

# CITY OF BLOOMINGTON



## PLAN COMMISSION

June 12, 2023      5:30 p.m.  
Council Chambers, Room #115  
Hybrid Zoom Link:

<https://bloomington.zoom.us/j/87189627237?pwd=Vk00RkN3Z004ZG9lcStyVTJoelV1Zz09>

Meeting ID: 871 8962 7237

Passcode: 684090

**CITY OF BLOOMINGTON  
PLAN COMMISSION (Hybrid Meeting)  
❖City Council Chambers – Room #115  
June 12, 2023 at 5:30 p.m.**

The City is committed to providing equal access to information. However, despite our efforts, at times, portions of our board and commission packets are not accessible for some individuals. If you encounter difficulties accessing material in this packet, please contact the **Melissa Hirtzel** at [hirtzelm@bloomington.in.gov](mailto:hirtzelm@bloomington.in.gov) and provide your name, contact information, and a link to or description of the document or web page you are having problems with.

**❖Virtual Link:**

<https://bloomington.zoom.us/j/87189627237?pwd=Vk00RkN3Z004ZG9lcStyVTJoelV1Zz09>

**Meeting ID: 871 8962 7237      Passcode: 684090**

**Petition Map: <https://arcg.is/0DuW9y0>**

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**ROLL CALL**

**MINUTES TO BE APPROVED:** May 15, 2023

**REPORTS, RESOLUTIONS AND COMMUNICATIONS:**

**PETITIONS TABLED:**

**SP-24-22      Cutters Kirkwood 123 LLC**  
115 E Kirkwood Ave  
Parcel: 53-05-33-310-062.000-005  
Request: Major site plan approval to construct a 4-story building with 3 floors of residential units over a ground floor parking garage and retail space in the MD-CS zoning district. The upper floors will consist of 15 dwelling units for a total of 38 beds.  
*Case Manager: Karina Pazos*

**PETITIONS:**

**SP-25-22      Strauser Construction Co. Inc.**  
409 E. Kirkwood Ave  
Request: Major site plan approval to construct a 4-story building with 3 floors of residential units over a ground floor containing a commercial space and a parking garage in the MD-UV zoning district. The upper floors will consist of 25 dwelling units.  
*Case Manager: Karina Pazos*

**\*\*Next Meeting July 10,, 2023**

**Last Updated: 6/9/2023**

**Auxiliary aids for people with disabilities are available upon request with adequate notice.**

**Please call [812-349-3429](tel:812-349-3429) or e-mail [human.rights@bloomington.in.gov](mailto:human.rights@bloomington.in.gov).**

**BLOOMINGTON PLAN COMMISSION  
STAFF REPORT  
Location: 409 E Kirkwood Ave**

**CASE #: SP-25-22  
DATE: June 12, 2023**

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**PETITIONER:** Ryan Strauser, Strauser Construction Co., Inc.  
453 S Clarizz Blvd  
Bloomington, IN 47401

**CONSULTANT:** Matt Ellenwood, Matte Black Architecture  
2021 E Wexley Rd  
Bloomington, IN 47401

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**REQUEST:** The petitioner is requesting an extension of the site plan approval granted under case #SP-25-22 on July 11, 2022.

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**BACKGROUND:**

**Area:** 0.20 acres  
**Current Zoning:** MD-UV (Mixed-Use Downtown w/ University Village Downtown Character Overlay)

**Comprehensive Plan Designation:** Downtown  
**Existing Land Use:** Commercial – Restaurant  
**Proposed Land Use:** Mixed-use – Restaurant and Dwelling, multifamily  
**Surrounding Uses:** North – Restaurant  
South – Place of Worship  
East – Retail and Dwelling, multifamily  
West – Restaurant

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**REPORT:** The property is currently zoned Mixed-Use Downtown with a University Village Downtown Character Overlay (MD-UV), located on the north side of East Kirkwood Avenue, and currently contains the Village Deli restaurant. All the surrounding properties are also zoned MD-UV. Currently, the restaurant covers approximately half of the parcel with the rear half currently being used as parking. The parcel is bounded by alleys on the north and east sides.

The Plan Commission approved this site plan for a new 4-story, with three floors of residential units over a ground floor that will contain commercial/restaurant space and a parking garage for the residential-unit tenants. The upper floors will consist of 25 dwelling units with a total of 29 beds.

The petitioner is requesting an extension of the original site plan approval given. The UDO states that the approval of a major site plan shall be effective for a maximum period of one year unless, upon petition by the developer, the Plan Commission grants an extension pursuant to Section 20.06.040(h)(1). That section allows for the decision-making body to grant an extension of up to one year, following a written request that explains reasonable cause for such extension, prior to the expiration date. The final approval authority shall determine whether or not there is reasonable cause for the requested extension.

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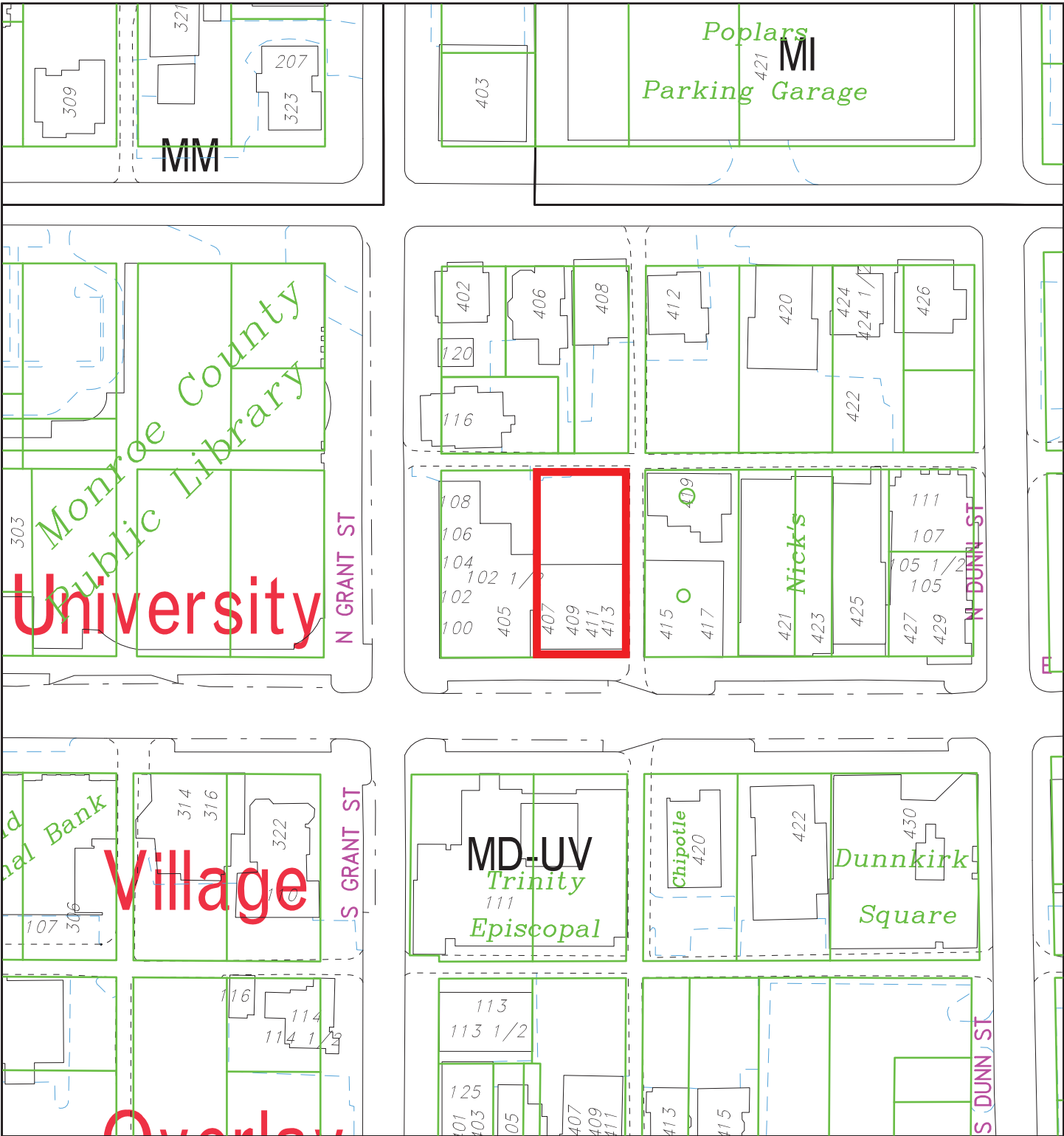
**CONCLUSION:** The petitioner has been working with Duke Energy for relocations of overhead

power lines and poles needed to facilitate the project. The additional time will allow them to finalize relocations and the best possible solution. There have been changes to the UDO that would impact the Sustainable Development incentive requirements for the project but an extension of the request is reasonable.

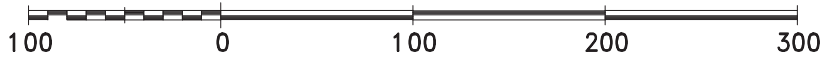
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**RECOMMENDATION:** The Department recommends the Plan Commission approve the request for extension of the site plan approval with the following condition:

1. The approval granted on July 11, 2022 shall be effective through July 11, 2024.

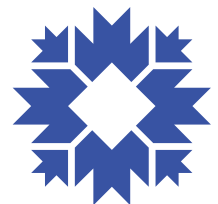


By: karina.pazos  
26 May 22

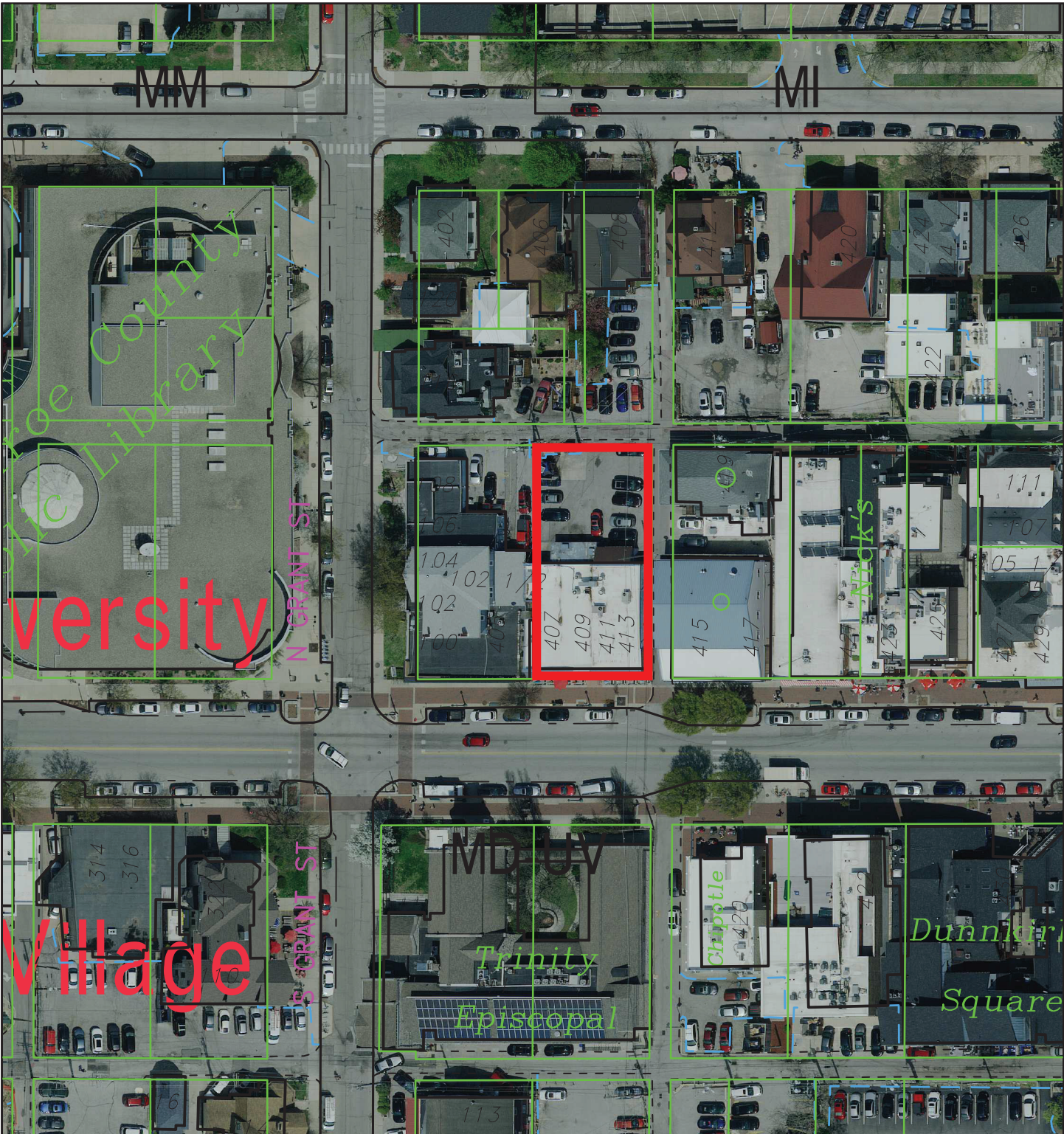


For reference only; map information NOT warranted.

City of Bloomington  
Planning



Scale: 1" = 100'



University

Village

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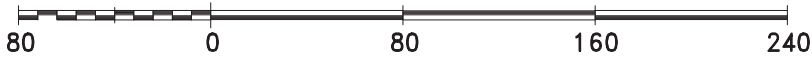
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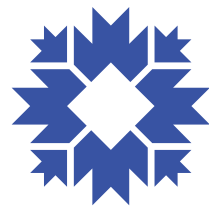
Dunbar Square

By: karina.pazos  
26 May 22



For reference only; map information NOT warranted.

City of Bloomington  
Planning



Scale: 1" = 80'



May 4, 2023

**City of Bloomington Plan Commission**  
**City of Bloomington Planning & Transportation Department**  
Showers Building Suite 130  
401 N. Morton Street  
Bloomington, IN 47404

**Project:**           **409 E. Kirkwood Apartments**  
409 E. Kirkwood Avenue  
Bloomington, Indiana

**CASE #:**            SP-25-22

**Applicant:**       **Ryan M. Strauser**  
Strauser Construction Co., Inc.  
Strauser Design + Build, LLC  
Bloomington, Indiana

**Owner:**           **Bob Costello**  
Bloomington, Indiana

Dear Members of the Plan Commission and City Planning & Transportation Department,

Strauser Design + Build, LLC on behalf of the property Owner is submitting this petition for an extension of time for the previously approved site plan approval for the mixed-use project located at 409 E. Kirkwood Avenue. The project consists of a multi-level building with retail and parking on Level 1 and apartment units above.

Our project team is requesting this extension of time due to delays in the development process outside of the control of the petitioner over the last several months since the July 2022 approval. During the time period immediately following approval the design team engaged with Duke Energy for design and engineering by Duke Energy of relocations to the overhead power lines and poles needed to facilitate the development.

This process has extended for several months due to limited options for relocations and the attempt by all parties to limit effects on neighboring properties and provide the best possible solution going forward for the public right-of-way surrounding the property. Due to this the design process with the public utility which is still on-going we are currently not able to move forward into the construction phase of the project.

Based upon this issue, we would like to request an extension of time of 1 year for this previously granted approval. Thank you for your consideration.  
Sincerely,

*Ryan M. Strauser*

**Ryan M. Strauser**  
RA, AIA, LEED AP

**BLOOMINGTON PLAN COMMISSION  
STAFF REPORT  
Location: 409 E Kirkwood Ave**

**CASE #: SP-25-22  
DATE: July 11, 2022**

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**PETITIONER:** Ryan Strauser, Strauser Construction Co., Inc.  
453 S Clarizz Blvd  
Bloomington, IN 47401

**CONSULTANT:** Matt Ellenwood, Matte Black Architecture  
2021 E Wexley Rd  
Bloomington, IN 47401

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**REQUEST:** The petitioner is requesting a major site plan approval to construct a 4-story building with three floors of residential units over a ground floor containing commercial space and a parking garage in the MD-UV zoning district. The upper floors will consist of 25 dwelling units for a total of 29 beds.

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**BACKGROUND:**

**Area:** 0.20 acres  
**Current Zoning:** MD-UV (Mixed-Use Downtown w/ University Village Downtown Character Overlay)

**Comprehensive Plan**

**Designation:** Downtown  
**Existing Land Use:** Commercial – Restaurant  
**Proposed Land Use:** Mixed-use – Restaurant and Dwelling, multifamily  
**Surrounding Uses:** North – Restaurant  
South – Place of Worship  
East – Retail and Dwelling, multifamily  
West – Restaurant

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**REPORT:** The property is currently zoned Mixed-Use Downtown with a University Village Downtown Character Overlay (MD-UV), located on the north side of East Kirkwood Avenue, and currently contains the Village Deli restaurant. All the surrounding properties are also zoned MD-UV. Currently, the restaurant covers approximately half of the parcel with the rear half currently being used as parking. The parcel is bounded by alleys on the north and east sides.

The petitioner is requesting major site plan approval for a new 4-story building with three floors of residential units over a ground floor that will contain commercial/restaurant space and a parking garage for the residential-unit tenants. The upper floors will consist of 25 dwelling units with a total of 29 beds.

In the MD-UV zoning district, a Dwelling, multifamily use is permitted with use-specific standards. Those standards include locating ground floor parking at least 20 feet behind the building façade facing a public street, and locating any dwelling units on the ground floor at least 20 feet behind each building façade facing a public street. The petitioner is proposing ground floor parking located at least 20 feet behind the front building façade facing Kirkwood Avenue, and is not proposing any dwelling units on the ground floor.



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**MAJOR SITE PLAN REVIEW 20.06.050(a)(2)(C)(ii):** Major site plan approval is required for developments that meet the minor site plan review thresholds but are determined by the Planning and Transportation Director to require major site plan review due to unusual size, complexity, or the creation of potential significant unanticipated impacts on the city or surrounding neighborhoods. Such a determination has been made.

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**DEVELOPMENT STANDARDS & INCENTIVES 20.04:** The following UDO standards are required to be reviewed for all activities that require New Development approval.

**Dimensional Standards:**

- **Setbacks:** The MD-UV zoning district requires a 0-15 foot build-to range with a minimum of 70 percent of the building façade at the build-to range, and a front parking setback minimum of 20 feet behind the primary structure’s front building wall. The proposed site plan demonstrates compliance with setbacks.
- **Height:** The maximum height in the MD-UV zoning district is three stories not to exceed 40 feet. The minimum floor to ceiling height on the ground floor shall be 12 feet because a nonresidential use is proposed. The proposal includes sustainable development incentives to add a fourth floor for a maximum height of 52’. The proposed height is 50’10” and meets the maximum height requirement with incentives.
- **Impervious Surface Coverage:** The maximum impervious surface coverage in the MD-UV zoning district is 100% and the minimum landscape area is not applicable. The petitioner has stated the proposal to have 100% impervious surface coverage. The proposal meets the impervious surface coverage and landscape requirements.

**Access and Connectivity:**

Driveways and Access – The proposed drive access to the parking garage is on the north side of the site and is accessed from the alley. The drive pavement width is 20 feet, which meets the driveway and access standards.

Pedestrian and Bicycle Circulation – Per the Transportation Plan, the adjacent street typology for Kirkwood Avenue is designated as Shared Street and has the functional classification of a local street. The Transportation Plan calls for a preferred width of 6-8 feet of frontage zone to accommodate for the sidewalk café, a minimum 10-foot wide sidewalk, and a minimum 5-foot wide tree plot. The frontage zone is intended to accommodate for door swings, awnings, café seating, retail signage displays, building projections, and landscape areas. The frontage zone may be accommodated within the building setback requirement. The proposal includes an 8-foot wide frontage zone that is partly within the front building setback, a 7.8-foot wide sidewalk, and a 5-foot wide tree plot. The frontage zone will need to be reduced or moved onto the property such that more space can be dedicated to the sidewalk to meet the minimum 10-foot required width. A condition has been added.

**Parking and Loading:**

Minimum Vehicle Parking Requirement – The minimum parking requirements for this site are 0.5 spaces per studio, 1 space per 1-bed unit, 1.5 spaces per 2-bed unit, and 2 spaces per 3-bed unit. The proposal includes a total of 11 studios, 11 1-bedrooms, two 2-bedrooms, and one 3-bedroom, so the total minimum required parking spaces is 21.5. The site provides 12 vehicle parking spaces on site and proposes to use adjustments to the minimum parking requirements, see below.

Accessible Parking – One accessible parking space with accessible aisle is provided as close as reasonably practicable to the building entrance and elevator.

Adjustments to Minimum Parking Requirements – Three adjustments to the minimum parking requirements are proposed, including: a proximity to transit reduction by 15 percent for a total reduction of 3.2 spaces, an on-street parking reduction for a total reduction of two spaces, and a parking study performed by Desman Design Management that determined 12 vehicle parking spaces will be a sufficient supply for this proposal.

Minimum Bicycle Parking Required – Each development subject to Section 20.04.03(l) of the UDO shall provide a minimum of six bicycle parking spaces or the number of bicycle parking spaces required in Table 04-13: Minimum Bicycle Parking Requirements, whichever is more. In the MD zoning district, for residential uses, the number of bicycle parking spaces required is 20 percent of the provided vehicle parking, or one space per five bedrooms, whichever is more. For commercial uses, the number of bicycle parking spaces required is five percent of the provided vehicle parking. In this case, 5.8 bicycle parking spaces are required per the calculations for the residential use, and 0.6 bicycle parking space is required for the commercial use for a total of seven bicycle parking spaces. The proposal includes six bicycle racks for a total of 12 bicycle parking spaces.

Bicycle Parking Location and Design – For multifamily residential uses, developments with 25 or more dwelling units shall provide a minimum of one-half of the total required bicycle parking spaces as covered, short-term Class II bicycle parking facilities, and a minimum of one-quarter of the total required bicycle parking spaces as long-term Class I facilities. All proposed bicycle facilities are Class II and are located in the parking garage. At least two Class I bicycle parking spaces must be provided, and the petitioner plans to incorporate this facility in the parking garage. A condition has been added.

### **Site and Building Design:**

DCO – Downtown Character Overlay District – In case of a conflict between the standards in Section 20.02.050(a) and the standards in the underlying MD zoning district, the provisions below apply.

- **Required Building Entrances** – In a downtown character overlay district, the required pedestrian entrances shall incorporate a landscaped plaza area, which needs to have at least three of the following: benches (minimum of two), bike racks, public art or water feature, drinking fountain, trash receptacles, or landscaped areas or planters. The site plan indicates two benches and the existing trash receptacles in the furnishing/tree plot zone, as well as planters in the frontage zone. The proposal meets this standard.
- **Windows and Doors on Primary Facades** – In the Kirkwood Corridor, at least 60 percent of the total façade area of the first floor shall incorporate transparent glass or framed façade open areas consisting of display windows, entries and doors. The proposal meets this standard.
- **Primary Pedestrian Entrances** – In the UV overlay, at least two architectural design features must be incorporated. The primary pedestrian entrance incorporates a recessed entry door, a plaza space with landscape planters, a canopy or awning, and a prominent building address and name. The proposal meets this standard.
- **Façade Articulation** – In the UV overlay, the maximum length of façade articulation modules is 50 feet and the minimum is 20 feet. The proposal meets these standards.

MD District – Street lighting plans in the MD District require pedestrian scaled lighting that is consistent with the design recommendations of the City of Bloomington Downtown Vision and Infill Strategy Plan. More specifically in the MD-UV zoning district, street lighting fixtures shall be of a traditional design style. There is an existing traditional design style street lighting fixture that meets this requirement.

Building Design – The new building will be finished with a mix of brick, stone, metal panels, and glass. Brick and natural stone are permitted primary finish materials. Metal, except corrugated, is a permitted secondary finish material.

- **Materials** – The UDO requires that a primary exterior finish material covers at least 20 percent of a façade. Metal is a permitted secondary finish material and can cover up to 20 percent of a façade. All facades of the proposal meet these standards.
- **Exterior Facades** – The UDO requires that all facades incorporate at least three design elements every 40 feet to break up monotony. The proposal includes metal awnings, change in building façade heights by at least five feet, and wall elevation projections by at least three percent of façade widths.
- **Patterns** – The UDO requires that all facades visible from any roadway shall consist of at least one primary and one secondary color, shall repeat either texture or color horizontally, and shall repeat variations in texture and color at least every 30 feet vertically. The proposal meets these design standards.
- **Eaves and Roofs** – The UDO requires sloped roofs (those greater than 3:12 pitch) visible from any roadway to have overhanging eaves, extending no less than two feet past the supporting walls, or flat roofs (those less than 3:12 pitch) to include a parapet on supporting walls. The proposal includes parapets on supporting walls.
- **360-Degree Architecture** – The UDO requires the sides of a building that are not visible from a street to incorporate similar material finishes and architectural detail to the facades that are visible. The proposal meets this design standard.
- **Primary Pedestrian Entry** – The UDO requires a primary pedestrian entrance for every façade facing a street. The pedestrian entry shall contain at least three architectural details. The proposal includes a primary pedestrian entrance facing Kirkwood Avenue. The facade incorporates façade modules, building address and name, and a variation of a buttress entryway through use of a metal canopy.
- **Windows on Primary Facades** – The UDO requires all first-story windows on the primary façade of a primary structure to be transparent and not make use of dark tinting or reflective glass. The proposal meets this standard.
- **Street Addresses** – The UDO requires street address displays to consist of Arabic numerals (e.g., 1, 2, 3...) no less than eight inches in height, shall be placed above all exterior entrances visible from a public street, private drive, or parking lot, and shall contrast with the color of the surface on which they are mounted, consisting of reflective materials to be clearly visible and identifiable from the street. The proposal meets this standard.

### **Landscaping, Buffering, and Fences:**

Street Trees – A minimum of one canopy tree shall be planted per 40 feet of property that abuts a public right-of-way. In the MD zoning district, street trees shall be planted in a minimum five foot by five-foot tree pit covered with an ADA compliant cast iron grate to maintain a flush grade with adjacent sidewalks, subject to approval by the Transportation and Traffic Engineer. There is an existing street tree and tree grate that may be subject to replacement and will be determined at

grading permit review. The site has 66 feet of property that abuts Kirkwood Avenue, so two street trees are required for this site. A condition has been added.

**Screening** – Ground-mounted mechanical equipment, including transformers, shall be located where it is not visible from public open space, public trails, public streets, or from adjacent properties to the maximum extent practicable. In cases where the equipment is visible, it shall be screened from view by a solid wall or fence or a vegetative screen. The proposal includes a transformer located up to the property lines in the northeast corner of the property. The petitioner has expressed concern that there is not enough space to provide screening along the sides facing the alleys. The petitioner must file for a variance from the screening requirements. A condition has been added.

### **Outdoor Lighting:**

**General Standards** – A lighting fixture may beam light upward only if all upward light is reflected back down by a canopy, roof, or other such structure. A canopy is incorporated over the lighting fixtures on the ground floor. It is unclear if the lighting fixtures on the façade of the upper floors are beaming light upward. A condition has been added.

**Multifamily Residential Lighting** – A parcel occupied by a multifamily dwelling shall not be illuminated by more than 6,000 lumens per primary structure, including a maximum of 2,000 lumens per building entryway of any combination of motion detector activated lighting and bulbs rated at no more than 1,000 lumens. Information about the total lumens for the building has not been included. A condition has been added.

### **Signs:**

**MD District Sign Standards** – For individual nonresidential uses, the cumulative square footage of all wall signs shall not exceed one and one-half square feet per lineal foot of primary structure that faces a public or private street. For multifamily developments containing more than two units wall signage that shall not cumulatively exceed 24 square feet is permitted. No property shall be limited to less than 20 square feet of wall signage and no use or tenant shall exceed 100 square feet of wall signage. A sign permit will be required for the multifamily use and the restaurant use. A condition has been added.

### **Incentives:**

**Sustainable Development** – The proposal is seeking sustainable development incentives and demonstrates the following four criteria under Option 1 of the sustainable development incentives.

- **Light Colored Hardscaping** – At least 80 percent of horizontal hardscaping materials shall be installed with a solar reflectance index (SRI) of 29 or greater. The SRI shall be calculated in accordance with ASTM E1980. A default SRI value of 35 for new concrete without added color pigment may be used instead of measurements. The petitioner has included laboratory test results for the SRI of a concrete sample, which meets these standards.
- **Covered Parking** – Parking spaces within the parking structure count toward meeting this standard.
- **Cool Roof** – A cool roof on at least 70 percent of the total roof surface using roofing materials that have an aged SRI equal to or greater than the values in Table 4-21. The petitioner has included specs for EverGuard that has an initial SRI of 94 and aged SRI of 81, which exceed the minimum values in Table 4-21.

- Solar Energy – Install on site solar photovoltaic system covering an area anywhere on the building or lot equal to or greater than 35 percent of the total roof area of all primary buildings, or an area equal to or greater than an amount required to provide 40 percent of estimated annual average electricity used in all primary buildings. Other renewable energy devices may be used in place of on-site solar panels so long as evidence of equivalent electricity generation capacity is provided. The petitioner has provided specs for the product of solar panels that is intended to be incorporated with this proposal.

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**SITE PLAN REVIEW:** The Plan Commission shall review the major site plan petition and approve, approve with conditions, or deny the petition in accordance with Section 20.06.040(g) (Review and Decision ), based on the general approval criteria in Section 20.06.040(d)(6)(B) (General Compliance Criteria).

**20.06.040(d)(6)(B) General Compliance Criteria**

- i. Compliance with this UDO
- ii. Compliance with Other Applicable Regulations
- iii. Compliance with Utility, Service, and Improvement Standards
- iv. Compliance with Prior Approvals

**PROPOSED FINDINGS:**

This development will meet all applicable standards in the UDO, except for those with previous or required variances. This development is in compliance with city regulations including utility, service, and improvement standards. This development is in compliance with other applicable regulations. This development is in compliance with prior approvals.

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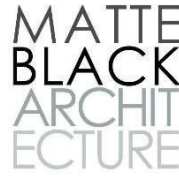
**CONCLUSION:** This petition meets all requirements of the UDO and will add 25 new dwelling units near other high-density uses and amenities. The development will provide housing in an area where housing is common and is immediately adjacent to Downtown. The scale of this development is appropriate for the neighborhood. Given other recent developments and proximity to Downtown, this is an ideal location for this type of land use.

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**RECOMMENDATION:** The Planning and Transportation Department recommends that the Plan Commission adopt the proposed findings and approve SP-25-22 with the following conditions:

1. The petitioner must obtain a grading permit before earth moving.
2. The petitioner must revise the frontage zone such that more space can be dedicated to the sidewalk to meet the minimum 10-foot width per the Transportation Plan.
3. The petitioner will provide at least two Class I bicycle parking facilities on the site.
4. Replacement of the street tree and tree grate, subject to approval by Transportation and Traffic Engineer, as well as the additional tree may be required and will be determined at grading permit review.
5. The petitioner must file for a variance from the ground-mounted mechanical equipment screening standards.
6. The petitioner must provide information about the outdoor lighting fixtures.
7. This site plan review does not approve signage. A sign permit will need to be applied for.
8. Inspection and approval of the proposed solar installation is required before a temporary occupancy recommendation will be issued.

# Petitioner's Statement



## 409 E KIRKWOOD MIXED USE

Attention: City of Bloomington Plan Commission

### Property Description

The **.20 acre (8,908 sf)** property is currently occupied by a 1-story structure that contains The Village Deli restaurant. It is bounded by an improved pedestrian walk along Kirkwood Avenue to the south, a paved alley to the north and east, and an adjacent 2-story structure to the west. The property is surrounded by commercial, mixed-use and residential uses and is designated **MD (Mixed-Use Downtown) with a UV (University Village) Overlay** under the current UDO.

### Project Description

The petitioner is proposing a new **4-story structure** that will provide **25 apartments** (11 Studios, 11 One Bedrooms, 2 Two Bedrooms & One 3 Bedroom) above a main level that will contain **2700 sf of commercial (restaurant) space** along with a **12-stall parking garage**. The garage will be accessed via an entry along the alley to the north and the main pedestrian entrance along Kirkwood Avenue will provide access to amenities and an elevator to the upper floors. The garage will also house trash and recycling, bike parking (6 Class II), as well as utility rooms. New water service with FDC and PIV will be coordinated with City Utilities along with electrical service (to be coordinated with Duke Engineering). The proposed design takes advantage of the **Sustainable Development Incentive (Option 1)** by incorporating Light Colored Hardscaping, Covered Parking, a Cool Roof and Solar Energy (PV panels) in order to gain an additional story.

The architectural design responds to the scale and character of recent development in the area and incorporates the various requirements of the UDO (particularly that of the UV Overlay). The overall design marries the character of local historic brick structures with modern elements like glass garage doors and metal accents. The exterior façade comprises a mix of masonry (brick and stone), metal panel (custom & horizontal profiles) and generous glazing (aluminum storefront and glass overhead doors along the street front). Metal Juliet balconies and a large awning provide visual interest and protection over the entries & patio below. A partial 15' building stepback above the 3<sup>rd</sup> floor provides a generous patio for use by tenants with views to campus and surrounding areas. The primary street-facing façade also incorporates a 5' recessed entry with signage above to direct building users as well as create a dynamic streetscape.

The petitioner hopes to begin construction in late summer/early fall of 2022 with completion by August 2023.

Thank you for your consideration of this petition.

A handwritten signature in black ink that reads "Matt Ellenwood".

Matt Ellenwood, AIA (on behalf of the petitioner)





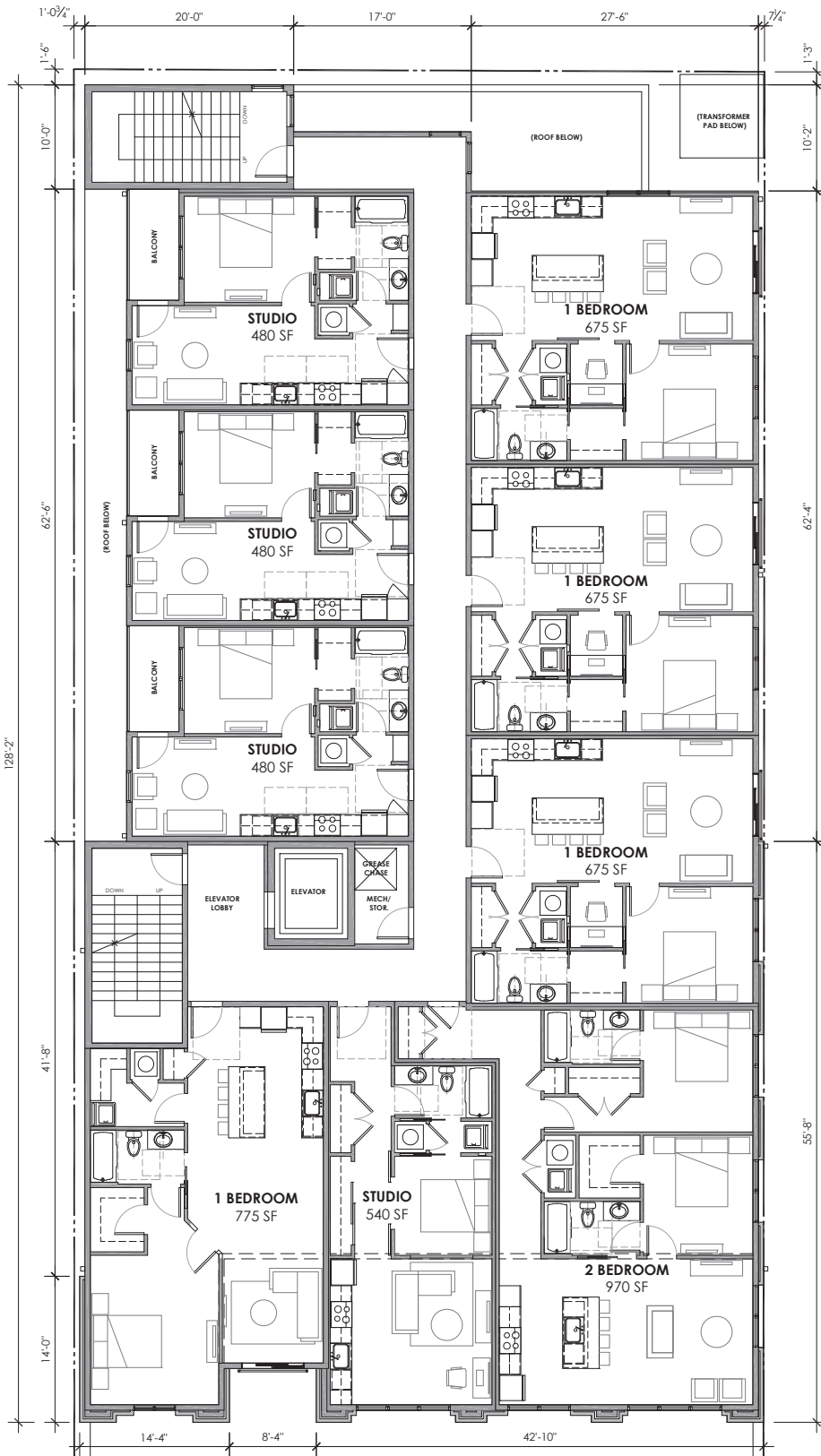








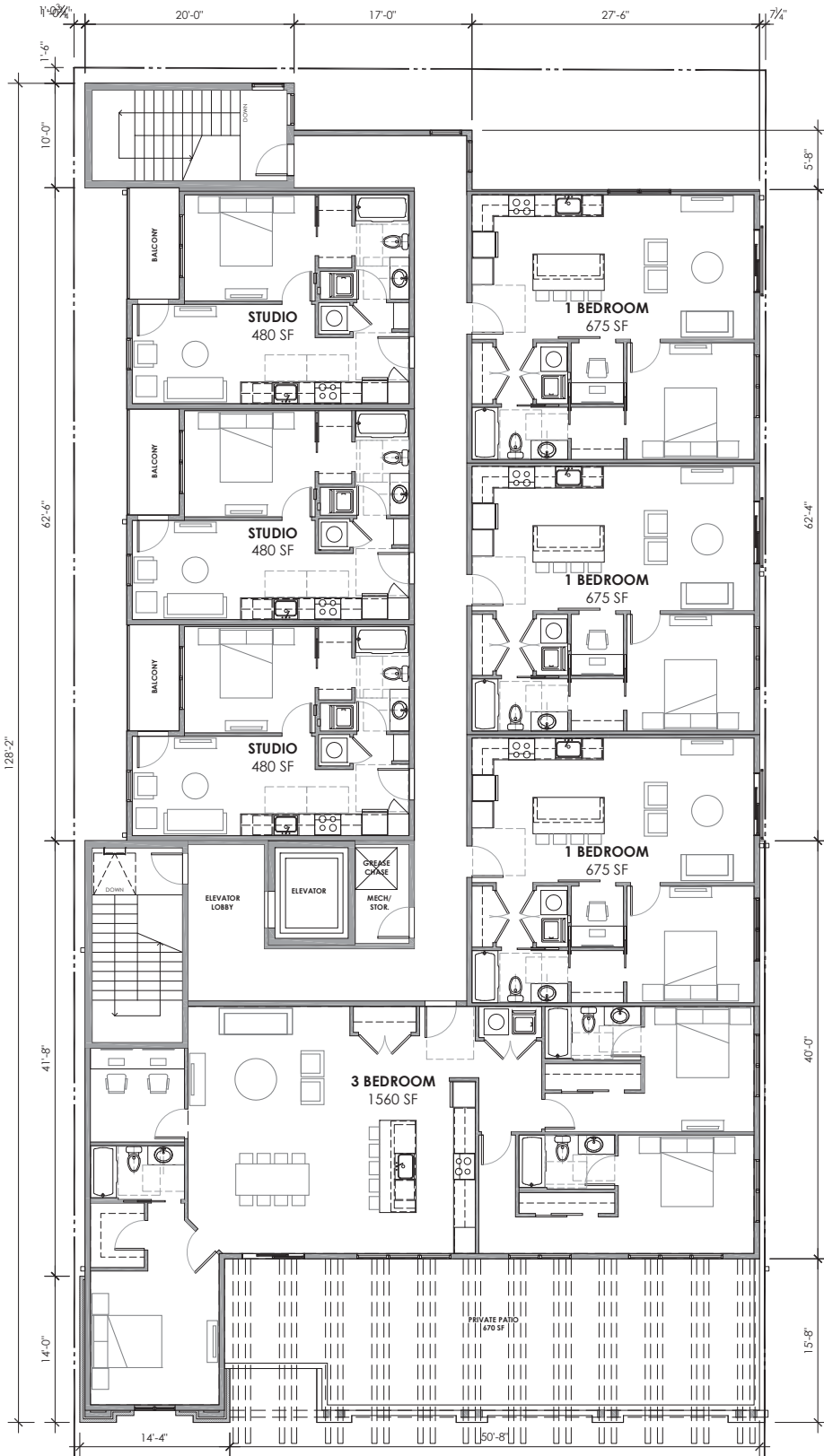




**UNIT MIX:** STUDIOS:  $4 \times 2 + 3 = 11$  (11 BEDS)  
 1 BEDROOMS:  $4 \times 3 - 1 = 11$  (11 BEDS)  
 2 BEDROOMS:  $1 \times 2 = 2$  (4 BEDS)  
 3 BEDROOMS:  $1 \times 1 = 1$  (3 BEDS)  
**TOTAL UNITS: 25 (29 BEDS)**

**PARKING:** STUDIO = .5 SPACE X 11 = 5.5  
 1 BEDROOM = 1.0 SPACE X 11 = 11.0  
 2 BEDROOM = 1.5 SPACES X 2 = 3.0  
 3 BEDROOM = 2 SPACES X 1 = 2.0  
**SUBTOTAL = 21.5**

PROXIMITY TO TRANSIT REDUCTION: 15% = 3.2 SPACES  
 ON-STREET PARKING REDUCTION: 2 SPACES  
**TOTAL REQUIRED PARKING SPACES: 16.3**  
**TOTAL PROVIDED PARKING SPACES: 12\***  
 \*SEE PARKING STUDY





409 E KIRKWOOD AVENUE  
SOUTH ELEVATION SCALE: 1/8" = 1' - 0"

06.27.2022



METAL PERGOLA

HORIZONTAL METAL PANEL

METAL COPING & TRIM

BRICK VENER

COMPOSITE METAL PANELS

PATIO DOORS WITH GREYS

METAL Juliet BALCONY

METAL TIE-BACKS

METAL LINTELS

WINDOWS WITH GREYS

LIMESTONE PANELS







PROPERTY LINE

METAL COPING & TRIM

PROPERTY LINE

HORIZONTAL METAL PANEL

WINDOWS WITH GRIDS

GROUND-FACE CMU

METAL ROLL-UP DOOR

METAL TRASH ENCLOSURE DOORS

ELECTRICAL METER CENTER

PAD MOUNT TRANSFORMER (SCREENING TBD PER DUKE REGS)



THE VILLAGER

THE VILLAGE DELI

409 E.

407 E.



THE VILLAGER

THE VILLAGER



## Cool Roof Membrane

This is planned to be basis of design and the roofing scope will be put out to bid. Our intention is to utilize this product or one by a different manufacturer that has the state SRI noted in the UDO

# EverGuard® TPO 60 mil Membrane Information Sheet

Updated: 6/18



*Quality You Can Trust...From  
North America's Largest Roofing Manufacturer!™*



# EVERGUARD® TPO

MEMBRANE

60 MIL

Quality You Can Trust... From North America's Largest Roofing Manufacturer!™

[gaf.com](http://gaf.com)

## Why TPO

- Great Value—Excellent performance at a cost-effective price
- Excellent Seam Strength—Heat-welded seams provide greater seam strength to taped and other seams
- Long-term Weathering—Excellent long-term heat and UV resistance
- Energy Saving—Highly reflective and emissive white roof can help reduce energy costs and urban heat island effect
- CREST Energy Savings Calculator—See your potential savings at [cool.gaf.com](http://cool.gaf.com)
- Versatile Application Method

## Why GAF EverGuard® TPO

- Outperforms standard TPO in heat aging and UV tests—the best predictors of TPO performance
  - After accelerated heat aging at 275°F (135°C) for 105 days, EverGuard® TPO showed no cracking—while every one of the competitors' samples had failed! **See below:**
  - UV testing—Greater than 2.5 times the industry standard (ASTM D6878 weather resistance test)
- Guarantees are available up to 25 years when using EverGuard® TPO 60 mil Membrane.\*
- Easier to install due to:
  - Large welding window
  - Most complete line of accessories
  - 10' (3.05 m) wide sheets



Fall River Courthouse, Fall River, Massachusetts

## Installation

EverGuard® TPO 60 mil Membrane is suitable for all types of single-ply systems:

- Mechanically Attached Application...for a quick and cost-effective system that can be installed practically year-round.
- RhinoBond® Application...can be applied without using adhesives and installed practically year round. Qualifies for the same guarantee length as an adhered system.\*
- Adhered Application...can be installed with EverGuard® 1121 Solvent-Based Adhesive, EverGuard® Low VOC Adhesive, or EverGuard® WB181 Water-Based Adhesive for the smoothest appearance. Provides excellent wind uplift performance.

## Accessories

Field fabrication of TPO accessories is time-consuming, costly, inconsistent, and can lead to unreliable details that compromise a watertight roofing system. EverGuard® TPO prefabricated accessories deliver consistent quality and eliminate the worry and problems often associated with field fabrication. They can also boost productivity up to 200%,\*\* while reducing installed cost by up to 12%.

\*See applicable guarantee for complete coverage and restrictions.

\*\*Based on GAF estimate to field-fabricate flashing details.



U.S. only



California Title 24 Compliant



TPO membranes meet the performance requirements of ICC ER-6030

# EverGuard® TPO 60 mil Membrane

## Applicable Standards

UL Listed, FM Approved, Miami-Dade County Product Control Approved, State of Florida Approved, CRRC Rated, Title 24 Compliant\*, ENERGY STAR® Certified\*\*, ASTM D6878.

Physical Properties	ASTM Test Method	ASTM D6878 Minimum	EverGuard® Typical Test Data
1. Certain data is provided in MD (machine direction) x CMD (cross machine direction) format. 2. Data is based upon typical product performance, and is subject to normal manufacturing tolerance and variance.			
Nominal Thickness	ASTM D751	0.039" (min.) (0.99 mm)	0.060" (1.52 mm)
Breaking Strength	ASTM D751 Grab Method	220 lbf/in. (38.5 kn/m)	305 lbf x 290 lbf (454 x 432 kg/m)
Factory Seam Strength	ASTM D751	66 lbf (98.34 kg/m)	135 lbf (membrane failure) (201.1 kg/m)
Elongation at Break	ASTM D751	15%	30%
Heat Aging	ASTM D573	90% Retention of Breaking Strength and Elongation at Break	100%
Tear Strength	ASTM D751 8" x 8" (203 x 203 mm) Sample	55 lbf (81.95 kg/m)	75 lbf x 130 lbf (111.8 x 193.7 kg/m)
Puncture Resistance	FTM 101C Method 2031	Not Established	380 lb. (172 kg)
Cold Brittleness	ASTM D2137	-40°C	-40°C
Permeance	ASTM E96	Not Established	0.08 Perms
Dimensional Change	ASTM D1204 @158°F (70°C), 6 hrs.	+/-1%	0.4%
Water Absorption	ASTM D471 @158°F (70°C), 1 week	+/-3.0% (top coating only)	0.7%
Hydrostatic Resistance	ASTM D751 Method D	Not Established	430 psi
Ozone Resistance	ASTM D1149	No visible deterioration @ 7 x magnification	No visible deterioration @ 7 x magnification
SRI (Solar Reflectance Index) Initial/Aged	N/A	N/A	94/81 83 Aged Title 24
Reflectivity (white) Initial/Aged	ASTM C1549 ASTM E903	N/A N/A	0.76/0.68 81.9% Reflectance
Emissivity (white) Initial/Aged	ASTM C1371 ASTM E403	N/A N/A	0.90/0.83 0.94
Weather Resistance	ASTM G155/D6878	10,080 KJ/(m <sup>2</sup> · nm) at 340 nm	>25,000 KJ/(m <sup>2</sup> · nm) at 340 nm
Heat Aging	ASTM D573	240°F (115°C) for 32 weeks	60 weeks
Thickness Above Scrim	ASTM D7635	Min 30% of Total Thickness	22.1 mil (Nominal)
<b>Guarantee</b>			
Up to 25 years			

\*White, Energy Gray, and Energy Tan Membranes Only

\*\*ENERGY STAR® only valid in the U.S.

## Product Data

Roll Size	5' x 100'	6' x 100'	8' x 100'	10' x 100'	12' x 100'
	(1.52 x 30.5 m) (500 sq. ft. [46.5 sq.m])	(1.83 x 30.5 m) (600 sq. ft. [55.74 sq.m])	(2.44 x 30.5 m) (800 sq. ft. [74.3 sq.m])	(3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq.m])	(3.65 x 30.5 m) (1,200 sq. ft. [111.484 sq.m])
Roll Weight	162 lb. (73.5 kg)	194.4 lb. (88.2 kg)	257 lb. (117 kg)	322 lb. (146.1 kg)	386.4 lb. (175.3 kg)
Colors	White, Tan, Gray				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				
Note:	Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded. Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				

RhinoBond® is a registered trademark of OMG.



[gaf.com](http://gaf.com)





## LABORATORY TEST RESULTS

**JOB # 5872-MP**

**Date: July 19<sup>th</sup>, 2018**

**Prepared For:** Irving Materials

**Subject:** SRI Calculation

### **Purpose**

Solar Reflectance is the fraction of incident solar radiation upon a surface that is reflected from the surface. This report presents the Solar Reflectance Index (SRI) measured for Sample #GT1638 described in the attached document.

### **Test Methods**

The samples were tested as per procedures described in ASTM C1549: *Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer* and ASTM C1371: *Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emitters*.

Measurement was made in standard ambient temperature and humidity lab conditions. Sample was measured in an **as received** condition. The sample was not cleaned prior to measurement. For the description of the sample, please refer to measurement matrix. The air mass used to calculate values is 1.5.

The solar reflectance index was calculated in compliance with ASTM E 1980: *Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces*. Measurement approach II outlined in ASTM E1980-11 valid for SRI values greater than 0.1, and excluding collector surfaces (surface with high solar absorptance and low thermal emittance, that is, a greater than 0.8 and less than 0.2), Eq 4 estimates SRI with an average error of 0.9 and maximum error of 2. This test method is used to measure the solar reflectance of a flat opaque surface with a slope smaller than 9.5 degrees from horizontal under standard solar and ambient conditions.

The SRI of a test surface depends on two material properties and four environmental conditions. The variables are Solar reflectance, thermal emissivity, solar flux, convection coefficient, air temperature, and sky temperature. SRI accuracy is +/- 1% for solar reflectance for non-metal materials with high emissivity yielding a maximum error of +/- 1.4 in SRI. For non-metal surfaces, SRI is insensitive to changes in convection coefficient. Metallic surfaces characterized with low thermal emissivity varies significantly with convection coefficient.



# SURFACE OPTICS CORPORATION

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11555 Rancho Bernardo Road, San Diego, CA 92127 • TEL: (858) 675-7404 • FAX: (858) 675-2028  
E-mail: [soc@surfaceoptics.com](mailto:soc@surfaceoptics.com) • [www.surfaceoptics.com](http://www.surfaceoptics.com)

## Results:

GT1638 – Concrete Sample

Calculated Solar Absorbance = 0.61

**Calculated Solar Reflectance = 0.39**

Calculated Thermal emissivity (arithmetic average): 0.965

Convection Coefficient*	SRI value**
5	47.05
12	46.36
30	45.72

\* The convection coefficient is the rate of heat transfer from the surface to air induced by the air movement, expressed in watts per square meter per degree kelvin. 5, 12, 30 W/(K<sup>2</sup>) correspond to low, medium and high wind conditions, respectively.

\*\* Disclaimer: Samples that are non-isotropic and/or non-homogenous in color, flatness, or composition may be subject to increased measurement error over standard instrument error margins. Every effort is made to reduce error by finding the most ideal locations on a sample and taking multiple data points to increase confidence in report values. The effect of beam scatter/oblique measurement due to sample flatness and spot size in measuring samples that have varying composition in relation to measurement error is not well defined nor quantified. SRI will be reported in these instances on a best effort basis.

**Irving Materials**

**Surface Optics Corporation Job Number 5872-MP**

ERAS FORMAT NUMBER	SAMPLE IDENTIFICATION	SRI
GT1638	Concrete Sample	X



**MEMORANDUM**

**DATE:** June 20<sup>th</sup>, 2022  
**TO:** Ryan Strauser  
 Strauser Construction Co., Inc.  
**FROM:** Gerald Salzman  
 Maria Berg  
**RE:** Parking Study – 409 E Kirkwood Ave Bloomington IN 47401

**Introduction**

The purpose of this memorandum is to summarize the findings of a parking study conducted by DESMAN for the student housing development at 409 E Kirkwood Avenue in downtown Bloomington. The project site is located two blocks from Indiana University in the midst of restaurants and retail stores. There is a public parking garage within walking distance and a bus line along Kirkwood Avenue. The project will consist of 2,690 SF of restaurant space on the ground floor with residential apartments on the following three levels and twelve parking spaces provided. The unit breakdown includes eleven studio units, eleven 1-bedroom units, two 2-bedroom units, and one 3-bedroom unit. This mixed-use development is designed to appeal to university students.

**Projected Parking Demand**

A parking analysis was conducted to determine the potential parking demand for 409 E Kirkwood based on the Bloomington Indiana Unified Development Ordinance and nearby developments. The site is located within the MD Zoning District. The minimum parking requirements for the given land uses shown in **Table 1** are derived from the City of Bloomington’s Unified Zoning Ordinance, Chapter 20.10, Table 04-9 which specifies the minimum number of permitted parking spaces by land use.

**Table 1: UDO Permitted Parking Spaces by Land Use**

Land Use	Size	Units	Parking Ratio	Parking Demand
Restaurant	2,690	SQFT	-	0
Residential Studio	11	Units	0.50	6
Residential 1-Bed	11	Units	1.00	11
Residential 2-Bed	2	Units	1.50	3
Residential 3-Bed	1	Units	2.00	2
On-Street Parking Reduction				2
Transit Reduction				15%
<b>Total</b>				<b>17</b>

Source: Bloomington IN Code of Ordinances - Title 20 - UNIFIED DEVELOPMENT ORDINANCE - Chapter 20.04.110

As seen in Table 1, a parking ratio of 0.5 was applied to studio apartments, 1.00 for 1-bedrooms, 1.50 for 2-bedrooms, and 2.00 for 3-bedrooms. An allowance for proximity to transit per Chapter 20.04.060 (B) was applied. The restaurant space was assumed to be 100% captive to the university and residential developments. For this reason, the on-street parking spaces satisfy the parking demand for the restaurant. For residential units, the parking demand was reduced by a 15% for transit, which brings the total demand for the development to 17 spaces, according to UDO.

Although the UDO requires 17 parking spaces, recent developments along with the area's auto-use characteristics suggest that a lower parking demand is warranted. Similar to 409 E Kirkwood, the DunnPark Apartments (115 N Dunn Street) are located on the same block. Built in 2017, the DunnPark Apartments include 16 studio apartments and a small restaurant space on the ground floor. The project received waiver from the City of Bloomington Plan Commission that allowed for no on-site parking to be provided. When the DunnPark project was presented to the Plan Commission, it was noted that the building was in walking proximity to the IU Campus. With students being the primary tenant, the availability of transit, bike parking on-site, and public parking options nearby, the project was allowed to move forward with no planned parking spaces. The attached letter from the owner of the DunnPark building demonstrates that the apartments have been successful and fully rented without providing any parking.

Given the target market of the university students, the parking demand for the 409 E Kirkwood development is anticipated to be lower than the UDO projection of 17 spaces. The twelve on-site parking spaces will be sufficient given the target market of university students. See the appendix for the ground floor plan.

Furthermore, recent research by Professor Robert Mack as published in *Urban Land* provides evidence that the provision of each car share space (CarGo, Zip Car etc.) in residential settings eliminates the need for 17 parking spaces. The 409 E Kirkwood development team is providing a car share space and is targeting low car-ownership tenants. If auto-use by tenants remains low, additional car share spaces may be desirable. Auto-use characteristics should be reviewed after move-in to determine the number of spaces needed for similar projects going forward. See the appendix for the Urban Land article on carsharing.

## Conclusion

Based on nearby developments and auto-use characteristics of the student target market, twelve parking spaces will be a sufficient supply for the 409 E Kirkwood development. The restaurant and visitor parking can be accommodated on-street or in the nearby public garage. Carshare spaces help eliminate the need for additional parking, and a university parking permit is an option for enrolled students as well. Given the low auto-ownership anticipated for university students, DESMAN sees twelve parking spaces as an appropriate supply for users of 409 E Kirkwood.

## Appendix

### Letter from DunnPark Apartments

#### DunnPark

115 N Dunn St  
Bloomington IN 47408  
812-322-8209  
sue@bbcbagel.com

June 7, 2022

To whom it may concern,

DunnPark Apartments were constructed in 2017 with 16 studios, rooftop terrace and first floor retail. DunnPark is located a half block from the proposed building site currently occupied by the Village Deli. We are grateful to the planning commission for waiving the necessity for on site parking for our building. The apartments and retail continue to be 100% rented and the BBC retail continues to thrive at this location. I believe any project in the downtown corridor benefits from ample parking in the Indiana University lots, Poplar garage and on street parking. Many of our tenants choose to commute by bike, ride sharing, bus and walking. Increased urban density benefits all of the business downtown and creates a dynamic community environment.

I am happy to answer any further questions.

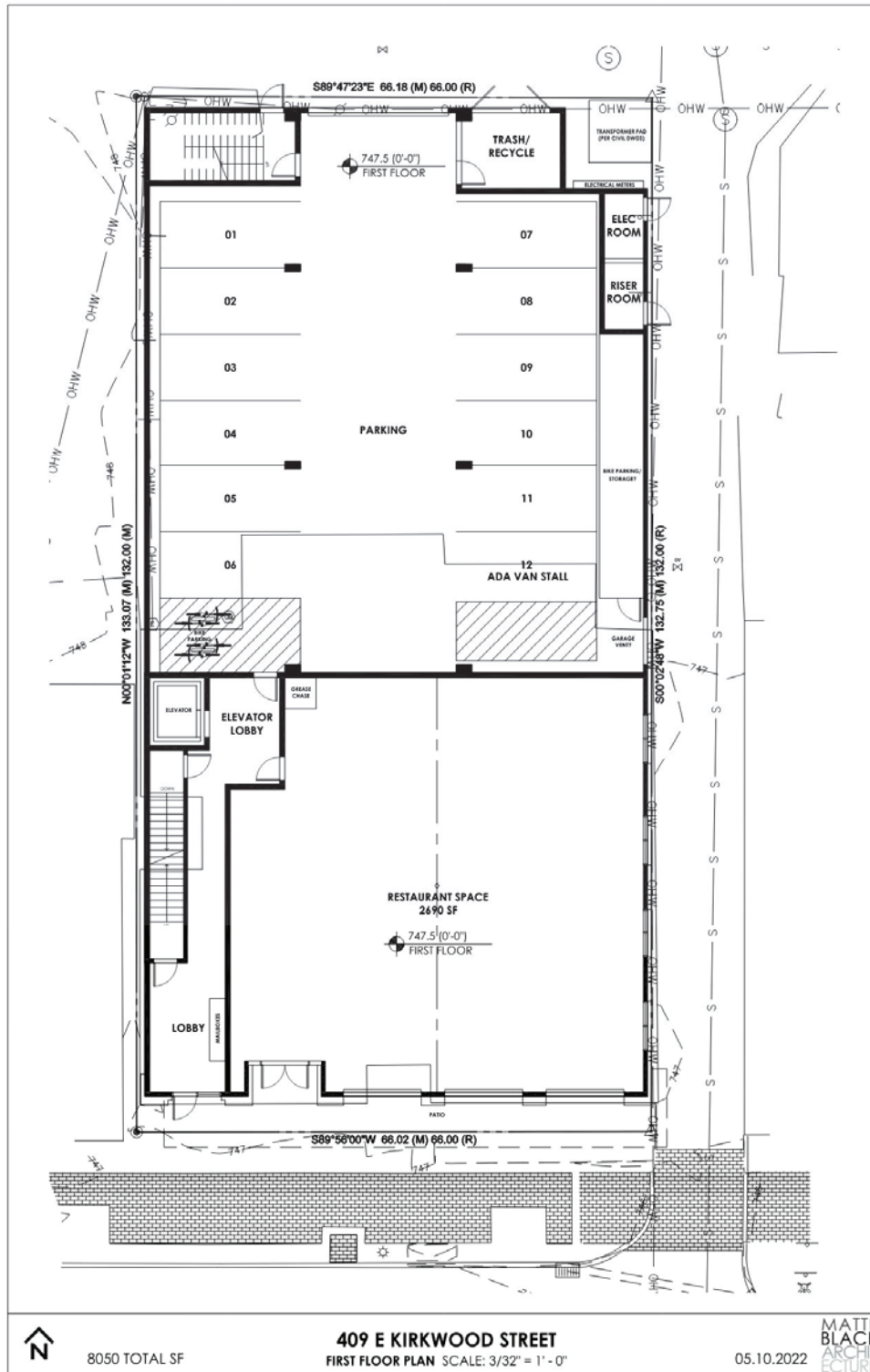
Best regards,

**Suzanne K Aquila**

President, Bloomington Bagel Co., Inc.

Managing Partner, Bloomington Bagel Co., LLC (Owner of DunnPark)

**409 E Kirkwood – Mixed Use Ground Floor Plan**



Source: Strauser Construction

Urban Land Article

This article appeared in the Summer issue of *Urban Land* on page 64.

Increasingly, cities are using parking policies to stimulate shared mobility through alternatives to personal ownership of automobiles. In the recent adoption of its 2040 plan that permits duplexes and triplexes in most single-family-detached zones, the city of Minneapolis commits to "lead by example in city-owned parking facilities by supporting carpools, vanpools, and shared mobility vehicles which encourage private parking facility owners to do the same." Car sharing generally refers to a fleet of vehicles offered for short-term rental by private or nonprofit companies.

The city of Austin, Texas, amended its zoning code to reduce minimum off-street parking requirements by "twenty (20) spaces for every car-sharing vehicle provided in a program that complies with its requirements," under which it approves binding contracts between developers and car-sharing companies to gain reductions of up to 40 percent of required off-street spaces. Nick Vetsch, a market specialist for car2go, a car-sharing service owned by Daimler AG, the Stuttgart, Germany-based automobile company, says that on just three Austin projects alone, Austin developer Lincoln Ventures reduced parking spaces by 160. He says that at about \$35,000 per structured parking space, that equates to about \$5.6 million.



Lincoln Ventures' 2204 San Antonio is an 18-story student housing project one block from the University of Texas at Austin. University neighborhoods are prime locations for car sharing because of their density, limited parking, and younger demographic groups who seek a less car-centric lifestyle. (Lincoln Ventures)

Property name	Number of units	Number of spaces	Parking ratio	Car2go spaces	Spaces reduced	Bedroom count	Ratio (park/BR)
Ruckus	46	37	0.80	1	20	167	0.22
Ruckus 2.0	67	84	1.25	2	40	239	0.35
2204 San Antonio	166	193	1.16	5	100	567	0.34
	279	314	1.13	8	160	973	0.32

And he notes that in about three years, the Austin program eliminated the need for about 1,100 parking spaces, saving developers over \$38.5 million. Lincoln Ventures' 2204 San Antonio is an 18-story student housing project located in a dense urban neighborhood one block from the University of Texas at Austin. Its two Ruckus projects are seven-story-tall student housing buildings about two blocks from that campus. Vetsch says that university neighborhoods are one of the prime locations for car sharing not only for their density and limited parking, but also for their younger demographic groups, who seek a less car-centric lifestyle. He says that sometimes several students gather together to use car2go for one-way trips to a common destination. Vetsch notes that cities like Austin do not have frequent transit service during nighttime when many students return from events.



Lincoln Ventures' two Ruckus projects are seven-story student housing buildings about two blocks from the University of Texas at Austin campus. (Lincoln Ventures)



# AstroTwins™

Enjoy the Energy of the Universe

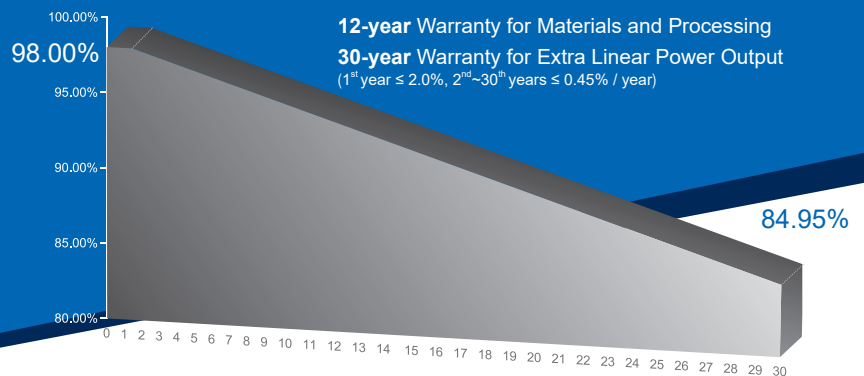
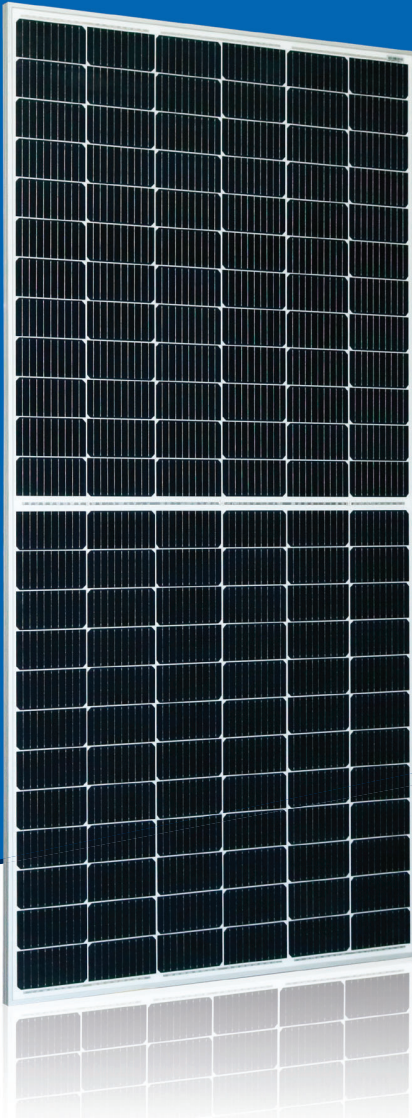
## Solar Energy

The design team plans to put the scope of work on solar out to competitive bid. This product is inline with what we intend to specify although exact product may vary

### 435W~450W

P-type Monocrystalline PV Module  
CHSM72M(DG)/F-BH Series (166)

CHSM72M(DG)/F-BH is bifacial module with white glazed glass



#### KEY FEATURES

- +5W OUTPUT POSITIVE TOLERANCE**  
Guaranteed 0~+5W positive tolerance ensures power output reliability.
- EXCELLENT WEATHER RESISTANCE**  
Reduces the cell micro-crack and extended product warranty.
- BIFACIAL POWER**  
The backside makes use of the reflected and scattered light from the surroundings, the modules can yield up to 5%~30% power more, depending on the albedo.
- REDUCE INTERNAL MISMATCH LOSS**  
Reduces mismatch loss and improves output.
- APPLICABLE FOR MULTI DIFFERENT ENVIRONMENTS**  
The wide range of applications, such as BIPV, vertical installation, snow area, high humidity area and strong sandstorm area, etc.
- SNAIL TRAIL RESISTANCE**  
Reduces the probability of snail trails with zero water vapor transmittance.

#### COMPREHENSIVE CERTIFICATES



First solar company which passed the TUV Nord IEC/TS 62941 certification audit.

For Global Market



**ASTRONERGY**  
A CHNT COMPANY

## ELECTRICAL SPECIFICATIONS

Power rating (front)	435 Wp		440 Wp		445 Wp		450 Wp	
Testing Condition	Front	Back	Front	Back	Front	Back	Front	Back
STC rated output ( $P_{mpp}/Wp$ )*	435	304	440	308	445	311	450	315
Rated voltage ( $V_{mpp}/V$ ) at STC	40.85	41.64	41.12	41.85	41.36	42.03	41.59	42.28
Rated current ( $I_{mpp}/A$ ) at STC	10.65	7.30	10.70	7.36	10.76	7.40	10.82	7.45
Open circuit voltage ( $V_{oc}/V$ ) at STC	48.90	47.56	49.11	47.83	49.44	47.99	49.78	48.25
Short circuit current ( $I_{sc}/A$ ) at STC	11.12	7.99	11.20	8.05	11.25	8.10	11.30	8.16
Module efficiency	19.4%	13.6%	19.6%	13.7%	19.9%	13.9%	20.1%	14.1%
Temperature coefficient ( $P_{mpp}$ )	- 0.35%/°C							
Temperature coefficient ( $I_{sc}$ )	+0.04%/°C							
Temperature coefficient ( $V_{oc}$ )	- 0.28%/°C							
Nominal module operating temperature (NMOT)	44±2°C							
Maximum system voltage (IEC/UL)	1500V <sub>DC</sub>							
Number of diodes	3							
Junction box IP rating	IP 68							
Maximum series fuse rating	20 A							

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM=1.5

## ELECTRICAL SPECIFICATIONS (Integrated power)

$P_{mpp}$ gain	$P_{mpp}$	$V_{mpp}$	$I_{mpp}$	$V_{oc}$	$I_{sc}$
5%	467 Wp	41.12 V	11.36 A	49.11 V	11.81 A
10%	489 Wp	41.12 V	11.89 A	49.11 V	12.37 A
15%	511 Wp	41.12 V	12.43 A	49.11 V	12.93 A
20%	534 Wp	41.02 V	13.02 A	49.21 V	13.48 A
25%	556 Wp	41.02 V	13.55 A	49.21 V	14.04 A

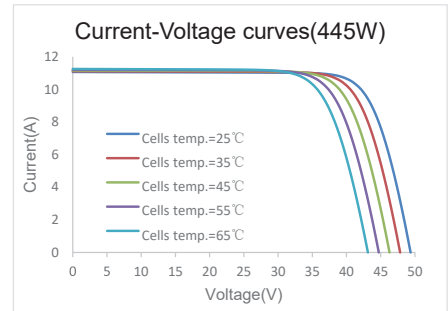
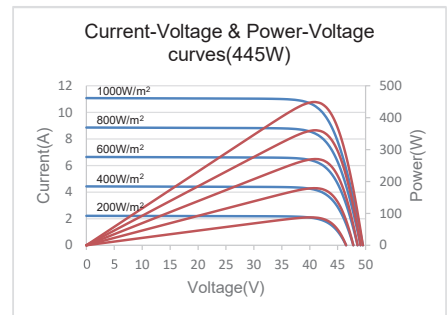
Electrical characteristics with different rear power gain (reference to 445W)

## MECHANICAL SPECIFICATIONS

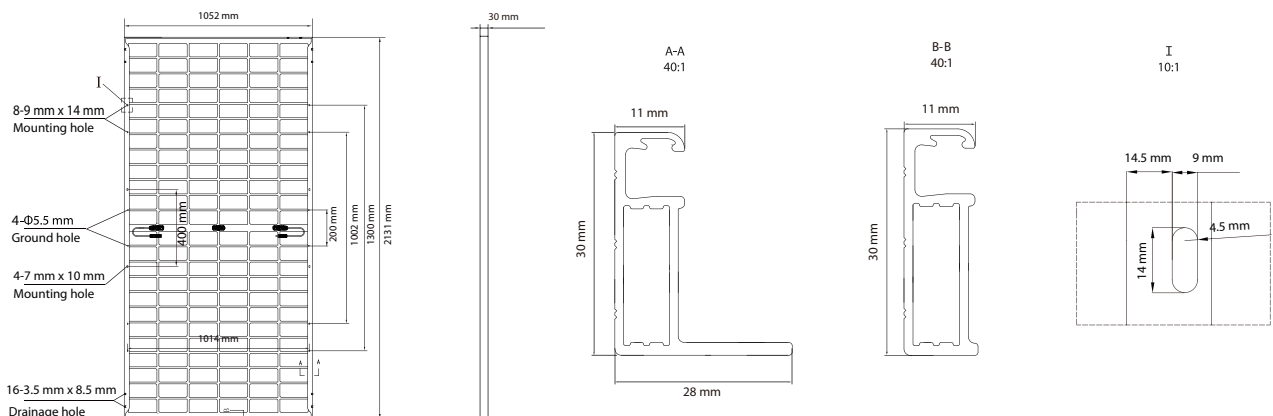
Outer dimensions (L x W x H)	2131 x 1052 x 30 mm
Frame technology	Aluminum, silver anodized
Glass thickness	2.0 mm
Cable length (IEC/UL)	Portrait: 350 mm Landscape: 1300 mm
Cable diameter (IEC/UL)	4 mm <sup>2</sup> / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	MC4 compatible

① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## CURVE



## MODULE DIMENSION DETAILS



## PACKING SPECIFICATIONS

① Weight (module only)	28.5 kg
② Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	1085 kg
Number of modules per 40'HQ container	792 pcs

① Tolerance +/- 1.0kg  
② Subject to sales contract

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