 -21.60			Hur	stville Lime Kilns		SRO	02/22
Yind Loads - C&C Walls         *ASCE 7-16 Ch. 30, part 1         Image: Comparing the second	Kiln Plat	form: D	esign L	oads cont.		_	
Term of the second sec	Wind Loads - *ASCE 7-16 C	C&C Walls Ch. 30, part 1					
Term of the term of the term of te							
Seffective         Wind Area       -4       -5       + 4&5         1       -1.1       -1.4       1         10       -1.1       -1.4       1         20       -1.05       -1.3       0.9         50       -1       -1.15       0.85         100       -0.95       -1.5       0.8         200       -0.9       -0.95       0.8         200       -0.9       -0.95       0.8         200       -0.8       0.7         Effective         Wind Area       -4       -5       + 4&5         1       -26.40       -33.60       24.00 psf       +/-       13.20         10       -26.40       -33.60       24.00 psf       +/-       13.20       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20<			ele	I I I I I I I I I I I I I I I I I I I			
Effective	GCp Walls						
Wind Area       -4       -5       + 4&5         1       -1.1       -1.4       1         10       -1.1       -1.4       1         20       -1.05       -1.3       0.9         50       -1       -1.15       0.85         100       -0.95       -1.5       0.8         200       -0.9       -0.95       0.8         500       -0.8       -0.7         P. Walls       Effective	Effective						
1       -1.1       -1.4       1         10       -1.1       -1.4       1         20       -1.05       -1.3       0.9         50       -1       -1.15       0.85         100       -0.95       -1.5       0.8         200       -0.9       -0.95       0.8         500       -0.8       0.7         p. Walls       -0.8       0.7         Effective         Wind Area       -4       -5       +485         1       -26.40       -33.60       24.00 psf       +/-       13.20         10       -26.40       -33.60       24.00 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         20       -25.20       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -19.20       -19.20       16.80 psf       +/-	Wind Area	-4	-5	+ 4&5			
10       -1.1       -1.4       1         20       -1.05       -1.3       0.9         50       -1       -1.15       0.85         100       -0.95       -1.5       0.8         200       -0.9       -0.95       0.8         500       -0.8       -0.7         P. Walls         Effective         Wind Area       -4       -5       + 4&5         1       -26.40       -33.60       24.00 psf       +/-       13.20         10       -26.40       -33.60       24.00 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         20       -22.80       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -19.20       -19.20       16.80 psf       +/-       13.20	1	-1.1	-1.4	1			
20       -1.05       -1.3       0.9         50       -1       -1.15       0.85         100       -0.95       -1.5       0.8         200       -0.9       -0.95       0.8         500       -0.8       -0.8       0.7         p, Walls       -0.8       -0.8       0.7         Effective         Wind Area       -4       -5       + 4&5         1       -26.40       -33.60       24.00 psf       +/-       13.20         10       -26.40       -33.60       24.00 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         50       -24.00       -27.60       20.40 psf       +/-       13.20         50       -24.00       -27.60       20.40 psf       +/-       13.20         100       -22.80       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         500       -19.20       -19.20       16.80 psf       +/-	10	-1.1	-1.4	1			
30       -1       -1.13       0.83         100       -0.95       -1.5       0.8         200       -0.9       -0.95       0.8         500       -0.8       -0.8       0.7         p. Walls       Effective         Wind Area       -4       -5       + 4&5         1       -26.40       -33.60       24.00 psf       +/-         10       -26.40       -33.60       24.00 psf       +/-         20       -25.20       -31.20       21.60 psf       +/-         20       -25.20       -31.20       21.60 psf       +/-         50       -24.00       -27.60       20.40 psf       +/-         100       -22.80       -36.00       19.20 psf       +/-         100       -22.80       -36.00       19.20 psf       +/-         13.20       100       -22.80       -36.00       19.20 psf       +/-         100       -22.80       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         500       -19.20       -19.20       16.80 psf       +/-       13.20	20	-1.05	-1.3 1 15	0.9			
200       -0.9       -0.95       0.8         500       -0.8       -0.8       0.7         p, Walls         Effective         Wind Area       -4       -5       + 4&5         1       -26.40       -33.60       24.00 psf       +/-       13.20         10       -26.40       -33.60       24.00 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         50       -24.00       -27.60       20.40 psf       +/-       13.20         100       -22.80       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         500       -19.20       -19.20       16.80 psf       +/-       13.20	30 100	-0.95	-1.15	0.85			
500       -0.8       -0.8       0.7         p, Walls       Effective	200	-0.9	-0.95	0.8			
p, Walls         Effective         Wind Area       -4       -5       + 4&5         1       -26.40       -33.60       24.00 psf       +/-       13.20         10       -26.40       -33.60       24.00 psf       +/-       13.20         20       -25.20       -31.20       21.60 psf       +/-       13.20         50       -24.00       -27.60       20.40 psf       +/-       13.20         100       -22.80       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         200       -19.20       -19.20       16.80 psf       +/-       13.20	500	-0.8	-0.8	0.7			
EffectiveWind Area-4-5+4&51-26.40-33.6024.00 psf+/-13.2010-26.40-33.6024.00 psf+/-13.2020-25.20-31.2021.60 psf+/-13.2050-24.00-27.6020.40 psf+/-13.20100-22.80-36.0019.20 psf+/-13.20200-21.60-22.8019.20 psf+/-13.20500-19.20-19.2016.80 psf+/-13.20	p, Walls						
Wind Area-4-5+ 4&51-26.40-33.6024.00 psf+/-13.2010-26.40-33.6024.00 psf+/-13.2020-25.20-31.2021.60 psf+/-13.2050-24.00-27.6020.40 psf+/-13.20100-22.80-36.0019.20 psf+/-13.20200-21.60-22.8019.20 psf+/-13.20500-19.20-19.2016.80 psf+/-13.20	Effective						
1-26.40-33.6024.00 psf+/-13.2010-26.40-33.6024.00 psf+/-13.2020-25.20-31.2021.60 psf+/-13.2050-24.00-27.6020.40 psf+/-13.20100-22.80-36.0019.20 psf+/-13.20200-21.60-22.8019.20 psf+/-13.20500-19.20-19.2016.80 psf+/-13.20	Wind Area	-4	-5	+ 4&5			
10-26.40-33.6024.00 psf+/-13.2020-25.20-31.2021.60 psf+/-13.2050-24.00-27.6020.40 psf+/-13.20100-22.80-36.0019.20 psf+/-13.20200-21.60-22.8019.20 psf+/-13.20500-19.20-19.2016.80 psf+/-13.20	1	-26.40	-33.60	24.00 psf	+/-	13.20	
20-25.20-31.2021.60 psf+/-13.2050-24.00-27.6020.40 psf+/-13.20100-22.80-36.0019.20 psf+/-13.20200-21.60-22.8019.20 psf+/-13.20500-19.20-19.2016.80 psf+/-13.20	10	-26.40	-33.60	24.00 psf	+/-	13.20	
50       -24.00       -27.60       20.40 pst       +/-       13.20         100       -22.80       -36.00       19.20 psf       +/-       13.20         200       -21.60       -22.80       19.20 psf       +/-       13.20         500       -19.20       -19.20       16.80 psf       +/-       13.20	20	-25.20	-31.20	21.60 psf	+/-	13.20	
100-22.80-36.0019.20 psr+/-13.20200-21.60-22.8019.20 psf+/-13.20500-19.20-19.2016.80 psf+/-13.20	50	-24.00	-27.60	20.40 pst	+/-	13.20	
<b>500</b> -19.20 -19.20 16.80 psf +/- 13.20	100	-22.80	-36.UU	19.20 pst	+/-	13.20	
<b>500</b> 15.20 15.20 10.00 p31 1/- 15.20	200	-21.00 -19.20	-22.00 -19.20	15.20 psi 16 80 nsf	+/- +/-	13.20 13.20	
	500	13.20	13.20	10.00 psi	'/-	13.20	











$$F = 4 \text{ kip}$$

$$I_{max} = \frac{F}{2} = 2 \text{ kip}$$

$$I_{max} = \frac{F}{2} = 2 \text{ kip}$$

$$I_{max} = 3 \text{ fi}$$

$$I_{max} = 5 \text{ fi}$$

$$I_{max} = \frac{F \cdot I_{m}}{4} = 3 \text{ kip} \cdot ft$$

$$M_{max} = \frac{F \cdot I_{m}}{4} = 3 \text{ kip} \cdot ft$$

$$M_{max} = \frac{F \cdot I_{m}}{4} = 3 \text{ kip} \cdot ft$$

$$M_{max} = \frac{F \cdot I_{m}}{4} = 3 \text{ kip} \cdot ft$$
For Douglas Fir-Larch No. 1:  

$$F_{n} = 100 \text{ psi}$$

$$F_{n} = 100 \text{ psi$$









z (ft)	σh (psf)				Latera	al Earth	Pressure		
0	0		0	0					
-2	1.757			0	1	• 2	3	4	S
-4	3.151		-5					-	
-6	3.99		-10					2	
-8	4.288		(#)					-	
-10	4.187		두 -15	i					
-12	3.854		-20			~	-		
-14	3.418					10			
-16	2.966		-25		1				
-18	2.541		-30						
-20	2.164		50			Horizonta	Pressure (psf)		
-22	1.839								
-24	1.564								
-26	1.334								
-28	1.141								
					1		zi	ziDi	
		2	0	1	1 757		1 222222	2 3/2667	
	ft		2	1	1.757		2 44/675	15 10057	
950	$1.1553 \ kip \cdot \frac{f^{*}}{f_{*}}$		2	2	7 1/1		5.039164	25 99/67	
[	JL		4	3	0 370		7.010	50 04522	
UW	1000		g	4	0.270		8 996028	76 2/122	
			10	6	8.475		10 9862	20.24133 88 24	
$M_r$	W a a a a		12	7	7 272		12 99001	00.34	
$S_{oc} \coloneqq \frac{1}{M}$	= 2.863		14	0	6 204		14 9764	94.33007	
IVI o	w		14	•	5 507		16 97/04	\$3.00355 \$2.47722	
			10	10	4 705		19 07220	20 26022	
			20	11	4.703		20.97244	82 95/67	
EC VI	rS = 1		20	12	2 402		20.57254	70 17722	
$r S_{oc} \ge 1$	$D_0 - 1$		24	12	2 292		22.37300	70.17755	
			24	1/	2.076		26.97401	66 76067	
			20	14	2.475		20.57401	00.70007	
		c110	20		75 247	olf		#50 1552	Ib*f+/ft
		301	1		13.247	pn	1 1 1	550.1555	ID IQIC



#### 6.3.4 Step 4c Select Soil Nail Pattern on Wall Face

Soil nails are installed on the excavation face in "square" or, more commonly, "staggered" (also referred to as triangular or offset) patterns (Figure 6.1). The pattern of nails on the excavation face can become irregular at locations with space restrictions.

In the square pattern, nails are vertically aligned in rows. This pattern allows the easy construction of vertical joints in shoterete and an easier installation of precast concrete panels (if used). Drain strips are equidistant from nails in this pattern. A staggered pattern results in more uniform earth-pressure distributions, better soil arching effects, and provides a slightly larger resistance compared to those from a square pattern.

### 6.3.5 Step 4d Evaluate Soil Nail Horizontal Splaying

Nails may need to be splayed on plan view to: (i) avoid manholes and other obstructions, (ii) avoid external corners due to interference with adjacent nails (Figure 6.2e); or (iii) to possibly improve stability at internal corners. The engineer must consider nail splaying before using a design computer program because these programs do not account for the splay angle.

#### 6.3.6 Step 4e Detail Corrosion Protection

The designer must select the corrosion protection technique or techniques that meet the level of corrosion protection established during the Initial Design Considerations phase. This selection involves specifying a material or process that is suitable for the nail type and installation procedures. Guidelines for selection of corrosion protection materials are provided in Chapters 7 and 10.

#### 6.3.7 Step 4f Select Soil Nail Type and Material Properties

The engineer must select a grade of steel for the soil nail bar and other metallic parts. Information on steel grades and sizes is presented in Chapter 3 and Appendix A.

In traditional Design/Bid/Build contracts, the engineer may estimate a practical minimum drill hole diameter to provide the bond resistance required for stability. However, the drill hole diameter is ultimately selected by the Contractor to obtain the specified, nominal pullout resistance, and to possibly allow cleaning the drill hole, or accommodating a trenie pipe, tendon couplers, and centralizers.

# Install at 15 degrees

Soil nails are installed at 10 to 20 degrees from the horizontal, and most commonly at 15 degrees. The grout can flow at these inclinations from the bottom of the drill hole to the head. Grout generally can fill the hole without leaving air pockets for typical drill-hole dimensions and grout mixes.

6.6.2 Step 7a Verify Pullout Resistance Pullout resistance is mobilized behind the slip surface, along the length, $L_p$ , and contributes to overall stability. The length, $L_p$ , can be estimated from the graphical output of soil nail design programs, where critical slip surfaces and soil nails are shown to an appropriate scale The nominal (i.e., ultimate) pullout resistance per unit length, $r_{PO}$ , is expressed as: $r_{PO} = \pi q_u D_{DH}$ Equation 6.1: Nominal unit pullout resistance.	Pullout Resistance	P 161 (201)	
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Equation 6.1: Nominal unit pullout resistance.	Pullout resistance is mobilized behind the to overall stability. The length, L <sub>P</sub> , can be design programs, where critical slip surfar The nominal (i.e., ultimate) pullout resista $r_{PO} = \pi q_u D_{DH}$	lip surface, along the length, L <sub>p</sub> , and contributes estimated from the graphical output of soil nail es and soil nails are shown to an appropriate scal- ice per unit length, r <sub>PO</sub> , is expressed as:	
	Equation 6.1: Nominal unit pullout resista	ice.	
	$q_u = bond$ strength of the nail-grout $D_{DH} = diameter \bullet f$ the drill hole	soil interface (force/unit area)	
qu       =       bond strength of the nail-grout-soil interface (force/unit area)         D <sub>DH</sub> =       diameter of the drill hole	Distributions of bond stresses along the g	out-soil interface can be complex and exhibit	











$$\begin{split} FS_{P} &:= 1.5 \quad \gamma_{1} := 123 \; pcf & z := 4 \; ft \quad S_{v} := 5 \; ft \quad w := 1.25 \; in \\ c_{a} &:= 130 \; psf \quad d := 7 \; in \\ c_{a} := 130 \; psf \quad d := 7 \; in \\ c_{a} := 130 \; psf \quad d := 7 \; in \\ \phi' := 32 \; deg \quad S_{H} := 5 \; ft \quad \phi'_{u} := 20 \; deg \\ \sigma' &:= 79.766 \; psf \quad H := 28 \; ft \\ l_{e} := \frac{FS_{P} \cdot \sigma' \cdot S_{v} \cdot S_{H}}{\pi \cdot d \cdot c_{a}} = 3.827 \; m \\ l_{r} := \frac{H - z}{\tan\left(45 \; deg + \frac{\phi'}{2}\right)} = 4.055 \; m \\ FS_{P} \cdot \sigma' \cdot S_{v} \cdot S_{H} = (1.331 \cdot 10^{4}) \; N \\ L := l_{e} + l_{r} = 7.882 \; m \\ 2 \cdot w \cdot (\gamma_{1} \cdot z) \cdot \tan\left(\phi'_{u}\right) = 544.454 \; \frac{kg}{s^{2}} \end{split}$$

Because the wall is about 12 in thick, an additional foot should be added to the rods to sustain the correct length for embankment

Soil	Nail	Speci	fics

CORROSION PROTECTION TYPE	ABRASTON RESISTANCE (4=BEST)	түрі тніс	CAL	RELATIVE C (4≖RIGHES	COST ST)	PRODUC" LEAD TH		CAN BE APPLIE ACCESSORIES	D TO	APPLIED IN THE FIELD?	
Hot Dip Gelvanizing	4	3-4 m	ils	2		2-4 w <del>ee</del> ks	1	yes	r	10	
#10 - 1-1/4" - 3 32 mm)	1.27 in <sup>2</sup> (819 mm <sup>2</sup> )	12 (5	7 kips i65 kN)	95 kips (424 ki	3 N)	102 kips (454 kN	)	4.3 lbs/it (5.5 kg/m)	1-3/8" (35 mm	n)	R61-10
#10 - 1-1/4" (32 mm)	2" (51 mr	n)		2.31" (59 mm)			2" (51 mr	n)		R63-10	
#10 - 1-1/4" (32 mm)	2-1/2" (64 mm	e)		1-3/8″ (35 mm)			5/32" (4 mm	1)		R9F-10-43	6
Depth (ft) Pr	ressure from trail (psf)	le (ft)	r (ft) 1	. (ft) FSp	15	Lactual (ft)	Red #	Diameter (in)	Red Unit	Washer Unit	Hex Nut Uni
9	55.8785	8.796	10.532	19.327	1.5	27	10	1.25	R61-10	R9F-10-436	R63-10
14	23.206	**.007	7.70	12.307	1.5	21	10	1.23	NOL-10	131-10-430	103-10

### Soil Nail

Borings drilled behind the wall should be spaced up to 150 ft along the alignment, be located within H to 1.5H behind the wall, and be advanced at least to a depth 2H below final grades. If the ground behind the wall slopes up, borings should be drilled within a horizontal distance of 1.5H to 2H from the wall. These borings should be deep enough to allow assessing potentially larger sliding masses occurring up the slope.

Borings drilled in front of the wall should be spaced up to 200 ft along the alignment, be located between 0.75H to H in front of the wall, and be advanced at least to a depth H below the planned bottom of the excavation.

Table 5.1: Minimum Recommended Factors of Safety for the Design of Soil Nail Walls Using the ASD Method <sup>(1)</sup>

Limit State	Condition	Symbol	Minimum Recomm. Factors of Safety, Static Loads	Minimum Recomm. Factors of Safety, Seismic Loads	(a) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c
Overall	Overall Stability	FSos	1.5 <sup>(2)</sup>	1.1(6)	SLIP SURFACE
Overall	Short Term Condition, Excavation	FSos	1.25-1.33 <sup>(3)</sup>	NA	
Overall	Basal Heave	FSBIE	2.0 <sup>(4)</sup> , 2.5 <sup>(5)</sup>	2.3(5)	
Strength – Geotechnical	Pullout Resistance	FSro	2.0	1.5	LATER OF WEAK SOIL
Strength - Geotechnical	Lateral Sliding	FSLS	1.5	1.1	SOL SOL RESISTANCE AT BASE
Strength – Structural	Tendon Tensile Strength (Grades 60 and 75)	FST	1.8	1.35	(e) / / PULLOUT (f) TENSILE REALTANCE
Strength – Structural	Tendon Tensile Strength (Grades 95 and 150)	FST	2.0	1.50	SUP SUP
Strength – Structural	Facing Flexural	FS <sub>FF</sub>	1.5	1.1	
Strength - Structural	Facing Punching Shear	FS <sub>FP</sub>	1.5	1.1	(g) (h) (i) налео втир и тематом на тематом
Strength – Structural	Headed Stud Tensile (A307 Bolt)	FSFH	2.0	1.5	
Strength - Structural	Headed Stud Tensile (A325 Bolt)	FSFH	1.7	1.3	Ринсиние унсан

 <u>Upper half of the wall</u>: Soil nails whose heads are in this zone should have a uniform length, L.

 Lower half of the wall; Soil nails whose heads are in this zone should be increasingly shorter toward the bottom. The lengths of these nails must be determined by linear interpolation from value L at the wall mid height, to R × L at the base of the wall. R is < 1.0 and is selected depending on subsurface and geometric conditions and other factors, as indicated below.

6

)	For very dense, coarse-grained granular soils:	$0.15 \le R \le 0.30$
)	For silty sand, sand, to gravelly sand:	$0.25 \leq R \leq 0.40$
0	For fined-grained soils:	$0.30 \le R \le 0.45$

R has been estimated for the following conditions: safety factor for pullout  $FS_{PO} = 2.0$ , drill hole diameter ( $\mathbf{D}_{PH}$ ) between 4 to 8 in., horizontal and vertical nail spacing ( $S_{H}$  and  $S_{V}$ ) between 4 and 6 fl, and typical ranges of bond strengths ( $q_{U}$ ) for the soil types listed above.

In addition, the following ranges of soil properties were considered to be consistent with the listed soil types: soil unit weight of retained soils ( $\gamma_i$ ) between 110 and 130 pcf, and ratio of maximum soil nail length to wall height (L/H) between 0.75 and 1.0. In general, larger values of D<sub>DH</sub> and qu, in conjunction with lower values of S<sub>H</sub>, Sv, and  $\gamma_s$ , would produce lower values of R.



Phase 1

T<sub>m</sub>

Deflection at the end of Phases 1, 2, ..., N

н

Excavation Phase 1

Excavation Phase 2

Excavation Phase N Phase 2 Phase N

x = L

Nail 1

Nail N

Slip Surfaces for Excavation Phases 1, 2, ..., N

#### 6.3.4 Step 4c Select Soil Nail Pattern on Wall Face

Soil nails are installed on the excavation face in "square" or, more commonly, "staggered" (also referred to as triangular or offset) patterns (Figure 6.1). The pattern of nails on the excavation face can become irregular at locations with space restrictions.

In the square pattern, nails are vertically aligned in rows. This pattern allows the easy construction of vertical joints in shoterete and an easier installation of precast concrete panels (if used). Drain strips are equidistant from nails in this pattern. A staggered pattern results in more uniform earth-pressure distributions, better soil arching effects, and provides a slightly larger resistance compared to those from a square pattern.

#### 6.3.5 Step 4d Evaluate Soil Nail Horizontal Splaying

Nails may need to be splayed on plan view to; (i) avoid manholes and other obstructions, (ii) avoid external corners due to interference with adjacent nails (Figure 6.2e); or (iii) to possibly improve stability at internal corners. The engineer must consider nail splaying before using a design computer program because these programs do not account for the splay angle.

#### 6.3.6 Step 4e Detail Corrosion Protection

The designer must select the corrosion protection technique or techniques that meet the level of corrosion protection established during the initial Design Considerations phase. This selection involves specifying a material or process that is suitable for the nail type and installation procedures. Guidelines for selection of corrosion protection materials are provided in Chapters 7 and 10.

### 6.3.7 Step 4f Select Soil Nail Type and Material Properties

The engineer must select a grade of steel for the soil nail bar and other metallic parts. Information on steel grades and sizes is presented in Chapter 3 and Appendix A.

In traditional Design/Bid/Build contracts, the engineer may estimate a practical minimum drill hole diameter to provide the bond resistance required for stability. However, the drill hole diameter is ultimately selected by the Contractor to obtain the specified, nominal pullout resistance, and to possibly allow cleaning the drill hole, or accommodating a tremie pipe, tendon couplers, and centralizers.

## Install at 15 degrees

Soil nails are installed at 10 to 20 degrees from the horizontal, and most commonly at 15 degrees. The grout can flow at these inclinations from the bottom of the drill hole to the head. Grout generally can fill the hole without leaving air pockets for typical drill-hole dimensions and grout mixes.

Pullout Resistance	P 161 (201)	
6.6.2 Step 7a Verify Pullout Resistance		
Pullout resistance is mobilized behind the s	ip surface, along the length, Lp, and contributes	
to overall stability. The length, LP, can be	stimated from the graphical output of soil nail	
design programs, where critical slip surface	and soil nails are shown to an appropriate scale	
The nominal (i.e., ultimate) pullout resistar	e per unit length, r <sub>PO</sub> , is expressed as:	
$r_{PO} = \pi q_u D_{DH}$		
Equation 6.1: Nominal unit pullout resistan	e.	
Where:		
q <sub>u</sub> = bond strength of the nail-grout-	oil interface (force/unit area)	
$D_{DH} = diameter of the drill hole$		
Distributions of bond stresses along the gro	It-soil interface can be complex and exhibit	
variations along L <sub>p</sub> (Figure 6.4).		






$$\begin{split} FS_{P} &:= 1.5 \quad \gamma_{1} := 123 \; pcf \\ c_{a} &:= 130 \; psf \quad d := 7 \; in \\ c_{a} &:= 130 \; psf \quad d := 7 \; in \\ \sigma' &:= 79.766 \; psf \quad H := 28 \; ft \\ l_{e} &:= \frac{FS_{P} \cdot \sigma' \cdot S_{v} \cdot S_{H}}{\pi \cdot d \cdot c_{a}} = 12.556 \; ft \\ l_{e} &:= \frac{H-z}{\tan\left(45 \; deg + \frac{\phi'}{2}\right)} = 13.303 \; ft \\ L &:= l_{e} + l_{r} = 25.859 \; ft \\ \end{split}$$

Because the wall is about 12 in thick, an additional foot should be added to the rods to sustain the correct length for embankment

## Soil Nail Specifics

COPROSI PROTECTI TYPE		ABRASION RESISTANCE (4=BEST)		TYPICAL THICKNESS 3-4 mils		RELATIVE COST (4=FIIGHEST) 2		ITTON IE	TOR CAN BE APPLIED TO ACCESSORIES?		вто	APPLIED IN THE FIELD?		
Hot Dip Gelvanizin	9							s			r	10		
¢10 – 1-1/4" – 3 32 mm)		1.27 in (819 mm <sup>2</sup> )		27 kips 565 kN)	95 kips (424 kN)		102 kips (454 kf	4.3 lbs ) (5.5 kç		1.3 lbs/ft 5.5 kg/m)	1-3/8" (35 mm	n)	R61-10	
#10 - 1-1/4" (32 mm)		2" (51 mi	2" (51 mm)			2.31" (59 mm)			2" (51 mm)			R63-10		
#10 – 1-1/4" (32 mm)		2-1/2" (64 mm)			1-3/8" (35 mm)			5/ (4	5/32" (4 mm)			R9F-10-436		
Depth (ft)	Pressure fr	om trail (psf)	le (ft)	Ir (ft)	L (ft)	FS®	Lactual (ft)	Red #	E	Diameter (in)	Red Unit	Washer Unit	Hex Nut Uni	
4		79.766	12.556	13.303	25.859	. 1.5	27		10	1.25	R61-10	R9F-10-436	R63-10	
9		55.8785		10.532	19.327	1.5	27		10	1.25	R61-10	R9F-10-436	R63-10	
14		29.268	4.607	7.76	12.367	1.5	27		10	1.25	R61-10	R9F-10-436	R63-10	



