I move to approve SDSMT’s Revised Facility Design Plan for the Mineral Industries Building at a cost not to exceed $34,000,000 funded by a combination of General, Private, and University Funds.
space. The plan will be to use the $2.8M of contingency to finish the spaces. Further reduction in square footage will not meet the needs of all the departments housed in the current building.

**IMPACT AND RECOMMENDATIONS**

The new building will be 63,800 square feet. It will provide classroom space used by the entire university as well as laboratory and administrative space for the Departments of Geology and Geological Engineering, Mining Engineering and Management, and Materials and Metallurgical Engineering. The building also supplies space for multi-user research laboratories such as the Engineering and Mining Experiment Station (EMES). South Dakota Mines is one of only five universities in the nation that retains a core expertise in all the areas that support the development of critical resources and minerals. The need for modernized space is even more pressing now that the Caterpillar MineStar Research Consortium has been announced, as this is the first step in creating a world class industries resource research center at the university. Additionally, the building will help increase the research enterprise and recruitment of talented students and faculty. The new building will support the mission of the university by providing efficient and modern facilities that meet the needs of the campus now and into the future.

To ensure the project is within budget, there will be an alternate or base bid to shell space (office areas on 2nd and 3rd floor and ~8,000 square feet of lab space). The project is holding ~$2.8M in contingency and the plan would be to finish space as contingency allows.

**Construction Funding Sources:**
- $19,000,000 General Funds
- $12,000,000 Private Funds
- $3,000,000 University Funds
**Total: $34,000,000**

**Revised Cost Estimate:**
- Construction Cost Estimate: $28,586,949
- Commissioning: $99,100
- OSE Fees: $100,000
- Architect/Engineer Fees and Expenses: $2,220,000
- Pre-Construction Fee: $70,000
- Testing: $30,000
- Construction Contingency: $1,405,500
- Inflation Contingency: $1,375,660
- FF&E/Moving (including IT/BIT): $1,900,000
**TOTAL ESTIMATED PROJECT COSTS:** $35,787,209
- Alternate to Shell Space: $(1,787,209)
**TOTAL PROJECT BUDGET:** $34,000,000
ATTACHMENTS

Attachment I – SDSMT – Revised Facility Design Plan, New Mineral Industries Building
Attachment II – SDSMT – Revised Facility Design Plan, New Mineral Industries Building
Floor Plans, Site Plan, Perspectives
South Dakota School of Mines & Technology
Facility Design Plan
New Mineral Industries Building

Introduction:
The South Dakota School of Mines & Technology requests approval of the revised Facility Design Plan for the construction of a new Mineral Industries building. The Preliminary Facility Statement, Program Plan, and original Facility Design Plan were approved at the June 2014, March 2021, and December 2021 BOR meetings, respectively.

The Facility Design Plan is being resubmitted because the construction site location has changed. The current construction environment is volatile, and prices continue to increase. At the direction of our Construction Manager at Risk (CMAR) and Architect, a new location has been determined. This location was noted in our master plan but was not originally chosen as a building site in the next 10 years. The change in site was estimated to save at least $2M. The internal layout for the building has stayed the same. The main office areas and approximately 8,000 square feet of labs will be bid out as shelled space. The plan would be to use the $2.8M of contingency to finish out the spaces. Further reduction in square footage will not meet the needs of all the departments housed in the current building.

The new building will be 63,800 sq ft. It will provide classroom space used by the entire university as well as laboratory and administrative space for the Departments of Geology and Geological Engineering, Mining Engineering and Management, and Materials and Metallurgical Engineering. The building also supplies space for multi-user research laboratories such as the Engineering and Mining Experiment Station (EMES). South Dakota Mines is one of only five universities in the nation that retain a core expertise in all the areas that support the development of critical resources and minerals. The need for modernized space is even more pressing now that the Caterpillar Minestar Research Consortium has been announced as this is the first step in creating a world class industries resource research center at the university. Additionally, the building will help increase the research enterprise and recruitment of talented students and faculty. The new building will support the mission of the university by providing efficient and modern facilities that meet the needs of the campus now and into the future.

a. Architectural, mechanical, and electrical schematic design:

Architectural:
The new Mineral Industries building will be 63,800 sq ft located between Classroom building and Electrical Engineering/Physics building and across the street from the O’Harra administrative building. The building will consist of masonry, metal panes and aluminum curtain
wall glazing systems supported by a structural steel column, beam and joist system. The roofing will be a combination of rubber membrane and metal roofing. The project will be striving to achieve LEED (Leadership in Energy and Environmental Design) Certified rating or equivalent Green Globes and therefore will be utilizing building materials that have low VOC (volatile organic compounds) materials and high performance mechanical and electrical systems.

In considering the design as a whole, the building is organized with three driving factors in mind: 1) efficient space utilization 2) efficient MEP distribution and 3) incorporation of highly collaborative areas. With those criteria in mind, each of the building floorplates are organized with a double loaded east-west corridor that connects each program area to the atrium as well as outdoor areas on the East and West. Office areas are located on the 2nd and 3rd floors. Teaching and research areas make up all three floors. Vibration sensitive and heavy floor loading requirement equipment are located on the first floor where isolated slab areas will be utilized to accomplish the needed vibration criteria. Reference Attachment A for building plans.

**Mechanical:**
The mechanical systems for this building will be connected to the campus chiller and steam/condensate loops unless a more cost-effective strategy is needed in the current construction climate. The mechanical systems will be designed to be efficient.

Other utilities to be noted include the extension of the domestic water. The sanitary sewer will be connected near the building site with relocation of some existing sanitary sewer in the building footprint. Gas tie in available for the building generator, if required.

All mechanical equipment will be tied into the University building automation system for monitoring of equipment and addressing heating/cooling issues within the building remotely if needed.

A NFPA 13 compliant wet-pipe sprinkler system will provide full coverage for the building. Quick-response sprinklers will be used throughout the facility. Offices and classrooms will be classified as light hazard. Laboratories, storage rooms, custodial closets, and mechanical rooms will be classified as Ordinary Hazard, Group 1 or Group 2, depending on the specific requirements.

**Electrical:**
The new site provides for several options for the electrical service to the facility and will most likely come from the west unless a more cost-effective route is determined. The new transformer will be connected to an existing utility pad mounted switch. Service entrance cabling will be copper and will be routed outside the building from the service transformer to a single-ended, main service switchboard located in the main electrical room on the first floor. All necessary
metering and switching requirements will be provided as required. All site electrical equipment including the pad mounted transformer and stand by generator will be located away from main building entries.

Lighting throughout the building will be LED (Light Emitting Diode) type fixtures and lighting levels will comply with applicable standards and energy code requirements. Lighting will be a combination of 2x2, 2x4, and Linear LED light fixtures. Lighting in offices, meeting rooms, labs, study rooms, and classrooms will be fully dimmable, and the building will have occupancy sensor controls to reduce energy consumption while providing flexibility to the occupants.

Voice and data systems will include jacks, cabling, conduit, racks, patch panels, testing, camera’s, TV’s, projectors, and card access.

A digital, addressable type, fire alarm control system with voice evacuation capabilities will be provided to satisfy all Life Safety and Code requirements. The system will be designed in accordance with all current codes and standards and will also satisfy all current accessibility guidelines. In addition, all necessary connections will be made for 24-hour fire alarm system monitoring.

b. Changes from Facility Program Plan/Design Plan:

The building site is changing to reduce overall project costs to meet budget. Building has already been reduced in size from 90,000 sq ft to 63,800 sq ft. Reducing overall square footage any further would not provide a building that can replace the current Mineral Industries building. To ensure that the building is within budget, the office areas and approximately 8,000 square feet of the lab spaces will be bid as shelled space.

c. Impact to existing building or campus-wide heating/cooling/electrical systems:

The building will be connected to the existing campus chiller, steam/condensate, and electrical loops providing the most cost-effective operating methods for this building unless a more cost effective alternative is found. Studies have been completed to ensure capacity within each loop.

d. Total project estimates:

Funding Sources –

$19M General Funds
$12M Private Funds
$3M University Funds

The funding available is $34M. The following is the breakdown of the project estimate:

Construction Cost Estimate $28,586,949
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commissioning</td>
<td>$99,100</td>
</tr>
<tr>
<td>OSE Fees</td>
<td>$100,000</td>
</tr>
<tr>
<td>Architect/Engineer Fees and Expenses</td>
<td>$2,220,000</td>
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<tr>
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</tr>
<tr>
<td><strong>TOTAL ESTIMATED PROJECT COSTS</strong></td>
<td>$35,787,209</td>
</tr>
<tr>
<td>ALTERNATE TO SHELL SPACE</td>
<td>($1,787,209)</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BUDGET</strong></td>
<td>$34,000,000</td>
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</tbody>
</table>

To ensure the project is within budget there will an alternate or base bid to shell space (office areas on 2nd and 3rd floor and ~8,000 square feet of lab space). The project is holding ~$2.8M in contingency and the plan would be to finish space as contingency allows.

e. **Changes from cost estimate for operation or M&R expenses:**

No changes.
GENERAL PLAN NOTES

1. ALL WALLS TO BE CONSTRUCTED OF CMU AND FACE OF CONCRETE AND TO FACE OF STUDS. TYP.

2. ATTACHMENT II XR0721-06X

3. REFER TO SITE PLAN FOR LOCATION OF FIRE RATED WALLS AND SMOKE SEPARATION WALL LOCATIONS AND REQUIREMENTS.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING AND INSTALLATION OF APPROPRIATE FRAMING NEEDED FOR WALLS HEIGHT.

5. REFER TO CODE COMPLIANCE PLANS FOR LOCATION OF FIRE RATED WALLS AND SMOKE SEPARATION WALL LOCATIONS AND REQUIREMENTS.

6. PROVIDE BULLNOSE UNITS @ ALL DOOR AND WINDOW OPENINGS, END WALLS, AND OUTSIDE CORNERS IN CMU WALLS.

7. STRUCTURE SHALL BE STAINLESS STEEL. FABRICATED STEEL STRUCTURE WHERE NOTED.

8. BRICK WALLS TO FACE OF CONCRETE MATERIALS WHERE NOTED.

9. FLOOR AND CEILING FRAMING TO BE AS STATED ON SHEET A0.00 FOR FRAMING GAGES AND STUD SIZING REQUIREMENTS.

10. ALL STEEL STUDS ARE MIN. 25 GA. UNLESS NOTED OTHERWISE. 20 GA STEEL STUDS REQUIRED AT ALL CEMENTITIOUS BACKER BOARD AND ABUS.

11. WALLS TO HAVE MINIMUM 1" TYPICAL RATED WALL ASSEMBLIES AND PARTITIONS INDICATED SHALL HAVE STAGGERED SHEATHING AND GYP. BOARD JOINTS ON OPPOSITE SIDES OF ASSEMBLY.

12. STRUCTURE TO FACE OF STUD AND FACE OF CONCRETE.

13. WALLS TO FACE OF MASONRY, FACE OF CONCRETE, AND TO FACE OF GYP. BOARD, TYP.

14. WALLS TO FACE OF STUD AND FACE OF CONCRETE.

15. REFER TO SITE PLAN FOR LOCATION OF FIRE RATED WALLS AND SMOKE SEPARATION WALL LOCATIONS AND REQUIREMENTS.

16. ALL INTERIOR WALL / GENERAL PLAN DIMENSIONS ARE TO FACE OF MASONRY, FACE OF CONCRETE, AND TO FACE OF GYP. BOARD, TYP.

17. PROVIDE BULLNOSE UNITS @ ALL DOOR AND WINDOW OPENINGS, END WALLS, AND OUTSIDE CORNERS IN CMU WALLS.

18. REFER TO SITE PLAN FOR LOCATION OF FIRE RATED WALLS AND SMOKE SEPARATION WALL LOCATIONS AND REQUIREMENTS.

19. WALLS TO FACE OF STUD AND FACE OF CONCRETE.

20. WALLS TO FACE OF MASONRY, FACE OF CONCRETE, AND TO FACE OF GYP. BOARD, TYP.

21. WALLS TO FACE OF STUD AND FACE OF CONCRETE.

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43. WALLS TO FACE OF STUD AND FACE OF CONCRETE.

44. WALLS TO FACE OF MASONRY, FACE OF CONCRETE, AND TO FACE OF GYP. BOARD, TYP.
GENERAL PLAN NOTES

1. **No** to Refer Millwright Plan Dimensions Are to Face of Stud and Face of Concrete.
2. Refer to Structural Engineering for detailed locations and requirements for steel framing.
4. **Compliance Plans** for Location of RATED ASSEMBLIES. Refer to Code Compliance Plans for Location of Fire Rated Walls and Smoke Separation Wall Locations and Requirements.
5. Contractor Shall Be Responsible for Pricing and Installation of Appropriate Framing Needed for Walls Height. Refer to Structural Drawings for Grouting and Reinforcement of CMU Walls.
6. Construction of Walls Are Designated Starting on Tag Side of Wall.
8. **ALL** Interiors in RATED ASSEMBLIES Shall Have Staggered Sheathing and GYP. Board Joints on Opposite Sides of Assemblies.
9. **Material** and **Scale** of Interiors Shall Be Identified on the Right Side of Structural Drawing Wall, Unless Otherwise Indicated.
10. **Third Floor Plan**

**Scale:** 1/8" = 1'-0"
REFLECTED CLG LEGEND

5/8" SUSPENDED GPDW CEILING SYSTEM
ACOUSTICAL PANEL CEILING SYSTEM. SEE ROOM FINISH SCHEDULE & RCP FOR TYPE.
2x2 ACCESS PANEL. REF: SPEC.

RCP ABBREVIATIONS

APC - ACOUSTICAL PANEL CEILING
MPS - METAL PANEL SOFFIT
GPDW - GYPSUM DRY WALL
AFB - ACOUSTICAL FELT BAFFLE

RETURN AIR / EXHAUST AIR GRILLE, REF: MECHANICAL
SUPPLY AIR DIFFUSER, REF: MECHANICAL
RECESSED & PENDANT MOUNTED LIGHT FIXTURES, REF: ELECTRICAL
RECESSED DOWNLIGHT, REF: ELECTRICAL
EXIT SIGNAGE, REF: ELECTRICAL

REFLECTED CLG GENERAL NOTES:
1. GPDW BULKHEADS SHALL BE FRAMED WITH 25 GAUGE 3 5/8" STEEL STUDS @ 16" O.C. AND 5/8" TYPE 'X' GPDW TO 6" ABOVE FINISH CEILING. BRACE AS REQUIRED.
2. LIGHTING FIXTURES AND MECHANICAL DIFFUSERS / GRILLES ARE SHOWN FOR REFERENCE ONLY, SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS
3. ELEVATION TAGS ARE IN REFERENCE TO ARCHITECTURAL ELEVATIONS
4. WHERE CEILINGS ARE EXPOSED TO STRUCTURE ABOVE, PAINT ALL UNFINISHED MATERIALS OVERHEAD INCLUDING, BUT NOT LIMITED TO ROOF DECKING, DUCTS, PIPES, CONDUITS & JUNCTION BOXES; SEE FINISH SHEETS FOR PAINT.
5. PROVIDE ACCESS PANELS AS REQUIRED IN HARD LID CEILINGS. COORDINATE WITH MECHANICAL AND ELECTRICAL ACCESS REQUIREMENTS.
REFLECTED CLG GENERAL NOTES:

1. General revisions are to be made to this drawing by the Architect and Contractor whenever necessary due to changes in the project.

2. Dimensions shown do not necessarily indicate the order of execution.

3. All dimensions are shown in feet and inches, except where indicated.

4. All elevations are shown in relation to the building's exterior finishes.

5. Corrections must be published on amended drawings and indicate on the floor plan.

REFLECTED CLG LEGEND:

RCP ABBREVIATIONS:

- CE: Ceiling Plan
- GPDW: Suspended Ceiling System
- MPS: Metal Panel Soffit
- GAF: Gypsum Drywall
- APC: Acoustical Panel Ceiling
- RCP: Reflective Cladding General Notes

ATTACHMENT II     17

SECOND FLOOR REFLECTED CEILING PLAN
REFLECTED CLG GENERAL NOTES:

1. Open second story portion of 4th floor (see Architectural Drawings for exact locations)
2. Coordination with mechanical, structural, electrical and architectural services
3. Ceiling panels must be installed at each location marked "MEP"

REFLECTED CLG LEGEND:

- 4.9 Acoustical Panel Ceiling
- 2.6 Acoustical Felt Baffle
- 2.4 Metal Panel Soffit

RCP ABBREVIATIONS:

- AP: Access Panel
- MPS: Mechanical Piping System
- RCP: Refrigeration Cooling System
1. All roofing shall be installed in accordance with the NRCA Roofing Manual: Membrane Roof Systems - 2007.

2. Roofing system shall be a 60mil full fastened TPO roofing system over polyisocyanurate roof insulation. System should qualify for a minimum 20 year warranty.

3. Roof insulation thickness shall be provided as noted on roof plan.

4. The roof slope shall be 1/4" per foot unless indicated otherwise or as required for crickets and saddles. Slope direction is down as indicated, slope is noted in distance per foot.

5. Typical notation: (+4 1/2" e.g.) indicates the height or thickness of materials above the roof deck including tapered polyisocyanurate insulation, and/or typ. base polyisocyanurate insulation thickness. Slope requirements dictate thicknesses - verify thickness indications.

6. Provide chamfers, crickets and saddles as required @ insulation height transitions & obstructions to drainage.

7. Verify all mechanical penetrations with mechanical and food service drawings and mechanical contractor.

8. Provide roof walkway pads min 30" wide in walkway areas to and around mechanical equipment, & @ top & bottom of ladder locations, & downsout locations as per the roofing manufacturer's roofing warranty requirements.

9. Install roof drains in accordance with NRCA Roofing Manual. Install new accessories as required per original manufacturer.

10. Install through wall scuppers, conductor heads and downsout in accordance with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) and National Roofing Contractors Association (NRCA) Roofing Manual.

11. Install mechanical equipment with 12" minimum to top of curb from adjacent new roof membrane & provide 2-piece flashing. Adjust curbs as necessary to maintain minimum flashing requirements.
SECOND FLOOR HVAC PIPING PLAN - AREA B
FIRST FLOOR LIGHTING PLAN NOTES

1. OVERHEAD LIGHTING IN ATRIUM & OPEN STAIR ARE SHOWN ON THE SECOND FLOOR LIGHTING PLAN.

SCALE: 1/8" = 1'-0"
FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA C

KEY:

1. LOCATE HEAT DETECTOR WITHIN 2'-0" OF EACH SPRINKLER HEAD FOR CODE REQUIRED ELEVATOR RECALL.

2. LOCATE SMOKE DETECTOR IN THIS AREA. PROVIDE ALL NECESSARY RELAYS AND CONNECTIONS TO ELEVATOR CONTROLLER FOR CODE REQUIRED ELEVATOR RECALL. COORDINATE CONNECTION WITH THE ELEVATOR SUPPLIER/INSTALLER.

3. COORDINATE LOCATION OF RECEPTACLE WITH THE MECHANICAL CONTRACTOR FOR CONNECTION TO ELEVATOR PIT SUMP PUMP.

4. ALL DEVICES IN THE ELEVATOR SHAFT SHALL BE NEMA 4 RATED AND ALL CONDUIT SHALL BE GALVANIZED RIGID STEEL.

5. 2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.

6. CONNECTION AND CONTROLLER FOR THE OVERHEAD DOOR. COORDINATE CONNECTION WITH THE OVERHEAD DOOR SUPPLIER/INSTALLER.

SCALE: 1/4" = 1'-0"
1. Two gang box with single gang extension ring and blank cover for future use. Flush mount in wall at +18" AFF unless otherwise indicated. Route (1)-1" conduit from box, concealed up wall and stub above accessible ceiling in corridor. Bush conduit ends.

2. Surface mounted raceway. See the surface mounted raceway detail for additional information. Raceway to be mounted at height indicated on plans.
1. 2 gang box with single gang extension ring and blank cover for future use. Flush mount in wall at +18" AFF unless otherwise indicated. Route (1)-1" conduit from box, concealed up wall and stub above accessible ceiling in corridor. Bush conduit ends.

2. Surface mounted raceway. See the surface mounted raceway detail for additional information. Raceway to be mounted at height indicated on plans.

3. Provide 120V electrical connection to electric water cooler. Coordinate connection requirements with electric water cooler supplier/installer.