CATEGORIES SERIES "A"
STRUCTURE MATRIX-BUILDING CONFIGURATION SPECIFIC

The building systems generally included in the Structure Matrix are:

2.1 Substructure
3.0 Structure
4.1 Enclosure Vertical
4.2 Enclosure Horizontal
4.3 Support Items
9.0 Conveying

For multi-story buildings and buildings below grade there are costs for vertical distribution (risers) which are appropriately included with the shell cost. Distribution from risers to point of use is included in the interiors cost. For this reason the following building systems are included in both Series A and Series B for multi-story and below grade buildings.

10.1 Plumbing and Fire Protection
10.2 HVAC
11.0 Electrical

Note that Parking Structures are all inclusive in the Series A Structure Matrix, the costs include structure and interior use.

VOICE AND DATA COMMUNICATIONS

The provisions for voice and data communications throughout the specifications include the following items. The risers (back bone) elements are included in the structure matrix. The outlets and cable connection to the risers are included in the Interiors Matrix. The installation to be in accordance with EIA, TIA Standards.

Structure Matrix (Series A):

- Entrance to building 4-4" conduits from main entrance terminal room to 5' line outside.
- Utility closets stacked above main entrance terminal room with 2-4" empty sleeves (fire stopped).
- Copper cable riser sized for # of outlets on each floor. Separate jacket for voice riser and for data riser (Spare capacity for risers needs to be considered).
- Fiber riser 12 multi mode fibers to each floor, 6 single mode fibers to each floor.
- Coax broad band riser to each floor (where coax outlets are specified).

Interior Matrix (Series B):

- Dual jack with 1" conduit to accessible ceiling space.
- Category 5 cable from jack to utility closet-terminal block 4 pair voice, 4 pair data for each dual jack (2 cables separate jackets).
- Cable above accessible ceiling to run in cable tray or an approved hanger.
- Coax broad band from outlet to riser in utility closet.

Fiber is not distributed to outlets in interior matrix. In special uses where fiber is required for research or graphics intensive applications it must be considered separately.
A-1 INSTITUTIONAL, ONE STORY, CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions usually shallow spread footings.

3.0 STRUCTURE:
- Non-combustible material or heavy timber may be bearing wall or structural columns nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- None.
A-1a INSTITUTIONAL, ONE STORY, CLASSROOMS/OFFICES, 16'-0" MIN. FLOOR TO STRUCTURE ABOVE

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions usually shallow spread footings.

3.0 STRUCTURE:
- Non-combustible material or heavy timber may be bearing wall or structural columns nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck. Minimum floor to underside of structure height 16'-0".

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- None.
A-2 INSTITUTIONAL, ONE STORY, HIGH BAY/LONG SPAN, FIELD HOUSES, GYMNASIUMS

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- None.
A-2a INSTITUTIONAL, ONE STORY, HIGH BAY/LONG SPAN, OPEN AREA INSTRUCTIONAL AND LABORATORY

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.
- Floor slab designed for vibration control.

3.0 STRUCTURE:
- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck. Designed for vibration control.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- None.
A-3 INSTITUTIONAL, TWO STORY, CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.

3.0 STRUCTURE:
- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.
- Second floor: Metal deck and concrete fill, fire treated wood.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.
2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.

3.0 STRUCTURE:
- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck. 16'-0" minimum height from finished floor to finished floor.
- Second floor: Metal deck and concrete fill, fire treated wood.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.
A-4 INSTITUTIONAL, MULTI-STORY, 3 THRU 5 STORIES CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings, piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible materials concrete of fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Floor Construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL:
- Communication back bone.
- Vertical power feeder distribution.

1/1/95
2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings, piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.
- Floor slab designed for vibration control.

3.0 STRUCTURE:
- Non-combustible materials, concrete or fire protected steel
- Structural columns: Beams and slabs designed for vibration control.
- Floor construction: Metal deck and concrete fill, concrete.
- Designed for vibration control. Minimum floor to floor height 16'-0".

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane, (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL
- Communication back bone.
- Vertical power feeder distribution.
A-4b INSTITUTIONAL, MULTI-STORY, 3 THRU 5 STORIES, CLASSROOMS/OFFICES, 16'-0" MIN. FINISHED FLOOR TO FINISHED FLOOR

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings, piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Floor construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane, (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL
- Communication back bone.
- Vertical power feeder distribution.

1/1/95
A-5 INSTITUTIONAL, MULTI-STORY, 6 THRU 10 STORIES, CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Floor construction: Metal deck and concrete.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire pump and fire protection risers.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL
- Communication back bone.
- Vertical power feeder distribution.
2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination or rock and soil.

3.0 STRUCTURE:
- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Structural columns, beams & deck spaced for integration of large span areas (auditoriums), 5 story or more high back stage areas, class room type and office type areas.
- Floor construction: Metal deck and concrete, sloped concrete in auditorium areas.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.
A-5b INSTITUTIONAL, MULTI-STORY, 6 THRU 10 STORIES, LABORATORY

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.
- Floor slab design for vibration control.

3.0 STRUCTURE:
- Non-combustible materials, concrete or fire protected steel, steel columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck). Structure designed for vibration control.
- Floor construction: Metal deck and concrete fill, or structural concrete system. Floor designed for vibration control.
- Minimum floor to floor height 16'-0".

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire pump and fire protection risers.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL
- Communication back bone.
- Vertical power feeder distribution.

1/1/95
A-6 INSTITUTIONAL, ONE OR TWO STORIES, BELOW GRADE, CLASSROOMS/OFFICES (WITH BLDG. ABOVE)

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.
- Retaining walls concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.

3.0 STRUCTURE:
- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).

4.1 ENCLOSURE, VERTICAL:
- Perimeter walls (may be bearing walls) masonry or concrete materials, with waterproofing, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), possibly located in light wells.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane, possibly earth covered.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.
A-6a  INSTITUTIONAL, ONE OR TWO STORIES, BELOW GRADE, LABORATORY (WITH BLDG. ABOVE)

2.1  SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.
- Retaining walls, concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.
- Floor slab designed for vibration control.

3.0  STRUCTURE:
- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck.
- Metal or concrete deck (may be composite deck).
- Floor slab and structure designed for vibration control. Minimum floor height 16'-0".

4.1  ENCLOSURE, VERTICAL:
- Perimeter walls (may be bearing walls) masonry or concrete materials, with waterproofing. Interior finish on exterior walls is included in this line item.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), possibly located in light wells.

4.2  ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane, possibly earth covered.
- Roof Insulation R Value = 30.

4.3  SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0  CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.
A-6b INSTITUTIONAL, ONE OR TWO STORIES, ENTIRELY BELOW GRADE, CLASSROOM/OFFICE (NO BUILDING ABOVE)

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.
- Retaining walls, concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.

3.0 STRUCTURE:
- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck.
- Concrete deck to support earth cover.

4.1 ENCLOSURE, VERTICAL:
- Perimeter walls (may be bearing walls) masonry or concrete materials, with waterproofing. Interior finish on exterior walls is included in this line item.
- Exterior doors, hollow metal or glass/aluminum, located in entrance/exit wells.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), located in light wells.

4.2 ENCLOSURE, HORIZONTAL:
- Special waterproof membrane with earth cover (landscaped above).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

Notes:

Landscaping is not included in cost matrix.

If pedestrian or vehicle paving is required above, extra cost is involved in both structure and material cost for horizontal enclosure which must be evaluated in each specific case.
A-7 RESIDENTIAL, ONE OR TWO STORIES

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE:
- Non-combustible material, or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or flat glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane, or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.
A-7a  RESIDENTIAL, ONE OR TWO STORIES, WOOD FRAME

2.1  SUBSTRUCTURE:
    - Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0  STRUCTURE:
    - Fire treated wood frame or masonry, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support fire treated wood deck.

4.1  ENCLOSURE, VERTICAL:
    - Exterior walls (may be bearing walls) masonry with stucco or fire treated wood, including interior finish on exterior walls.
    - Exterior doors, hollow metal or glass/aluminum.
    - Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
    - Wall R Value = 19.

4.2  ENCLOSURE, HORIZONTAL:
    - Roofing Built-up, single ply membrane, or shingle type (use added cost for decorative tile or standing seam metal).

4.3  SUPPORT ITEMS:
    - This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0  CONVEYING:
    - Elevator (hydraulic).
    - Stairs: Steel pan and concrete fill, steel rails.
A-8 RESIDENTIAL, 3 THRU 5 STORIES

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE:
- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck) heavy timber deck.
- Floor construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane, (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL
- Communication back bone.
- Vertical power feeder distribution.
2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible materials, concrete of fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck) heavy timber deck.
- Floor construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Fire pump and fire protection risers.
- Water supply and sewer trunks.

10.2 HVAC:
- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL
- Communication back bone.
- Vertical power feeder distribution.
A-10 PARKING STRUCTURE (TO 3 LEVELS)

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible materials, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal with concrete deck or concrete deck.
- Sloping floor concept.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, partial height, not including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum, if office area.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost) if office area.
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Concrete parking deck.

4.3 SUPPORT ITEMS:
- Entrance and Exist gates, with telephone.
- Allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

5.1 INTERNALS VERTICAL:
- Interior walls, if office area.

5.2 INTERNALS HORIZONTAL:
- Floor covering, if office area.

6.0 SPECIALTIES:
- Signage.

7.0 EQUIPMENT:
- Entrance and exit gates.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Parking deck/roof drainage.

11.0 ELECTRICAL
- Lighting.
- Power at gates.
- Telephone outlets.

1/1/95
A-11 PARKING STRUCTURE (4 TO 5 LEVELS)

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:
- Non-combustible materials, or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal with concrete deck or concrete deck. Sloping floor concept.

4.1 ENCLOSURE, VERTICAL:
- Exterior walls masonry or concrete materials, partial height, not including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum, if office area.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost) if office area.
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Concrete parking deck.

4.3 SUPPORT ITEMS:
- Entrance and Exit gates, with telephone.
- Allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

5.1 INTERNALS VERTICAL:
- Interior walls, if office area.

5.2 INTERNALS HORIZONTAL:
- Floor covering, if office area.

6.0 SPECIALTIES:
- Signage.

7.0 EQUIPMENT:
- Entrance and exit gates.

9.0 CONVEYING:
- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Parking deck/roof drainage.

11.0 ELECTRICAL:
- Lighting.
- Power at gates.
- Telephone outlets.
A-12 PARKING STRUCTURE, ONE OR TWO STORIES, BELOW GRADE

2.1 SUBSTRUCTURE:
- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Retaining walls, concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.

3.0 STRUCTURE:
- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal with concrete deck or concrete deck.
- Sloping floor concept.

4.1 ENCLOSURE, VERTICAL:
- Perimeter walls (may be bearing walls) masonry or concrete materials with waterproofing. (Not including interior finish on exterior walls).
- Doors, hollow metal or glass/aluminum, if office area.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), possibly located in light wells.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing built-up, single ply membrane, possibly earth covered.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- Entrance and Exit gates, with telephone.
- Allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

5.1 INTERNALS VERTICAL:
- Interior walls, if office area.

5.2 INTERNALS HORIZONTAL:
- Floor covering, if office area.

6.0 SPECIALTIES:
- Signage.

7.0 EQUIPMENT:
- Entrance and exit gates.

9.0 CONVEYING:
- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:
- Parking deck drainage.

10.2 HVAC:
- Exhaust.

1/1/95
11.0 ELECTRICAL
- Lighting.
- Power at gates.
- Telephone outlets.
A-13 PRE-ENGINEERED BUILDING/GREENHOUSE (550-1132 SF)

2.1 SUBSTRUCTURE:
- Slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE - STEEL, RIGID FRAME:

4.1 ENCLOSURE, VERTICAL:
- Exterior walls sill height approximately 3'-0", masonry or concrete materials. (Not including interior finish on exterior walls).
- Exterior doors, hollow metal or glass/aluminum.
- Glazing: 1/4" tempered glass.

4.2 ENCLOSURE, HORIZONTAL:
- Glazing: 1/4" tempered glass.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- None.
2.1 SUBSTRUCTURE:
   - Slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE - STEEL, RIGID FRAME:

4.1 ENCLOSURE, VERTICAL:
   - Exterior walls sill height approximately 3'-0", masonry or concrete materials. (Not including interior finish on exterior walls).
   - Exterior doors, hollow metal or glass/aluminum.
   - Glazing: 1/4" tempered glass.

4.2 ENCLOSURE, HORIZONTAL:
   - Glazing: 1/4" tempered glass.

4.3 SUPPORT ITEMS:
   - This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
   - None.
A-15 PRE-ENGINEERED METAL BUILDING/WAREHOUSE

2.1 SUBSTRUCTURE:
- Slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE - STEEL, RIGID FRAME:

4.1 ENCLOSURE, VERTICAL:
- Exterior walls, metal siding furred out (including interior finish on exterior walls).
- Exterior doors, hollow metal.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:
- Roofing, metal with insulation.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:
- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:
- None.