



April 26, 2022

To: Building Board
From: Flad Architects
Cc: Austin Schoenherr

Re: Building Code Variance Request
Exact Sciences – B5 Warehouse Expansion
Flad Project No. 19962-25

2. The rule being petitioned cannot be entirely satisfied because:

The pedestrian canopy between the existing parking structure at 640 Forward Drive and the proposed Warehouse Expansion at 650 Forward drive is critical to Exact Sciences' employee safety. The requested petition is due to a specific site condition, applicable to this project site only.

During specific weather conditions each winter, the adjacent 1,300-foot-tall radio tower for WMTV NBC 15 collects ice that falls from significant heights causing threats to adjacent facilities and occupants, please reference the attached "RWDI Assessment Summary.pdf". The Ice Fall Study Exact Sciences commissioned in August through December of 2017 recommends covered walkways at exterior pathways for pedestrians, please reference the attached "RWDI Site Recommendations.pdf".

These "Ice Events" are predicted to happen several times a year. This has proven true in each year of operation since occupancy of the site. Please reference the following as evidence of Ice Events:

1. List of Ice Event warning system notifications for the past 3 years. Please find attached Ice Event Log

During these Ice Events, this pedestrian walkway is the only safe passage for employees of the Clinical Lab to get to the parking structure. The proposed Canopy is one of several physical precautions at the Discovery Campus that Exact Sciences has been forced to enact to protect from the threat of the falling ice. Other precautions include:

1. Concrete roof over the parking structure.
2. Heavy Gauge Perforated panels covering the side openings of the Parking structure.
3. Elevated Pedestrian Connector between the Parking Structure and 1 Exact Lane.
4. Concrete Pavers covering the entire Clinical Lab facility at 650 Forward Drive.
5. Hurricane impact rated skylight enclosures
6. Concrete reinforced covered walkway at accessible parking to the Clinical Lab.
7. Onsite Ice event warning system

This pedestrian canopy is part of the critical infrastructure for Exact Sciences to provide employee and occupant safety. Thank you for your time in reviewing our request



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04/08/2022
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Sincerely,

A handwritten signature in black ink, appearing to be "Chitani Ndisale".

Chitani Ndisale, AIA, LEED AP
Project Manager

Attachments:

1. Ice event log
2. RWDI Assessment Summary.pdf
3. RWDI Site Recommendations.pdf
4. Drawings Indicating location of pedestrian canopy and non-combustible construction.



Ice Event log (2019 – 2022)

2019-2020 Ice Event Season

- 01-15-20
Trigger Event: Employee supervisor notified EHS that employee had one piece of ice almost hit the employee and then the employee looked up and saw another football sized piece of ice coming down directly above him. The employee moved and the ice hit right by his feet.
- 01-17-20
Trigger Event: Ice had fallen overnight and then we got an email from WMTV.
- 01-24-20
Trigger Event: Facilities employee had ice hit on Forward Drive in front of him while driving.
- 02-17-20
Trigger Event: Ice hit a tree outside the PPD office on Forward Drive.

Ice Event Safety

- Affected employees will be notified via InformaCast of an **Ice Event Watch** or an **Ice Event Warning**.
- An all-clear will be sent out when the risk of an **Ice Event Watch** or an **Ice Event Warning** is over.
- Ice events have the potential to injury people and damage property.
- In the 2019 -2020 winter season, we had four near misses. No employees or contractors were injured.
 - The first near miss involved an employee walking outside near the parking ramp.
 - The second near miss involved an employee driving on Forward Drive.
 - The third near miss was ice that went through the roof of the Findorff construction trailer.
 - The fourth near miss was ice that hit a tree outside the PPD office on Forward Drive.
- Employees, visitors and contractors should not work or walk outside in areas that have potential for falling ice (inside the yellow radius) during an **Ice Event Watch** or an **Ice Event Warning**.

Ice Fall Hazard Area
Yellow – Lower Risk
Red – Higher Risk

2020-2021 Ice Event Season

- 01-03-21
Trigger Event: Employee reports of ice falling near our parking lot.
- 01-03-21
Trigger Event: WMTV employees reported ice falling from the tower. They indicated that low lying clouds overnight created some dense freezing fog overnight and instructed our employees to evacuate the WMTV parking lot and park down Forward Drive.
- 01-04-21
Trigger Event: WMTV indicates freezing fog overnight and ice accumulation on our tower and guy-wires. WMTV anticipates ice to fall as temperatures warm up. Similar conditions are expected for

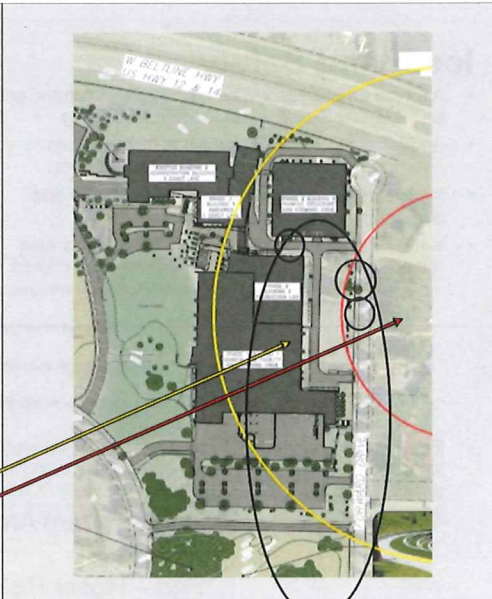
the next couple of day. WMTV is evacuating their parking lot and instructing employees to park down Forward Drive.

- 01-05-21
Trigger Event: WMTV does have ice visible on the tower and guy-wires. Ice is already falling.
- 01-06-21
Trigger Event: WMTV indicates that ice is still on the tower and their was fog overnight for the potential of more ice falling. Ice is falling with a snowball consistency.
- 01-08-21
Trigger Event: WMTV indicates the tower is clear after 6 days of ice or snow falling from the tower.
- 03-18-21
Trigger Event: WMTV indicates that ice is at the top of our tower this morning which has started falling. Active Ice falling in the east side of our parking lot, the retention ponds, Forward Drive. The ice is coming from the guide wires. We had active ice fall for over 5 hours on our property.

Ice Event Safety

- Affected employees will be notified via our Exact Sciences Alert System of an **Ice Event Watch** or an **Ice Event Warning**.
- An all-clear will be sent out when the risk of an **Ice Event Watch** or an **Ice Event Warning** is over.
- Ice events have the potential to injury people and damage property.
- We have had several ice events in the past few years. No employees or contractors were injured.
 - The purple areas on the map to the right are areas where we have had ice fall in the past.
- Employees, visitors and contractors should not work or walk outside in areas that have potential for falling ice (inside the yellow radius) during an **Ice Event Watch** or an **Ice Event Warning**.

Ice Fall Hazard Area
Yellow – Lower Risk
Red – Higher Risk



2021-2022 Ice Event Season

- 12-27-21
Trigger Event: WMTV sees ice falling from the tower. The ice is falling from our guy wires.
- 12-28-21
Trigger Event: WMTV does not see any more ice on the Tower and we lift our Ice Event Warning after 2 days.
- 02-22-22
Trigger Event: Findorff shut down construction due to ice falling from the tower. Ice hitting Forward Drive and the roof of 650 Forward Drive.
- 02-23-22
Trigger Event: WMTV sees ice on the tower and believe that the ice will fall on 02-26-22.

- 02-25-22
Trigger Event: WMTV indicates that ice is falling from the guy wires and reminder that the remaining will most likely fall on 02-26-22
- 02-28-22
- Trigger Event: WMTV indicates that the tower is clear of ice. 7 days of the potential of ice to fall from the tower.



Trajectory Simulation Results

The results of the computational trajectory simulations are shown in **Image 7**. The probability contours shown in **Image 7** represent where ice/snow will land on the ground once meteorological conditions are met to permit snow/ice accumulation and release from the TV tower. The predicted landing locations of snow/ice are inherently linked to the distribution of wind directions in the winter months. From **Image 7** it can be observed that for the strongest winter winds distances beyond 4,000 ft could theoretically be achieved, however have a very low probability.

Winds from approximately 70° through 150° (referenced clockwise from True North) may lead to ice/snow landing on or near the proposed development. Based on the meteorological records it implies that there is approximately a 12% probability of impact should conditions arrive that cause ice/snow to buildup on the TV tower and subsequently released. This 12% is obtained by roughly summing the color bands that encompass the proposed site (i.e. dark red (3%), red (2.6%) orange (2.25%), yellow (2%), light green (1.6%)).

As discussed above, these probabilities assume that ice/snow has already formed on the TV tower in an appreciable accretion. In order to obtain an estimate of the total probability of occurrence, it is necessary to consider the joint probability of accretion and trajectory. Based on the screening level meteorological analysis, it is possible that 21

meteorological events per year could case problematic accreting, and a subsequent 12% chance that the site could experience an impact. Or thought of another way: on an annual basis, the site may encounter 2-3 falling ice and snow events per year (i.e. $21 \times 0.12 = 2.5$).

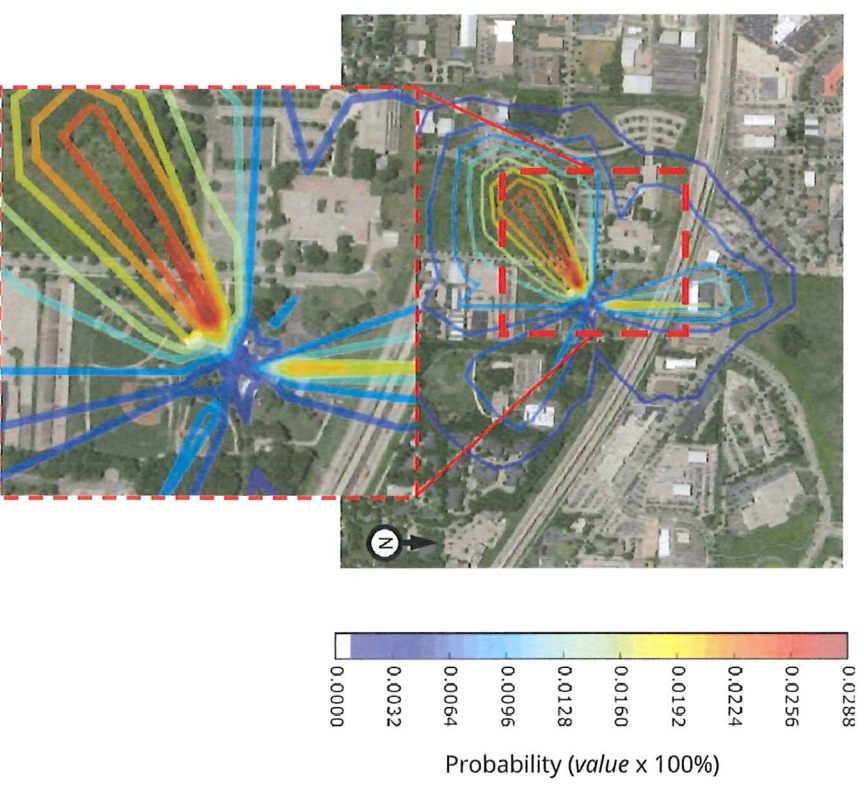


Image 7: Ice trajectory probability contour and exploded view.

SITE RECOMMENDATIONS



Covered Walkways

The design team may wish to consider covered walkways from the parking lots around the site to the building. Examples of covered walkways, which would help to ensure safe passage of pedestrians on site (assuming impact resistant materials are used for construction), are shown in **Image 19**.

Since potential falling ice debris shedding from the TV tower can occur at a wide range of trajectory angles, the overhead canopy component of the walkway should be approximately 1.5 times the height of the feature. This will provide a protection width equal to half the height of the feature. For example, if an angle of trajectory of 45° is assumed with an 8 ft high covered canopy, the overhead canopy width would need to be 12 ft in order to provide a protection width under the canopy of 4 ft (**Image 20**). Angles of trajectory approaching the ground are not expected to be less than 45° and angles of trajectory greater than 45° would result in a larger width of protection offered.

Since the TV tower is located to the east of the site, the design of any covered walkway only needs to focus on protection from the east (similar to the orientation of the covered walkway in **Image 19**) and would need to be constructed using impact resistant materials.

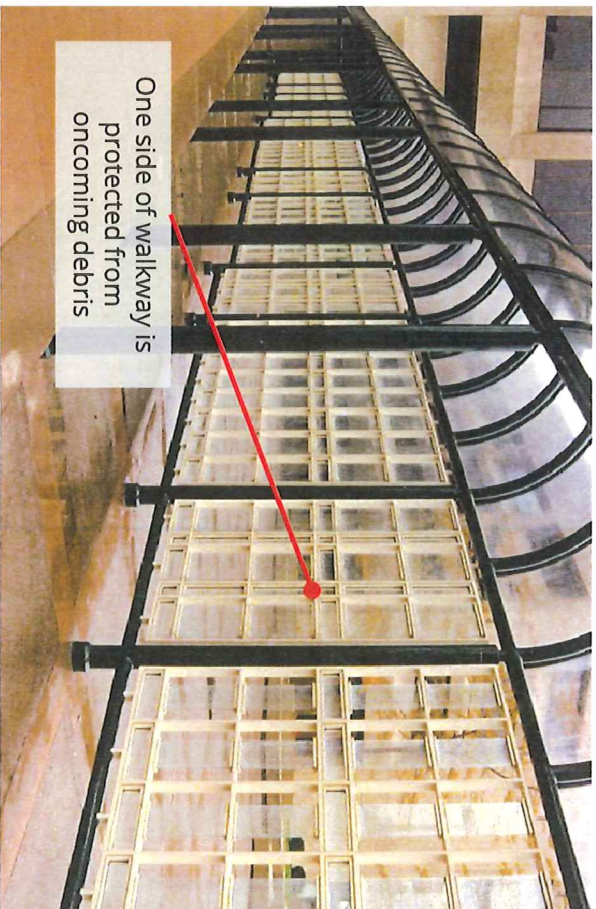


Image 19: Example of covered walkway

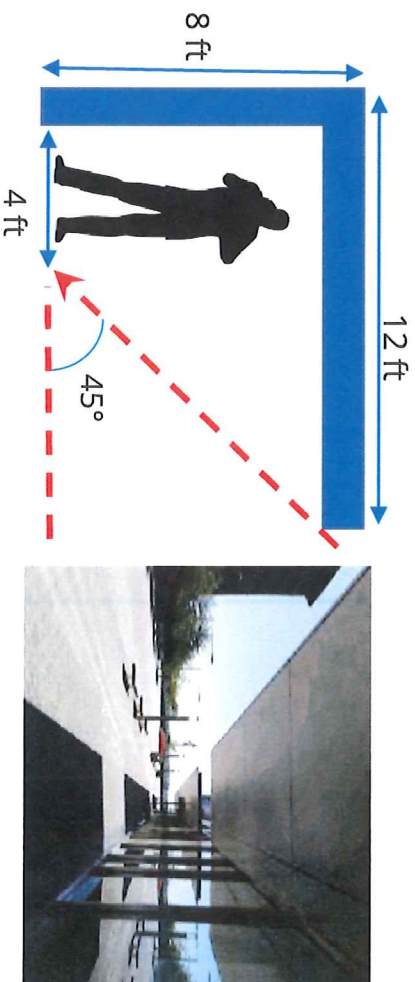


Image 20: Sample trajectory design of canopy

