



HERMANSON EGGE  
ENGINEERING, INC.  
STRUCTURAL CONSULTING ENGINEERS

August 6, 2010

City of Rapid City  
300 6th Street  
Rapid City, SD 57701

Attention: City Council

Re: Request for Parking Determination  
Central High School Addition – Phase 2 Construction  
Rapid City, SD 57702  
HE Eng. Job # 08-067

Dear All,

We are requesting a parking determination for the Central High School parking lot renovation. The new and existing parking spaces are located within the Civic Center District. The existing school building and parking lot will be revised per the attached site plan. Phase 1 construction is on going and includes a new two story 9th grade pod, a new two story science lab building, and a new recreation/gymnasium addition. Phase 2 for the campus project includes new 36,000 SF theater and music support space. The completion date for phase 2 will be late spring of 2012. The completion date for Phase 1 is scheduled for April 2012. Both projects will be completed about the same time.

Request for Parking Determination on Phase 1 construction has already been approved by the city and is based on a letter dated May 5, 2010. This current Request for Parking Determination is for Phase 2 but will also include building additions from Phase 1 construction.

Base upon the information and the parking calculations below, we have determined that the proposed expansion will not require any additional parking to service this revised facility.

The existing facility usage conditions are as follows:

1. Number of existing staff and students
  - a. Faculty – 202 individuals @ 1.00 per faculty = 202 spaces required
  - b. Students – 1850 students @ .33 per student = 611 spaces required
2. Number of existing parking spaces
  - a. 1102 spaces
3. Existing use(s) of the facility:

- a. Option one (During normal school operations)
  - i. 202 faculty spaces + 611 student spaces = 813 spaces required
- b. Option two (after school activities occurring at the same time)
  - i. sporting events in existing gymnasium
    1. 2200 people (max capacity) x 0.33 = 726 spaces
  - ii. theater/art events
    1. 350 people (max capacity) x 0.33 = 116 spaces
  - iii. Total spaces required for this option
    1. 726 + 116 = 842 spaces required
- c. Option three (parent teacher conferences)
  - i. 600 parents (max) x 1.0 = 600 spaces plus 202 faculty spaces = 802 spaces required
- d. Option four (special school board meetings)
  - i. Gymnasium will be used
    1. 2200 people (max capacity) x 0.33 = 726 spaces
    2. School board members and required staff = 10 x 1.0 = 10 spaces
  - ii. School faculty – 202 x 1.0 = 202 spaces
  - iii. Total spaces required for this option
    1. 726 + 10 + 202 = 938 spaces required

The facility usage conditions, after the proposed Phase 1 and Phase 2 expansion is completed, are as follows:

1. Number of staff and students
  - a. Faculty – 202 individuals @ 1.00 per faculty = 202 spaces required
  - b. Students – 1850 students @ .33 per student = 611 spaces required
2. Number of parking spaces in reconfigured parking lot
  - a. 1102 spaces
3. Proposed use(s) of the facility:
  - a. Option one (During normal school operations)
    - i. 202 faculty spaces + 611 student spaces = 813 spaces required
  - b. Option two (after school activities occurring at the same time)
    - i. sporting events in existing gymnasium
      1. 2200 people (max capacity) x 0.33 = 726 spaces
    - ii. sporting events in the new gymnasium
      1. 400 people (max capacity) x .33 = 132 spaces
    - iii. Existing theater/art events
      1. 350 people (max capacity) x 0.33 = 116 spaces
    - iv. Total spaces required for this option
      1. 726 + 132 + 116 = 974 spaces required
  - c. Option three (after school activities occurring at the same time)
    - i. sporting events in existing gymnasium
      1. 2200 people (max capacity) x 0.33 = 726 spaces

- ii. sporting events in the new gymnasium
  - 1. 400 people (max capacity) x .33 = 132 spaces
- iii. Phase 2 theater/arts events
  - 1. 704 people (max capacity) x 0.33 = 233 spaces
- iv. Total spaces required for this option
  - 1.  $726 + 132 + 233 = 1091$  spaces required
- d. Option four (parent teacher conferences)
  - i. 600 parents (max) x 1.0 = 600 spaces plus 202 faculty = 802 spaces required
- e. Option five (special school board meetings)
  - i. Gymnasium will be used
    - 1. 2200 people (max capacity) x 0.33 = 726 spaces
  - ii. School board members and required staff =  $10 \times 1.0 = 10$  spaces
    - 1. School faculty –  $202 \times 1.0 = 202$  spaces
  - iii. Total spaces required for this option
    - 1.  $726 + 10 + 202 = 938$  spaces required

The proposed changes to the existing facility and operational plan statement:

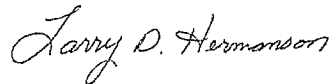
- 1. Proposed expansion to the existing building
  - a. Phase 1 - 168,000 SF
  - b. Phase 2 – 36,000 SF
- 2. Operational plan statement
  - a. Description of Phase 1 expansion project
    - i. 9th grade pod - This is a two story addition on the north side of the building. It includes 23 classrooms, a new entry way, support space and a new administration office.
    - ii. Science Lab Addition - This will be a two story addition on the north side of the building. It will include 10 new science lab classrooms and support space.
    - iii. Gym Addition - This is a single story gymnasium addition with new weight room, new wrestling room and support space.
  - b. Description of Phase 2 expansion project
    - i. 704 seat theater – this is a single story theater designed for the drama and music department at Central High School.
    - ii. Music Support Space – New orchestra room and addition space for the music and drama departments.

Based upon the information provided above, we can conclude that the maximum usage of parking at the existing facility will occur after the proposed expansion is completed and will occur during option three described above. The required number of spaces is 1091 and 1102 space are provided.

The proposed expansion will provide the necessary area to eliminate the overcrowding at the existing facility, and does not change the existing student or faculty population. Therefore, it is our conclusion that the revised parking lot configuration, with 1102 parking spaces, will provide adequate parking for the proposed expansion.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Larry D. Hermanson".

Larry D. Hermanson P.E.  
Hermanson Egge Engineering