

Construction Activities
and Methods of Generic
Applicability to All
Building Groups –
Material of Construction

June 10, 2009

Vienna Austria



IAEA
Atoms for Peace

Material and Construction

- ✓ Material Transport- Use of light-weight materials ease the movement and placement of components and lighten preassembled skids and modules. Module sizes and content can be increased, lowering the ultimate number of construction activities required in-situ.
- ✓ Erosion, corrosion, galvanic action, stress cracking, pitting, thermal weakening, and radiation-induced degradation all play roles in the design, selection and advancement of materials used in construction.

Material and Construction

- ✓ **Material Issues/selection -**
 - Chemistry impact on Alloy 600 which resulted in using thermally treated Alloy 690 (i.e. Steam Generators)
 - Intergranular Stress Corrosion Cracking (IGSCC)
 - Embrittlement of steel which lower its strength.
- ✓ **Welding- Metallurgical properties of steels and advanced alloys have on welding processes and operational performance.**

Material and Construction

- ✓ Construction tools and handling rigs also impact construction efficiency. Such tools include a full range of sizes and purposes, from hand tools to large lifting rigs and cables. Reducing the weight and increasing performance and safety of construction tools has a direct impact on construction efficiency and cost.
- ✓ Training and familiarization of the labor force with use and application will reduce errors, design deficiency, and schedule improvement.

Material and Construction

- ✓ Ease of access to material
- ✓ Material lay-down facility and Inspection
- ✓ Quality Oversight of Material fabrication
- ✓ Off-site fabrication facilities
- ✓ Earth moving equipment
- ✓ Pipe bending machines

Material and Construction

- ✓ Crane and rigging equipment
- ✓ Optical and alignment equipment
- ✓ Automatic rebar assembly machine
- ✓ Scaffolding/hydraulic man-lifts
- ✓ Automatic welding machines
- ✓ Construction site monitoring and communication